Masahiro Kawai · Mario B. Lamberte
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Reform of the International Monetary System

An Asian Perspective

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ISBN 978-4-431-55033-4 ISBN 978-4-431-55034-1 (eBook)
DOI 10.1007/978-4-431-55034-1
Springer Tokyo Heidelberg New York Dordrecht London

Library of Congress Control Number: 2014942557

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

The 2007–2009 global financial crisis and its aftermath, including the sovereign debt and banking crisis in Europe, are key drivers of the current policy debate on the international monetary system. The global financial crisis began in the United States (US), which is the largest and most central economy in the world and home to the world's most sophisticated and developed financial system and the most dominant global reserve currency—the dollar. The financial crisis spread to the eurozone, where the sovereign debt crisis affected the health of the banking system, and the viability of the single currency, the euro, is in doubt. As with the Lehman Brothers' shock in September 2008, a further acceleration of the eurozone crisis may have significant negative spillover effects on many emerging economies, including those in Asia.

Therefore it is not surprising to see that the global financial crisis and the eurozone crisis have generated many important discussions regarding the function and effectiveness of the international monetary system. One area of debate surrounds the search for alternative international reserve currencies to supplement the role of the US dollar as the preeminence of the United States in the global economy is being gradually eroded. A second question relates to the management of monetary and currency policy in the presence of large and volatile capital flows, particularly in emerging economies. A third issue is the need for a global financial safety net and the role that regional financing arrangements can play in it. A fourth topic is the need for institutional support mechanisms, including fiscal policy coordination and bank supervision, regulation and supervision, to make a common, single currency system for the euro viable. A fifth important question is the value of soft currency cooperation at a regional level where economies are highly interdependent, as in the case of Asia.

The global financial crisis has cast doubt about the future role of the US dollar as the dominant reserve currency. Despite the fact that the crisis originated in the United States, the value of the dollar stayed stable and even appreciated in the short run because of the high global demand for dollar liquidity. However, fears have emerged that the large size of public debt in the United States—created as a result of fiscal stimulus, financial sector support, and bailouts of automobile and other

firms—could eventually bear on the country's ability to service public debt and that continued ultra-easy monetary policy by the US Federal Reserve could lead the US dollar to depreciate. Since mid-2013, concerns have arisen over the possible destabilizing impact on emerging economies of the tapering of quantitative easing by the US Federal Reserve.

In the longer run, the global economy appears to be heading towards a multipolar currency system, centered on the US dollar, the euro, and an Asian currency. For the euro to remain a viable global currency, the eurozone system must be supported by new institutional arrangements, including a strong fiscal policy coordination framework, a banking union, effective crisis management mechanisms, a well-funded European Stability Mechanism and the European Central Bank as the fully-fledged lender of last resort. In Asia, it is not clear whether a national currency, such as the yuan or the yen, or a basket of currencies, will emerge as the region's major anchor currency, but there is no doubt that the yuan will play an increasingly important role in the evolving international monetary system.

This volume brings together studies that address aspects of reform of the international monetary system noted above. The studies were originally prepared for the conference on reform of the international monetary system hosted in 2011 by the Asian Development Bank Institute (ADBI). Many of the studies have a specific focus on Asia, while others address such diverse areas as the implications of the eurozone crisis, reforms of the international monetary system, and cooperation of regional and global safety nets. Given that the period of monetary policy reversals amid sluggish growth in the major developed economies is likely to persist for some time, these conditions will tend to create large-scale capital flow volatility in Asian and other emerging economies. Therefore, the topics covered in the book are both urgent and timely.

The volume consists of nine chapters, including an overview chapter. The eight analytical chapters are organized into five parts. Part I provides an overview of issues related to the reform of the international monetary system. Part II is devoted to issues on managing capital flows in emerging economies, focusing on the trilemma of international finance. Part III discusses policy choices for Asian currency cooperation. Part IV examines issues related to regional financial cooperation and financial safety nets, including a discussion of policy in the eurozone. Finally, Part V covers linking of regional and global initiatives. The chapters, though initially prepared in 2011, have been subsequently updated for inclusion in the volume.

As coeditors, we are first and foremost grateful to the authors of the individual chapters for providing high quality analyses of policy issues related to reform of the international monetary system that are so relevant to the Asia and the Pacific region today. Our thanks are also due to many whose assistance has made the production of this volume possible. Asel Karamuratova assisted with the final preparation of the manuscripts. Ainslie Smith was chiefly responsible for the final editing. Last, but not least, able ADBI support staff, especially Noriko Mita, Motoko Shibata, and Yumiko Nagami, provided invaluable logistical support to the 2011 conference

where the chapters were initially presented. It is our sincere hope that this volume will contribute to the ongoing debate on reform of the international monetary system in the postcrisis environment and become part of our collective efforts to support sustainable growth in Asia.

Tokyo, Japan — Masahiro Kawai
Makati City, Philippines — Mario B. Lamberte
Tokyo, Japan — Peter J. Morgan

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Yongding Yu is academician, Chinese Academy of Social Sciences (CASS), Beijing, the People's Republic of China (PRC). He is a member of the Advisory Committee of National Planning of the National Development and Reform Committee of the PRC and of the Advisory Committee of Foreign Policy of the Ministry of Foreign Affairs of the PRC. He was director-general of the Institute of World Economics and Politics with the CASS (1998–2009) and member of the Monetary Policy Committee of the People's Bank of China (2004–2006). He received his D.Phil. in economics from the University of Oxford.

Abbreviations

ABF	Asian Bond Fund
ABMI	Asian Bond Markets Initiative
ACU	Asian Currency Unit
ADB	Asian Development Bank
AFSD	Asian Financial Stability Dialogue
AIMO	ASEAN Integration Monitoring Office
AMF	Arab Monetary Fund
AMRO	ASEAN+3 Macroeconomic Research Office
ASA	ASEAN swap arrangement
ASEAN	Association of Southeast Asian Nations
ASEAN 5	The original five members of ASEAN: Singapore, Indonesia, Malaysia, Thailand, Philippines
ASEAN+3	ASEAN members, plus the PRC, Japan, and Republic of Korea
BBC	Band, basket, and crawl
BIBF	Bangkok International Banking Facilities
BIS	Bank for International Settlements
BOCHK	Bank of China, Hong Kong, China
BRICs	Brazil, Russian Federation, India, and the PRC
CGIF	Credit Guarantee and Investment Facility
CMI	Chiang Mai Initiative
CMIM	Chiang Mai Initiative Multilateralization
CMIM-PL	CMIM Precautionary Line
CNY	Yuan
CPI	Consumer price index
EAS	East Asia Summit
ECB	European Central Bank
ECU	European currency unit
EDP	Excessive debt procedure
EFSF	European Financial Stability Facility
EFSM	European Financial Stabilization Mechanism
EMEAP	Executives' Meeting of East Asia and Pacific Central Banks

EME	Emerging market economy
EMP	Exchange market pressure
EMU	European Monetary Unit
ERM	Exchange rate mechanism
ERPD	Economic Review and Policy Dialogue
ESM	European Stability Mechanism
EU	European Union
EUBPF	EU Balance of Payments Facility
FCL	Flexible credit line
FDI	Foreign direct investment
FEER	Fundamental equilibrium exchange rate
FLAR	Latin American Reserve Fund
FoBF	Fund of Bond Funds
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSF	Financial Stability Forum
FTA	Free trade agreement
G20	Group of Twenty
G7	Group of Seven
GDP	Gross domestic product
GFSN	Global financial safety net
GSM	Global Stabilization Mechanism
HAPA	High Access Precautionary Arrangements
IFI	International finance institution
IMF	International Monetary Fund
L-MF	Lane and Milesi-Ferretti
MAP	Mutual Assessment Process
MERCOSUR	Common Market of the South
NAFA	North American Framework Agreement
NAFTA	North American Free Trade Agreement
NIE	Newly industrialized economy
OMT	Outright monetary transaction
PBOC	People's Bank of China
PCL	Precautionary credit line
PRC	People's Republic of China
RFA	Regional financial arrangement
SCIMF	Sub-Committee on the International Monetary Fund
SDR	Special drawing rights
SGP	Stability and Growth Pact
SIC	Systemically important country
SLL	Short-term liquidity line

TFEU	Treaty on the Functioning of the European Union
UK	United Kingdom
US	United States
WTO	World Trade Organization

In this report, "$" refers to US dollars, unless otherwise stated.

Chapter 1
Reform of the International Monetary System: Introduction and Overview

Masahiro Kawai and Peter J. Morgan

Abstract This chapter provides an overview of the issues related to reform of the international monetary system in light of experiences during the global financial crisis of 2007–2009 and related developments, particularly the eurozone sovereign debt and banking crisis, with a focus on the implications for Asian economies. Contributions by various international experts are presented focusing on topics covering policy reforms on how to develop balanced policy frameworks that support currency stability, monetary policy independence, and an increasing degree of financial openness, and how to build robust, resilient financial systems that can serve the interests of the real sector in a stable manner and absorb shocks coming from volatile capital flows and global financial turmoil. The thematic topic areas covered include (i) international monetary system reforms, (ii) managing international capital flows, (iii) Asian currency arrangements, (iv) regional financial cooperation, and (v) linking regional and global initiatives.

Keywords Capital flows • Currency cooperation • Currency stability • Global financial safety nets • Monetary cooperation

1.1 Introduction

The global financial crisis of 2007–2009 and its aftermath have led to much debate about the shortcomings of the international monetary system and possible reforms. These perceived shortcomings include excessive reliance on the US dollar as the key international reserve currency, which led to liquidity shortages even in

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_1,

countries whose economic and financial fundamentals were sound; weakness of global economic and financial surveillance to identify emerging economic and financial vulnerabilities in systemically important economies; lack of an international framework for dealing with volatile international capital flows and currency movements in a period of ultra-easy monetary policies adopted by major developed economies; and an inadequate global financial safety net to contain rapid and steep exchange rate depreciations in affected economies.

The key issues analyzed in this book are the reforms and innovations that are needed to improve the international monetary and financial system to promote financial stability and sustainable economic growth for emerging economies. The chapters are divided into the following thematic areas: (i) international monetary system reforms; (ii) managing international capital flows; (iii) Asian currency arrangements; (iv) regional financial cooperation; and (v) linking regional and global initiatives.

1.2 International Monetary System Reforms

In Chap. 2, Yung Chul Park and Charles Wyplosz review some of the current issues and debates on the international monetary system, including the role of the US dollar and possible competitors as international reserve currencies, the background and merits of capital controls in a new global financial environment, future prospects of regional monetary arrangements, the prospect of increased use of swap agreements among central banks, and the role of the Group of Twenty (G20) leaders' summit process. They note that globalization and the rise of emerging markets are bringing to the forefront issues and changing the balance of power in an international monetary system that retains the imprint of the Bretton Woods Conference of 1944. The financial crises in the United States (US) and Europe have also brought a new impetus for change.

Regarding the future role of the US dollar as the international reserve currency, they conclude that, despite its deficiencies, it will remain dominant for some time. Gold no longer serves as a currency, and other international currencies have major shortcomings. The eurozone sovereign debt and banking crisis undermined the attractiveness of euro assets as international reserves, the role of the yen is declining, and the US bond market remains unrivalled in terms of depth and liquidity. At this stage, neither the yuan nor the Indian rupee are fully convertible, and the capital markets in the People's Republic of China (PRC) and India are still relatively closed. Some scholars have proposed an increased role for special drawing rights (SDR) as a reserve currency, but they note that SDRs simply represent a draw on the underlying currencies that make them up, and that central banks of the reserve currency countries are unlikely to agree to open-ended commitments to print their currencies without their control.

Park and Wyplosz review the background and merits of capital controls in the new global financial environment. Talks about an impending currency war have

attracted attention once more to potentially disrupting capital flows. Exchange rate overvaluation is often followed by sudden stops and destructive reversals. A long tradition has called for the use of capital controls to discourage capital movements that are driven by herd behavior as opposed to economic fundamentals (Eichengreen et al. 1995). The International Monetary Fund's (IMF) position on capital flow management, previously seen as hostile, has changed, as was seen at the G20 Summit in Seoul in November 2010. Refining capital flow management instruments, and making them better attuned to present day markets, may bring further changes to the conventional wisdom. The G20 could play a central role in coordinating surveillance of and policy responses to capital flows.

Park and Wyplosz also discuss future prospects of regional monetary arrangements or financial safety nets. The 2007–2009 global financial crisis dimmed much of the earlier hope that the Chiang Mai Initiative Multilateralization (CMIM) arrangement would become operational. It is clear that deep regional monetary integration is more difficult than has been officially recognized so far. Another set of questions relates to what type of links between regional monetary institutions and the IMF would be appropriate and how their activities could be coordinated to consolidate and improve the efficiency of a global safety net. The G20 may need to undertake a review of the size and operational details of the CMIM together with its links with the IMF to determine whether it could be an effective regional mechanism. They also examine the prospect for increased use of swap agreements among central banks. Swap agreements existed before, and they were activated on a wider scale than previously in the aftermath of the collapse of Lehman Brothers in 2008. They were particularly important in light of the reluctance of many countries to borrow from the IMF because of "stigma" concerns about IMF conditionality. The question is how to institutionalize such agreements. The swaps could be permanent agreements or they could be activated in times of emergency along an agreed-upon template. On the other hand, unlimited swaps raise serious moral hazard issues. This moral hazard issue could be addressed via a process of prequalification for unlimited swap access similar to the IMF's recent new loan facilities.

Finally, they discuss the creation in 2008 of the G20 leaders' summit and the role it can play in fostering global economic and financial stability. For the G20 to matter, it should be able to ensure that the systemically important countries such as the US adopt appropriate strategies if and when their economic and financial situations become a threat to global stability. The experience with the G20 so far confirms that soft coordination is unlikely to be effective. Growing interdependence implies that the externalities are becoming more numerous and more sizeable, and therefore enhances the case for policy coordination. They argue that effective coordination means that individual countries would accept to carry out policies that they would not choose otherwise. This can be in their best interest because of externalities, but internalization is often perceived as a loss of sovereignty.

In conclusion, Park and Wyplosz argue that few current reform proposals are appealing to both developed and emerging economies alike. Even countries such as France that have been at the forefront of leading the reform movement are no longer as vocal as they were before. Paradoxically, the dollar's role as the dominant

reserve currency has been reinforced as the eurozone economies are struggling to keep the single currency arrangement alive and the talk of elevating the status of SDRs has not proceeded. However, one result of recent developments is that the IMF has made progress in bringing itself back onto the center stage of global macroeconomic management. Park and Wyplosz argue that the future of the international monetary system will depend on the prospects for recovery in the eurozone. If the eurozone economies emerge from the crisis with regained competitive strength, the momentum for reform of the international monetary system and the need for the G20 process will dwindle and the world currency arrangement and economic management will be shaped by a three-polar system consisting of the US, the PRC, and the eurozone. However, if the eurozone crisis is prolonged, both developed and emerging economies will have to turn to the G20 summit as the only international forum where they could agree on what is to be done, although few of their decisions will be enforceable.

1.3 Managing International Capital Flows

Policy perspectives on international capital flows have shifted markedly over time. Since the 1980s developing countries have been urged to deregulate their financial markets and encourage international capital flows. The flows were seen as beneficial and any attempts to control them were seen as largely futile. The 1997–1998 Asian financial crisis should have modified this mindset. There were many issues involved, but the huge inflow of capital beforehand led to unsustainable macroeconomic and financial imbalances that unwound during the crisis, and the adjustment to these imbalances left a legacy of lost output, financial sector problems, and ongoing distortions to policy. To the extent that the policy message changed, however, it focused on the desirability of floating exchange rates as the buffer that would ensure the benefits of capital flows.

In Chap. 3, Stephen Grenville looks at the response of the East Asian emerging economies to the 1997–1998 Asian financial crisis and the impact this had on capital flows, including in economies that were not directly affected by the crisis. He first tracks the changing view on capital flows, particularly in the IMF, the motivations for capital flows (mainly the intrinsic differences of profitability between emerging and mature economies) and the data on flows. He then reviews the widely accepted set of benefits associated with capital inflows, and finds that these are largely irrelevant in the context of East Asia. Finally, he offers a tentative outline of a different approach, in which capital flow management might figure more prominently.

Grenville notes that the shift of the policy mindset back in favor of capital flow management raises a number of difficult policy options that were not considered previously. Are some of the components of inflows more beneficial than others and are some components more amenable to management? What instruments are

effective in managing flows? How will international tensions be resolved where there is conflict between different country managements?

The case for free capital flows traditionally was based on the following arguments: foreign direct investment brings technology and managerial skills; funding for investment can be obtained in larger volume and more cheaply; consumption smoothing occurs in the face of adverse shocks; risk is spread and portfolio diversification can occur; and it provides discipline for macroeconomic policy. However, in practice these advantages look much less compelling. First, when countries' savings exceed investment, domestic funding is already sufficient. Second, a lower cost of funds may interfere with the appropriate level of the domestic monetary policy rate. Third, the procyclicality of capital flows may exacerbate domestic economic and financial cycles, thereby threatening financial stability.

Grenville argues that there are strong reasons to expect that capital flows will increase over time. On top of the structural interest rate differentials reflecting higher growth rates in emerging economies compared with developed economies, the cyclical differences are likely to become stronger. He argues that Europe, Japan, and the US are likely to experience continuing low policy interest rates for some years, while, if the emerging economies maintain their growth, higher policy rates will be needed to offset inflation pressures. The institutional infrastructure of emerging economy financial markets will develop more depth to facilitate extra flows, market information will improve, and credit rating agencies will reduce their bias against emerging economies. The primary advice routinely given to emerging economies is to maintain strong macroeconomic policies, which will help cope with any reversals. However, the stronger their policies, the more attractive these economies will be for foreign investors and the greater likelihood that excessive inflows will be experienced.

Grenville's proposed alternative approach starts with the assumption that capital flows may be attracted because of interest differentials that are both structural (that is, long lasting) and substantial, not just temporary, as the IMF view implies. At the macroeconomic level, currency policy should allow the exchange rate to move more flexibly and symmetrically in response to changes in the current account balance. He also suggests two capital flow measures: first, a withholding tax that approximates domestic tax rates; and second, a Brazilian style tax on portfolio and banking flows, with a maximum rate equal to the difference between the domestic and foreign policy interest rates.

He argues that such a framework would make emerging economies more confident to open their external accounts, allowing real and financial inflows and fostering the deeper financial infrastructure that accompanies these flows. The strategies proposed by Grenville could provide a stronger basis for encouraging flows than either the policies of reserve accumulation, or the partial, tentative, and half-hearted capital-management responses advocated in recent IMF studies.

Facing a fragile recovery of the world economy from the global financial crisis of 2007–2009, policymakers around the globe are contemplating what would be an optimal mix of open macroeconomic policies that are effective enough to guide their economies to stable and sustainable economic development. In Chap. 4,

Hiro Ito and Masahiro Kawai argue that the world economy is still full of unstable factors.

In particular, whether they deteriorate or recover, circumstances in developed economies can rapidly change the direction of international capital flows, possibly causing disruptions in the capital markets of emerging economies. Therefore, policymakers in emerging economies must consider what macroeconomic policy mix can minimize the impacts of global instability on their economies and sustain stable economic growth. Ito and Kawai address this issue using the hypothesis of the "impossible trinity," or "trilemma," a constraint faced by policymakers in an open economy setting. This hypothesis states that a country may simultaneously choose any two, but not all, of the three goals of exchange rate stability, financial market openness and monetary policy independence to the full extent.

Aizenman et al. (2008) developed a set of trilemma indexes that measure the degree of achievement of the three policy choices for a wide coverage of countries and periods. Using the indexes, they empirically supported the hypothesis by showing that the three measures of the trilemma are linearly related to each other. Although the indexes developed in Aizenman et al. (2008) cover many countries and years, the approaches they employed to get wide country coverage may have sacrificed some nuances, potentially exposing the metrics to debate. Ito and Kawai develop a set of new and more refined indexes that measure these policy choices that address some of the weaknesses in the approach of Aizenman et al. (2008). However, they note that efforts of aiming for a higher level of refinement for the indexes come with a cost; the coverage of countries is smaller.

Ito and Kawai test the trilemma hypothesis by examining whether the sum of the three indexes statistically equals the value two, the value predicted by the hypothesis. They found statistical evidence for the sum of the three indexes being equal to two, particularly for middle- and low-income economies and emerging economies. This finding supports the view that monetary authorities do face the trilemma constraint in setting open macroeconomic policies.

Ito and Kawai present the evolution of the economies' policy mixes on the well-known trilemma triangle. In particular, they show that the PRC has not moved much toward exchange rate flexibility and capital market openness and that the Association of Southeast Asian Nations (ASEAN) economies still have room to open their financial markets further, moving away from their current policy preferences of maintaining relatively high levels of monetary policy independence and exchange rate stability with limited financial market openness.

They conclude that, while the sum of the newly defined indexes must add up to the value two theoretically, in reality it can deviate from two in the short term. However, the trilemma hypothesis suggests that a policy combination that creates a large and persistent deviation from two is unsustainable, and, hence, should be corrected by economic disruptions such as a financial crisis or by policy changes that eliminate such a deviation. Ito and Kawai argue that their new trilemma indexes could be used to identify the extent to which a country's policy mix is unsustainable.

1.4 Asian Currency Arrangements

Economic integration in Asia has evolved differently than in Europe. In Europe, economic integration was driven by a top down approach through coordinated initiatives and the creation of regional institutions with the objective of forging a united front across various countries. The creation of the euro was a key example of this. In contrast, in Asia, market forces largely have driven economic integration. Currency policy coordination in Asia, to the extent it exists, has also largely been ad hoc. However, the emergence of the yuan as a potential key regional and global currency and increasing economic integration in the region provide incentives for greater regional currency cooperation.

In Chap. 5, Yongding Yu examines the progress of yuan internationalization since 2009. As the world's second largest economy and largest trading nation, the PRC needs a currency that can match its economic status in the global economy. While many PRC economists support the internationalization of the yuan as a long-term goal, worries about the possible negative impact of the current push for yuan internationalization on the country's financial stability and welfare have emerged. Yu finds that the PRC does not yet have a viable road map for yuan internationalization and argues that the policy in the short term should focus on more urgent challenges such as the needs to reform its exchange rate regime and liberalize domestic interest rates.

Yu first surveys the literature on the definition and characteristics of an international currency and the degree to which the yuan fulfills them. He starts with the standard view that an international currency should be a store of value, a medium of exchange, and a unit of account for both residents and nonresidents, and for both official and private sectors. Yu also emphasizes the importance of the distinction between the roles of invoicing and settlement, arguing that the former is more important than the latter for an international currency.

Next he analyzes the purported benefits to the PRC of yuan internationalization. These include reducing exchange rate risk, reducing trade transaction costs, improving the funding efficiency and international competitiveness of the PRC's financial institutions, and reducing the need for the PRC to hold dollar assets.

He then describes and assesses the PRC's road map of yuan internationalization, examines its progress, and discusses the relationship between yuan internationalization and capital account liberalization. Yuan internationalization started with the promotion of the use of the yuan for settling imports from Hong Kong, China. However, he notes that when trade is settled in yuan, it is not necessarily invoiced in yuan. In the PRC's road map, promoting the use of the yuan as invoicing currency has rarely been explicitly discussed. Yu argues that the PRC's objective seems to be to increase holdings of yuan assets in Hong Kong, China and other offshore centers, and to create a return flow mechanism. However, the question of how the yuan will play the role of a denominating currency for international financial assets has not been explicitly addressed in the PRC's roadmap. He concludes that there are too many missing links in the road map, and

the yuan's journey could be bumpy and may not end up at the planned destination. Yu highlights that yuan internationalization since 2010 has shown a clear pattern of asymmetry—the use of the yuan as an import settlement currency rose quickly, but not for exports. Yuan denominated bonds met strong demand, yet nonresidents had no incentive to issue them. And, while Hong Kong, China banks are happy to extend yuan loans, they are not welcome by borrowers. This asymmetry partly reflected yuan appreciation expectations, but also opportunities for exchange arbitrage between the onshore and offshore markets as a result of the relatively closed capital account. Significantly, these developments have perversely led to a further increase in foreign reserve holdings, the opposite of what was intended.

The internationalization of the yuan requires liberalization of the capital account and yuan convertibility. Yu argues that, due to the fragility of the domestic financial system and its lack of attractive financial instruments, the PRC's liberalization of the capital account and hence the internationalization of the yuan must proceed in a gradual fashion. Yuan internationalization should be a natural course of economic development and capital account liberalization. To push yuan internationalization in an artificial way would be counter-productive. Policies aimed at promoting yuan internationalization should not be based on the assumption of yuan appreciation. Otherwise, internationalization will not be sustainable.

Yu concludes that the PRC's growing economy and trade volume are favorable conditions for currency internationalization. However, other conditions, such as the existence of deep and liquid financial markets, have not been met. To create conditions for the internationalization of the yuan, the PRC government should encourage financial markets to play an increasingly important role. Also, correct sequencing is important. Without first establishing domestic financial reform, that is, market-determined interest rates and exchange rates, yuan internationalization could easily go astray. Only when the PRC's financial reform makes an important breakthrough, can the internationalization of the yuan make meaningful progress.

In Chap. 6, Abhijit Sen Gupta argues that the rising interdependence among Asian economies makes it paramount to ensure a degree of exchange rate stability among the Asian economies. However, this will be challenging in a global environment that has been increasingly volatile since the US subprime mortgage crisis in 2007. The lure of developing Asia's strong fundamentals along with the uncertainty in the global environment will lead to increased volatility in capital flows. In this context, greater exchange rate flexibility vis-à-vis the developed economies will help economies to maintain macroeconomic and financial stability. Thus Asian economies could gain from pursuing a strategy whereby they maintain relatively stable exchange rates within the region and allow greater flexibility against extra-regional currencies. This would require a certain degree of exchange rate policy coordination (Kawai 2010).

Gupta notes that one way to achieve greater exchange rate coordination is to have a regional currency as the anchor. Given the size of their economies, Japan and the PRC could possibly take on this role. However, Japan has been suffering from

stagnant growth, while the PRC's capital account is not sufficiently open for the yuan to play such a role.

An alternative approach is to establish a currency basket as a reference exchange rate. Gupta reviews the literature that proposes an Asian currency unit (ACU) comprising a basket of 13 regional currencies—the ten members of ASEAN, the PRC, Japan, and the Republic of Korea (Kawai and Takagi 2005; Ogawa and Shimizu 2005; Girardin and Steinherr 2008). Such a basket would help to monitor the collective movement of the participating currencies compared with external currencies as well as the movement of the individual currencies compared to the regional benchmark. The regional benchmark could also be used to denominate regional assets and transactions such as bonds, loans, bank deposits, and foreign exchange deposits.

The theory of an optimum currency area argues that economies that are affected by shocks in a symmetric manner should form a common currency area (Mundell 1961). Economies facing asymmetric shocks can also attempt to form a common currency area, if there is a sufficient degree of price flexibility and high labor and capital mobility to ensure that there are no persistent pockets of unemployment. Other criteria include similarity of preferences regarding trade-offs between output and inflation and provision of supporting policies like fiscal transfers. However, some of the traditional prerequisites for establishing a common currency area can develop after economies have established a currency area by fixing their exchange rates. The establishment of a common currency area can lead to an increase in the degree of economic integration as well as symmetry of economic shocks.

Gupta finds that economic fundamentals suggest that some economies in Asia are more suited to undertake greater exchange rate coordination. Greater exchange rate coordination helps in significantly reducing transaction costs involved with international trade as well as reducing exchange rate uncertainty and the scope of speculation on changes in bilateral exchange rates that can result in instability in foreign exchange markets with negative effects on economies' internal and external balances. But such coordination also involves the cost of imposing constraints on monetary policy, which is an important tool for stabilizing the economy.

Gupta constructs an ACU for 15 economies (the above 13 economies plus Hong Kong, China and India), using weights assigned are based on the average of the individual economy's share in regional gross domestic product (GDP) measured at purchasing power parity, intraregional trade, and intraregional investment. He uses this to estimate deviations of both nominal and real exchange rates from the ACU, and then constructs a measure of average weighted deviations of the member economies. Using statistical tests, he finds some mixed evidence of convergence for both nominal and real exchange rate deviations in specific periods, but convergence is rejected looking at the entire period from 2000.

He believes that this lack of convergence primarily reflects the different exchange rate regimes followed by these economies. Using the Frankel-Wei methodology, he finds that, while the smaller members along with the PRC have maintained a close peg with the US dollar, other economies such as Singapore, the Republic of Korea, and Indonesia have reduced the linkage with the dollar.

He argues that it is important to reduce the divergence among the various exchange rate regimes to move towards a path of exchange rate convergence. The most realistic option would be the adoption of a managed float regime that will stabilize intraregional exchange rates and at the same time provide flexibility against external currencies.

Gupta concludes that the introduction of an ACU as a parallel currency, while providing the benefits of exchange rate coordination, will alleviate the costs by allowing some degree of monetary policy autonomy. The monitoring of an ACU and the deviation of the participating currencies from this regional benchmark can play an important role in the regional surveillance process. An ACU could also act as a benchmark to initiate policy dialogue on greater exchange rate coordination.

1.5 Regional Financial Cooperation

In Chap. 7, Stefan Collignon argues that the European sovereign debt and banking crisis is due partly to fundamental economic developments, such as growth and competitiveness, and partly to uncooperative behavior between policymakers of the major countries in Europe. One of the paradoxes of this crisis is that, despite all its problems, the euro has remained relatively stable both internally (inflation) and externally (exchange rate value). Financial markets may be concerned about some parts of the euro area, mainly in the south, but they still see the euro as a major currency in the world. However, the euro will only maintain this role if European governments can get the crisis under control. Whatever the ultimate conclusion of the drama, the experience has shown that Europe needs a much tighter form of economic governance if it wants to live up to the ambition of providing an alternative reserve currency. While a series of events has progressively deepened the European debt crisis, it is important to distinguish between sudden shocks and underlying fundamental problems in Europe's economic governance. Their interaction has been the specific flavor of this crisis.

Collignon reviews two opposing views of the European debt crisis. The fundamentalists believe the debt crisis was caused by the lack of discipline in sticking to the principles of "a sound and competitive macroeconomic base and solid public finance" (Weidmann 2011). Hence, the remedy should be to implement reforms and consolidate budgets, which would rebuild trust and confidence in financial markets (Issing 2009). The monetarists consider the European debt crisis was a liquidity crisis. A small local liquidity shock caused a sudden deterioration in a specific class of asset values, resulting in a global systemic financial crisis when the need for liquidity spilled over to banks that then got distressed because the deteriorating asset prices put their balance sheets into difficulties and reduced bank capital (Chacko et al. 2011). In this case, a crisis can be contained by a lender of last resort that provides the necessary liquidity and stops the crisis from turning into a default avalanche. Collignon finds that the solution of Europe's debt crisis would require a compromise between long-term fiscal consolidation and short-term

liquidity management. However, such a coherent policy approach will be unlikely to be forthcoming without a European economic government.

Collignon reviews the situation in Europe where its fiscal framework—the Stability and Growth Pact—failed to provide the fiscal discipline required to ensure financial stability. By May 2010 the crisis had attained systemic proportions. Collignon explains the creation of the European Financial Stability Facility (EFSF) where euro member states had to provide a credit-funded facility to lend to small economies that had lost access to capital markets. This was an institutional improvement for crisis management of the euro area, but for financial markets the EFSF offered too little and came too late. When financial crisis contagion spilled over into large member states, especially into Italy, it became obvious that the original EFSF bailout fund was insufficient and the European Council was forced to increase the fund's resources twice in July and October 2011.

Collignon discusses the euro area's economic fragility and looks at the handicaps of Europe's economic governance. He describes the structural problems faced by highly indebted member states and compares the opposing views of the fundamentalists and monetarists. One problem was the slowdown of capital productivity in southern member states as a consequence of falling and low interest rates in the 1990s and early 2000s. This caused them to lose their competitive advantage and they became more vulnerable to large shocks. He finds that these structural handicaps require deep reforms that will necessarily take time before they produce tangible results—provided the right measures are implemented. In the meantime, governments have a choice. They can either finance deficits until the reforms improve economic performance, or they can implement austerity measures that will reduce demand. Collignon argues that part of Europe's problem is caused by the fragility of its governance structures. The system worked well when the European Monetary Union was first introduced, but is no longer able to cope with the policy requirements in the crisis.

Collignon concludes that Europe's debt crisis is in reality a political crisis. The euro area economy is fully integrated by the fact that the European Central Bank alone sets monetary constraints on individual economies, but the political heterogeneities and different member state jurisdictions prevent economic policies that are consistent with the requirements of a single currency. Either Europe will move forward and deepen its political integration, or it will disappear as a global player and sink into irrelevance.

East Asia has been through two financial crises since the mid 1990s. The impact of the 1997–1998 Asian financial crisis was devastating, with Indonesia, the Republic of Korea, Malaysia, and Thailand severely affected as a result of not having enough foreign currency to meet their foreign currency obligations. All countries—except for Malaysia—had to enter into IMF-supervised programs, and were forced to undertake harsh policies under IMF conditionality. In the global financial crisis of 2007–2009, most economies in the region were able to manage the volatility arising from the rapid capital outflows following the closure of Lehman Brothers. However, some economies had severe dollar liquidity shortages

and had to enter into bilateral swap agreements with other economies to help them cope with the liquidity shortages.

In Chap. 8, Chalongphob Sussangkarn discusses national and regional mechanisms for the prevention and resolution of foreign exchange crises in East Asia. The first line of defense against foreign currency crises is to correctly understand the situation and adopt appropriate macroeconomic policies at the national level. Reviewing the factors behind the Asian financial crisis of 1997–1998, he notes that the risks from short-term foreign debts, and the need to have sufficient reserves to cover these debts, were not well understood. Apart from short-term foreign debts, other potential short-term foreign liabilities—such as in equity markets—also need to be backed up by sufficient foreign exchange reserves. This has implications for how the authorities should manage periods of rapid short-term capital inflows. If possible, the inflows should be absorbed into reserves, so that when capital flow reversals occur, there will be sufficient foreign exchange liquidity to manage the outflows. There are however limitations in the ability of the authorities to do this arising from the cost to the central bank's balance sheet and the fiscal implications of financing large increases in reserves to implement sterilization operations. Given this situation, he argues that regional and global mechanisms are also needed to provide foreign exchange support when necessary.

The chief regional liquidity support mechanism in East Asia is the Chiang Mai Initiative (CMI) that was established in 2000 under the auspices of the ASEAN+3 finance ministers, and was originally a network of bilateral swap arrangements among the ASEAN economies, plus the PRC, Japan, and the Republic of Korea. It was subsequently enlarged and multilateralized to become the Chiang Mai Initiative Multilateralization (CMIM) in 2010. Sussangkarn concludes that the CMIM is a crisis resolution mechanism rather than a crisis prevention mechanism. This is because of the way it is linked to an IMF program once a country's borrowing exceeds a certain percentage of its swap quota (30 % most recently). He argues that, if an economy requests a 90-day swap facility from the CMIM, it probably is only a temporary liquidity problem, but if it continues to have to ask for a renewal of the swap, then it is more likely that the problem is a more fundamental one, with the need for significant adjustments in macroeconomic policies. Therefore, Sussangkarn proposes that the link to an IMF program be changed so that it is based on an economy needing to roll over the swap with the CMIM more than a certain number of times. This change would enable the CMIM to become an integrated crisis prevention and resolution mechanism for East Asia, and be complementary with the IMF.

Apart from changing the way the CMIM is linked to the IMF, Sussangkarn makes a number of other suggestions for strengthening the regional mechanism, including expanding the size of the facility and permitting bilateral swaps as well, providing adequate support by member economies to the ASEAN+3 Macroeconomic Research Office (AMRO) surveillance group, and deepening regional surveillance and financial cooperation activities so that it becomes an important forum for discussions of the region's economic situation and a broad range of regional financial cooperation.

1.6 Linking Regional and Global Initiatives

The increasing occurrence of national, regional, and global financial crises, together with their rising costs and complexity, have increased calls for more effective regional and global monetary architecture. This is necessary particularly in light of volatile capital flow movements, which can quickly transmit crisis developments in individual countries to other countries around the world. Important areas for monetary cooperation include global financial safety nets (GFSN), international harmonization of supervision and regulation, crisis prevention, management, and resolution. In particular, the disruptive effects of volatile international capital flows call for a coordinated approach to global supervision and management of such risks.

In Chap. 9, Mario Lamberte and Peter Morgan review the current situation of regional and global monetary cooperation, focusing on financial safety nets, with a view toward developing recommendations for more effective cooperation, especially between the IMF and regional financial arrangements (RFAs). They argue that the experience of the global financial crisis, where financial shocks emanating from key countries led to contagion being transmitted around the world, shows the need for a large-scale and effective GFSN. A GFSN should have adequate resources to deal with multiple crises, it should be capable of rapid and flexible response, and it should not be encumbered by historical impediments such as the IMF stigma that would limit its acceptance by recipient countries. Such a GFSN should include the IMF and RFAs at a minimum, and Lamberte and Morgan argue that it is highly recommended to find ways to include central banks as providers of swap lines and multilateral banks as well.

The basic principles governing the cooperation of IMF and RFAs include rigorous and even-handed surveillance, respect of independence of each institution and regional specificities, ongoing collaboration as a way to build regional capacity for crisis prevention, open sharing of information and joint missions where necessary, specialization based on comparative advantage, consistency of lending conditions and conditionality, respect of the IMF as preferred creditor, subsidiarity, avoidance of moral hazard, and transparency.

Lamberte and Morgan argue that relations between the IMF and RFAs should be institutionalized. This should involve the IMF and other international finance institutions providing mechanisms for facilitating and receiving the collective representation of the regional institutions, possibly including RFAs as members in the IMF; and having RFAs establish their own mechanisms for dealing with the IMF, rather than simply being represented by their member countries. However, one of the biggest challenges is to institutionalize the process of policy consensus among member countries of an RFA.

Cooperation of surveillance activities needs to be institutionalized as well. RFAs should be included in IMF Article IV consultation missions, and a general structure for sharing information and assessments should be established. The key issue is how to bring their regional expertise to bear in the assessment process. Most likely, the solutions to this issue will need to be developed on a case-by-case basis.

Cooperation in financing activities presents the most challenges. A number of key developments need to be taken into account. First, as with surveillance, the relatively small size of most RFAs compared with likely funding demands in possible crisis scenarios means that action independent from the IMF is unlikely to be feasible. Second, the shift toward prequalification and precautionary lending programs by the IMF requires the RFAs to follow suit if they are to participate at this stage of the lending process. Both these trends will limit the scope for independent action by RFAs.

Lamberte and Morgan conclude that the development of an effective GFSN would require the involvement of central banks in developed economies to provide hard currency swap lines to it. The other requirement for an effective global financial safety net is to eliminate the IMF stigma, particularly in Asia and Latin America. Otherwise, economies in those regions will continue to use ad hoc arrangements, such as directly obtaining swap lines from individual central banks. Lamberte and Morgan reason that the IMF needs to implement governance reforms and thoroughly assess its previous surveillance and conditionality activities. In addition, RFAs should obtain sufficient resources to give them credibility in terms of the surveillance activity and the size of funding they can provide relative to the IMF. Expanded and more flexible capacity for additional SDR allocations need to be considered. Finally, they argue that a reduction in conditionality that requires a shift toward prequalification needs to be considered.

1.7 Conclusion

The global financial crisis of 2007–2009 and its aftermath have led to much debate about the shortcomings of the international monetary system and possible reforms. Nonetheless, reforms are likely to be piecemeal and slow. The US dollar is likely to remain the key international reserve currency for some time, in light of continued difficulties in the euro area, weak growth in Japan and the lack of capital account openness in the PRC and India. Only when the PRC's domestic financial reform makes an important breakthrough, can the internationalization of the yuan be able to make meaningful progress. Nor does there seem to be much near-term potential for a substantial expansion of the role of SDRs in the international monetary system.

Management of volatile capital flows in an era of ultra-low interest rates in many developed economies remains a thorny issue for emerging economies, and there is still no strong consensus on the subject. The IMF has relaxed its previous opposition to capital controls, but still tends to see capital flow management measures as a last resort rather than as an integral element of a comprehensive framework for economic and financial stability. It remains unclear whether substantial initiatives in this area will be developed by the IMF or under the G20 process. In the meantime, emerging economies may consider greater exchange rate

flexibility, as well as capital flow management measures that tend to reduce the difference between domestic and foreign after-tax rates of return.

The G20 countries recognize the need for development of regional and global financial safety nets, but progress remains slow in this area as well. The issue of the IMF stigma remains a potent deterrent to countries to borrow from the IMF, particularly in Asia and Latin America. In addition to increased flexibility in IMF lending programs, more substantial changes in its governance will be needed to overcome this problem. In the meantime, more efforts should be made to improve coordination between the IMF and various RFAs. In Asia, the CMIM has been substantially strengthened, but the link to IMF programs needs to be re-thought, precautionary lending programs should be expanded, possibly including bilateral swaps, and the resources of the AMRO should be increased further so that it can adequately carry out its surveillance mission.

There is potential for measures to promote greater currency coordination among Asian economies in order to reduce exchange rate risks associated with intra-regional trade, while allowing for greater flexibility of exchange rates with major economies outside the region in order to restrain the development of major trade imbalances. The key is to do so without imposing substantial constraints on monetary policy independence in individual economies. Adoption of an ACU may play a valuable role as a surveillance tool for measuring currency divergence. Asian economies may also consider how to reduce the divergence of the currency policy frameworks. However, the experience of the eurozone countries provides a cautionary note about the hazards of premature moves to tight currency cooperation, especially if other aspects of economic union are not in place at the same time.

In the aftermath of the global financial crisis, the G20 leaders' summit has become the key forum for developing policies to achieve global economic and financial stability. For the G20 to matter, it should be able to ensure that the systemically important countries such as the US adopt appropriate policies if and when their economic and financial situations become a threat to global stability. The experience with the G20 so far confirms that coordination through policy dialogue alone is unlikely to be effective. Growing interdependence implies that the externalities are becoming more numerous and more sizeable, and therefore enhances the case for policy coordination. Effective coordination means that individual countries would carry out policies that would benefit both their own economies and the rest of the world. This can be in their best interest due to externalities, but internalization is often opposed because it is perceived as a loss of sovereignty.

References

Aizenman, J., Chinn, M. D., & Ito, H. (2008). *Assessing the emerging global financial architecture: Measuring the trilemma's configurations over time* (National Bureau of Economic Research Working Paper 14533).

Chacko, G., Evans, C. L., Gunawan, H., & Sjöman, A. (2011). *The global economic system. How liquidity shocks affect financial institutions and lead to economic crises*. New Jersey: Pearson FT Press.

Eichengreen, B., Tobin, J., & Wyplosz, C. (1995). Two cases for sand in the wheels of international finance. *Economic Journal, 105*, 162–172.

Girardin, E., & Steinherr, A. (2008). *Regional monetary units for East Asia: Lessons from Europe* (ADBI Working Paper 116). Tokyo: Asian Development Bank Institute.

Issing, O. (2009). Why a common eurozone bond isn't such a good idea. *Europe's World*, Summer, 77–79.

Kawai, M. (2010). An Asian currency unit for Asian monetary integration. In J. D. Sachs, M. Kawai, J.-W. Lee, & W. T. Woo (Eds.), *The future global reserve system—an Asian perspective* (pp. 11–12). Manila: Asian Development Bank.

Kawai, M., & Takagi, S. (2005). Towards regional monetary cooperation in East Asia: Lessons from other parts of the world. *International Journal of Finance and Economics, 10*(2), 97–116.

Mundell, R. A. (1961). A theory of optimum currency area. *American Economic Review, 51*(4), 509–617.

Ogawa, E., & Shimizu, J. (2005). *A deviation measurement for coordinated exchange rate policies in East Asia* (RIETI Discussion Paper Series 05-E-017).

Weidmann, J. (2011). Managing macroprudential and monetary policy—a challenge for central banks. Speech in Berlin. 8 November. Deutsche Bundesbank.

Part I
International Monetary System Reforms

Chapter 2
International Monetary Reform: A Critical Appraisal of Some Proposals

Yung Chul Park and Charles Wyplosz

Abstract This chapter reviews some of the current debates on the reform of the international monetary system. Despite its deficiencies, the United States (US) dollar will remain the dominant currency and special drawing rights (SDR) cannot serve as either an international medium of exchange or a reserve currency. The International Monetary Fund (IMF) has changed its position to accept capital controls under certain circumstances. Refining control instruments better tuned to present day markets may bring about greater acceptance. The 2008–2009 global financial crisis has dimmed much of the earlier hope for the multilateralized Chiang Mai Initiative. The currency swap arrangements portend a new form of international cooperation. Finally, for the Group of Twenty (G20) to matter, the systemically important countries need to ensure the stability of their financial systems and economies.

Keywords Capital controls • Currency swaps • G20 • SDR • Special drawing rights • US dollars

2.1 Introduction

The international monetary system is changing. Globalization and the ascent of emerging markets are bringing to the fore a number of issues that are not new but have had little attention. They are also changing the balance of power in a system that retains the imprint of the Bretton Woods Conference of 1944. A new impetus has

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_2,

come from the amazing occurrence of acute financial crises in the United States (US) and Europe. The shortcomings of the international monetary system have been studied in depth and the list of reform proposals is endless. At the same time, economic and political developments—both ongoing and predictable—change the agenda and reshape the realm of what is possible to achieve.

This chapter reviews some of the current debates. Section 2.2 looks at the future role of the US dollar and concludes that despite all its deficiencies it will remain the dominant reserve currency. Section 2.3 examines the role of special drawing rights (SDR) and whether they could serve as a reserve currency and asset. Section 2.4 reviews the background and merits of capital controls in a new global financial environment. Talks about an impending currency war have attracted attention once more to potentially disrupting capital flows. Exchange rate overvaluation is often followed by sudden stops and destructive reversals (Calvo and Reinhart 2000). A long tradition has called for the use of capital controls—preferably market-friendly—to discourage capital movements that are driven by herd behavior as opposed to economic fundamentals (Eichengreen et al. 1995). The International Monetary Fund (IMF) position has oscillated between firm hostility and reluctant acceptance. The IMF position has changed, as was seen at the Group of Twenty (G20) Summit in Seoul in November 2010. Refining the instruments, and making them better attuned to present day markets, may bring further changes to the conventional wisdom.

Section 2.5 discusses future prospects of regional monetary arrangements. The 2008–2009 global financial crisis dimmed much of the earlier hope that the Chiang Mai Initiative Multilateralization (CMIM) arrangement would become operational. It is clear that deep regional monetary integration is more difficult than has been officially recognized so far. What is left then, of the idea that such arrangements are the way of the future? We take a critical look at this debate, pointing out that details crucially matter and that nuances are called for in coming up with conclusions.

Section 2.6 examines the prospect of the spread of swap agreements among central banks. Swaps have existed before but they have been activated on a wider scale than before in the aftermath of the collapse of Lehman Brothers. Does it portend a new form of international monetary cooperation? Section 2.6 explores this issue.

Section 2.7 deals with the creation in 2008 of the G20 leaders' summit that has been widely seen as an historical step. This section focuses on the crises in some of the largest economies and argues that some countries are systemically large. The US subprime mortgage crisis brought about a worldwide recession and the European debt crisis could have triggered a worse global crisis. For the G20 to matter, it should be able to ensure that the systemically important countries adopt correct strategies if and when their economic and financial situations become a threat to global prosperity. Section 2.8 concludes the chapter.

2.2 Future Role of the Dollar[1]

To many economists and policymakers in both developed and emerging economies, the international currency system is under the control of a single country—the US. Even worse, the US has been running huge external deficits for more than a decade and is now the world's single largest debtor. Even more vexing, the global economy had already crashed in the late 1960s, inaction to which resulted in the collapse of the Bretton Woods system. The 2008–2009 global financial crisis and the ongoing eurozone sovereign debt crisis have renewed the effort to rebuild the international monetary system. The replacement of the Group of Seven (G7) with the G20 is a signal that the US and other developed countries have recognized a new reality. It is not surprising that one of first moves by the People's Republic of China (PRC) was to call for a new arrangement that will bring the dollar's supremacy to its long-anticipated end.

But everything written about the dollar is at best inaccurate, mostly wrong. The first aspect of the debate on the dollar that should be emphasized is that the dollar is nowhere near to losing its international status for a simple reason that there is no replacement. Gold has been a good investment. But as a currency, gold has long ceased to exist for a good reason: it is inconvenient. In a world where money is increasingly becoming electronic, going back to gold coins and bullion is outdated. The euro was often seen as the challenger, but now its survival is at stake.

A second aspect is that the dollar is the dominant currency for international trade invoicing and payments. The dominance matters little for anything but bookkeeping, though it is practical and less risky to deal in a country's own currency.

The third aspect attracting the most attention and matters the most is the foreign exchange reserves of central banks around the world. These reserves are not held in cash but mostly in US Treasury bills. The total amount, $4,400 billion, is about ten times the value of dollars held outside the US. The dollar's share of foreign exchange reserves is currently about 60 % and slowly declining. The trend, if continued, would imply that the dollar would be a minor reserve currency by 2025. The process might be sped up by the People's Bank of China, which holds about half of the world reserves and has made it known that it wants to reduce the share of dollars in its stockpile.

These trends, however, should not be assumed to continue forever. It is perfectly possible for the PRC authorities and others to acquire new reserves in currencies other than the dollar but that does not mean that they can go on forever—assuming that they will accumulate reserves—nor that they can turn around their current stock. The key reason is that there is no alternative, at least for the foreseeable future.

It is essential to remember that reserves are held in interest-yielding public debt instruments, not cash. Obviously, these must be safe instruments, which would exclude a large number of eurozone governments. The safest euro-denominated instruments are issued by the German government. Central banks want these

[1] Sections 2.2 and 2.3 draw on Wyplosz (2010).

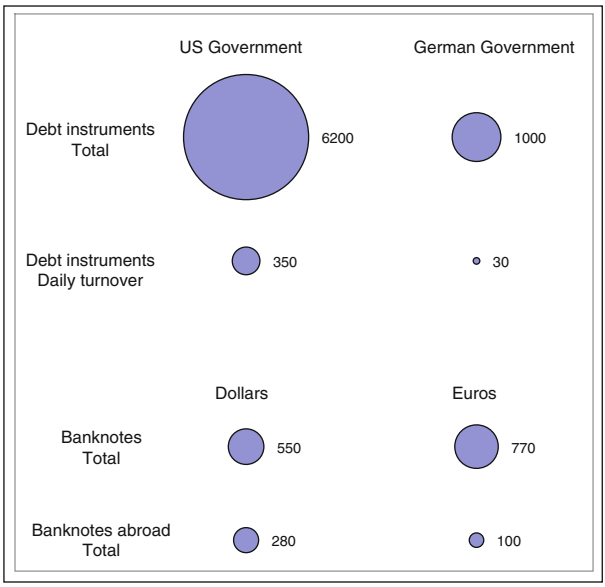

Fig. 2.1 Debt instruments of the United States and Germany. *Note*: All values in billions of euros. *Source*: Wyplosz (2010)

instruments to be safe and quickly sellable in case of emergency. Unless the market is deep enough, emergency sales may resemble fire sales that entail capital losses. The market for US Treasury bills is the world's deepest. The total value of existing US public debt instruments is nearing $9,000 billion, of which $500 billion is traded on an average day (Fig. 2.1). German debt instruments amount to about €1,000 billion, with an average daily turnover of less than €30 billion. The situation is similar for French debt instruments. The US plays in a different league. Of course, things can change over time. Turnover can increase but German government debt will remain small, unless it is multiplied several times over, in which case it would achieve junk status.

2.3 Special Drawing Rights

There has been much interest in the International Monetary Fund's (IMF) special drawing rights (SDR). This is not money; it is a right for central banks to obtain dollars, euros, or other currencies of wide international use. As such it can serve as a foreign exchange reserve but the total stock is currently worth $320 billion, a trivial amount. Its value is more stable than that of its composite currencies, and this may be why some developing countries and development advocates have been calling for a massive increase in SDRs to offer an alternative to the dollar. Politically it makes little sense for the US to support such a move, but there is a deeper economic reason why SDRs will never fulfill the ambitions of its supporters. As a composite of other

currencies, SDRs must be underwritten by the central banks that issue these currencies. New SDRs are effectively new dollars, euros, and yen, among others. But no one knows which currencies will be "drawn"—that is, effectively used—and when. No central bank will ever want to create large amounts of money on which it has no control. The appeal of SDRs—that they are not controlled by any national central bank—is also their fundamental weakness.

Over the years, some currencies are likely to achieve international status. A key requirement is that they should be issued by a large country. The yuan and the Indian rupee naturally come to mind. These are very long-term propositions. Not only must these economies grow considerably bigger, which they are likely to do, but they must also develop large financial markets, fully integrated in world exchanges, and their governments must issue top-rated public debt instruments. At this stage, neither the yuan nor the Indian rupee are fully convertible, and the PRC and Indian financial markets are not integrated. In addition, for various reasons, the financial credibility of their authorities is limited.

There are fears that a multipolar system will be unstable. The idea seems to be that asset holders might be tempted to move between reserve currencies. Just as depositors can run on banks, individual central banks would trigger runs on a particular reserve currency as soon as they would be concerned about safety, returns, or possibly even for political reasons. The experience so far, with two reserve currencies, does not bear out these fears. Central banks, at least the large ones, behave prudently because they stand to be the first to suffer capital losses from a rapid shift in the currency denomination of their reserves. There is a strong case to be made for the global village to have a global currency issued by a world central bank. But to whom would this central bank report? Until this question is answered, our monetary world will not look very different from the current one.

2.4 Capital Controls and Exchange Regimes

Advocacy of Capital Controls

In a number of recent papers, the IMF advocates capital controls under certain circumstances to reduce the volatility of capital inflows (Ostry et al. 2010, 2011; Habermeier et al. 2011). This break with the long-standing tenet of free capital mobility at the IMF reflects the growing concerns that global investors have become increasingly prone to displaying excessive optimism or pessimism and herding as they often overreact to market developments—both favorable and unfavorable. This overreaction often poses a danger of amplifying procyclicality of capital inflows to create bubbles and set off an asset market boom–bust cycle as often happens in emerging economies.

Faced with this potential damage inflicted by a sudden surge in capital inflows, the IMF argues, policymakers in emerging economies may be justified in imposing

controls on those flows—in particular risky forms of foreign borrowing—to prevent a large and unsustainable appreciation of the exchange rate and to fend off a currency or banking crisis that may ensue. While the implementation of monetary, fiscal, and macroprudential policies should always be the first line of defense, Ostry et al. (2010) argue that "appropriately designed controls on capital inflows could usefully complement them in certain circumstances, especially in the face of temporary inflow surges" (p. 11).

In order to moderate capital inflows, policymakers in emerging economies may impose taxes and unremunerated reserve requirements and special licensing requirements on external borrowing. More drastic measures would include outright limits or bans on foreign borrowing. Capital controls may cover all or differentiate between different forms and maturities of flows—bonds, equities, foreign direct investments (FDI), and short-term versus long-term instruments. For instance, Hahm et al. (2010) make a distinction between core- and noncore banking sector liabilities. The latter is defined as the sum of foreign exchange liabilities and wholesale bank funding, which are good indicators of the vulnerability to a crisis—a collapse in the value of the currency and a credit crisis.

Ostry et al. (2010) are also specific and restrictive about the conditions under which capital controls may be called for and be effective at the same time. If a country has an adequate level of reserves, its exchange rate is not undervalued, and it is faced with transitory flows, "then use of capital controls—in addition to both prudential and macroeconomic policy—is justified as part of the policy toolkit to manage inflows" (p. 5).

Procyclicality of Capital Flows

It is well documented in the literature that capital flows are procyclical as they are positively and highly correlated with output growth in emerging economies (Kaminsky et al. 2005; Shin 2010). In a global economy that has seen a sharp increase in the volatility and volume of cross-border capital movements as a result of deeper integration of financial markets of economies both at the regional and global level, financial disruptions in one country could easily spill over into neighboring economies —including those with strong economic fundamentals and sound financial systems—thereby destabilizing their financial systems and economies. Financial markets opening has combined with the collective action problem—a pervasive feature of financial industries—to make capital flows highly procyclical in emerging economies.

When an economy enters into an upswing phase of the business cycle, financial institutions expand their lending in the belief that credit risk has decreased. Since traditional retail deposits (core liabilities) do not keep pace with asset growth, banks turn to other funding sources—domestic and international wholesale funding markets (noncore liabilities)—to finance their lending, causing a surge in capital

inflows.[2] A large share of lending is often then allocated to the financing of housing and commercial estate, setting off a boom and a bubble in the real estate market.

Credit expansion feeds, and is often fed, by the asset market boom. Financial institutions may realize that their lending operations could indeed create an asset market boom, sowing the seeds of a bubble, which will eventually burst. It would be in their interest to restrain their lending collectively, but there is no market mechanism that could bring about such a collective action problem among financial institutions.

The expansion or boom phase will eventually come to an end and the economy will enter a contraction phase of the business cycle. At this point, foreign lenders become concerned about credit risk and begin to recall the existing loans while refusing new credit extensions. The result is a sudden stop of capital inflows and, worse, large capital outflows. Since all foreign financial institutions and other lenders do the same, they end up deepening the contraction.

Ostry et al. (2011) consider that controlling inflows would moderate outflows of foreign capital as well, thereby mitigating the procyclicality of foreign borrowing to prevent asset market booms, bubbles, and busts. This assumption is neither warranted nor backed by evidence. Controls on capital inflows are highly ineffective in preventing the sudden stop or reversal of the flows, unless they are accompanied by controls on outflows. This is because when foreign lenders and investors deleverage and head to the exit during a downturn phase of the economy or in response to, for instance, adverse external shocks such as the eurozone debt crisis, the size of potential capital outflows is given by the existing stock of foreign liabilities.

When the economy cools off, the subsequent fall in risk tolerance, the tightening of financing constraints, and the plummeting of asset prices that are often the sources of a market's overreaction, encourage foreign banks to cut off credit lines and to refuse to roll over short-term loans. Foreign investors may cash in their holdings of bonds and equities. Depending on the steepness of the downturn, emerging economies may lose access to global wholesale funding markets. As a result, these economies are likely to experience shortages of reserve currency liquidity. Withdrawing controls on capital inflows, as proposed by Ostry et al. (2010, 2011), may succeed in discouraging the outflow of foreign capital that was subjected to capital control at its entry, but it may not prevent the outflow of a broad category of other existing foreign liabilities and foreign investments in domestic equities. This reversal in capital inflows may dictate intervention to control outflows of foreign capital. That is, if there is a need for controlling capital inflows, there is also a need to control capital outflows. Capital controls should be deployed as a countercyclical policy. As argued below, however, there are no effective measures for capital outflows.

[2] Hahm et al. (2010) use disaggregated series by noncore liabilities in the Republic of Korea to find that, relative to core liabilities, noncore bank liabilities are more procyclical on various measures.

Some capital control measures introduced by a number of emerging economies suggest that they may not be effective in reducing the aggregate volume, but they lengthen the maturity of inflows.[3] But this does not mean that the inflow control could slow down outflows during the downturn phase of the business cycle. This is because controls on inflows may lengthen the maturity of new inflows, but not that of the stock of existing external funds, which is likely to dwarf the former in the short run after capital controls are imposed.[4] In addition, investors exposed to a country risk may hedge by taking short positions, which is equivalent to capital outflows (Dooley 1996).

Effectiveness, Instruments, and Scope of Capital Controls

The effectiveness, instruments, scope and intensity of capital controls as a means of moderating capital inflows have long been—and will continue to be—controversial issues to which neither theory nor empirical evidence has been able to provide definitive answers, in particular in the context of the re-imposition of controls by countries that already have largely open capital accounts.

Controlling outflows is not easy to implement in the short run. Furthermore, if investors expect that outflow controls will be implemented during a sudden stop episode, foreign investors may choose an even shorter maturity or avoid altogether the country as a destination for investment. This is one reason why emerging economies whose currencies are not internationalized accumulate foreign exchange reserves to deal with shortages of reserve currency liquidity and sudden capital outflows.

The danger is that emerging economies will rely on rules of thumb based on experiences of other countries and adopt disparate control systems that encourage regulatory arbitrage. It is important therefore that the G20, in cooperation with the IMF, sets the rules and conditions under which capital controls can be activated.

Controls on inflows are of little use in taming capital outflows, in particular in times of a crisis. During the 2008–2009 global financial crisis, the markets overreacted to the deteriorating conditions, creating liquidity crises in both developed and emerging economies. When an economy is engulfed in a crisis, free floating often fails to serve as a first line of defense, because a large depreciation of the exchange rate triggered by outflows could put it on an implosive trajectory.

In a crisis situation, the global wholesale funding market is likely to freeze up, international commercial banks may refuse to roll over their short-term reserve currency loans to emerging economies, which could suffer more if foreign investors dump their holdings of securities at a loss. In 2008, the Republic of Korea offered

[3] In the case of Chile and Colombia, De Gregorio et al. (1999) and Cardenas and Barrera (1997) show that controls had some success in tilting the composition of inflows toward less vulnerable liability structures.

[4] This point is also made by Calvo (2010).

government guarantees to foreign lenders and withdrew the withholding tax on foreign holdings of domestic bonds to stem the tide of capital outflows, but to no avail (Park 2009).

When signs of recovery appeared from the liquidity crisis triggered by the Lehman Brothers collapse, once again large amounts of foreign capital started flowing into the Republic of Korea's economy. Concerned about the consequences of these inflows, the Republic of Korea's policymakers imposed three measures of capital inflow control: caps on foreign exchange forward positions of domestic banks and branches of foreign banks in October 2010[5]; a withholding tax on interest income (14 %) and capital gains (20 %) from foreign investments in domestic bonds in January 2011, which had been exempted in 2008; and a macroprudential stability levy on August 2011.

It is too early to analyze the effects of these measures—in particular those of the macroprudential stability levy—largely because of the deleveraging of European lenders and investors with the deepening of the eurozone debt crisis that has further complicated empirical analyses. The effect of the withholding tax started biting 2 months after the imposition and lasted for about 5 months. During this period, however, much of the effectiveness of the tax was offset by a surge in equity inflows (Park 2012).

These experiences suggest that most emerging economies cannot by themselves prevent unexpected and speculative reversals of capital inflows. This opens up an important role for the G20. A solution would be the adoption of macroprudential controls on capital outflows by acting at the source, focusing on lending to emerging economies by large global financial institutions. Another solution would be to relate capital requirements to the exposure to emerging economies. Such a control system at source may reduce the burden of imposing capital controls on the part of emerging economies, make it easier to monitor flows of international short-term lending, and stabilize such lending.

The G20 could also establish a system of gathering and assessing information on capital movements between regions—possibly even between countries—to help emerging economies to prepare for a sudden reversal in capital inflows. A possibility is to permit automatic access to the new lending facilities at the IMF such as the Flexible Credit Line (FCL) and the Precautionary Credit Line (PCL) when significant outflows emerge. In the end there is no effective measure other than creating a global liquidity support system to cope better with the capital outflow problem, which is discussed in the next section.

[5] Banks sometimes fund their long-term won–dollar forward positions by borrowing dollars short term to avoid the foreign exchange risk. The interest rate differential between home and foreign markets brought about a large increase in short-term dollar loans to finance investments in forward dollars sold by ship builders and other domestic firms in 2011. In response the Republic of Korea's policymakers imposed limits on currency forward positions by domestic banks to 50 % of their equity capital while restricting foreign banks' positions to 250 %. On 19 May 2011 the ceiling on the foreign exchange forward position by local branches of foreign banks was cut from 250 % to 200 % and the ceiling for domestic banks from 50 % to 40 %. The new ceilings took effect from 1 June 2011, with a 1-month grace period until 1 July.

2.5 Regional Liquidity Support Arrangement: The Role of the CMIM

The 1997–1998 Asian financial crisis marked a watershed in regional economic cooperation and integration in East Asia. It brought to the fore the need for cooperation and coordination in policy among the countries in the region in preventing future crises. Realizing this need, the 13 countries from the region that include the ten members of the Association of Southeast Asian Nations (ASEAN), the PRC, Japan, and the Republic of Korea—a group known as ASEAN+3—agreed to establish as a first step toward regional cooperation a system of bilateral currency swaps, known as the Chiang Mai Initiative (CMI). It was designed to provide liquidity support to the member countries suffering from short-run balance of payment problems. Two years later, they launched another program—the Asian Bond Markets Initiative (ABMI)—for the integration of East Asia's regional capital markets.

Since then, the ASEAN+3 countries have converted the CMI into a multilateral currency swap agreement—CMI Multilateralization (CMIM)—that covers all members with a total amount of $240 billion for liquidity support. The progress in the ABMI has been slow, but it has been instrumental in the creation of the Asian Bond Funds (ABF) 1 and 2, created a regional credit guarantee system, and has been exploring the possibility of constructing a regional clearing and settlement system for cross-border bond transactions. After years of discussion and negotiation, in 2011 ASEAN+3 established the ASEAN+3 Macroeconomic Research Office (AMRO) based in Singapore, whose job is to maintain surveillance of the CMIM members and support its full operation.

Unlike the PRC and Japan, ASEAN as a single entity and the Republic of Korea could be both potential lenders to and borrowers from the CMIM. Given their size, they would benefit more from regional economic stability. They could serve as mediators between the PRC and Japan on a wide range of issues on which the two countries cannot agree. Not surprisingly, there was a general consensus that they should play an active role in promoting ASEAN+3 as a framework for regional integration in East Asia.

However, the 2008–2009 global financial crisis has changed this view. It has prompted calls for a review of exchange rate policies and on the strategy for regional financial and monetary cooperation within ASEAN+3. In fact, the global financial crisis was the first opportunity to test the effectiveness of the CMIM. The outcome of the test has not been reassuring. Although it was in dire need of liquidity in 2008, the Republic of Korea did not consider approaching the CMIM for a short-term loan. In fact none of the ASEAN+3 members suffering from a liquidity drought did, because the amount of liquidity that could be drawn was too small to impress currency speculators and it was not available immediately because of the cumbersome drawdown procedure. Neither the PRC nor Japan was prepared to offer any liquidity assistance.

From the beginning, the leadership problem stemming from the lack of cooperation between the PRC and Japan—the two dominant economies that cannot agree on many regional issues—has constrained the role of ASEAN+3. It has hampered the expansion and consolidation of the CMIM. It has become more tenuous with the rise of the PRC as a global economic power, making cooperation between the PRC and Japan more complicated and hence casting doubt on the future viability of ASEAN+3. In this setting, ASEAN and the Republic of Korea find dwindling room for acting as a mediator reconciling the conflicting interests of the PRC and Japan.

The 2008–2009 global financial crisis has diminished interest in regional monetary and financial cooperation among the members of ASEAN+3. Not surprisingly, the implementation of the two main initiatives under the ASEAN+3 framework—the CMIM and the ABMI—have been moving very slowly. It may be also true that many of the structural weaknesses of the eurozone that were laid bare by the systemic risk posed by the sovereign debt crisis and the lack of consensus in supporting members under extreme market pressure have made the ASEAN+3 members rethink the merits and viability of regional monetary cooperation in East Asia with a greater degree of heterogeneity among the countries than in Europe. There have also been other regional developments that have contributed to weakening and reducing the scope of the integration movement in East Asia.

As the second largest and most developed economy in the region, Japan was at the forefront of coalescing regional efforts for economic integration. Japan advocated the creation of an Asian Monetary Fund during the 1997–1998 Asian financial crisis. It also took the leadership in launching the ABMI and in promoting the introduction of a regional currency unit similar to the European currency unit as a means of stabilizing bilateral exchange rates of ASEAN+3 members. But in recent years plagued by deflation, a strong yen, slow growth, and political instability, Japan has been relinquishing its role as a leader of economic integration in East Asia.

The PRC can and should provide leadership for expanding and consolidating ASEAN+3 as a framework for regional economic integration, but it has been increasingly preoccupied with its global role. The PRC policymakers may see little benefits that can be drawn from participating in East Asia's regional integration.[6] Perhaps for this reason together with the fact that the PRC has become a major trader with an increasing financial clout, it has shown more interest in global than regional issues such as the reform of the international monetary system.

As Eichengreen (2009) points out, the PRC might not have to participate in or lead the promotion of any regional arrangements to attain greater political and economic influence. Instead of trying to emulate the European approach to regional integration, all it has to do is to wait. The longer it waits, the greater will be its economic position in the region. The huge export market it presents to the other members of ASEAN+3 will induce them to integrate with the PRC. The yuan will

[6] A recent empirical analysis by Park and Song (2011) shows that among the East Asian economies, the PRC is likely to benefit the least from regional monetary integration.

eventually emerge as East Asia's dominant currency. In all likelihood the PRC will do more than just wait. Although it will be reticent in regional integration at the level of ASEAN+3, it will be much more active in deepening its economic relations with ASEAN, which the PRC regards as its natural sphere of influence with strategic interests. As discussed below, this will be the most conspicuous development.

Regional arrangements such as the CMIM could be an important component of the global liquidity support system, but little is known on how it should be structured and managed to be a reliable source of short-term liquidity. The G20 may address the viability of establishing similar arrangements in other regions. But before endorsing other regional arrangements, the G20 will need to undertake a review of the size and operational details of the CMIM together with its links with the IMF to determine whether it could be an effective regional mechanism.

Now that the European Union has decided to construct the European Stability Mechanism, which can be seen as a sort of European Monetary Fund operated independently from the IMF, new questions will arise as to what type of links between the regional institutions and the IMF would be appropriate and how their activities could be coordinated to consolidate and improve the efficiency of a global safety net. The G20 may need to undertake a review of the size and operational details of the CMIM together with its links with the IMF to determine whether it could be an effective regional mechanism.

2.6 Swaps Among Major Central Banks

One of the lessons of the 2008–2009 financial crisis is that global financial markets are highly susceptible to the failures associated with information asymmetry. Overreaction—euphoria, or excessive pessimism—and herding of market participants can trigger uncontrollable chain reactions, including the sudden reversal of capital inflows that can provoke a liquidity crisis. Fears of such liquidity crises have been one of the reasons for holding large amounts of reserves for self-insurance in emerging economies (Fig. 2.2). It would also alleviate the need for capital controls.

Imagine that a global central bank is created and that it assumes the role of lender of last resort. It would make sure that liquidity in the global economy is adequate, that the prices of globally traded assets are not too volatile, and that liquidity crises do not occur. It would also prevent runs on banks—at least the systemically important ones.[7] Since it is highly unlikely that the global economy will be ready for a global central bank soon, a second best solution needs to be found, and this

[7] The IMF uses a definition of global liquidity that is a sum of GDP-weighted M2 or reserve money for the four reserve currencies—the dollar, the euro, the yen, and the pound (International Monetary Fund (IMF) 2010). For recent discussions on global liquidity, see also Bank for International Settlements (BIS) (2011) and International Monetary Fund (IMF) (2011a).

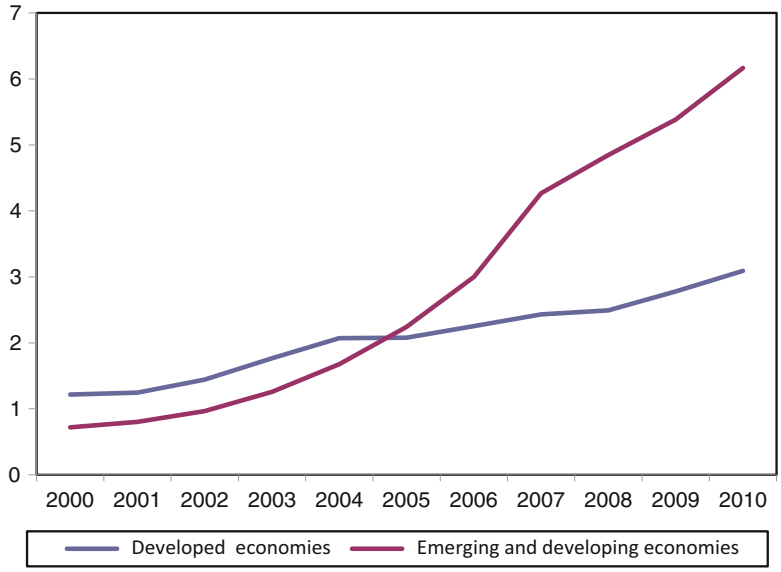

Fig. 2.2 Foreign exchange reserves ($ trillion). *Source*: Currency composition of official foreign exchange reserves (COFER). http://www.imf.org/external/np/sta/cofer/eng/index.htm (accessed 22 November 2011)

should be a global liquidity safety net. In addition to its role during a crisis, a global safety net could alleviate the fear of being afflicted by liquidity shortages.

Of course, we already have a global safety net, the IMF. One problem that undermines the IMF's role is the perception—borne out of direct experience—that the IMF sets unnecessarily harsh, sometimes even intrusive, conditions for its lending. Another problem is that liquidity can vanish extraordinarily quickly, as the 2008–2009 crisis has shown. Support must therefore be available in a matter of days, sometimes even less than a day. This is impossible if an agreement must first be negotiated with the IMF and then approved by its Board.

The IMF has fully recognized these shortcomings. In response, it has created three new facilities: Flexible Credit Lines (FCL), Precautionary Credit Lines (PCL), and High Access Precautionary Arrangements (HAPA). An FCL can be disbursed very fast—since it is largely designed for liquidity crises—and has no conditionality attached to its loans, but it requires prequalification, based on high standards of policymaking. Three emerging economies have qualified so far (Colombia, Mexico, and Poland) and many others would qualify if they applied. A PCL, which also requires prequalification, concerns countries that do not quite qualify for an FCL and has limited conditionality with fast disbursement. A HAPA is available for countries that do not quite meet the PCL criteria and is an accelerated standard standby arrangement available to prequalified countries (Costa Rica, El Salvador, and Guatemala have been approved).

Are more or other arrangements needed? One problem with the existing ones is that a stigma effect is attached to anything that looks like having to borrow from the IMF, and this has deterred further applications. This stigma effect is likely to diminish over time and there could be a collective effort, for example, within the G20, to encourage more applications, including from the developed countries since they have discovered that they are not immune from requiring IMF help. A more serious problem concerns the amounts available from the IMF. Globalization means that the size of financial markets has grown at a steep rate over the last decade. The need for emergency liquidity has grown in proportion, in fact more. The possibility for investors to take huge negative positions means that liquidity needs may become near infinite.

Stigma and near-infinite needs explain why a number of central banks have agreed on swap arrangements following the Lehman Brothers collapse. In 2008, the US Federal Reserve (the Fed) established currency swap lines of unlimited amounts with the central banks of the eurozone, the United Kingdom, Japan, and Switzerland. In 2009, six more central banks of developed economies were added to the list. The Fed also offered swap lines to the central banks of four other emerging economies—Brazil, Mexico, Singapore, and the Republic of Korea.

In September 2011, the Fed and other major central banks agreed to auction allotments of dollars to the European Central Bank, which would then use the new money to support large European banks suffering from shortages to be issued against euro denominated collateral and repaid, with interest, in dollars. Table 2.1 shows swap transactions among these banks in November 2011. The managing director of the IMF, Christine Lagarde, welcomed this coordinated decision by saying "the path to recovery needs collective action by both political leaders and central banks. What we saw today was exactly what is needed. It shows central banks will do whatever it takes to restore stability" (International Monetary Fund (IMF) 2011b).

The Republic of Korea was one of the four large and systemically important emerging economies that established swap lines with the US in October 2008.[8] The arrangement was limited to $30 billion, however. The Republic of Korea also enlarged previously agreed swap arrangements with Japan to $70 billion and the PRC, to CNY360 billion. Park (2011) argues that the Fed–Bank of Korea swap, although of limited size, stopped the run on the won because it was provided by the de facto global lender of last resort. This raises the question whether a similar support (in terms of size and availability) provided by the IMF could have been as effective.

These swap lines were set up in emergency. None of the participants considered applying to the IMF. Stigma was certainly a powerful motive. Indeed, the knowledge that, say, Switzerland was asking for IMF support could have triggered a massive, quite possibly fatal, run on its two large banks. It must also be the case that the resources of the IMF were deemed too slim for the task.

[8] The Republic of Korea has become one of 14 countries having such a temporary reciprocal currency arrangement with the US.

Table 2.1 Swap arrangements in November 2011 ($ Million)

	9 November 2011	Operations during week ending16 November 2011			16 November 2011
	Outstanding (A)	Matured (B)	Drawn (C)	Terms[a]	Outstanding (A − B + C)
Bank of Canada	0	0	0	NA	0
Bank of England	0	0	0	NA	0
Bank of Japan	2	2	1	7-Day, 1.1 %	1
	100	0	0	NA	100
European Central Bank	505	505	500	7-Day, 1.08 %	500
	1,353	0	395	84-Day, 1.09 %	1,748
Swiss National Bank	0	0	0	NA	0
Total	1,960	507	896	NA	2,349

(A) Total value of swaps that has been settled, but has not yet matured as of, and including, the date at the top of the column
(B) Total value of swaps that was unwound during the week. The "week" begins on the business day immediately following the date referenced in A through the week ending date
(C) Refers to the total value of swaps that have settled during the week, but have not yet matured
[a]Annualized interest rate of the transaction. Only includes terms for transactions referred to in "C".
NA not available
Source: Board of Governors of the US Federal Reserve System. Central Bank Liquidity Swaps. http://www.federalreserve.gov/monetarypolicy/bst_liquidityswaps.htm

The fact that these arrangements were put in place quickly and worked efficiently may suggest that there is no need for further reform in this direction. This would ignore that the agreements only concerned developed countries, with the sole exception of the Republic of Korea. As globalization deepens and emerging economies grow, more countries may need to establish swap lines with the providers of international currencies. How could that be organized?

Cooperative Arrangements Among Major Central Banks

The swaps will involve providers of liquidity and countries that are potentially users. One lesson of the global financial crisis is that today's providers may be tomorrow's users, and vice versa. This means that the swap agreements should be able to work both ways. The swaps should concern currencies that are used in financial systems since the purpose is to keep up short-term borrowing by banks and financial institutions when private lenders suddenly withdraw. For many years to come, the dollar and the euro—assuming that it will survive the ongoing crisis—will remain the main currencies needed, but the pound sterling, the yen, and the

Swiss franc play a non-negligible role. This implies that the Fed and the European Central Bank will serve as the de facto global lenders of last resort and providers of emergency liquidity, alongside the Bank of England, the Bank of Japan, and the Swiss National Bank. Other central banks will join either because they hold large reserves that they are willing to mobilize, or because their own financial systems may face sudden stops. The list could include the central banks of Canada, Australia, and New Zealand, and, of course, the central banks of emerging economies that are active in international finance.

The swaps could be permanent agreements or they could be activated in times of emergency along an agreed-upon template. The key issues are amounts, maturity, and interest rate. Maturity and interest rates could be similar to those for the IMF's FLC, which swaps are meant to complement because of the required size. In principle, swaps are most effective when they are provided in unlimited amounts because this is what it takes to convince the markets that the situation is under control. On the other hand, unlimited swaps raise serious moral hazard issues, to which we return below. It is interesting that, in the case of the Republic of Korea in 2008, the amounts were limited and not even very large, and yet they seem to have been effective.

Park (2011) shows that the won turned around after the Fed offered a swap to the Bank of Korea. This is strong evidence but we know that markets are forward looking and that they often need some signal to coordinate divergent expectations. An alternative interpretation of this episode runs as follows. By the time of the swap agreement with the Fed in October 2008, the won had already suffered a severe depreciation, and it was clearly undervalued. The markets must have expected a turnaround. The agreement probably started to reinforce this impression, and yet the won kept depreciating (Fig. 2.3). A month later, a first rally occurred but fizzled out. Two weeks later swaps with Japan and the PRC were concluded and yet the won depreciated again until, finally, it started a durable appreciation phase.

It is not clear whether the end of depreciation came because of the swap agreements or because "what goes up must come down" (a correction of sharp undervaluation). At least, the limited swaps did not produce immediate effects, as one sees when the commitment is unlimited.

If the G20 countries were to take the initiative and establish swap agreements among themselves, it would send a clear signal that member countries are prepared to avert any impending liquidity crisis. Naturally, there is a moral hazard concern. A liquidity backing could reduce discipline in managing macroeconomic policy and in overseeing banks and other financial institutions. Some guarantee will be required. This brings us back to the IMF's prequalification process of the FCL and PCL facilities. This observation suggests that unlimited swap agreements could be associated with these facilities. Prequalified countries would have access to a first line of defense, the IMF facilities, in case of external imbalances and to unlimited swaps in case of liquidity withdrawal.

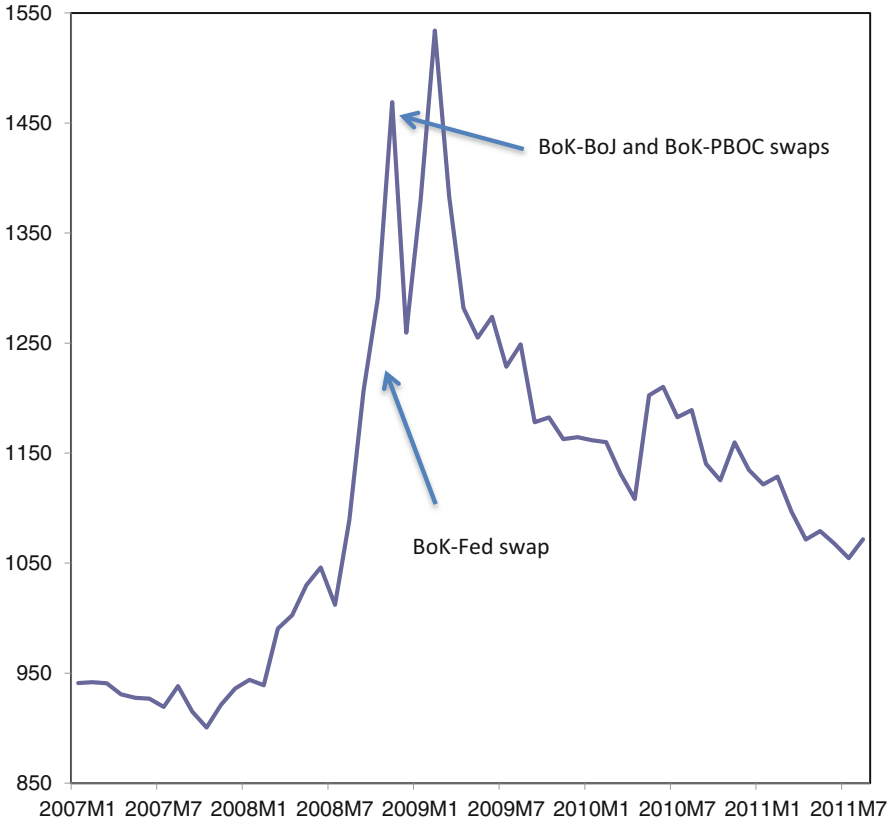

Fig. 2.3 The won–dollar exchange rate. *BoJ* Bank of Japan; *BoK* Bank of Korea; *Fed* US Federal Reserve; *PBOC* People's Bank of China. *Source*: ECOS. http://ecos.bok.or.kr/ (accessed 19 March 2012)

2.7 Enhanced G20 Cooperation

In 1971, US Treasury Secretary John Connolly disappointed his colleagues by telling them that US monetary policy only concerns itself with US domestic considerations. Forty years later and following the creation of the G20 leaders' summit, has the situation changed? Brazilian claims that the US was waging a currency war through its second round of quantitative easing (QE2) elicited exactly the same answer from the Fed. On the other hand, successive G20 summits have shown European leaders under pressure from their peers to take more determined steps to deal effectively with the sovereign debt crisis.

An early decision by the G20 had been to ask the IMF to play a referee role in dealing with exchange rate disputes. In practice so far, the IMF has been asked to examine whether the yuan is overvalued and it conducts a yearly mutual assessment

process (MAP) exercise that seeks to outline what optimal policy coordination could be. This is meant to be soft coordination, relying primarily on peer pressure.

Before each G20 summit, the IMF releases a series of MAP documents. To prepare these documents, the G20 authorities provide the IMF with their own forecasts of main macroeconomic developments, directly related to their current and anticipated policy decisions. The MAP reports provide a critical evaluation of these forecasts. They also evaluate the policies from the angle of international cooperation and make suggestions to those countries that, in the view of the "good referee," they could do more to act collectively. The recent MAP reports are straightforward in their assessments. They provide ammunition for any G20 member who wishes to criticize the others in the spirit of peer pressure.

Soft coordination has been experimented with previously. The G7 too operated on this basis. Most assessments of the G7 conclude that it almost never succeeded in changing national noncooperative policies.[9] The main exception is the 1978 decision that Germany and Japan would play the role of world economic locomotive by adopting expansionary fiscal policies because they had room for maneuver. Kenen et al. (2004) note that this high point of international coordination "continues to be debated, especially in Germany where it was widely seen as the cause of a pickup of inflation in 1979" (p. 9). A good case can be made that it was a positive step at the time but was overtaken by the second oil shock in 1979. This was the main impetus for a revival of inflation in Germany.

Another example of soft coordination is the European Union's adoption in 2000 of the Lisbon 10-year strategy. The objective was to encourage countries to adopt politically difficult supply side policies, using peer pressure as a counterweight to national vested interest pressure. The strategy involved annual reports evaluated by the European Commission almost exactly in the same way as the MAPs. These reports were on the agenda of annual summits mainly devoted to the Lisbon strategy. The mid-term Kok Report (European Commission (EC) 2004) warned that the strategy was not working but failed to elicit changes. By its final target date of 2010, the strategy was officially recognized as a failure (and yet it was relaunched as Europe 2020). The lesson is clear: political leaders are highly reluctant to criticize each other regarding their conduct of domestic policies. This reluctance could be overcome if important external forces are involved. The ongoing debate between the PRC and the US on the yuan policy is one example of a perceived large external force. So far, peer pressure has been relatively low and ineffective. The 2011 Cannes Summit has also illustrated the limits of soft coordination. It took place during a period of acute debt crisis in the eurozone. In fact, the crisis overtook the agenda, which is normal since a worsening of the situation is bound to have severe global repercussions. Acute peer pressure was exercised

[9] The G7 was more successful as a tool to provide guidance in matters of international institutions, in particular regarding the IMF (its instruments and governance). This also applies to the G20, which has promptly changed voting rights and expanded IMF resources.

on the Italian Prime Minister Berlusconi who accepted IMF oversight, without applying for a loan and signing any agreement.

Because of its historical importance, this particular event encapsulates most of the important issues of international cooperation. In an ideal world, the summit would have articulated publicly before the meeting the steps that it deemed necessary to be taken by the European leaders to stop the debt crisis and they would have committed to follow these recommendations. This would have required that some non-eurozone countries prepare the required document or that an independent secretariat makes a proposal. The earlier route is arguably intrusive, but the latter one exposes one of the weaknesses of the situation. The G20 does not have a secretariat of its own, intentionally so. The IMF's MAP report could have played that role, but stayed well away from taking such a step. This left the leaders with the responsibility of deciding how far they would go with peer pressure.

Without a clear view on what it would take to solve the European debt crisis, they limited their mutual criticism to confronting Italy, which was at the time in acute crisis. They did not even press the Italian leader for explicit commitments but delegated the task to the IMF. Enhanced monitoring of Italian policies is unlikely to be needed for the IMF to formulate policy recommendations. The gesture is more symbolic than practical and, quite possibly, hastened the downfall of Prime Minister Berlusconi. Thus peer pressure had a political impact, but did not result in a well thought out design of policy cooperation. Proper use of the G20 should instead involve policies, not indirect impact of national politics, no matter how justified there are. This will make the G20 leaders more prudent with each other.

The experience with the G20 so far confirms what was learned from the G7 experience: it is most unlikely that soft coordination can be effective. Growing interdependence implies that the externalities are becoming more numerous and more sizeable, and therefore enhances the case for policy coordination. Effective coordination means that individual countries would accept to carry out policies that they would not choose otherwise. This can be in their best interest because of externalities, but internalization is often perceived as a loss of sovereignty. In fact, a systematic internalization of international externalities is a loss of sovereignty. Examples of successful systematic internalization that raise global welfare include World Trade Organization membership and Europe's Single Market, which take the form of international treaties that are binding national legislation.

As far as macroeconomic policies are concerned, in the absence of hard coordination that takes the form of international treaties, softer coordination among sovereign countries requires rules and procedures. The reason is that ad hoc responses to particular problems—such as a currency weakness or a financial crisis—involve high transaction costs that most often will exceed the benefits from one-off coordination. There are rules that govern IMF membership. The IMF has accumulated expertise and has real time information on the macroeconomic situation in its member countries. It can make recommendations but these are rarely taken to heart in the absence of conditionality. In fact, the influence of its recommendations seems inversely proportional to country size, because there are no rules.

On the other hand, a number of countries can be labeled systemically important. Policy errors in the eurozone stand to impose major costs to the global economy. The Fed's quantitative easing has important externalities worldwide as does the PRC's high savings rate. A sovereign debt crisis affecting the Japanese economy would have important ramifications. In the decades to come, this group of systemically important countries (SICs) stands to expand. These are the countries for which transaction costs of effective coordination are likely to be smaller than the global costs of policy errors. The SICs must be subject to rules and procedures.

Like the G7, the G20 is a self-appointed group that pretends to exercise world leadership. As such, it lacks legitimacy. Its leadership would be more acceptable if membership came with explicit responsibilities toward the rest of the world. It would seem natural, therefore, that G20 membership should entail the acceptance by its member countries that they are deemed SICs and, as such, that their economic policies are a matter of interest to all countries. This could lead to a re-adjustment of the G20 membership as some countries might choose not to accept to be bound by collective decisions.

The MAP exercise has given the IMF some authority to make recommendations to the G20 countries, and therefore to the SICs. Three more steps are required. First, these recommendations should be presumed to be binding. At present, the G20 leaders may or may not debate the MAP reports. In practice, it seems that each one uses selected parts of these reports to buttress their views and chooses to ignore the parts that they does not like. The procedure could be changed by requiring that the IMF's managing director present recommendations that each member country would, in principle, be asked by the peers to follow. These should not be the routine observations that are currently cluttering the MAP reports. The recommendations should concern systemically important risks.

Second, the IMF should be made more independent. Suggestions to that effect are presented in De Gregorio et al. (1999). Currently, the executive board members are explicitly representing their governments. This makes the board highly politicized and subject to the criticism that developed countries hold excessive power. The result is a zero-sum-game, and therefore with conflicting discussions about the redistribution of voting rights. An independent IMF would be depoliticized and judged on the quality of its work. This would be achieved by making the board similar to central bank boards. Clearly then, the board should be accountable to its members. This would require turning the IMF into a supervisory board that would meet regularly, say once every 3 months, to discuss reports from the managing director, the *primus inter pares* of the executive board.

Third, the IMF's recommendations should be seen as the best policy options. The IMF's track record includes numerous successes but also some mistakes. In response to its widely criticized interventions during the 1997–1998 Asian financial crisis, the IMF set up the Independent Evaluation Office, which has produced many reports, some pinpointing serious policy errors. These reports, however, do not have consequences. Raising the status of the Independent Evaluation Office and linking board members to its findings stands to inject more self-criticism into the organization.

2.8 Conclusion

At this stage of the debate on the reform of the international monetary system, few proposals seem appealing and agreeable to both advanced and emerging economies alike. Paradoxically, the dollar's role as the dominant reserve currency has been reinforced as the eurozone economies are struggling to keep the single currency arrangement alive. The dollar is the worst international currency, except for all the others. Not surprisingly, the talk of elevating the status of SDRs has been going nowhere. Brazil, Russian Federation, India, and the People's Republic of China (a group known as BRICs) meet intermittently to advance and articulate their causes including the creation of a BRICs development bank, but seldom agree on anything of substance. The leaders of ASEAN+3 will continue to promise a bright future of regional economic integration in East Asia against their past poor performance. In this confusing state of global economic affairs, the IMF has made inroads into bringing itself back onto the center stage of global economic management.

The future of the international monetary system will depend on the prospects for recovery in the eurozone. If the eurozone economies emerge from the ongoing crisis with regained competitive strength, the discussion on the reform of the international monetary system and the need for the G20 process will fade away as the world currency arrangement and economic management will be shaped by a three-polar system consisting of the US, the PRC, and the eurozone. On the other hand, if the eurozone crisis is prolonged, both developed and emerging economies will have to turn to the G20 summit as the only international forum where they could agree on what is to be done, although few of their decisions will be enforceable. In this state of confusion and uncertainty the global economy will muddle through without knowing where it is going. Only when it hits an iceberg as it did in 2008, will the G20 leaders restart the reform of the international monetary system.

References

Bank for International Settlements (BIS). (2011). Global liquidity: Insights from the BIS statistics. Notes for a meeting of the G20 subworking group on global liquidity management. March 25.

Calvo, G. A. (2010). *Controls on cyclical capital inflows: Some skeptical notes*. Paper prepared for the XXXI Latin American Network of Central Banks and Finance Ministries, IADB, April 22–23.

Calvo, G. A., & Reinhart, C. (2000). When capital inflows come to a sudden stop: Consequences and policy options. In P. Kenen & A. Swoboda (Eds.), *Reforming the international monetary and financial system*. Washington, DC: International Monetary Fund.

Cardenas, M., & Barrera, F. (1997). On the effectiveness of capital controls: The experience of Colombia during the 1990s. *Journal of Development Economics, 54*(1), 27–57.

De Gregorio, J., Eichengreen, B., Ito, T., & Wyplosz, C. (1999). *An independent and accountable IMF: Geneva report on the world economy 1*. Geneva/London: International Centre for Monetary and Banking Studies and Centre for Economic Policy Research.

Dooley, M. (1996). A survey of academic literature on controls over international capital transactions. *IMF Staff Papers, 43*, 639–687.

Eichengreen, B. (2009). The dollar dilemma. *Foreign Affairs, 88*(5), 53–68.
Eichengreen, B., Tobin, J., & Wyplosz, C. (1995). Two cases for sand in the wheels of international finance. *Economic Journal, 105*, 162–172.
European Commission (EC). (2004). *Facing the challenge. The Lisbon strategy for growth and employment*. Report from the High Level Group chaired by Wim Kok. Luxembourg: Office for Official Publications of the European Communities.
Habermeier, K., Kokenyne, A., & Baba, C. (2011). *The effectiveness of capital controls and prudential policies in managing large inflows*. IMF Staff Discussion Note SDN/11/14.
Hahm, J-H., Mishkin, F. S., Shin, H. S., & Shin, K. (2010). *Macroprudential policies in open emerging economies*. Paper prepared for the Bank of Korea.
International Monetary Fund (IMF). (2010). Global liquidity expansion: Effects on "receiving" economies and policy response options. In *Global financial stability report: Meeting new challenges to stability and building a safer system* (pp. 119–151). Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2011a). *Measuring global liquidity*. Technical note for G20 subworking group on measuring global liquidity.
International Monetary Fund (IMF). (2011b). *Statement by IMF Managing Director Christine Lagarde on central banks coordinated dollar liquidity action*. IMF Press Release No. 11/336. September 15.
Kaminsky, G. L., Reinhart, C. M., & Vegh, C. A. (2005). When it rains, it pours: Procyclical capital flows and macroeconomic policies. In M. Gertler & K. Rogoff (Eds.), *NBER macroeconomics annual* (pp. 11–82). Cambridge: MIT.
Kenen, P. B., Shafer, J., Wicks, N., & Wyplosz, C. (2004). *International economic and financial cooperation: New issues, new actors, new responses: Geneva reports on the world economy 6*. Geneva/London: International Centre for Monetary and Banking Studies and Centre for Economic Policy Research.
Ostry, J. D., Ghosh, A. R., Habermeier, K., Chamon, M., Qureshi, M. S., &. Reinhardt, D. B. S. (2010). *Capital inflows: The role of controls*. IMF Staff Discussion Note SPN/10/04.
Ostry, J. D., Ghosh, A. R., Habermeier, K., Laeven, L., Chamon, M., Qureshi, M. S., & Kokenyne, A. (2011). *Managing capital inflows: What tools to use?* IMF Staff Discussion Note SDN/11/06.
Park, Y. C. (2009). *Global economic recession and East Asia: How has Korea managed the crisis and what it has learned*. Working Paper 209. Institute for Monetary and Economic Research, The Bank of Korea.
Park, Y. C. (2011). The role of macroprudential policy for financial stability in East Asia's emerging economies. In E. Prasad (Ed.), *The role of macroprudential policy for financial stability in East Asia's emerging economies*. Washington, DC: The Brookings Institution.
Park, Y. C. (2012). A macroprudential approach to financial supervision and monetary policy in emerging economies. *KDI Journal of Economic Policy, 34*(1), 3–27.
Park, Y. C., & Song, C.- Y. (2011). RMB internationalization: Prospects and implications for economic integration in East Asia. *Asian Economic Papers*.
Shin, H. S. (2010). *Procyclicality in advanced and emerging economies*. ADBI Distinguished Speaker Seminar. Tokyo. August 25.
Wyplosz, C. (2010). The dollar is the worst international currency, except for all the others. *What Matters*. 12, 1–3.

Part II
Managing International Capital Flows

Chapter 3
Rethinking Capital Flows for Emerging East Asia

Stephen Grenville

Abstract Since the 1980s, emerging countries have been urged to welcome foreign capital inflows. The result has often been a pattern of surges where excessive inflows were followed by damaging "sudden stops" and reversals. This was dramatically evident in the Asian financial crisis of 1997–1998. Since that crisis, the emerging countries of East Asia have typically run current account surpluses and have accumulated substantial foreign exchange reserves. This has kept them largely protected from the impact of volatile capital flows, but this strategy is neither sustainable nor optimal.

What is needed is a strategy that makes use of the potential benefits of capital "flowing downhill" (that would require these countries to run current account deficits) while at the same time protecting them from both the excessive inflows and the reversals. This strategy needs to take account not only of the fickle nature of the capital flows, but the structurally-higher profitability which is characteristic of emerging countries, which motivates the excessive inflows. This strategy would require more active management of both exchange rates and capital flows than has been the accepted "best practice", this requires a substantial shift in the current policy mindset. The International Monetary Fund has shifted some distance on this issue, but has further to go.

Keywords Asian financial crisis • Capital flows • Current account • East Asia • Financial markets

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_3,

3.1 Introduction

Policy perspectives on capital flows have shifted markedly over time. Since the 1980s developing countries have been urged to deregulate financial markets and encourage capital flows. The flows were seen as unambiguously beneficial and any attempts to control them were seen as largely futile. The 1997–1998 Asian financial crisis should have modified this mindset. There were many issues involved, but the huge inflow of capital beforehand set up unsustainable macro and financial imbalances that unwound during the crisis, and the adjustment to these imbalances left a legacy of lost output, permanent scars, and ongoing distortions to optimal policy. To the extent that the policy message changed, however, it focused on the desirability of floating exchange rates as the buffer that would ensure the benefits of capital flows.

This chapter looks at the response of the East Asian emerging economies to the crisis experience and the impact this had on capital flows, including in economies that were not directly affected by the crisis. Section 3.2 looks at the changing mindset on capital flows, with Sect. 3.3 recording where current thinking has reached—particularly in the International Monetary Fund (IMF). Section 3.4 looks at the motivations of capital flows (particularly the intrinsic differences of profitability between emerging and mature economies) and the data on flows. Section 3.5 looks at the widely accepted set of benefits associated with capital inflows, and notes that these are largely irrelevant in the specific context of East Asia. Section 3.6 sets out the IMF's current position on managing capital flows (noting the hierarchical nature of the response, with capital flow management used only as a last resort). Section 3.7 offers the tentative outline of a different approach, in which capital flow management might figure more prominently. Section 3.8 concludes.

3.2 The Changing Mindset Toward Foreign Capital Flows

The attitude toward capital flows has undergone dramatic swings since Bretton Woods established the framework and norms for international transactions after World War II. At the time of Bretton Woods (and for more than two decades afterwards) it was widely accepted that capital flows might be disruptive and should be treated differently from trade flows. Trade flows were seen as being unambiguously beneficial and must not be restricted: in contrast, capital controls were not only acceptable, but were the norm.

With generalized floating of exchange rates in 1971, capital flows came to be seen as part of the equilibrating process, the more so because market-based outcomes had become the intellectual norm. Advocacy of unregulated capital flows reached its peak in 1997, with efforts to incorporate free capital flows into the IMF Articles, on a par with the commitment to free trade in goods and services (IMF 2005).[1]

[1] That said, it is noted that even in this period there were voices disagreeing with these efforts (for example, Bhagwati 1998).

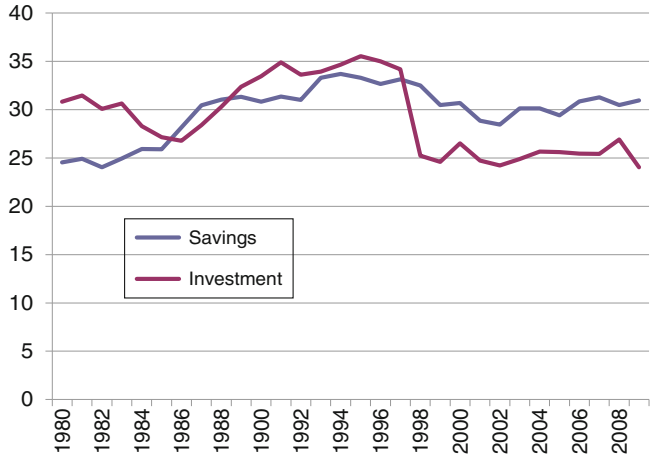

Fig. 3.1 Emerging Asia: savings and investment (% of GDP). *GDP* gross domestic product. *Note*: Excludes the People's Republic of China and India. *Source*: IMF (2010b)

The 1997–1998 Asian financial crisis might have provided the basis for a counter argument, with the potential to steer the debate in the direction of a more cautious and nuanced attitude to capital flows. The crisis economies had, by and large, followed the free-market prescription (with appreciating real exchange rates and current account deficits widening to achieve the real resource transfer corresponding to the financial inflows) and this had turned out badly. But the crisis was widely misdiagnosed as being a product of domestic policy mistakes and cronyism rather than excessive capital inflows.

The response to the Asian crisis occurred on two different tracks. On the first track, the strong lessons taken from the crisis were that fixed but changeable exchange rates could not be sustained and that these economies would have to move to a free float (Fischer 2001).

On the second track, policymakers in the economies that had been affected by the crisis accepted this market-oriented view without overt disagreement. In practice, however, while they no longer tied their exchange rates closely to the United States (US) dollar, nor did they let exchange rates float freely. The objectives were twofold: exchange rate stability and maintaining strong international competitiveness.

The capital outflows of the crisis period and the immediate aftermath gave the crisis countries no choice but to run substantial current account surpluses. When net capital inflows resumed around 2002, these economies saw no reason to reset policy or let exchange rates rise too much. The typical macro configuration after the crisis was slower growth, less investment, current account surpluses replacing deficits (Fig. 3.1), and a successful management of the exchange rates to keep exports competitive (Fig. 3.2), involving a large build-up in foreign exchange reserves.

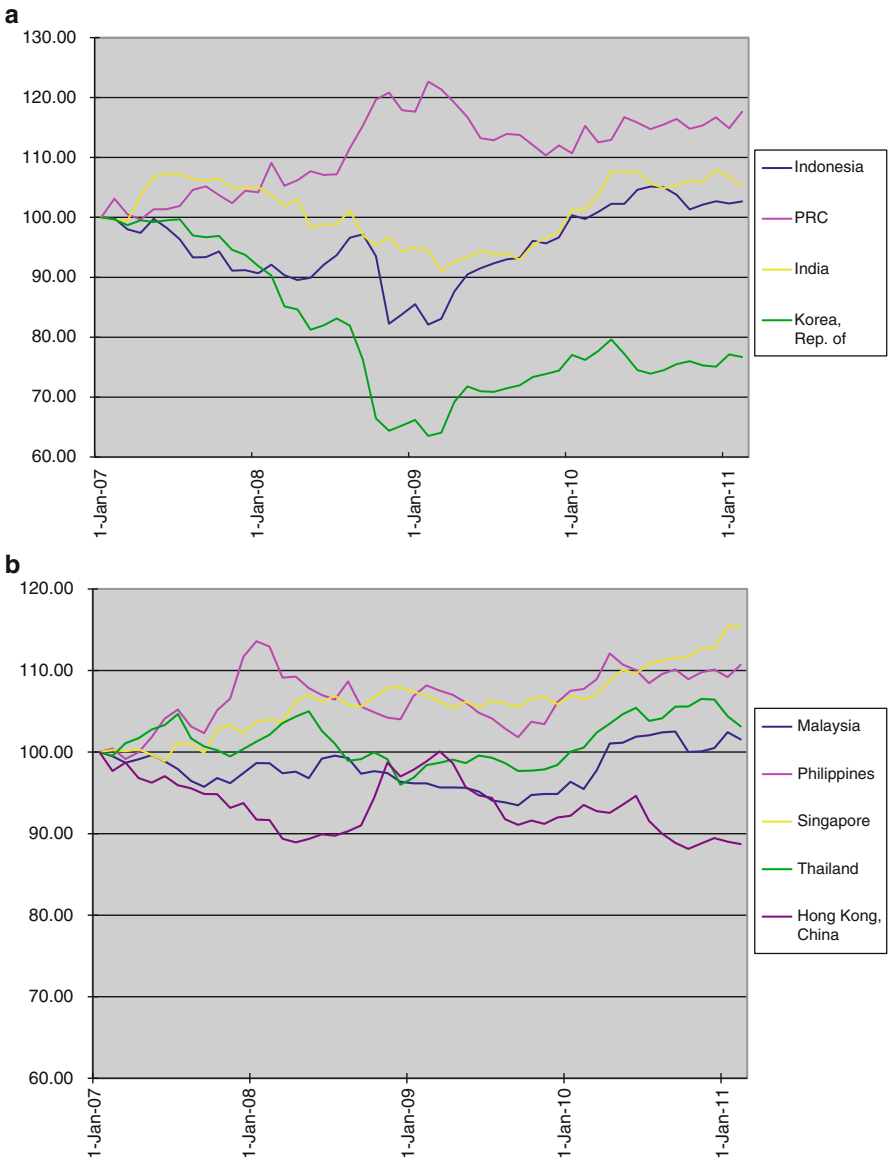

Fig. 3.2 Real effective exchange rates (2000–2007 = 100). *PRC* People's Republic of China. *Source*: Filardo et al. (2011)

This policy approach remained viable for the decade or so following the Asian crisis (Kawai and Lamberte 2010). But this strategy is now running out of room for maneuver for many of the East Asian economies.[2] The replacement strategy now being explored is managing the capital flows, rather than the consequential exchange rate pressures. Until recently, the received wisdom has been that management would be futile.[3]

3.3 Current Thinking on Capital Flows

The current thinking on management of capital flows seems to be at an inflection point. Views have moved significantly but not only is unanimity lacking, the current positions seem to be transitional rather than conceptually well founded. This is best illustrated by the IMF's position. For decades a strong advocate of free capital flows (demonstrated most clearly by the 1997 attempt to give such flows the same status as trade flows in the IMF Articles[4]), the active debate by the IMF staff over the past two years recognizes the potential dangers of excessive capital flows and is prepared to countenance measures to manage the flows (Ostry et al. 2010; Ostry et al. 2011). Meanwhile the IMF Executive Board still has a majority of the old mindset, reluctantly prepared to see temporary management of capital flows, but only after all other possible measures have been exhausted (IMF 2010a; IMF 2011c).

The three-decade period where free flows dominated the analytical and intellectual debate has left a void. In that mindset, no policy choices were required (beyond

[2] Hong Kong, China and Singapore now have foreign reserves as large as their GDP, and the People's Republic of China, Malaysia, and Thailand have reserves equal to around half of their GDP. At these levels the problem is not so much a technical inability to sterilize, but the quasi-fiscal costs of doing so and the huge risks that central banks face in their foreign exchange exposure. Even a modest appreciation, recorded using internationally accepted accounting methods, would wipe out central bank capital and put them deeply into negative equity, subject to the sort of public criticism that weakens central bank independence (Filardo and Grenville 2011).

In any case this strategy provides very little positive benefit for the recipient economies. There is no real-resource transfer. Official reserves are just acting as a liquidity buffer ready to fund the outflow when foreigners (who have benefitted from the higher domestic returns) decide to get out.

[3] A large amount of literature (IMF 2005; Kawai and Takagi 2010), explored the ineffectiveness of such attempts particularly drawing on the experience of Latin America, with the Chilean *encaje* being the prime example. Attempts to answer the question of effectiveness through econometrics were limited by the endogenous policy response: controls were put on when the capital inflow was strongest and taken off when flows weakened.

More recently in East Asia, there were some attempts to use controls (for example, Thailand in December 2006) and some macroprudential measures in Indonesia and the Republic of Korea but most economies accepted the prevailing view that such controls had limited effectiveness.

[4] But also the OECD pressure on the Republic of Korea leading up to its membership in 1996.

floating the exchange rate), so none evolved. With this mindset revised, then difficult policy options now have to be sorted out. Are some of the components of inflows more beneficial than others and are some components more amenable to management? What instruments are effective in managing flows? How will international tensions be resolved where there is conflict between different country managements (for example, when countries are running low interest rates to stimulate domestic activity, how should trading partners view the unwelcome appreciation of their own currencies?).

Even at the basic level, we are far from understanding the forces driving capital flows. A firm starting point is the identity that the savings/investment balance equals the current account balance and the net capital flows. But we don't know which of the elements in the identity predominates and how they interact to maintain the identity. If the savings/investment balance is most important, explanations for net capital flows will be found in the savings and/or investment determinants, and the conventional national accounts framework will be relevant. Exports and imports will also be part of this national-accounts-based approach.

If the flows themselves are the driving force, these would require analysis in terms of gross rather than net flows (the decision makers are usually focused on gross rather than a net figure, which confounds multiple decision makers).[5] These are financial flows, caught in the flow-of-funds accounts, not directly reflected in the national accounts (Borio and Disyatat 2011).

The decisions are portfolio choices, so we should be looking at stock positions rather than flows. And even here the outcome usually reflects the two sides to a transaction (for example, both borrower and lender), so questions of "push" and "pull" factors may both be relevant. These financial flows may well have their initial impact on asset prices rather than national accounts flows, and the interconnection between the new portfolio equilibrium and economic activity (via wealth effects and relative interest rate changes) is so complex that it will be hard to get a firm handle on it. As well, the data are incomplete. We do not have a proper handle on the volume of carry-trade (McCauley 2010) and important parts of the interaction (for example, derivatives offered by the branches of foreign banks and transactions taking place in the non-deliverable forward markets) may not be caught in the balance-of-payments data, even though their impact is similar to the flows which are recorded in the balance of payments. In short, we are at a very early stage in understanding capital flows.

[5] Just to complicate the story, however, some inflows have closely related outflows (for example, with derivatives and forward cover, and when the economy is acting as a financial intermediary for another economy as in Hong Kong, China for the People's Republic of China).

3.4 Explaining Capital Flows

Developed Economies

With these different influences in mind, a useful starting point is to note the broad characteristics of flows in developed economies and to contrast these with emerging economies. In gross terms, developed economy flows have increased very substantially in recent years, whether measured in dollar terms or as a percent of gross domestic product (GDP) (Figs. 3.3 and 3.4). They fell dramatically in 2008. Before 2008, gross flows were huge compared with net flows (financial flows were much bigger than real flows), reflecting the very high degree of financial integration. This expanded two-way financial interaction seems much more important than interest differentials in explaining flows: after all, if interest differentials were the main driver, gross flows would be predominantly in one direction for each economy and net flows would be relatively bigger.[6]

In contrast, for the emerging economies, gross flows as a percent of GDP have increased only modestly since the spectacular rise in the early 1990s. For the past decade or more, emerging economy net private inflows have been more than offset by outflows in the form of reserve holdings: the emerging economies have not used the flows to achieve real-resource transfers (Fig. 3.5). Capital is "flowing uphill."

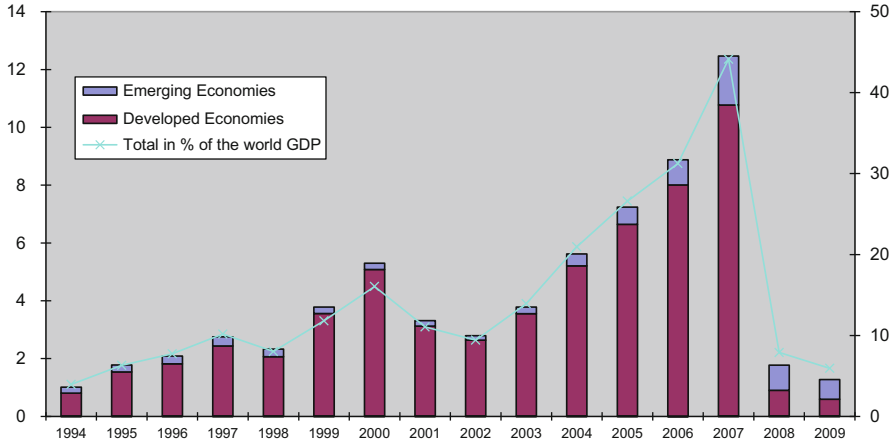

Fig. 3.3 World gross capital flows (trillions of dollars). *GDP* gross domestic product. *Note*: Low-income economy data are small and thus do not show on this figure. *Sources*: IMF (2011a, 2011e)

[6] Becker and Noone (2008) note the predominance of the two-way flows and also draw the conclusion that the usual volatility relativities (with foreign direct investment (FDI) the most stable and bank flows the most volatile) do not hold for mature country flows.

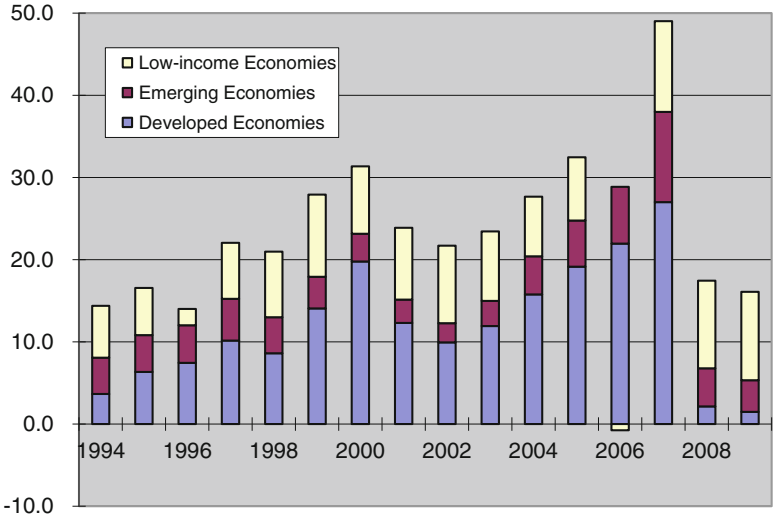

Fig. 3.4 World gross capital flows (% of GDP). *GDP* gross domestic product. *Sources*: IMF (2011a, 2011e)

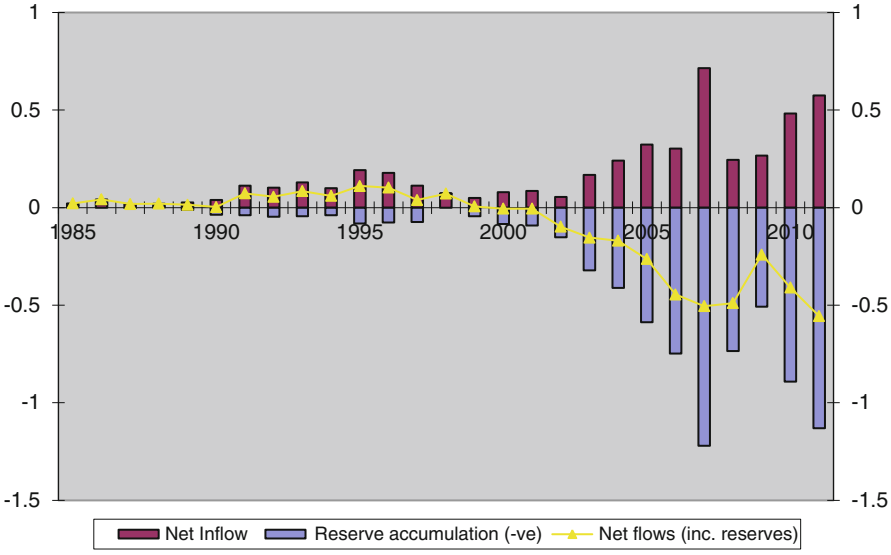

Fig. 3.5 Emerging economy net flows (% of GDP). *GDP* gross domestic product. *Sources*: IMF (2011a, 2011e)

Emerging Economies

What are the important motivations and characteristics of emerging economies explaining this outcome?

As emerging economies converge toward the technological frontier their capital stock is being built up from modest per capita starting levels, to eventually match the levels of the developed economies at some time in the future. During this transition productivity will greatly increase and returns to capital will be high: the Wicksellian "natural" interest rate in the emerging economies will be substantially higher than in the developed economies. This might be expected to be the principal underlying driver of the flows.[7]

The extent of the Wicksellian differential can be illustrated by comparing equity returns. $100 invested in stock markets in Asia at the end of 1999 would have quadrupled in value in Indonesia and India, with most of the other emerging economies shown here doubling or tripling.[8] Left in United States (US) equities, the increase was around $15.[9] $100 invested in US government short-term bonds would have accumulated to $119 between end-2001 and end-2010, but placed in local currency 1-year official-sector bonds in Asia would have accumulated to a dollar equivalent of $180 in India and Thailand, and would have nearly trebled in value in Indonesia (Fig. 3.6).

The flow responses to this Wicksellian differential do not reflect an equilibrium process: convergence is constrained by idiosyncratic impediments and absorptive limitations. These limits are set by the still evolving financial infrastructure necessary to channel and absorb the flows (such as physical institutions and systems, bond markets, and financial skills). Deeper institutional links make it easier for foreigners to invest and for domestic investors to borrow overseas. As the flows get larger, it is profitable for the financial sector to improve its infrastructure through development of derivative and forward markets. Better knowledge expands the flows by making portfolio managers more aware of the possibilities and

[7] The importance of the Wicksellian interest differentials is best seen in the growing importance of the "carry-trade" flows. These are often seen in terms of a narrow definition of the carry trade—those flows directly involving two legs (borrowing and lending) in order to exploit the interest differential. But it is more useful to think of these flows that are responding to the higher-interest leg of the interest differential, which would include flows from fund-management portfolios (that is, which don't have the borrowing leg) and those flows that are derivative-based, characteristically not including a "borrow" leg. With this broader notion in mind, it is not possible to establish the volume of these interest-driven flows.

[8] It is worth noting that the lowest equity returns are typically from those economies whose convergence is largely complete: Hong Kong, China and Singapore.

[9] The starting point is chosen to be the longest period post Asian crisis for equities, and for the longest period of data availability for bonds. Moving the starting point into the early 2000s for equities alters the detail, but not the message. Based in 2001, for example, the United States (US) shows a return on $100 invested in equities of just under $30, while Indonesia shows an increase of $1,000 and India $500. Ideally an accumulation index would be used for this comparison but dividend payments are not very different between these countries and the US.

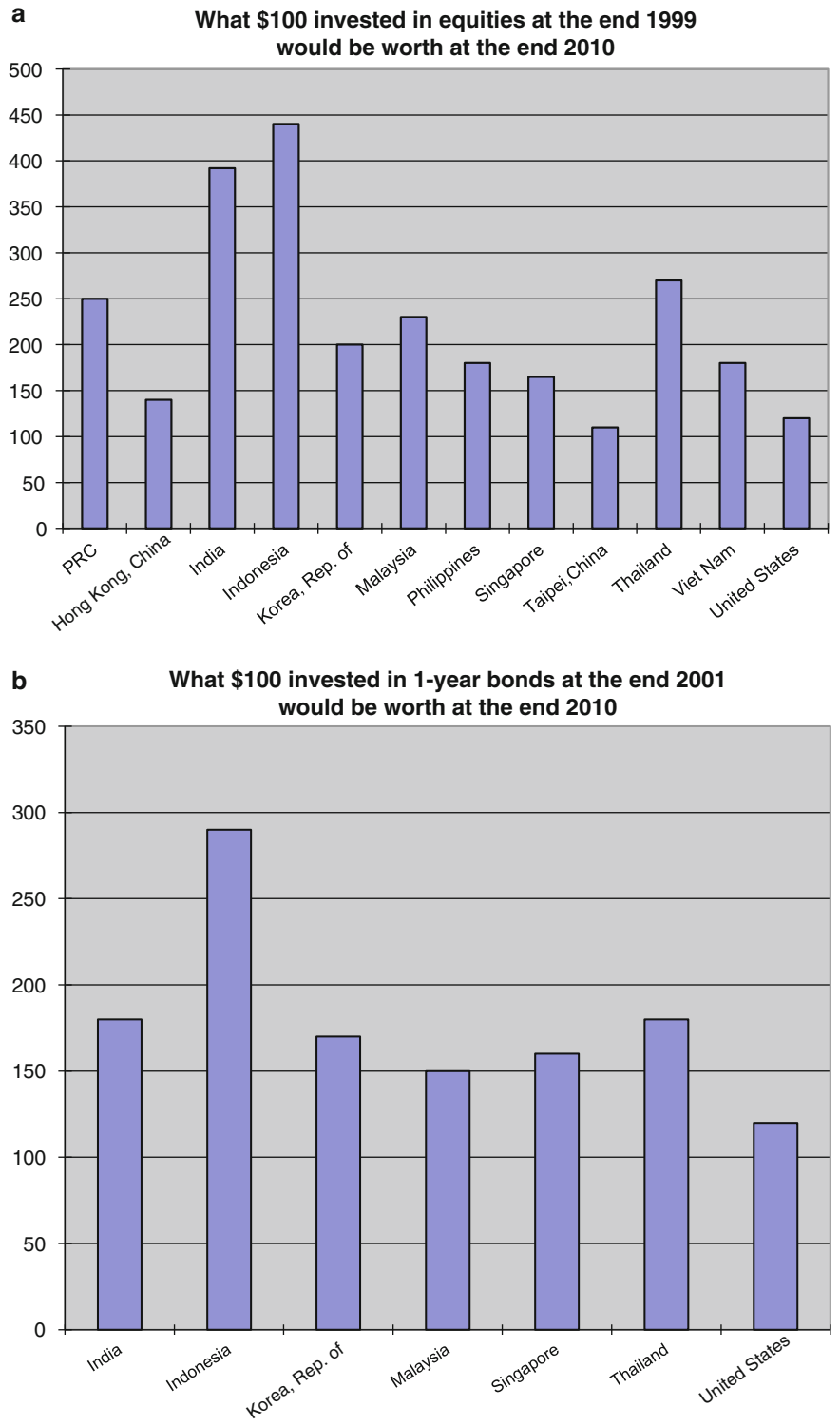

Fig. 3.6 Returns on equity and short-term bonds. PRC People's Republic of China. *Source*: Author's calculations

more confident to take decisions. Investment portfolios become more diversified: Asian assets are still grossly under represented. Remaining capital controls are diminishing over time, especially outflow controls.[10]

This underlying trend is periodically interrupted by reversals that are idiosyncratic and often not related to events in the recipient countries. In flow terms, these reversals can be very large (and are often negative), because they are driven by decisions relating to the stock of assets: the accumulation of the flows over years.

We can see these characteristics—the underlying trend flows, punctuated by sudden reversals—in the aggregate regional flows (Fig. 3.7).

Starting in the early 1990s, the institutional linkages required for substantial flows to East Asia began to develop,[11] and with them the flow volumes. This was a two-way process: as flows got bigger, institutional channels deepened, and this encouraged more flows.

The 1990s surge was enormous—with net inflows reaching more than 4 % of aggregate GDP (and much larger for Indonesia, Malaysia, the Philippines, Singapore, and Thailand—the five original members of the Association of Southeast Asian Nations, or ASEAN 5—see below). Gross flows continued to rise as a percent of GDP, but net flows have not so far matched the 1990s level.

Further disaggregation reveals the diversity of experience and circumstances.

India exhibits a strong upward trend in net and gross flows as financial integration progresses, with the growing importance of portfolio and banking flows introducing more variability in the net flows but with both these components clearly trending positively. These flows have provided ample funding for India's substantial current account deficit. In this aspect, India alone among the countries considered here follows the expected model of an emerging economy, with capital flowing "downhill" with trend increase (although still with important capital controls), at around the right rate to fund the deficit (the real transfer) together with a prudent rise in reserves.

[10] The exchange rate is of course an important element in flow decisions. The role of the exchange rate has changed somewhat since the Asian crisis. Before 1997, cross-border decisions were predicated on stability vis-à-vis the US dollar. Foreigners seeking higher returns and domestic borrowers seeking cheaper funds came to rely on a stable exchange rate. When in 1997 this assumption proved unfounded, transactions were dramatically reversed. Since the crisis, exchange rates have been more flexible (albeit managed), which was supposed to make the flows less volatile. But Uncovered Interest Parity does not hold: in fact the underlying trend in the emerging countries is towards appreciation (another reflection of the higher Wicksellian interest rates and the Balassa-Samuelson effect). Thus foreign investors (and domestic firms borrowing overseas) could generally anticipate not just higher interest rates, but as well an exchange rate appreciation over the medium term (McCauley 2010). Countries with larger nominal interest differentials (because of higher inflation) might be expected to have smaller appreciations. Thus investors in Indonesia received most of the Wicksellian dividend in the form of higher interest rates and less in the form of appreciation.

[11] This is often seen in terms of the removal of capital flow restrictions (and there is a large amount of literature attempting to measure this), but this is only a part of the story. Indonesia, for example, had removed capital flow restrictions in the 1970s, but the inflows were still restricted by other factors until the 1990s.

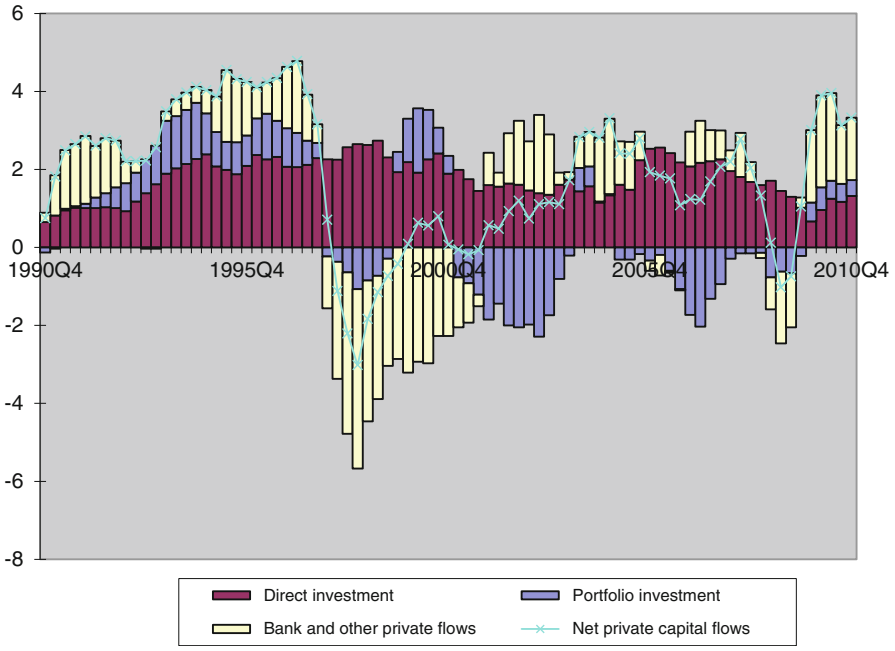

Fig. 3.7 Capital flows to emerging Asia (% of aggregate, GDP, four quarter moving average). *GDP* gross domestic product. *Source*: IMF (2011d)

The People's Republic of China (PRC) shows the dramatic once-off opening-up of inflows in the early 1990s,[12] with an early peak in foreign direct investment (FDI) and a downward trend (as a percent of GDP) since this early peak, with the rising importance of portfolio and banking flows (still constrained by capital controls) giving rise to considerable variation in net capital flows (Figs. 3.8 and 3.9).

The newly industrialized economies' (NIEs) flows are dominated by the two-way flows of the two financial centers of Hong Kong, China and Singapore.[13] These look much like the flows to mature economies (as would be expected, given the importance of the financial sectors in these two economies), with the net flows much smaller than the gross. The net flows, however, show much more variability than occurs in mature country flows (Figs. 3.10 and 3.11).

The ASEAN 5 show the overwhelming impact of the Asian crisis, described above, with a marked and sustained fall in investment. This story begins with the enormity of the net inflows in the 1990s, reaching 10 % of GDP before the 1997 crisis. During the crisis, outflows reached 8 % of GDP, not returning to positive territory until 2003.

[12] Some of these FDI inflows may, in fact, represent domestic capital "round-tripping" to gain benefits accorded to FDI.

[13] The Republic of Korea and Taipei,China are also included in this group.

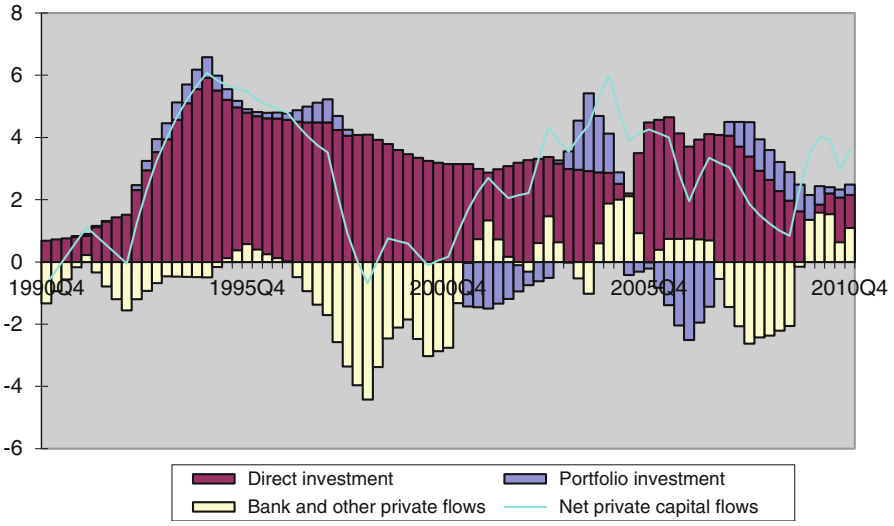

Fig. 3.8 Net capital flows to the People's Republic of China (% of GDP). *GDP* gross domestic product. *Source*: IMF (2011d)

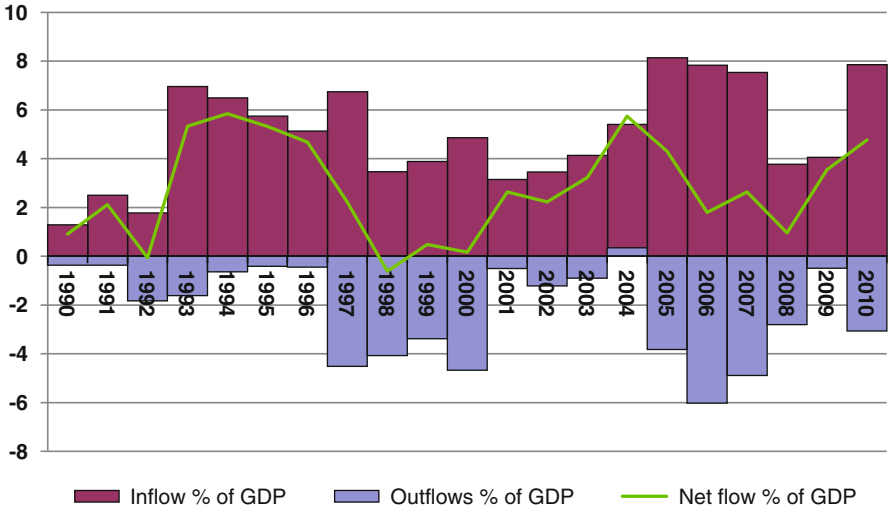

Fig. 3.9 Gross capital flows to the People's Republic of China (% of GDP). *GDP* gross domestic product. *Source*: CEIC Database. http://www.ceicdata.com/ (accessed 8 June 2012)

The experience of the ASEAN 5 countries is the starkest example of the most obvious intrinsic characteristic of net inflows to emerging countries: their variability. The IMF describes these flows in terms of a succession of "surges," "episodes," and

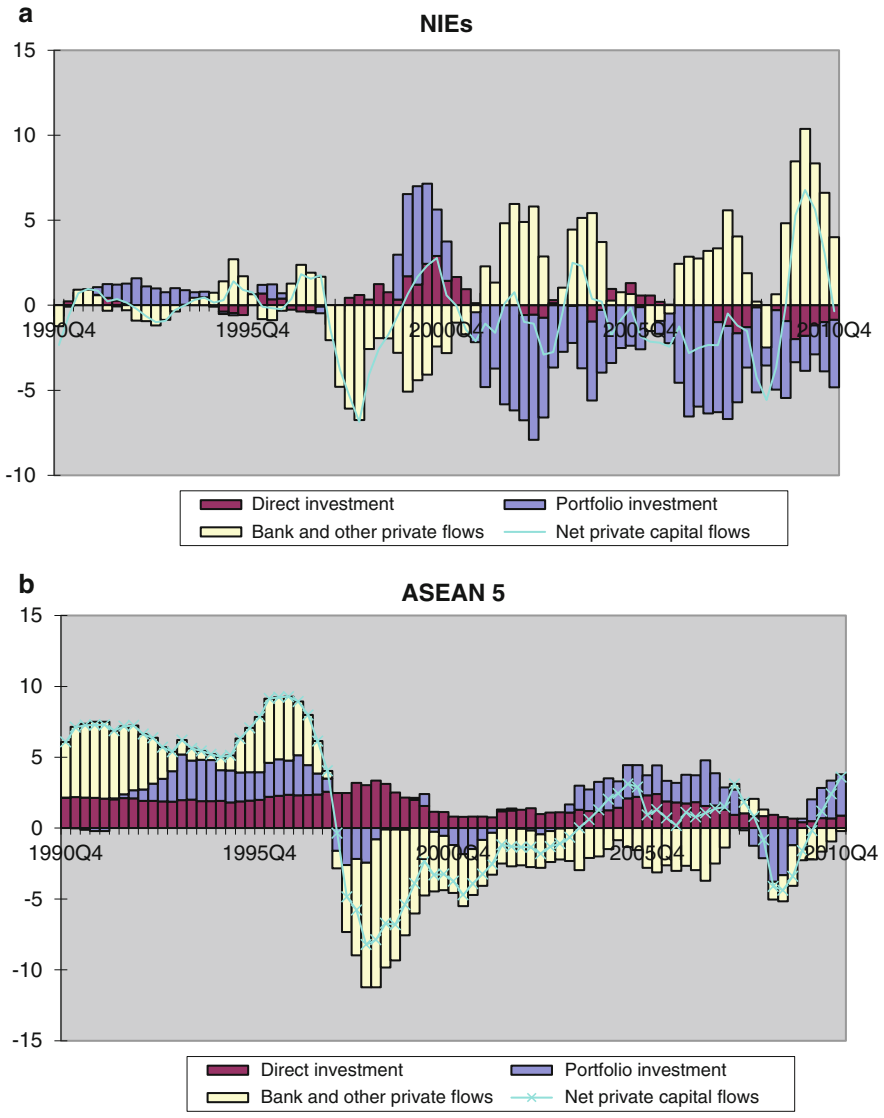

Fig. 3.10 Net capital flows (% of GDP). *ASEAN* Association of Southeast Asian Nations, *NIEs* newly industrialized economies. *Source*: IMF (2011d)

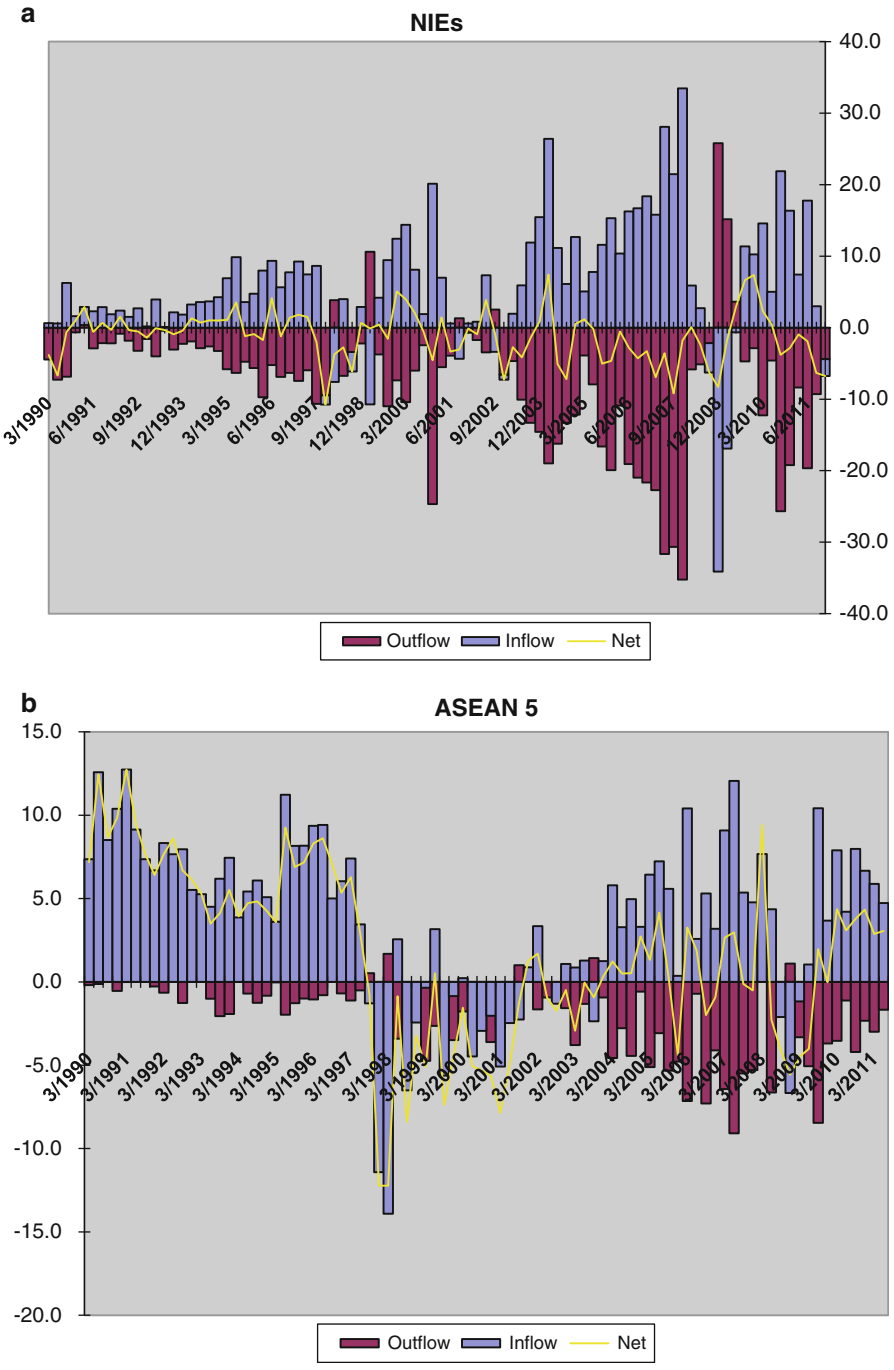

Fig. 3.11 Gross capital flows (% of GDP). *ASEAN* Association of Southeast Asian Nations, *NIEs* newly industrialized economies. *Note*: The color code is reversed for ASEAN 5. *Source*: IMF (2011d)

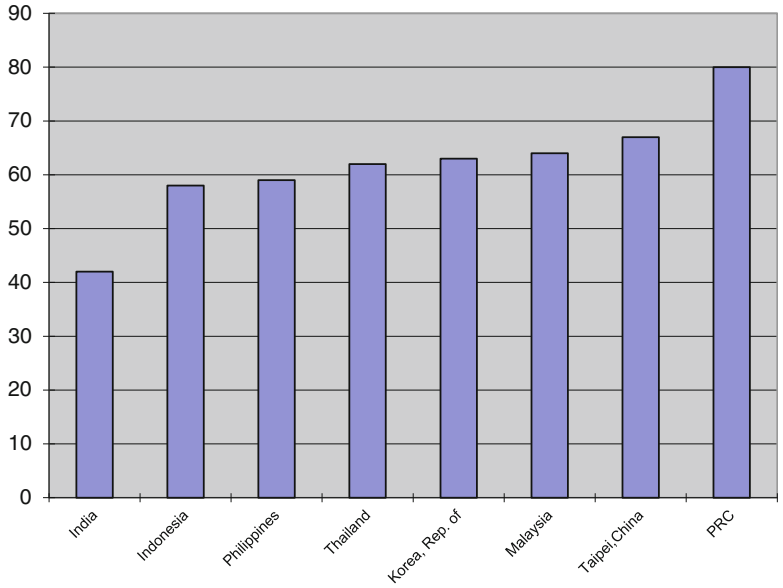

Fig. 3.12 Short-term corporate funding (average over 2000–2009, as % of total debt). *PRC* People's Republic of China. *Source*: IMF (2011c)

"waves" rather than on-going trend flows.[14] Recognizing this variability is central to policy, because the purported benefits of capital inflow are substantially diminished by this characteristic. For a real-sector investor needing finance for a long-lived illiquid project, a funding source that dries up in the cyclical downturn is of very limited use, and may well do more harm than good.

It should not come as a surprise that a random external event could set off reversals: a large component of the flows is, by nature, fragile and flighty. Much of the corporate debt is short term (Fig. 3.12). Where the flows are of a carry-trade nature, investors are continuously balancing a very small underlying "carry" advantage against the prospect of a much larger once-off immediate exchange

[14] IMF (2011d) has analyzed gross flows to emerging economies in terms of surges (short periods where the inflow is large and large compared with trend), episodes (prolonged surges), and waves (where there is correlated movements across countries. The waves might be associated with changes in the foreign (investing) country. The IMF identifies these surges as 1995Q4–1998Q2, 2006Q4–2008Q2, and the ongoing wave which began in the third quarter (Q3) of 2009. The episodes do not coincide closely in their starting point (suggesting country-specific "pull" factors) although there is also evidence of correlated inflows (Richards 2005) but often end in coincidence (suggesting common foreign explanation such as global risk aversion). Frankel (2011) also sees the profile of flows in terms of cycles, not structurally excessive flows.

rate loss and thus are always alert for events which will trigger a shift in the exchange rate, prepared to move ahead of the crowd.[15]

The flows are not only volatile, they are also procyclical. Richards (2005) and Hendrasah (2010) present specific evidence relevant to the region and provide additional references.

While the short-term moderate variations of flow are inconvenient, they can be ignored or smoothed by means of foreign exchange intervention if there seems any danger of them becoming self-reinforcing. The serious policy issues arise from the substantial reversals: during the Asian crisis and during the 2008–2009 global financial crisis. The latter experience is of particular interest because the catalyst was external and the Asian economies were generally in good shape (with strong macroeconomic policies, more flexible exchange rates, adequate foreign exchange reserve, and well-capitalized financial sectors). The episode demonstrates the challenges presented by capital flows even when the domestic circumstances are favorable. These reversals did not, in the end, cause major disruption (although they created some anxious moments for policymakers in these countries), but such reversals may recur at times when domestic conditions are not so strong.

The detail of these outflows has been extensively discussed elsewhere.[16] It is enough to note that in the September quarter of 2008 two East Asian countries—the Republic of Korea and Indonesia—experienced outflows larger than a typical annual inflow, accompanied by very sharp falls in exchange rates. The fall in the won in 2008 was larger than in 1997, despite substantial intervention.[17]

The other characteristic worth noting is the difference between the types of flows. The conventional view (for example, Williamson 2005) is that FDI is more stable than portfolio investment that in turn is more stable than bank flows. The data here are consistent with this hierarchy, but suggest that FDI is much more stable than either of the other two flows, which are not much different in terms of volatility.[18]

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[15] Carry-traders usually have to mark-to-market and are often leveraged, subject to margin calls. They cannot afford to go on holding the investment, waiting for the exchange rate to revert.

[16] See, for example, IMF (2011c) box on the Republic of Korea. On Indonesia, see Hendrasah (2010) and Goeltom (2008). McCauley (2010) notes that 2008 was different from 1997, as liquidity was sucked out of emerging markets by problems in developed countries. For analysis of the role of the foreign flows and the foreign currency flows in Thailand and Indonesia during the Asian crisis, and the potential for such flows to become significantly disruptive again, see Borio et al. (2011). For discussion of the two-way links between capital flows and exchange rates, see Chai-Anant and Ho (2008). On Thailand's experience, see Sangsubhan (2010), Thaicharoen and Ananchotikul (2008), and Bank of Thailand (2011).

[17] The Republic of Korea's experience can be closely associated with the role of foreign banks in funding their balance sheets from foreign borrowing (in turn associated with the provision of forward export cover) (Ahn 2008; Cho 2009). There are also important lessons in the apparent limitations in the ability of intervention to stem the exchange rate fall (and, in contrast, the effectiveness of foreign central bank swaps in the case of the Republic of Korea).

[18] This variability is often measured in terms of statistical variance (IMF 2007: Table 2.2; IMF 2011c: graph, p. 15). But variance implies a statistical regularity that is not readily apparent in the data.

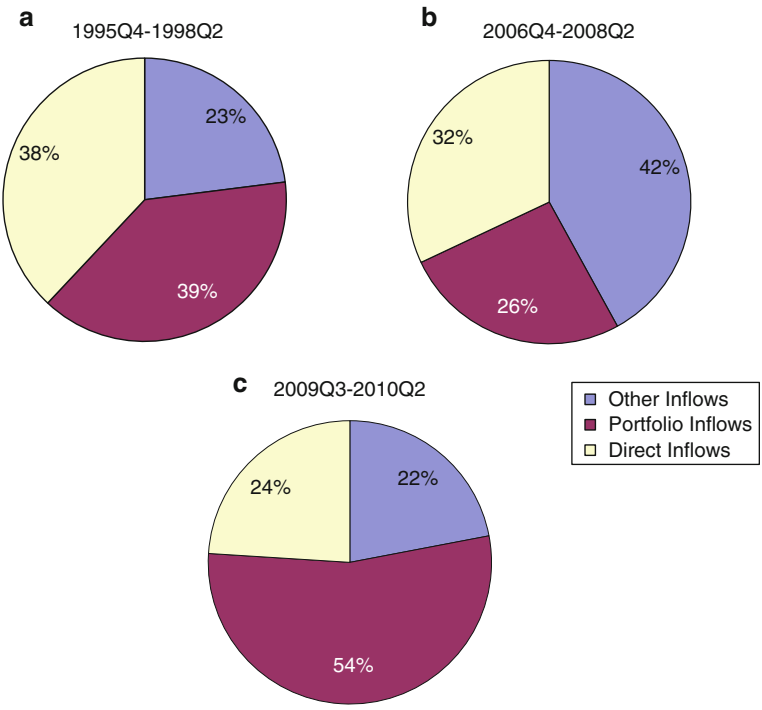

Fig. 3.13 Flows to emerging Asia (excluding the People's Republic of China) (comparison of (**a**) 1995Q4–1998Q2, (**b**) 2006Q4–2008Q2, and (**c**) 2009Q3–2010Q2). *Source*: IMF (2011c)

Over time, FDI has become less important and portfolio flows more important, with the obvious implications for the variability of total flows (Fig. 3.13).

3.5 The Case for Free Capital Flows

The case for free capital flows is usually given along the following lines (IMF 2010a: Box 1).

- Funding for investment can be obtained in larger volume and more cheaply
- FDI brings technology and managerial skills
- Consumption smoothing occurs in the face of adverse shocks
- Risk is spread and portfolio diversification can occur
- It provides discipline for macro policy

In practice these advantages look much less compelling. Intuitively, the main attraction of capital flows is the opportunity to *fund extra investment* (Williamson 2005).

But emerging East Asia saves more than it invests.[19] Current account surpluses are the norm. On the surface, there is no obvious need to supplement domestic funding by drawing on foreign capital. There is little doubt that FDI has been very useful, but it is the technology and skills transfer that is useful, rather than the funding.

A closely related argument is that foreign funding is *cheaper*. But the cost of funding is the principal channel through which monetary policy operates to influence the level of domestic economic activity. To the extent that foreign funding is cheaper, this undermines the intent of monetary policy.

What about the advantage of *consumption smoothing*? There is no evidence of this in the emerging countries (Kose et al. 2007). In fact, the opposite occurs: capital flows are procyclical (see above), adding to consumption in the upswing and restraining it in the downswing. In the upswing, foreign funding gives borrowers more opportunity to over-extend themselves. We shouldn't find this too surprising. One of the central causes of cycles (and crises) is the role of shifts in confidence. Foreigners share the optimism of the upswing. When economic activity falls because of domestic lack of confidence, foreign funding is not going to step in to fill the gap (IMF 2011d; Williamson 2005).

In practice the more likely cyclical sequence is that foreign capital enables the cyclical upswing to run longer. With a floating exchange rate, stronger activity appreciates the exchange rate, encouraging imports, thus holding inflation in check. "Spilling" stronger demand into imports may soften the cycle (avoiding "sudden stops"). If this extended sequence is being funded by foreign capital inflow (rather than being suddenly cut off through lack of foreign exchange that sometimes occurred in fixed exchange rate regimes), in this sense the inflows might be seen as smoothing the cycle. But this is not the sort of consumption smoothing envisaged in the textbooks.

This sort of cyclical stabilization might more usefully be done using the country's own foreign exchange reserves: running down reserves during the strong phase of the cycle tightens liquidity rather than adding to it. Spilling excess demand is in any case a poor substitute for higher interest rates, which may be undermined by capital inflows.

What of the argument that international flows allow *spread of risk* and provide portfolio diversification benefits? Are domestic portfolios and balance sheets safer if they contain foreign liabilities, probably denominated in foreign exchange? Are domestic banks stronger if they obtain a significant part of their funding from overseas?[20] Are foreigners who have invested part of their portfolios in foreign assets, probably in foreign currency, more likely to be stable holders?[21] Put in these terms, the diversification benefits seem more likely to be perverse than helpful.

[19] With the exception of India and Viet Nam.

[20] Recall the 2008 Republic of Korea's experience, when branches of foreign banks suddenly reversed their earlier capital inflows.

[21] Japan, with its high ratio of government debt to GDP, is seen as stable because most of this is held domestically.

Risk is spread to the least-knowledgeable, most-flighty holders of debt. The extra risk element in the form of the exchange rate in the foreigners' return on investment exacerbates this volatility.[22] McCauley (2010) argues that East Asia diversified by accepting foreign investment in equities and investing in safe-asset foreign exchange reserves, preparing for up-coming problems. If they need to do this, are the short-term inflows such a good idea in the first place? The developed country investors don't "accept their share of the poor harvest" (McCauley 2010: p. 134) in their procyclical action. We will return to this issue in Sect. 3.7.

Clearly, there are situations in which foreign capital flows can exert *discipline* over macroeconomic policies, with governments having a strong incentive to maintain good policies in order to avoid departure of flighty capital. This argument would be more powerful if markets had developed a reliable reputation for discerning and timely monitoring. But foreign investors tend to follow imitative lemming-like correlated behavior, and rating agencies have a well-established reputation for observing economies through the rear-vision mirror, rather than in a forward-looking helpful way. To the extent that foreign flows encourage recipient countries to keep interest rates too low, this can hardly be helpful to discipline. To the extent that foreign inflows cause the exchange rate to be above its long-term equilibrium, it is hard to see this as exercising helpful macroeconomic discipline.[23]

So much for the usual arguments in favor of foreign capital. One rarely mentioned advantage is that foreign financial centers may provide a range of useful financial services not available in the home country. Singapore may provide this for Indonesia's corporate and banking sector; Hong Kong, China for the PRC; and New York for a range of countries (including countries with mature financial markets such as Australia).[24]

To balance the evaluation of this rather modest list of advantages, we need to recall the financial fragility and prudential problems, discussed above in relation

[22] There are, however, cases where the opportunity of foreign diversification is clearly in the interests of the capital-receiving emerging economy. It has been a long-standing part of Singapore's investment strategy to encourage both inflows of FDI and outflows of investment capital, to diversify what would otherwise be a narrow range of assets, excessively correlated with the performance of the domestic economy. It is worth noting that this diversification is initiated and managed by the recipient country.

[23] The issue of *discipline* may also be relevant at the micro level. When there is a direct relationship between borrower and lender, the foreign lender may provide effective and appropriate discipline on the domestic borrower (just as a domestic direct lender would). But much of foreign inflow occurs in an indirect way (with the foreigner holding a market instrument such as a bond) without direct connection between foreign lender and domestic borrower.

[24] Does this ability to get foreign funding easily inhibit the growth in the domestic financial market? It is often argued that this is the reason for the thin corporate bond market in Australia, and may explain the small size of the Indonesian financial sector. This view can be seen in the argument that the PRC is not yet able to provide the full range of intermediation, so sends its surplus funds to be invested in safe US assets (foreign exchange reserves), with the US sending part of this back in the form of risk-capital investments into the PRC.

to specific economies in East Asia.[25] We also need to note that the policy responses to capital reversals are usually ineffective. In particular, higher interest rates are impotent in halting outflows when there are doubts about the health of the financial system and the exchange rate is under pressure.

3.6 What Might Be Done?

The IMF's starting point is that flows are intrinsically beneficial and it is only the surges that might cause problems.[26] These might give rise to macroeconomic problems or issues in the financial sector (Ostry et al. 2011).[27] In dealing with surges, the IMF recommends a hierarchical sequence of cascading responses, with capital controls at the bottom of the tool box: "before imposing capital controls, countries need first to exhaust their macroeconomic-cum-exchange-rate policy options" (Ostry et al. 2011: p. 4).

IMF Recommendations

Exchange Rate Appreciation If the Rate is Undervalued. This seems self-evident but irrelevant to the problem: these emerging economies find themselves with continuing upward pressure on their exchange rates. There is room for appreciation only at those rare cyclical moments when capital is flowing out.

Exchange Rate Intervention. Earlier IMF views that intervention would have no effect on the exchange rate may have been softened, suggesting that intervention is acceptable provided it doesn't throw monetary policy off course.[28] Even this may exaggerate how far the IMF has moved: this intervention is sometimes put forward as a method of augmenting an inadequate level of foreign exchange reserves,

[25] OECD (2011: p. 300) shows that emerging economies that have experienced large capital inflows are more likely to experience a banking crisis.

[26] ". . .international financial integration is fundamentally beneficial to emerging market countries, since it eases financing constraints for productive investment projects, fosters the diversification of investment risk, promotes inter-temporal trade, and contributes to the development of financial markets. Inflow surges, however, require an appropriate policy response because they can lead to economic overheating, excessive appreciation, or pressures in particular sectors of the economy (such as sectoral credit booms and asset price bubbles)" (Ostry et al. 2011: p. 7).

[27] ". . .before imposing capital controls, countries need first to exhaust their macroeconomic-cum-exchange-rate policy options. The macro policy response needs to have primacy both because of its importance in helping to abate the inflow surge, and because it ensures that countries act in a multilaterally-consistent manner and do not impose controls merely to avoid necessary external and macro-policy adjustment" (Ostry et al. 2011).

[28] The IMF is still confused in making the distinction between sterilized and unsterilized intervention. In practice intervention is always sterilized.

leaving open whether intervention policy might also legitimately be used to constrain the appreciation.

Fiscal Tightening to Make Room for Expenditure Associated with the Inflow. There seems universal support for this strategy, but it is rarely relevant to the core problem of capital inflow. If the domestic cycle is running too strongly, self-evidently there is always opportunity for fiscal restraint, regardless of capital flows. If the domestic economy is not running too strongly (but the capital flows are causing uncomfortable upward pressure on the exchange rate), tighter fiscal policy seems more likely to exacerbate the appreciation rather than help. Tighter fiscal policy (that increases national saving relative to investment) will tend to push the current account more in the direction of surplus. Accommodating the capital flows within a current account that is in greater surplus will require appreciation of the exchange rate.[29] In any case, what is the rationale for reducing budget expenditure or raising revenue in order to make room for the foreign capital? There is a presumption here that the foreign capital gives rise to more useful activity than the budget. Why should foreign capital be encouraged at the expense of budget priorities?

Macroprudential Measures. These have been put forward as the new panacea for excessive capital flows.[30] To the extent that capital flows present a threat to financial stability, these are certainly an appropriate response. But issues related to the stability of the financial system should not depend on whether or not capital flows are excessive at the macro level, nor should such measures be seen as temporary. If substantial fundraising on foreign money markets presents a vulnerability to the banking system, then that is itself the rationale for restriction. Restraining the banks from providing foreign currency denominated loans makes sense to protect the domestic banks, regardless of what is happening to capital flows.

Overall vulnerability will usually be reduced by effective macroprudential policies. This leaves the question: is it enough? Two issues require further attention. First, whether upward pressure on the exchange rate will still present difficulties. Second, whether the macroprudential measures might, themselves, push the problems elsewhere rather than resolving them. For example, restricting banks in providing foreign currency loans or receiving foreign currency funding might encourage commercial borrowers to seek foreign funds directly from overseas intermediaries.

[29] The standard textbook IS/LM diagram, showing the relationship between the savings/investment balance and monetary liquidity, is misleading here. It implies that the tighter fiscal policy will reduce interest rates and thus discourage capital inflow. However modern monetary policy sets interest rates directly (for many, the Taylor Rule replaces the LM). Thus there is no reason to expect tighter fiscal policy to affect interest rates and hence discourage inflows.

[30] There is a comprehensive discussion of these possibilities in Ostry et al. (2011). See also Chap. 3, IMF (2011b).

3.7 A Better Approach

There are two problems to be addressed by policy. First, the Wicksellian interest differential is likely to attract more capital inflow than the emerging countries can easily and effectively absorb. Second, these inflows are very variable, subject to sudden reversals.

The weakness in the IMF's approach is the presumption that routine flows (that is, excluding the surges) are always beneficial. Thus the problem is seen as a temporary cyclical phenomenon. Seen, instead, in terms of a structural issue (the Wicksellian interest differential) combined with damaging variability, the better starting point is a country-specific analysis (recognizing the substantial intra-country differences observed above), based on an evaluation of whether the inflows are a sensible component of the macro-strategy. The starting point should be with the domestic savings and/or investment balance. We noted above, that for most of the East Asian emerging economies, the savings and/or investment balance is positive.

There are circumstances (perhaps relevant to the ASEAN 5) where the optimal response to excessive capital flows would be to encourage greater "absorption": an increase in domestic investment, with the physical resources for this coming mainly from the real resource transfer via a current account deficit, funded by capital inflow. This might involve consideration of the type of capital inflow. FDI is not just more stable: in addition to its technology and skill transfers, it usually involves direct transfer of real resources (for example, import of specialized machinery, services, or intellectual capital), automatically bringing about the real resource transfer. FDI shifts the current account in the direction of deficit without the inconvenient upward pressure on the exchange rate.

Larger budget deficits to increase infrastructure investment might also be an appropriate response to excessive portfolio inflows into government securities (again, this may be relevant to ASEAN 5). If foreigners want to hold domestic government securities, providing them with the financial instrument that they want seems a sensible element of the response.[31]

Given the savings and/or investment starting point suggested here, the policy issues can be linked to the Williamson band, basket, and crawl (BBC) approach (Williamson 2008) that also begins with the external balance. Starting with the appropriate current account (corresponding to the savings and/or investment balance as discussed above), the fundamental equilibrium exchange rate (FEER) appropriate to this is estimated, accepting a fair amount of uncertainty about the

[31] Of course this is only one element of the response: bringing about the real transfer of resources and steering them into productive investment may be the hard part. A well-developed domestic bond market might help to provide the funding for expanded infrastructure investment, but such expansion requires progress on the physical expenditure, governance and utility pricing issues as well.

calculation and hence variation around this (that is, within a wide band). This band would permit an appreciation when the domestic economy is running strongly (and vice versa at the low point of the business cycle).[32] Substantial departures (beyond the band), however, should be met by intervention.

Assuming an appropriate level of foreign exchange reserves has been reached, intervention should be seen as an instrument which keeps the exchange rate somewhere near its equilibrium value. Intervention should be two-sided over the medium term and not, as has been the norm in East Asia during the 2000s, almost always restraining an appreciation. If this intervention is not symmetrical and two-sided over the medium term, either the level of the FEER (the center of the band) needs to be re-thought, or capital management policies are needed.

This sort of intervention is not a second-line-of-defense option, but should be a routine reaction to the exchange rate being substantially away from the estimated FEER. This is a proper first-resort response to the intrinsic variability of capital flows: when flows reverse, buffering this with intervention is more appropriate than tightening macroeconomic policies. If intervention is two-way in the medium term, it will be profitable: it involves buying cheap and selling dear over the course of the exchange rate cycle and the width of the band gives some measure of the profit margin.[33]

This addresses one aspect of the capital flows problem: variability. This leaves the problem of excessive inflows and over-appreciation. What if capital is attracted because there are interest differentials that are both structural (that is, long lasting) and substantial? An economy with a high Wicksellian interest rate will routinely have a higher policy rate than the international norm, with the whole of the yield curve higher on average over time. This is the rate needed to keep the economy in equilibrium with price stability, and thus capital flows attracted by these rates will be undermining the intent of monetary policy.

[32] While the methodology for estimating FEERs is still very approximate, the concept is now well-developed, with alternative methodologies set out in IMF (2006) *Methodology for CGER Exchange Rate Assessments* providing the detail. Filardo et al. (2011) have a detailed appendix table setting out the various approaches to FEER calculation taken in different countries.

[33] This policy approach can be distinguished from the Guidotti approach (endorsed by Greenspan 1999). In the Guidotti approach, foreign exchange reserves are big enough to cope with an outflow equal to debt falling due over the next year. In effect the reserves act as a liquidity pool that allows carry-trade investors to get out of the currency when they want to (McCauley 2010). The quasi-fiscal cost of reserve holding is a cost to the domestic economy, while the benefit of the interest differential goes to the foreign investor. In the alternative strategy suggested here, the foreign investors can reverse their transaction, but only at a lower exchange rate, which shifts much of the carry-trade benefit back to the receiving country in the form of profit on exchange-rate intervention.

An obvious preliminary response is to ensure that such inflows are taxed at the same rate as domestic investment.[34] The simplest way would be to impose a withholding tax that approximates domestic tax rates.

This still leaves the Wicksellian interest differential as an inappropriate incentive for foreign investors. If this causes excessive inflows, there would seem to be a case for routinely imposing a Brazilian style tax on portfolio and banking flows, with a maximum rate equal to the difference between the domestic and foreign policy interest rates.[35]

This addresses, for example, the current situation where very low interest rates in the developed countries are creating large interest differentials, with capital inflows that are putting unwelcome upward pressure on exchange rates (compared with Brazil, where the real effective exchange rate rose 60 % higher than its 2000–2007 average).[36] There would also be the opportunity to vary the interest-equalization tax over the course of the capital-flow cycle.

Does this take account of multilateral equilibria? Broadly, it does. Foreign countries are of course entitled to set their monetary policy appropriately for their domestic circumstances, benefiting from the improvement to international competitiveness that routinely comes with this (compared with the US at present). So too, the emerging economies should be able to set their interest rates appropriately for their circumstances, and resist inflows that undermine their domestic policy settings.

Over time the variability of capital flows may diminish. As we have noted, when exchange rates fall in emerging economies, this provokes substantial capital outflow. This contrasts with the experience of countries such as Australia that relies on large foreign inflows to fund the substantial structural current account deficit. During depreciation episodes (notably in September 1998 during the Asian crisis and September 2008 during the global financial crisis) the exchange rate fell sharply but there was no net capital outflow apparent in the figures. Caballero et al. (2004)

[34] There are at least two reasons why this may not be the case at present. As a legacy of the times when emerging economies had trouble funding their current account deficits, foreign capital was often encouraged through preferential tax treatment: lower tax rates or even tax exemptions. For example, in 2005 Thailand rescinded its withholding tax on foreign flows to encourage inflows (and restored it in 2010 when the inflows were putting excessive upward pressure on the exchange rate). Secondly, double tax agreements routinely shift the benefit of tax receipts to the investor country, leaving the investor untaxed in the recipient country. If tax is paid in the investor's country of residence, there may be no resource misdistribution. But it is clear that many investors use tax havens that probably avoid tax altogether (IMF 2011b).

[35] The aim here is to confine the tax to that part of flows which is responding most directly to the interest differential. Thus FDI would be excluded. For a related approach, see Korinek (2010). The differences between this sort of tax and an Unremunerated Reserve Requirement (URR) are subtle (IMF (2011c, Box p. 28), although the argument made here suggests that the tax should be applied to the entire foreign asset holding for the full period of the investment, rather than apply for a restricted period only. For a recent IMF assessment of the effectiveness of these controls, see Habermeier et al. (2011).

[36] This approach may not always fit with overall macro objectives. Countries like New Zealand have used the carry-trade-type flows to fund the persistent structural current account deficit.

hypothesize that some countries have established enough credibility that when the exchange rate moves, investors are confident that the rate will revert. An alternative (related) explanation might be that the national accounts imbalance leaves Australian spenders in urgent need of funding (there is very little adjustment of the external balance itself). These borrowers can draw on the extensive range of inflow channels that are typical in mature countries (reflected in the huge two-way gross flows) to meet their funding requirements. If one channel closes off, others are available.[37] In contrast, in 1997 in East Asia there were no alternative sources of funding, at any price, to balance the outflows and the adjustment had to take place through shifting the current account deficit into a surplus (at huge cost to GDP).

This presents a policy quandary for emerging economies. They might look forward to the time when capital flows are large and diversified (with deep institutional financial infrastructure). These economies could then rely on being able to retain and attract inflows even when the financial system (at home or abroad) was under severe stress.[38] But during the transition to this deep capital market, the shallower markets that currently exist may dry up under stress. Restrictions which address the problem of volatility or excess capital flows may, at the same time, inhibit or slow the development of this deep and less volatile market.

Since 2010, many East Asian economies have taken measures that impinge on capital flows.[39] Some measures can be classified as macroprudential, while others are clearly directed either at foreigners or at instruments or channels favored by foreigners.[40] This is not the place to review the huge amount of literature on whether such measures are effective.[41] One of the principal constraints inhibiting the effective use of capital flow management has been the vocal criticism of such controls from financial markets (who have a vested interest in resisting them), academics (who are often wedded to the efficient-markets-hypothesis which sees all controls as shifting prices away from equilibrium), and the IMF (which has its own free-capital-flows biases). The argument of this chapter is that capital flow

[37] Even at the height of the global financial crisis, Australian banks (backed by the Australian government's AAA rating) were still able to access funds in the New York money market. This difference between the high-gross-flow developed countries and the less deeply integrated emerging economies is analyzed in Becker and Noone (2008).

[38] It is possible to identify examples where this kind of stability may be beginning to occur. In Indonesia, for example, where foreigners own around 70 % of the equity capitalization, a fall in the exchange rate does not seem to trigger outflows (Bank Indonesia 2010).

[39] For measures taken in Asia, see IMF (2011c), p. 33. See also IMF (2011d), Table 1.2, p. 18 and Mihaljek and Subelyte (2011).

[40] An example would be the one-month holding period for Bank Indonesia Certificates (SBIs) in Indonesia as these are the favored investment instrument of carry-trade foreign investors.

[41] IMF (2011c), p. 36 provides assessments on Brazil, Thailand, Indonesia, and the Republic of Korea in the Appendix. Regressions aimed at identifying the effects of various controls are found in IMF (2011c). For a discussion of the rival merits of URRs and taxes, see Box in IMF (2011c) p. 28. Frankel's (2011) views would find wide agreement: the controls should be on inflows rather than outflows: they should be modest price penalties rather than prohibitions; and they should steer the flows towards more stable categories. See also Magud et al. (2011).

management is a legitimate part of the toolkit, and should be in the policy debate, without rejection or relegation on doctrinal grounds. It will be easier to implement effective capital flow management policies when this view is more widely shared.

3.8 Conclusion

There are strong reasons to think that capital flows will increase.[42] On top of the structural interest differentials, the cyclical differences are likely to become stronger. Europe, Japan, and the US are likely to experience continuing low policy interest rates for some years (and this will keep the whole yield curve low), while if the emerging economies maintain their growth, higher policy rates will be needed. The institutional infrastructure will develop more depth to facilitate extra flows. Information will improve. Credit rating agencies will reduce their bias (IIF 2011). The home bias in Japan (and elsewhere) will decrease.[43]

The primary advice routinely given to emerging economies is to maintain strong macroeconomic policies, which will help cope with any reversals. Indeed, the events of 2008 demonstrated the benefits of macro strength. At the same time there can be both favorable and unfavorable consequences. The stronger their policies, the more attractive these economies will be for foreign investors and the greater likelihood that excessive inflows will be experienced.

The strategy explored in this chapter presents a longer-term dilemma. While it involves a greater readiness to intervene and apply capital management policies, it also acknowledges that ultimately, deep capital linkages are likely to be beneficial for growth.[44] With this depth will come a greater degree of stability in net flows, reducing concerns about flow reversals. During the transition, however, emerging economies need some mechanism to mitigate excessive and volatile capital inflows. Such a framework would make emerging economies more confident to open their external accounts, allowing real and financial inflows (getting capital flowing downhill) and fostering the deeper financial infrastructure that accompanies these flows.

[42] "All things considered, the stage seems set for the ongoing wave of inflows to be both large and persistent, bringing important investment and growth benefits to emerging markets" (IMF 2011c: p. 4).

[43] "Structural portfolio reallocation toward emerging market assets is also likely to support flows to Asia, as despite a threefold increase during 2004–2009, the weight of emerging Asia equities in the Morgan Stanley Capital International (MSCI) all country world index is still only half the share of emerging Asia in global production" IMF (2011d: p. 16). See also IMF (2007), Box 1.4.

[44] There is no strong cross-section evidence that capital flows promote growth (IMF 2011c), although many would accept that, properly handled, it does. Kose et al (2006) give a cautious endorsement that capital flows may help growth. See also Levine (2011) and the references cited therein and in Aizenman et al. (2011).

The sorts of strategies explored here seem a stronger basis for encouraging flows (and the benefits that go with them) than either the policies of reserve accumulation so common over the past decade, or the partial, tentative, and half-hearted capital-management responses advocated in recent IMF studies.

References

Ahn, B. C. (2008). *Capital flows and effects on financial markets in Korea: Developments and policy responses* (BIS Papers 44). Basel, Switzerland: Bank for International Settlements.

Aizenman, J., Jinjarak, Y., & Park, D. (2011). *Capital flows and economic growth in the era of financial integration and crisis, 1990–2010*. Vox–EU. http://www.voxeu.org/index.php?q=node/7172. Accessed 28 October 2011.

Bank Indonesia. (2010). *Financial stability report*. Jakarta: Bank Indonesia.

Bank of Thailand. (2011). *Monetary policy in the post-crisis world: The perspective from Thailand* (BIS Papers 57). Basel, Switzerland: Bank for International Settlements.

Becker, C., & Noone, C. (2008). *Volatility and persistence of capital flows* (BIS Papers 42). Basel, Switzerland: Bank for International Settlements.

Bhagwati, J. (1998). The capital myth: The difference between trade in widgets and dollars. *Foreign Affairs, 77*, 7–12.

Borio, C., & Disyatat, P. (2011). *Global imbalances and the financial crisis: Link or no link?* (BIS Working Papers 346). Basel, Switzerland: Bank for International Settlements. September 2011.

Borio, C., McCauley, R., & McGuire, P. (2011). Global credit and domestic credit booms. *BIS Quarterly Review*, 43–57. September 2011.

Caballero, R. J., Cowan, K., & Kearns, J. (2004). *Fear of sudden stops: Lessons from Australia and Chile* (Reserve Bank of Australia Research Discussion Paper 2004–03). Sydney, Australia: Reserve Bank of Australia.

Chai-Anant, C., & Ho, C. (2008). *Understanding Asian equity flows, market returns and exchange rates* (BIS Working Papers No 245). Basel, Switzerland: Bank for International Settlements.

Cho, D. C. (2009). *The Republic of Korea's economy in the swirl of global crisis* (ADBI Working Paper 147). Tokyo: Asian Development Bank Institute.

Filardo, A., & Grenville, S. (2011). *Central bank balance sheets and foreign exchange rate regimes: Understanding the nexus in Asia* (Bank for International Settlements Working Paper). Unpublished.

Filardo, A., Ma, G., & Mihaljek, D. (2011). *Exchange rates and monetary policy frameworks in EMEs* (BIS Working Papers 57). Basel, Switzerland: Bank for International Settlements.

Fischer, S. (2001). Exchange rate regimes: Is the bipolar view correct? *Delivered at the meetings of the American Economic Association*, New Orleans. January 6, 2001.

Frankel, J. (2011). Coping with Asia's large capital inflows in a multi-speed global economy. In: *IMF–Bank Indonesia Joint Conference*, Bali, Indonesia. March 11, 2011.

Goeltom, M. S. (2008). *Capital flows in Indonesia: Challenges and policy responses* (BIS Papers 44). Basel, Switzerland: Bank for International Settlements.

Greenspan, A. (1999). Currency reserves and debt. In: *Remarks at the World Bank Conference on Recent Trends in Reserves Management*, Washington, DC. April 29, 1999.

Habermeier, K., Kokenyne, A., & Baba, C. (2011). *The effectiveness of capital controls and prudential policies in managing large inflows* (IMF Staff Discussion Note 11/14). Washington, DC: International Monetary Fund.

Hendrasah, N. (2010). *Challenges and policy options in managing portfolio flows: Bank Indonesia's recent experiences*. Jakarta: Bank Indonesia.

Institute of International Finance (IIF). (2011). *Capital flows to emerging countries* (IIF Research Note). Washington, DC: Institute of International Finance.
International Monetary Fund (IMF). (2006). *Methodology for CGER exchange rate assessments*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2007). *Regional economic outlook Asia*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2010a). *The Fund's role regarding cross-border capital flows*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2010b). *Regional economic outlook Asia*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2010c). *Regional economic outlook*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2011a). *Balance of payment statistics. CD-ROM*. Washington, DC: International Monetary Fund. http://elibrary-data.imf.org/.
International Monetary Fund (IMF). (2011b). *Global financial stability report*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2011c). *Recent experiences in managing capital inflows—Cross-cutting themes and possible policy framework*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2011d). *Regional economic outlook Asia and Pacific*. Washington, DC: International Monetary Fund.
International Monetary Fund (IMF). (2011e). *World economic outlook*. Washington, DC: International Monetary Fund. http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/index.aspx.
International Monetary Fund (IMF). Independent Evaluation Office. (2005). *Report on the evaluation of the IMF's approach to capital account liberalization*. Washington, DC: International Monetary Fund.
Kawai, M., & Lamberte, M. B. (2010). Managing capital flows: Emerging Asia's experiences, policy issues, and challenges. In M. Kawai & M. B. Lamberte (Eds.), *Managing capital flows: The search for a framework* (pp. 9–45). Cheltenham, UK: ADBI and Edward Elgar.
Kawai, M., & Takagi, S. (2010). A survey of the literature on managing capital inflows. In M. Kawai & M. B. Lamberte (Eds.), *Managing capital flows: The search for a framework* (pp. 46–72). Cheltenham, UK: ADBI and Edward Elgar.
Korinek, A. (2010). *Regulating capital flows to emerging markets: Design and implementation issues*. Vox–EU. http://www.voxeu.org/index.php?q=node/5953. Accessed 22 December 2010.
Kose, M. A., Prasad, E. S., Rogoff, K., & Wei, S-J. (2006). *Financial globalization: A reappraisal* (IMF Working Papers 06/189). Washington, DC: International Monetary Fund.
Kose, M. A., Prasad, E. S., & Terrones, M. E. (2007). *How does financial globalization affect risk sharing? Patterns and channels* (IMF Working Paper WP/07/238). Washington, DC: International Monetary Fund.
Levine, R. (2011). *Finance, long-run growth, and economic opportunity*. Vox–EU. http://www.voxeu.org/index.php?q=node/7123. Accessed 25 October 2011.
Magud, N. E., Reinhart, C. M., & Rogoff, K. S. (2011). *Capital controls: Myth and reality—A portfolio balance approach* (Peterson Institute for International Economics Working Paper 11-7). Washington, DC: PIIE.
McCauley, R. N. (2010). Managing recent hot money inflows in Asia. In M. Kawai & M. Lamberte (Eds.), *Managing capital flows: The search for a framework* (pp. 129–159). Cheltenham, UK: ADBI and Edward Elgar Publishing.
Mihaljek, D., & Subelyte, A. (2011). *Alternative central bank policy instruments* (BIS Papers 57). Basel, Switzerland: Bank for International Settlements.
Organisation for Economic Co-operation and Development (OECD). (2011). Getting the most out of capital flows. In *OECD economic outlook issue 1* (pp. 287–308). Paris: OECD.

Ostry, J. D., Ghosh, A. R., Habermeier, K., Chamon, M., Qureshi, M. S., & Reinhardt, D. B. S. (2010). *Capital inflows: The role of controls* (IMF Staff Position Note SPN/10/04). Washington, DC: International Monetary Fund.

Ostry, J. D., Ghosh, A. R., Habermeier, K., Laeven, L., Chamon, M., Qureshi, M. S., et al. (2011). *Managing capital inflows: What tools to use?* (IMF Staff Discussion Paper SDN/11/06). Washington, DC: International Monetary Fund.

Richards, T. (2005). Big fish in small ponds: The trading behavior and price impact of foreign investors in Asian emerging equity markets. *Journal of Financial and Quantitative Analysis, 40*, 1–27.

Sangsubhan, K. (2010). Managing capital flows: The case of Thailand. In M. Kawai & M. Lamberte (Eds.), *Managing capital flows: The search for a framework* (pp. 386–410). Cheltenham, UK: ADBI and Edward Elgar Publishing.

Thaicharoen, Y., & Ananchotikul, N. (2008). *Thailand's experiences with rising capital flows: Recent challenges and policy responses* (BIS Papers 44). Basel, Switzerland: BIS.

Williamson, J. (2005). *Curbing the boom-bust cycle: Stabilizing capital flows to emerging markets*. Washington, DC: Peterson Institute for International Economics.

Williamson, J. (2008). *Exchange rate economics* (Peterson Institute for International Economics Working Paper 08/03). Washington, DC: Peterson Institute for International Economics.

Chapter 4
New Measures of the Trilemma Hypothesis: Implications for Asia

Hiro Ito and Masahiro Kawai

Abstract We develop a new set of indexes of exchange rate stability, monetary policy independence, and financial market openness as the metrics for the trilemma hypothesis. In our exploration, we take a different and more nuanced approach than the previous indexes developed by Aizenman et al. We show that the new indexes add up to the value two, supporting the trilemma hypothesis. We locate our sample economies' policy mixes in the famous trilemma triangle—a useful and intuitive way to illustrate the state and evolution of policy mixes. We also examine if the persistent deviation of the sum of the three indexes from the value two indicates an unsustainable policy mix and therefore needs to be corrected by economic disruptions such as economic and financial crises. We obtain several findings. First, such a persistent deviation can occur particularly in emerging economies that later experience an inflation (or potentially a general or a currency) crisis, and dissipates in the postcrisis period. Second, there is no evidence for this type of association between deviations from the trilemma constraint and general, banking, or debt crises. Third, Thailand experienced such a deviation from the trilemma constraint in the period leading to the baht crisis of 1997, but not other East and Southeast Asian economies. This last result suggests that the main cause for the Thai baht crisis was an unsustainable policy mix in the precrisis period, while other affected economies experienced crises mainly due to contagion from Thailand.

Keywords Exchange rate regime • Financial liberalization • Monetary policy • Trilemma

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_4,

4.1 Introduction

Facing a fragile recovery of the world economy from the global financial crisis of 2008–2009, policymakers around the globe are contemplating what would be an optimal mix of open macroeconomic policies that are effective enough to guide their economies to stable and sustainable economic development.

Almost 7 years since the outbreak of the crisis, the world economy is still full of unstable factors. Generally, the developed economies only show moderate recovery while the developing and emerging economies are performing relatively well. The Greek debt and banking crisis affected other southern European economies such as Italy, Portugal, and Spain and posed threats to the eurozone as a whole. The Japanese economy was hit by the March 2011 triple disaster of the earthquake, tsunami, and nuclear plant failure and faces the challenge of generating sustained growth to cope with the shrinking population, an aging society, and the high public debt problem.

Unlike the Asian financial crisis of 1997–1998 or the Latin American debt crisis in the 1980s, developing and emerging economies are not facing a crisis of their own. Although they experienced a tsunami of crisis in 2008–2009 mainly through international financial and trade channels, in retrospect, the global financial crisis only dented the growth of developing and emerging economies.

However, the better performance of emerging economies, particularly those in Asia, could slip out of hand if the economic conditions in the eurozone and the United States (US) deteriorate significantly. Many emerging economies have been experiencing volatile capital flows: large capital outflows due to US and European banking sector difficulties, causing shortages of international liquidity and sharp currency depreciation; and large capital inflows due to unusually lax monetary policy taken by developed economies' central banks, causing upward pressure both on their currency values and on the level of asset prices. Whether they deteriorate or recover, developed economies can rapidly change the direction of international capital flows, possibly causing disruptions in the capital markets of emerging economies. In short, regardless of what happens in the world, policymakers must think about how to keep their economies immune from the unstable parts of the world and sustain stable economic growth. Their task, however, is complex in such a globalized environment.

Despite the complexity of policy management, monetary authorities face a simple, old theoretical constraint, called the "impossible trinity," or "trilemma." This hypothesis, first made popular by Mundell (1963), states that a country may simultaneously choose any two, but not all, of the three goals of monetary policy independence, exchange rate stability, and financial market openness to the full extent. This hypothesis has been widely taught and recognized since it is intuitive and helpful to understand the constraints policymakers face in an open economy setting.

Though recognized pervasively, the hypothesis has not been subjected to rigorous empirical scrutiny until recently. The main reason for that is because it is quite

difficult to create systematic metrics that measure the extent of achievement in the three policy goals of the trilemma. If one does not know to what extent each of the policy choices has been achieved, it is difficult to understand the extent of other policy choices available.

Aizenman et al. (2008) developed a set of "trilemma indexes" that measure the degree of achievement of the three policy choices for a wide coverage of countries and periods. Using the indexes, they empirically supported the hypothesis by showing that the three measures of the trilemma are linearly related to each other.

Although their indexes cover many countries and years, the systematic approach they employ to get a wider country coverage may have sacrificed some nuances, potentially exposing the metrics to debate. While there cannot be "perfect metrics" that depict the state of policy implementations with decent precision and subtlety, the bottom line is that this sort of exercise must be an endless exploration for economists.

We join this exploration and develop a set of new indexes that measure the extent of exchange rate stability, monetary policy independence, and financial market openness. In our exploration, we take different, and more nuanced and detailed methodologies than Aizenman et al. (2008), while building on the past literature and hopefully overcoming the weaknesses of the indexes developed previously. However, our efforts of aiming for a higher level of subtlety for the indexes come with a cost; the coverage of countries is smaller. The indexes are available for about 90 countries for 1970–2009 as those for developing and emerging economies tend to be missing in early years.

Once we construct the new indexes, we test if the indexes are consistent with the trilemma hypothesis, that is, if the indexes are linearly dependent with each other. Given that we normalize the indexes in such a way that each takes a value between 0 and 1, we can test the linearity by examining whether the sum of the three indexes is statistically different from the value of 2. Our results show that policymakers do face the linear constraint of the three policy choices as theory suggests.

Extending this exercise, we also plot the policy mixes of our sample economies in the famous trilemma triangle, which is often illustrated in textbooks on international macroeconomics and is an intuitive way of showing how monetary authorities face the trade-off of choosing a mix of the three policies while having to stay inside the triangle. We believe that this attempt—to show the policy mix in the trilemma triangle using actual metrics of the three policy choices instead of drawing the triangle abstractly—is the first in the literature of international macroeconomics. The triangle that exhibits a combination of policy choices turns out to be useful in illustrating the state of an economy's policy mix at a given moment in time and its evolution over time.

Although we show that the sum of the three indexes adds up to two *on average* for each economy, we do not exclude the possibility of the sum deviating from the value of 2 for a certain period. Conceptually, we could assume that if the sum of the three indexes exceeds the value of 2 for an extended period, such a policy combination is unsustainable. Furthermore, such an unsustainable combination of policies—if not addressed by policy actions—would be corrected by market forces

through economic disruptions such as a currency crisis. We show how the sum of the three indexes behaved for a group of Asian economies at the time of the Asian financial crisis.

In what follows, we review the trilemma hypothesis in Sect. 4.2. In Sect. 4.3, we define our indexes of the trilemma by carefully discussing the methodologies for constructing the indexes. We also look into the linearity of the indexes by examining whether the sum of the three indexes statistically equals the value two. In Sect. 4.4, we make observations of the indexes for selected countries and country groups by plotting combinations of the three indexes in the famous trilemma triangle. Section 4.5, examines how the sum of the three indexes evolved for all economies over different types of crises as well as for Asian economies in the period before and after the time of the Asian financial crisis. In Sect. 4.6, we conclude the main findings and discuss future research agendas.

4.2 The Hypothesis of the "Impossible Trinity" or the "Trilemma"

The trilemma is often illustrated using an equilateral triangle like the one shown in Fig. 4.1. The three sides represent monetary policy independence, exchange rate stability, and financial market openness, respectively. Starting from one corner, as we move vertically toward one of the three sides, we would achieve a higher degree of the outcome represented by that side. In other words, we can stand on one of the three sides only when we achieve the full extent of a policy, represented by the side. Hence, although it is possible to achieve the full extent of two policy goals, i.e., standing on one corner in the triangle, it is impossible to be on all the three sides simultaneously. The fact that a country may simultaneously choose any two, but not all, of the three goals of monetary policy independence, exchange rate stability, and financial market openness to the full extent signifies the trilemma. The top vertex in the triangle illustrated in the figure, labeled "fully flexible exchange rate regime," is, for example, associated with the full extent of monetary policy independence and financial market openness, and not exchange rate stability.

Since the time of the Gold Standard, different international monetary systems have attempted to achieve different combinations of two out of the three policy goals. In other words, history is full of "corner solutions." The Bretton Woods system sacrificed international capital mobility for monetary policy independence and exchange rate stability. The euro system is built upon the fixed exchange rate arrangement and free capital mobility, but essentially abandoned monetary policy independence of the small member countries.

Countries do not always have to adopt corner solutions. For example, a country can implement a policy to achieve one particular side without achieving any of the remaining two, in which case one of the goals is fully achieved and the other two goals are achieved only partially. Or a country can implement a policy combination

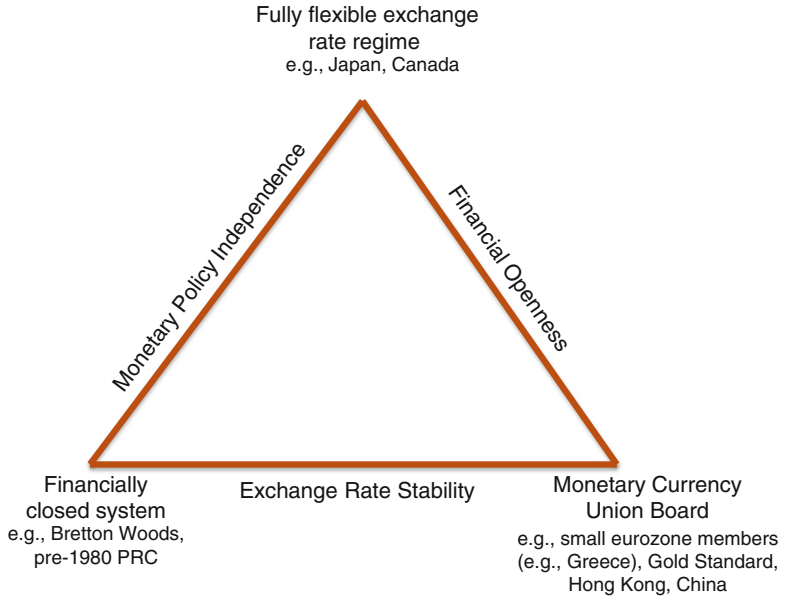

Fig. 4.1 The trilemma triangle. *PRC* People's Republic of China. *Source*: Authors' compilation

represented by a "dot" inside the triangle, in which case the extent of achievement in the three goals can be measured by the vertical distance from a vertex to the dot.

The People's Republic of China (PRC) is a good example of a country represented by a "corner solution" initially, achieving a "side" afterwards, and a "dot inside the triangle" later. In the triangle of Fig. 4.1, the PRC before 1980 could be shown as the country with the policy combination represented by the bottom left corner (that is, a financially closed system). When it started to open up its capital account in a cautious and step-by-step manner, the policy combination began to gradually move from the corner horizontally toward the right. Since the government exited from the dollar peg and gradually introduced some exchange rate flexibility in July 2005, the country's position in the triangle has been drifting toward the center, showing the possibility of either an increasingly open financial market with limited monetary policy independence or limited financial market openness with an increasingly independent monetary policy.

Thus, the trilemma is "binding" as long as the measures of the three policy choices are linearly related to each other, that is, as long as the dot is either on one of the three sides or inside the triangle. However, the fact that economies have adopted different policy combinations over time must mean that each of the three policy choices is an assortment of both merits and demerits for managing macroeconomic conditions.

A high degree of monetary policy independence could help stabilize the economy against shocks, allowing monetary authorities to smooth inflation and output movements (at least in the short run in a world with price and wage rigidities), to play a lender of last resort function in the event of a banking sector crisis, or to

monetize fiscal debt. Exchange rate stability could provide a nominal anchor or help increase the credibility of monetary authorities particularly when their non-inflationary credibility is low, thereby contributing to more stable output movement (Aizenman et al. 2012). However, greater levels of exchange rate stability could also rid monetary authorities of a policy choice of using the exchange rate as a tool to absorb external shocks.[1] Financial liberalization can also have merits and demerits. Theoretically, a more open financial market should lead to more efficient resource allocation and more efficient risk sharing. However, it also becomes a destabilizing factor by exposing an economy more to volatile international capital flows and thereby externally driven boom-bust cycles.

Despite the double-edged nature of these three policies, monetary authorities tend to have a bias toward their positive aspects and pursue higher levels in all three policies. However, in principle, again, they can only achieve the full extent of two policy outcomes, not all three. Such an ambitious pursuit or an inappropriate combination of policies can lead to some economic disruptions. Hence, it would be useful for monetary authorities to understand where their choices are located in the trilemma triangle, though this is not an easy task.

4.3 New Measures for the Trilemma Hypothesis

Aizenman et al. (2008) developed a set of the "trilemma indexes" that measure the degree of three policy choices monetary authorities make with respect to the trilemma. Their most recent dataset covers more than 170 economies for 1970–2010 (Aizenman et al. 2013). The monetary policy independence index is based on the correlation of a country's interest rates with the base country's interest rate.[2] The index for exchange rate stability is an inversion of exchange rate volatility, that is, the standard deviation of the monthly rate of exchange rate depreciation, where the exchange rate is defined between the home and the base country. The degree of financial market openness is measured by the capital controls index developed by Chinn and Ito (2006).

While their systematic approach makes it possible for the indexes to cover a large number of countries, their simple approach may fail to depict the subtlety of the policy arrangements. First, it can be argued that simple correlations for the monetary policy independence index may be spurious if they are not properly controlled. Or, if a country pegs its currency value to a basket of currencies, not

[1] Exchange rate rigidities could make policymakers blind in reading appropriate market signals and therefore may make their economies prone to asset boom and bust cycles.

[2] The base country is defined as the country that a home country's monetary policy is most closely linked with as in Shambaugh (2004); it is either Australia, Belgium, France, Germany, India, Malaysia, South Africa, the United Kingdom, or the US. More details on the construction of the indexes can be found in Aizenman et al. (2008).

to a particular base country currency, standard deviations of a simple pair-wise exchange rate may not reflect the reality of the exchange rate arrangement. Third, regulatory policies pertaining to international capital flows (*de jure* approach) may not reflect the actual degree of financial market openness, which can be captured by observed volumes of cross-border capital flows or by the price co-movements in financial assets including the interest rate parity (*de facto* approach).[3]

Responding to these limitations of the indexes used by Aizenman et al. (2008, 2012), we introduce new indexes of the trilemma. Naturally, while there are no such things as perfect measures of the three policy goals, we try to overcome the drawbacks of the previous indexes. Here, while basing our approaches on the methodologies introduced in the past literature and implementing theoretically reasonable methods, we attempt to create a set of indexes that may capture more subtleties of the aspects of the three policies in the trilemma hypothesis. The pursuit of more nuanced approaches, however, comes at the expense of a smaller coverage of economies. The indexes are available for only about 90 economies for 1970–2009.[4] The reason is that the data needed to construct new measures are missing for developing and emerging economies in early years. We now explain the three indexes.

Exchange Rate Stability

To create an index that measures the degree of exchange rate stability, we employ the methodology first introduced by Frankel and Wei (1994). They investigate the extent of influence of major currencies in the Asian region using the following estimation model:

$$\Delta e_{it} = \alpha_i + \beta_{iUS}\Delta e_{US_t} + \beta_{iJP}\Delta e_{JP_t} + \ldots + \beta_{iK}\Delta e_{K_t} + \varepsilon_{it} \tag{4.1}$$

where e_{kt} is the exchange rate of currency k ($=i$, US, JP,. . ., K) against some numéraire currency such as the Swiss franc and special drawing rights (SDR). The currencies included in the right-hand side of the estimation equation, such as the US dollar, the yen, the Deutsche mark, the euro, or the pound sterling, can be thought of comprising an implicit basket of major currencies in the mind of monetary authorities. Therefore, $\hat{\beta}_k$, the estimated coefficient on the rate of change in the exchange rate of major currency k against the numéraire, represents the

[3] Quinn et al. (2010) reviews a variety of indexes that measure the extent of financial market openness or capital controls.

[4] The working paper version of this chapter (Ito and Kawai 2012) reports the data availability and lists the economies for which the indexes are available.

weight of currency k in the implicit basket. If currency i is pegged to a major currency or a basket of major currencies, it must be either $\hat{\beta}_k = 1$ or $\sum_{k=1}^{K'} \hat{\beta}_k = 1$ for the K' $(<K)$ currencies included in the implicit basket. Also, in such a case, the goodness of fit of the above estimation model must be high.[5]

To suit our purposes, we make several modifications to the Frankel and Wei estimation model. First, we apply the estimation model to each of our sample currencies, but estimate it over rolling windows of 36 months. In other words, $\hat{\beta}_k$'s, the weights of the major currencies in the implicit basket, become time-varying because we believe it is more realistic to assume that monetary authorities keep updating their information sets. Furthermore, to get more precise estimates, we conduct the estimation in two stages. That is, after running the initial estimation, the estimates whose p-values are greater than 20 % are dropped from the estimation, which leaves only currencies with statistically significant estimates in the equation.[6] The estimates are now time-varying, so is the goodness of fit, or the adjusted R^2. We use the annual average of the time-varying adjusted R^2 as the measure of exchange rate stability (ES),[7] as in our analysis we focus on annual data observation.

The basic assumption of this exercise is that monetary authorities use an implicit basket of currencies as the portfolio of official foreign exchange reserves, but that the extent of response to the change in the value of the entire basket should vary over time and across countries. If the authorities want to maintain a certain level of exchange rate stability, whether against a single currency or a basket of several currencies, they should allow the currency value to adjust only in accordance with the change in the *entire* value of the basket of major currencies.[8]

As the explanatory variables in the estimation, we include the major currencies that are often held by monetary authorities as foreign exchange reserves, such as

[5] One may also consider imposing the constraint of $\sum_{k=1k}^{K'} \hat{\beta}_k = 1$ in the estimation. However, we decided not to do so. We would rather keep the estimation model as a general form because some currencies in our sample may have adopted fully flexible exchange rates which can be precluded by having the above constraint.

[6] When all of the right-hand side variables turn out to be statistically insignificant (with all the p-values greater than 20 %), the currency that has the lowest p-value is retained in the estimation.

[7] In a similar context, Kawai and Akiyama (1998) chose the standard error of a regression similar to equation (4.1).

[8] Even when the monetary authorities of a country adopt a floating exchange rate system, it is often the case that they usually have a target currency (which is the same as the "base country" in the context of Shambaugh 2004 and Aizenman et al. 2008) in mind whose movement can affect the country's exchange rate. This target currency must be the currency that has the lowest p-value even if all the currencies on the right-hand side of the estimation are found statistically insignificant.

the US dollar, the pound sterling, the yen, and the euro. In the years before the introduction of the euro in 1999, the Deutsche mark is included in place of the euro. For the former French or Belgian colony countries, the French or Belgian franc is included, respectively, instead of the Deutsche mark.[9]

Monetary Policy Independence

For the index on monetary policy independence, we consider the following simple estimation model:

$$i_{it} = \phi_i + \gamma_i i^*_{it} + u_{it}, \tag{4.2}$$

where, i^*_{it} is the "synthetic foreign interest rate," which is essentially the weighted average of the foreign interest rates, with the weights being the estimated $\hat{\beta}'s$ from the Frankel and Wei estimation given by Eq. (4.1). That is,

$$i^*_{it} = \hat{\beta}_{iUSt} i_{USt} + \hat{\beta}_{iJPt} i_{JPt} + \ldots + \hat{\beta}_{iKt} i_{Kt} \tag{4.3}$$

where we assume home monetary authorities consider a basket of K interest rates as the synthetic foreign interest rate.[10]

Similarly to the exchange rate estimation, we could use the adjusted R^2 of Eq. (4.2) for the measure of monetary policy independence.[11] However, the estimation based on Eq. (4.2) can be problematic for two reasons. First, either or both of i_{it} and i^*_{it} can be non-stationary, which makes γ_{it} spurious and, therefore, adjusted R^2 unreliable (Obstfeld et al. 2005). Second, a model like Eq. (4.2) can involve

[9] Since Bhutan and Sri Lanka peg their currencies to the Indian rupee, the Indian rupee is also included in the estimation for these countries. For the same reason, the estimations equations for the currencies of Botswana, Lesotho, Namibia, and Swaziland include the South African rand as one of the right-hand side currencies. For several countries in the Pacific, the Australian dollar is included.

The estimation also includes a dummy variable that takes the value of 1 if the monthly rate of change in the exchange rate of the sample currency is greater than 10 % in absolute terms so as to minimize noise from exchange rate disruptions such as abortion of an exchange rate regime and sudden re/devaluation of the currency. Similarly, we include a dummy variable that takes the value of 1 in the first month after the introduction of the euro.

[10] Following the Frankel and Wei estimation for the exchange rate, only significant estimates (or the estimate that has the lowest p-value) are included.

[11] That is, if home country i closely follows the monetary policy of the countries included in the basket, the goodness of fit of Eq. (4.2) must be high (while γ_{it} should be close to the value of one), which means the home country's monetary policy is *de*pendent on the (weighted average) monetary policy of the basket countries.

missing variable bias; it does not control for other factors that can affect the authorities' decisions on the policy interest rate, namely, domestic and global conditions. For example, when both the domestic and foreign authorities face common shocks, the estimated coefficient on the foreign interest rate could be spuriously significant and possibly close to one, even though the domestic authorities do not follow the foreign country's monetary policy.

Presuming that it is safe to assume non-stationarity in the interest rate level series,[12] and incorporating other factors, we modify Eq. (4.2) and consider the following 12-month difference estimation model:

$$\Delta i_{it}\big|_{t-12} = \gamma_{it}\Delta i^{*}_{it}\big|_{t-12} + \phi_{iyt}\widetilde{y}_{it} + \phi_{i\pi t}\widetilde{\pi}_{it} + \phi_{iy_G t}y_{Gt} + \phi_{ioil\pi t}oil\pi_{it} + D_i'\Phi_D + \varepsilon_{it}, \tag{4.4}$$

where $\Delta i_{it|t-12}$ and $\Delta i^{*}_{it|t-12}$ refer to the change in the home and (synthetic) foreign interest rates, respectively, over a 12-month period.[13] Hence, we examine the correlation between the change in the home and foreign interest rates over a 12-month period. $\widetilde{y}_{it}$ is a proxy of the output gap measured by the year-to-year growth rates of industrial production; $\widetilde{\pi}_{it}$ is a proxy of the inflation gap, measured by the year-to-year consumer price index (CPI) inflation rates; y_{Gt} is the year-to-year growth rate of the world economy, measured by the average rate of change in industrial production of the Group of Seven (G7) and Brazil, Russian Federation, India, and the PRC (BRIC countries); and $oil\pi_{it}$ is the year-to-year rate of change in the price of crude oil. Inclusion of $\widetilde{y}_{it}$ and $\widetilde{\pi}_{it}$ is supposed to control for the domestic conditions the monetary authorities in country i would consider in setting the policy interest rate so that Eq. (4.4) mimics the Taylor rule.[14] D is a vector of dummies to

[12] Given the Fisher equation, the stationarity of the nominal interest rate series is conditional upon the stationarity of the expected rate of inflation series or that of the real interest rate series. Theoretically, it is difficult to argue the non-stationarity of the real interest rate, although the real interest rate series can involve structural breaks, causing non-stationarity in a statistical test (Huizinga and Mishkin 1984; Garcia and Perron 1996). Given the past episodes of hyperinflation in many countries, the rate of inflation series can be non-stationary, as has been shown in many studies.

[13] We use the change in the policy rates over 12 months instead of month-to-month changes, that is, first-differences, because of the following reasons. First, estimation with the first-differenced policy rates would involve too much noise that affects both the estimated coefficients and adjusted R^2. Second and more importantly, estimating Eq. (4.2) in first-difference form is essentially the same as assuming that the home country must react to a change in the foreign interest rate i^* within 1 month, which may be too restrictive an assumption.

[14] We do not necessarily assume all the countries in our sample follow the Taylor rule, as the domestic variables can be insignificant contributors to the decision making of the policy rate in some countries.

control for high- or hyper-inflation as well as for currency crises that are identified based on the often-used exchange market pressure (EMP) indexes first developed by Eichengreen et al. (1995, 1996).[15]

Along with Eq. (4.4), we also consider the following two other estimation equations:

$$\Delta i_{it}\big|_{t-12} = \phi_{iyt}\widetilde{y}_{it} + \phi_{i\pi t}\widetilde{\pi}_{it} + \phi_{iy_G t}y_{Gt} + \phi_{ioil\pi t}oil\pi_{it} + D_i'\Phi_D + \varepsilon_{it} \tag{4.5}$$

$$\Delta i_{it}\big|_{t-12} = \gamma_{it}\Delta i^*_{it}\big|_{t-12} + D_i'\Phi_D + \varepsilon_{it} \tag{4.6}$$

Equation (4.5) is obtained by excluding the foreign interest rate from Eq. (4.4), while Eq. (4.6) is obtained by excluding the control variables that represent the domestic and global conditions from Eq. (4.4) though it still includes the vector of dummies. Using these estimation models and focusing on their adjusted R^2's, we come up with the following two types of measures for the level of monetary policy independence[16]:

$$MI\_1 = \frac{Adj.R^2 \text{ of Eq. (4.5)}}{Adj.R^2 \text{ of Eq. (4.4)}} \tag{4.7}$$

$$MI\_2 = 1 - \frac{Adj.R^2 \text{ of Eq. (4.6)}}{Adj.R^2 \text{ of Eq. (4.4)}} \tag{4.8}$$

Here, MI_1 indicates that the higher this ratio is, the less explanatory power the foreign interest rate has in Eq. (4.4). Hence, the higher this ratio is, the higher

[15] More specifically, we include the interest rate dummy that takes the value of one if the policy interest rate is greater than 100 %; the inflation dummy that takes the value of one if the change in the rate of inflation from the same month in the previous year is greater than 50 %; and the interest rate change dummy that takes the value of one if the change in the policy rate is greater than 5 % points from the previous month or 50 % points from the same month in the previous year. The currency crisis dummy takes the value of one when the EMP index exceeds the threshold of mean plus or minus 2 standard deviations of the index.

The EMP index is constructed as the weighted average of monthly changes in the nominal exchange rate, the nominal interest rate, and foreign exchange reserves in percentage. The exchange rate is between the home currency and the currency of the base country (as defined in Shambaugh 2004). The changes in the nominal interest rate and foreign exchange reserves are included as the differentials from those of the "base country." For the countries whose base countries are not defined by Shambaugh (2004), we follow the definition made by Aizenman et al. (2008). The weights are inversely related to the variance of changes in each component for each of the sample countries. When we calculate the standard deviations of the EMP index for the threshold, we exclude the EMP values that are lower than the bottom one percentile or greater than the top one percentile because outliers of the EMP index can make the standard deviations unnecessarily large and thereby make the thresholds too unreliable for some countries, especially those which have experienced significant swings in their EMP indexes.

[16] A more straightforward way of measuring the extent of monetary policy dependence would be to use $\hat{\gamma}$ in Eq. (4.4). However, $\hat{\gamma}$ is found to be quite unstable (despite inclusion of the dummies). For some developing countries that have experienced episodes of high inflation, the estimated $\hat{\gamma}$ can easily surpass the value of 1.

the level of monetary policy independence. *MI*_2 is, on the other hand, based on the idea that the more the foreign interest rate explains the variation of the home interest rate, the closer the adjusted R^2 of Eq. (4.6) is to that of Eq. (4.4). Hence, the higher the value of *MI*_2 is, the higher the level of monetary policy independence.

The two measures of monetary policy independence above show the relative contributions the domestic and global conditions and the foreign interest rate make to explain the variation of the home interest rate. However, we need to be careful about which measure of monetary policy independence index (*MI)* to use. That is, the choice between *MI*_1 and *MI*_2 would be immaterial as they provide identical information only if the vector of domestic and global conditions and the foreign interest rate are completely independent from each other. That cannot be true in general as the domestic and foreign authorities may face similar shocks and react similarly to them. For example, when the domestic country is geographically close to the foreign country, thereby subject to similar shocks, the domestic authorities with full monetary policy independence could behave similarly to the foreign authorities and thus, may appear responding to the foreign interest rate. This means that even though Eq. (4.5) is the true specification, Eq. (4.6) could deliver a good fit because the foreign interest rate and the vector of domestic and global conditions could be highly correlated. On the other hand, even if Eq. (4.6) is the true specification, the goodness of fit of Eq. (4.5) could be high if domestic and global conditions on the right hand side of (4.5) are highly correlated with the foreign interest rate.

Hence, we take the following approach for each of our sample economies. We estimate both Eqs. (4.5) and (4.6). First, if the adjusted R^2 of Eq. (4.5) is greater than that of Eq. (4.6), then we use *MI*_1 as in this case it is reasonable to conclude that the vector of domestic and global economic variables is not highly correlated with the foreign interest rate i^*. This procedure allows us to see how much additional explanatory power the foreign interest rate would have in Eq. (4.4) compared to Eq. (4.5), so *MI*_1 can be a good measure of monetary policy independence. Second, if the adjusted R^2 of Eq. (4.6) is greater than that of Eq. (4.5), then we use *MI*_2. In this case, we can see how much additional explanatory power the vector of domestic and global variables would have in Eq. (4.4) compared to Eq. (4.6). Finally, if the adjusted R^2's of Eqs. (4.5) and (4.6) are sufficiently close to each other, we use the average of *MI*_1 and *MI*_2.[17]

[17] Specifically, we use the following rule: If the adjusted R^2 of Eq. (4.5) is greater than the sum of the adjusted R^2 of Eq. (4.6) and the standard error of the difference between the two adjusted R^2's, then we take MI_1 as the MI index. If the adjusted R^2 of Eq. (4.6) is greater than the sum of the adjusted R^2 of Eq. (4.5) and the standard error of the difference between the two adjusted R^2's, then we take MI_2 as the MI index. If the difference between the two adjusted R^2's is within its standard error, then we use the average of the two MI indexes.

Financial Market Openness

Here, we base our index of financial market openness on the *de facto* measure of financial openness developed by Lane and Milesi-Ferretti (2001, 2007; L-MF hereafter). L-MF compile the data for international investment positions for about 180 economies between 1970 and 2007. For each economy, total assets are composed of foreign direct investment (FDI) assets, portfolio equity assets, debt assets (that is "debt equity" plus "other" investments such as bank loans and trade credit), financial derivatives assets, and foreign exchange reserves, while total liabilities include FDI liabilities, portfolio equity liabilities, debt liabilities, and financial derivatives liabilities.

L-MF normalize the sum of "total assets" and "total liabilities" as ratios of gross domestic product (GDP) and total trade volume (that is, exports plus imports) and use these ratios as the measures of financial openness. For our purpose, we observe the following points and consequently make several modifications. First, normalizing the sum of total assets and liabilities as a ratio of GDP would make the financial openness index susceptive to business cycles. Also, it would make the index appear unnecessarily low for large economies such as the US and make the one for an international financial center—such as Ireland, Luxembourg, Singapore, or Hong Kong, China—appear extremely high, much higher than that of the US which has presumably one of the most open financial markets in the world. Normalizing the sum of total assets and liabilities as a ratio of total trade volume, on the other hand, would make the index of financial openness less susceptive to business cycles and help correct distortions arising from the economy being a financial center. It, however, tends to penalize too harshly economies that are highly open to international trade such as Singapore. Hence, normalizing assets and liabilities as ratios of GDP and trade has both merits and demerits.

Second, including foreign exchange reserves as part of total assets for the purpose of creating an index of financial market openness can be problematic because official investment by monetary authorities should not be treated in the same way as private investment. One can think about the PRC and other East Asian economies, which may appear as "financially open" if their massive foreign exchange reserves are included as part of their total assets, when in fact they have tight controls on international capital flows.

Lastly, the index of financial openness based on the L-MF data may not be appropriate in the context of the trilemma hypothesis because the data seem to have an explosive trend. In fact, work by Quinn et al. (2010) shows that the index series is non-stationary. Hence, there is a need to normalize and standardize the sum of total external assets and liabilities in both an economically and econometrically reasonable way.

Given these observations, we create our index of financial market openness in the following way. We first calculate two indexes of financial market openness in a way similar to L-MF by normalizing the sum of external assets and liabilities, less

official foreign exchange reserve assets, as ratios of GDP and total trade. We then take the average of the 2. That is,

$$FO_{it} = \frac{1}{2}\left\{ \frac{\text{Total Assets}_{it} + \text{Total Liabilities}_{it} - \text{Official Reserve Assets}_{it}}{GDP_i} + \frac{\text{Total Assets}_{it} + \text{Total Liabilities}_{it} - \text{Official Reserve Assets}_{it}}{(EX + IM)_{it}} \right\}. \tag{4.9}$$

We finally assume that developed economies as a group achieved full financial market openness as of the late 1990s. Using this assumption, we calculate the financial market openness index for developed economies in the period from 1995 to 1999, define this as FO_{ADV}, and regard it as the highest level of financial market openness.[18] We normalize $FO*$ defined in (4.9) as a ratio of FO_{ADV} and define the index to be bound between 0 and 1.[19] That is,

$$FO_{it}^{*} = \frac{FO_{it}}{FO_{ADV}} \quad \text{where } 0 < FO_{it}^{*} < 1 \tag{4.10}$$

In this way, our financial market openness index is a de facto measure, excluding official reserve assets, and ranges between 0 and 1.[20]

Technical Adjustments

In this exercise, our general approach is to "let the data speak themselves." However, while there is no theoretical basis for each of the three indexes to be normally distributed, we must also avoid any distorted or lopsided distribution given the need for each index to range between 0 and 1. Based on this, we carefully examined the distribution of each index and identified the following two points. First, the index for exchange rate stability (ES) rarely takes a value below 0.3. This can be driven by a statistical artifact of the estimation model that includes several dummy variables.

[18] We exclude Luxembourg from the calculation since it is an extreme outlier due to its role of an international financial center. The *de jure* index of financial openness developed by Chinn and Ito (2006, 2008) also shows that the level of financial openness reached the highest level in the mid-1990s and has plateaued since then.

[19] Any FO_i^* taking a value above one is assumed to be one.

[20] We also update the data on external assets and liabilities using the international investment positions data of the IMF's *International Financial Statistics*.

We know that some developed economies hardly intervene in the foreign exchange markets, particularly in recent years, and this must mean that the exchange rate stability indexes for these economies are close to 0. Second, the index for financial market openness (FO) hardly falls below 0.1. Considering that we normalize actual volumes of external assets and liabilities (less foreign exchange reserves) by GDP and total trade, it is understandable for such a constructed index not to be close to 0. Even if the authorities ban international capital flows with regulatory controls, some cross-border capital flows do occur. However, we know that several economies have essentially closed financial markets, for which the financial market openness indexes must be 0.

To incorporate these two issues, we adjust the indexes for exchange rate stability and financial market openness as follows:

$$ES_i^* = (ES_i - 0.30)/0.70$$
$$FO_i^{**} = (FO_i^* - 0.10)/0.90$$

where ES and FO* are indexes constructed according to the procedure described previously.

These adjustments for ES and FO may create some downward bias in the new set of three trilemma indexes. As we discuss in the next subsection, in order for the indexes to have theoretical validity, the sum of the indexes must equal two, for which the newly created downward bias may be a little problematic. In fact, when we define $\overline{MI} + \overline{ES} + \overline{FO} = 2 \cdot A$, where $\overline{X} = \frac{1}{T}\frac{1}{I}\sum_{1}^{T}\sum_{1}^{I} X_{it}$, that is, the cross-country, cross-time average of variable X (= MI, ES, or FO), A is found to be smaller than 1.

Hence, we make a further adjustment to the set of the three indexes so that the sum of the indexes will not become far from theoretical predictions on the average over the entire sample. More specifically, we define the sum of the adjusted measures of exchange rate stability, monetary policy independence and financial market openness to be two by defining a new set of indexes as: $X' = X/A$ where X=MI, ES, or FO.

4.4 Analysis of the Three Indexes

Theoretical Validity of the New Indexes: Do They Add Up to Two?

Before making observations of the newly defined indexes, we need to make sure that these indexes hold theoretical validity. Theory predicts that monetary authorities would have to face a trade-off of choosing two out of the three policy choices if they implement each to the full extent. If they do not implement any combination of

two policies fully, they could achieve three policies partially. However, once they make policy choices in any two of the three areas, they cannot make an independent choice in the third area, as it is automatically determined. This means that the extent of achievement in the three choices must be linearly related to each other. As long as we assume that the trilemma triangle is an equilateral triangle with the height of 1, the three indexes must add up to 2.[21]

One may wonder if our exercise is tautological because we already made an adjustment to make the cross-time-country average of the three indexes equal to 2. However, even if we make this adjustment, the sum of the three indexes is not guaranteed to be equal to 2 over a specific subsample period for a given country or country group, or across all countries in a given year. If the indexes are not in line with theoretical predictions, the sum of the three indexes could still deviate from the value of 2 in certain subsample countries and years even though the across-the-board average is 2.

Figure 4.2 shows the evolution over time of the average sum of the three indexes for different income economy groups, that is, high-income, middle- and low-income, and emerging economies.[22] The shaded areas refer to the 90 % confidence intervals of the mean of the sum. For the full sample, the sum is not statistically different from the value of 2 in the late 1980s, the first seven or so years of the 1990s, and the first several years of the 2000s. However, the sum deviates downward from the value two during most of the 1970s, the first half of the 1980s, and the mid-2000s, while it deviates upward from two in the late 2000s. So the sum of the three indexes for the full sample is not different from the value two in more than 50 % of the sample period. For high-income economies, the pattern of the sum of the three indexes is similar to that of the full sample, except that the sum is not statistically different from the value of 2 during most of the 2000s. As a result, the sum is not different from two in more than 60 % of the sample period. For the subgroups of middle- and low-income economies and emerging economies, the sum of the three indexes is not statistically different from two during most of the sample period, except that the sum for middle- and low-income economies exhibits a significant downward deviation from two during the 2000s. At any rate, the sum is not different from two in more than 85 % of the sample period for these two subgroups of economies.

[21] Appendix 2 of the working paper version of this chapter (Ito and Kawai 2012) further explains the linearity of the three indexes and why they must add up to 2.

[22] "High-," "middle-," and "low-income" economy groups are based on the World Bank's classifications. "High income economies" include Australia; Austria; Bahrain; Barbados; Belgium; Canada; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hong Kong, China; Hungary; Iceland; Ireland; Israel; Italy; Japan; Kuwait; Luxembourg; Malta; Netherlands; New Zealand; Norway; Oman; Poland; Portugal; Qatar; Saudi Arabia; Singapore; Slovak Republic; Slovenia; Spain; Sweden; Trinidad & Tobago; and United Kingdom. "Emerging economies" refer to the economies included in the MSCI Emerging Markets Index. They are Argentina; Brazil; Chile; People's Republic of China; Colombia; Czech Republic; Egypt; Hungary; India; Indonesia; Israel; Jordan; Republic of Korea; Malaysia; Mexico; Morocco; Pakistan; Peru; Philippines; Poland; Russian Federation; South Africa; Taipei,China; Thailand; Turkey; and Venezuela.

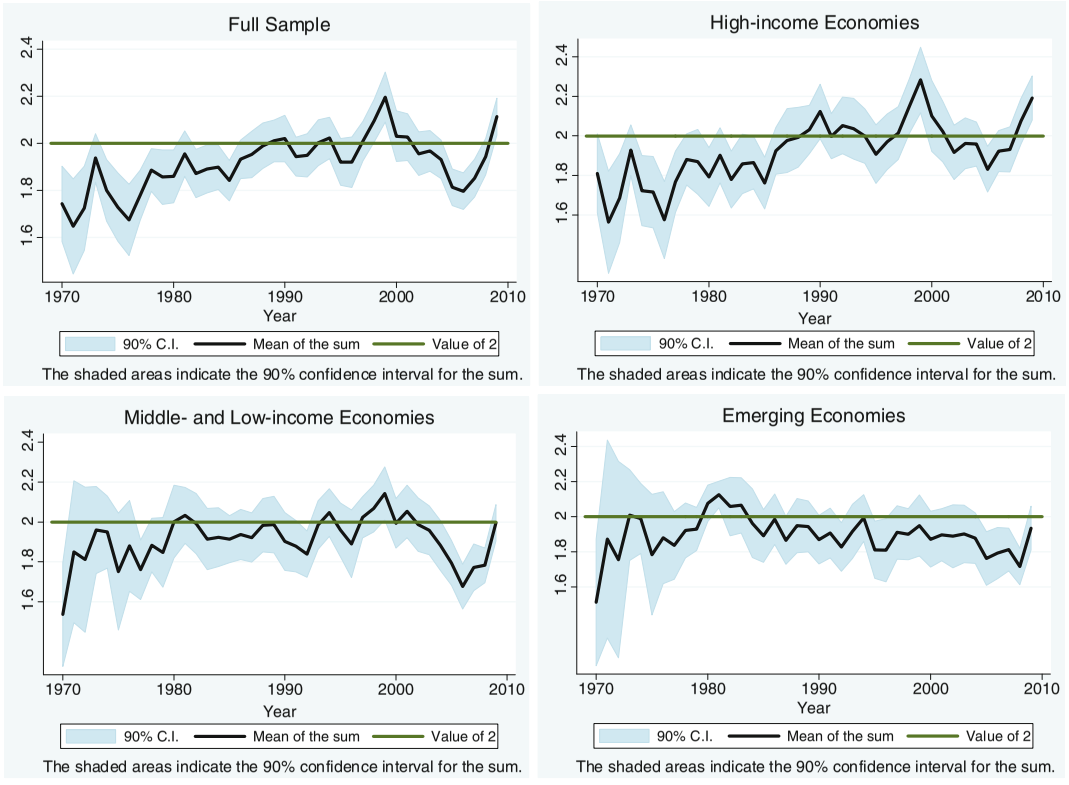

Fig. 4.2 The sum of the three indexes. *Notes*: The grouping of "high-," "middle-," and "low-income" economies is based on the World Bank's classifications. "Emerging economies" refer to the economies included in the MSCI emerging markets index. They are Argentina; Brazil; Chile; People's Republic of China; Colombia; Czech Republic; Egypt; Hungary; India; Indonesia; Israel; Jordan; Republic of Korea; Malaysia; Mexico; Morocco; Pakistan; Peru; Philippines; Poland; Russian Federation; South Africa; Taipei,China; Thailand; Turkey; and Venezuela. *Source*: Authors' estimates

Overall, it is reasonable to conclude that the sum of the three indexes is close to the value of 2, particularly for middle- and low-income economies and emerging economies, supporting the theoretical validity of the new indexes. However, the results suggest that the measurement of the three policy choices for high-income economies may contain some shortcomings. This however should not pose a problem to our analysis as we focus on middle- and low-income economies and emerging economies in the following sections.

Some Observations of the Indexes

Figure 4.3 illustrates the average value of each of the three indexes for different income and regional groups of economies. We observe that high-income economies have achieved significant financial market opening over the last 40 years, starting from a low level comparable to those of the middle- and low-income economies and emerging economies in the 1970s to a very high level in the late 2000s. They also seem to have changed policy priorities from the combination of relatively high levels of exchange rate stability and monetary policy independence (with limited financial market openness) during the 1970s to that of slightly lesser exchange rate stability and lower monetary policy independence. The trend toward a lower degree of monetary policy independence for high-income economies is surprising, but this is largely because of the participation by a large number of European countries in the eurozone. Essentially, most eurozone countries chose to abandon monetary policy independence in favor of maintaining a degree of exchange rate stability.

Middle- and low-income economies have, on average, seen an increase in the level of financial market openness, which started with a low level, rose to an intermediate level in the 1980s, plateaued until the early 2000s, and fell slightly in the second half of the 2000s. They also pursued high levels of monetary policy independence and exchange rate stability over the sample period, with the level of exchange rate stability moderately declining as a trend over time.

Emerging economies exhibit patterns similar to those of the middle- and low-income economies, except that their level of financial market openness has steadily risen to an intermediate level and their level of exchange rate stability has steadily declined as a trend. It is interesting to observe that they have maintained a relatively high level of monetary policy independence. In addition, emerging economies, on average, have chosen a lower degree of exchange rate stability than other income-groups including high-income economies.

The development of the three indexes for the Association of Southeast Asian Nations (ASEAN) economies is somewhat similar to that of the group of emerging economies, except that the level of exchange rate stability plummeted during the Asian financial crisis and for a few years in its aftermath. Interestingly, despite the loss of exchange rate stability in the immediate aftermath of the Asian financial crisis, emerging Asian economies seem to be regaining exchange rate stability as

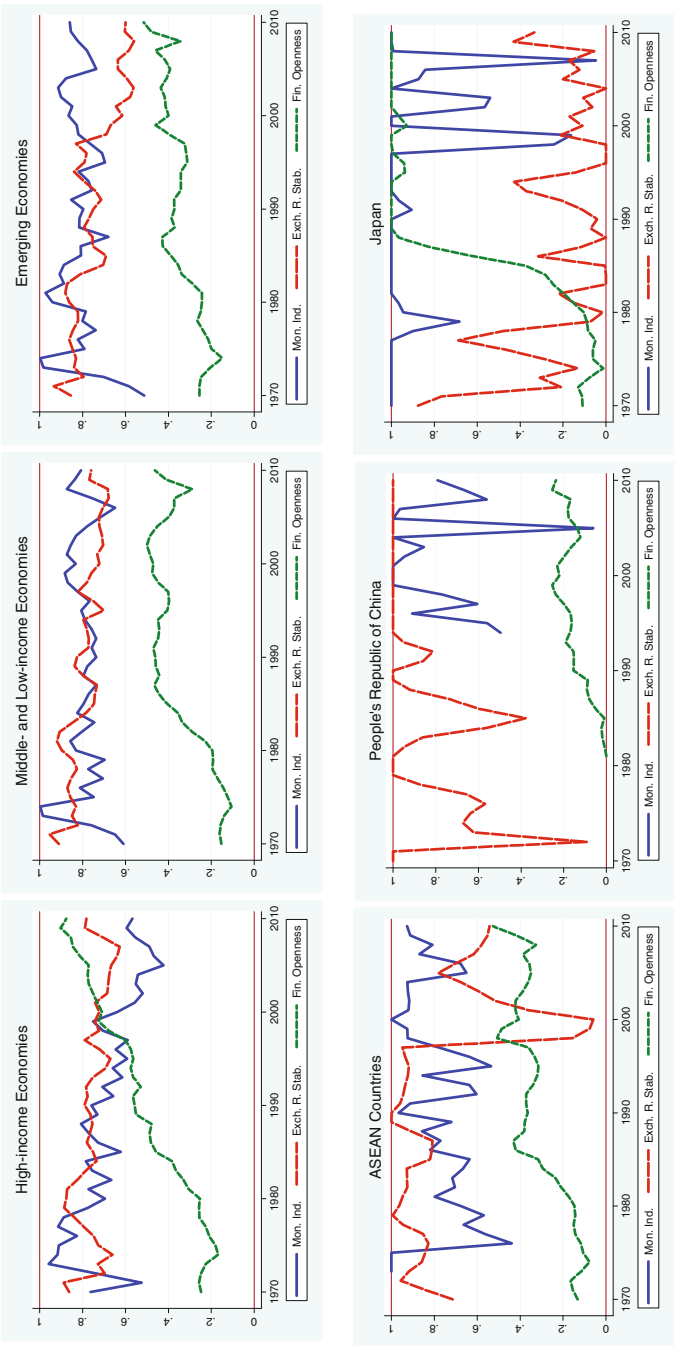

Fig. 4.3 Trilemma indexes for economy groups. *Notes*: The groupings of "high-," "middle-," and "low-income" economies are based on the World Bank's classifications. "Emerging economies" refer to the economies included in the MSCI Emerging Markets Index. They are Argentina; Brazil; Chile; People's Republic of China; Colombia; Czech Republic; Egypt; Hungary; India; Indonesia; Israel; Jordan; Republic of Korea; Malaysia; Mexico; Morocco; Pakistan; Peru; Philippines; Poland; Russian Federation; South Africa; Taipei,China; Thailand; Turkey; and Venezuela. ASEAN countries are Brunei Darussalam; Cambodia; Indonesia; Malaysia; Myanmar; Philippines; Singapore; Thailand; and Viet Nam (with the data for Lao People's Democratic Republic missing). *Source*: Authors' estimates

has been anecdotally discussed.[23] This seems to be accompanied by a sacrifice of monetary policy independence. Not surprisingly, these economies increased the level of monetary policy independence during both the Asian financial crisis and the global financial crisis, reflecting the stabilization efforts during the turmoil. The level of financial market openness has risen in two steps, one in the mid-1980s and another in the late 1990s. ASEAN economies appear different from other middle- and low-income economies and emerging economies in that they have been on a steady path for greater financial market openness, even in the aftermath of financial crises. Nonetheless, the level of financial market openness still lags behind other emerging economies such as those in Latin America, suggesting more room for further opening.

Not surprisingly, the two biggest economies in Asia—the PRC and Japan—appear to have distinctively different trajectories of open macro policy combinations. While the PRC has steadily pursued exchange rate stability especially since the beginning of the 1990s, Japan has adopted a flexible exchange rate regime since the breakdown of the Bretton Woods system in the early 1970s. Japan also started liberalizing its financial markets in the mid-1980s and completed its liberalization by the beginning of the 1990s. The PRC's financial liberalization efforts, on the other hand, have been minimal as has been argued anecdotally, appearing to still have much room for further financial liberalization. Since both economies are quite large, they have tended to pursue greater monetary independence for most of the (available) sample period.

4.5 The Trilemma Triangle

The most intuitive way of illustrating combinations of the three policies—monetary policy independence, exchange rate stability, and financial market openness—for a particular economy is to locate its policy combinations in the trilemma triangle shown in Fig. 4.1.

However, to do this, the sum of the three policy indexes must *exactly* equal two for every year and every country. Although we have shown that the sum of the three indexes is statistically not different from the value of 2 particularly for middle- and low-income economies and emerging economies, it is often the case that the sum of the three indexes deviates from the value of 2 for a given economy and a certain period. Hence, we make an adjustment to ensure that the sum of the three indexes is equal to 2 for every country and every year.[24] Essentially, we divide each index by scalar B_{it} when $MI_{it}+ES_{it}+FO_{it}=2B_{it}$, where subscript i refers to an economy and t a year.

[23] Emerging Asian economies include the PRC, Indonesia, Republic of Korea, Malaysia, the Philippines, Singapore, and Thailand.

[24] The adjustment is further explained in Appendix 2-2 of the working paper version of this chapter (Ito and Kawai 2012).

With this adjustment, we are now able to show combinations of the three policies in the trilemma triangle using the metrics that represent the extent of actual achievement in the three policy goals. To our knowledge, plotting a combination of the three policies in a trilemma triangle is the first attempt in the literature of international macroeconomics.

Figure 4.4a shows the trilemma triangles with the converted three indexes for three 5-year periods: 1986–1990, 1996–2000, and 2006–2009, and for different economy groups: high-income economies, emerging economies, and the ASEAN+3 economies (ASEAN plus the PRC, Japan, and the Republic of Korea). We can make several interesting observations. Generally speaking, while high-income economies used to have a wide variety of combinations of the three policies, these economies moved toward higher degrees of financial market openness over time. By the end of the 2000s, there are two types of high-income economies: one group composed of economies that have pursued higher levels of financial market openness and exchange rate stability, most notably the eurozone economies, and the other composed of economies that have achieved greater degrees of monetary policy independence and financial market openness, with greater exchange rate flexibility, such as Germany, Iceland, Scandinavian countries, Japan, and Australia.

While most of the high-income economies have steadily increased the level of financial market openness, this is not generally the case for emerging economies. As in the second half of the 2000s, three groups of emerging economies are noticeable: one group composed of economies with full monetary policy independence but with varying degrees of exchange rate stability and financial market openness; the second group with full exchange rate stability but with varying degrees of monetary policy independence and financial market openness; and the third with intermediate levels in all three policy choices.

Among the ASEAN+3 economies, starting from the combination of relatively stable exchange rates and relatively independent monetary policy, that is, the left-bottom corner of the triangle, many economies tried to retain monetary policy independence while giving up exchange rate stability to some degree, partly reflecting the abortion of fixed exchange rate regimes in the aftermath of the Asian financial crisis. As of the last few years, there seems to be a wider variety of policy combinations among the ASEAN+3 economies with some clustering in the middle of the triangle.

Figure 4.4b illustrates the trilemma triangles for individual economies in Asia. The values of the trilemma indexes are 5-year averages, and the year in the triangle refers to the last year of the 5-year periods. As has been discussed widely, we can confirm that the PRC has maintained high levels of exchange rate stability and monetary policy independence by limiting financial market openness. Despite the government's announcement to increase the level of exchange rate flexibility in 2005, the triangle plot suggests that the country has retained *de facto* fixed exchange rates without significant openness of its financial market. Other Asian economies, on the other hand, seem to have reduced the level of exchange rate stability after the Asian financial crisis though they also

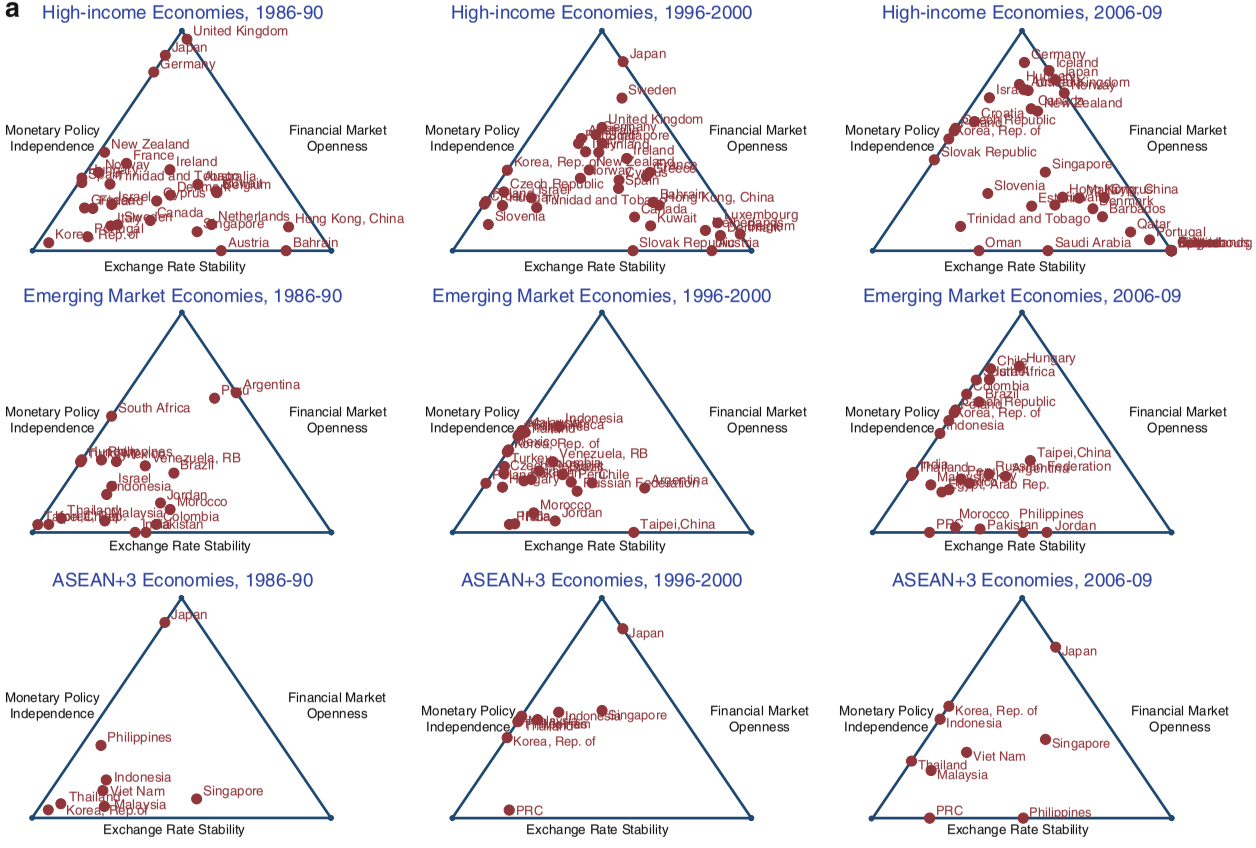

Fig. 4.4 (**a**) Trilemma triangle—economy groups. (**b**) Trilemma triangle—individual Asian economies. *PRC* People's Republic of China. *Source*: Authors' estimates

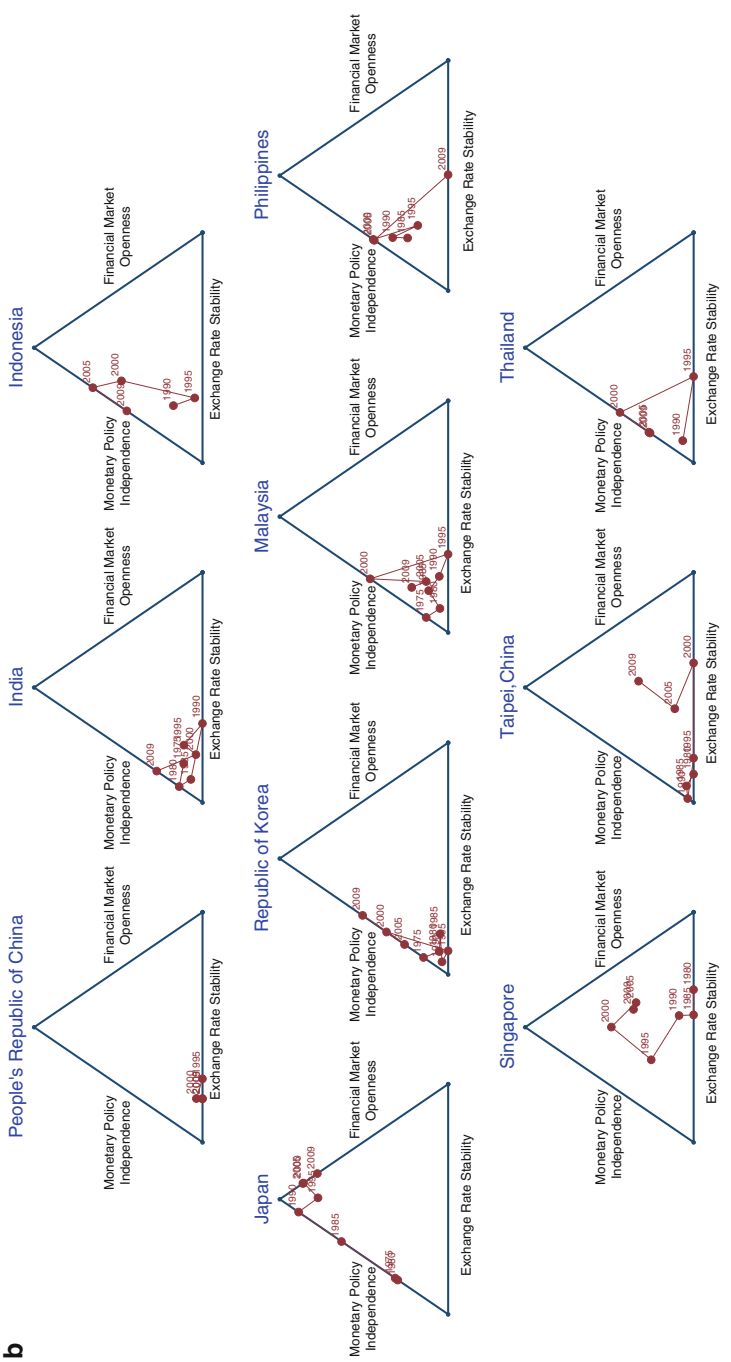

Fig. 4.4 (continued)

seem to have continued to retain monetary policy independence. Emerging Asian economies do not appear to have been as financially open as has been discussed. Interestingly, many Southeast Asian economies appear to have increased the level of exchange rate stability in the last period without much increasing the level of financial market openness.

4.6 Crises and the Trilemma

Although the three indexes of the trilemma hypothesis must add up to two, in reality, actual policy arrangements of exchange rate stability, monetary policy independence, and financial market openness may deviate from the theoretical linear constraint. Anecdotally, we sometimes observe monetary authorities trying to implement an "inconsistent" policy that violates the trilemma constraint. For example, authorities of an economy experiencing large capital inflows and an economic boom may try to tighten monetary policy to cool off the economy—thereby retaining monetary policy independence—and yet maintain the (overvalued) fixed exchange rate without limiting financial market openness. The authorities in such a situation will eventually have to either lose control of monetary policy, abort the fixed exchange rate, or implement (or tighten) capital controls. In other words, the authorities may deviate from the constraint of the trilemma only in the short run, but not over many years. After all, a policy that deviates from the trilemma will eventually have to end. Otherwise, market forces will punish the authorities by creating a crisis and induce them to alter policies in a way consistent with the trilemma constraints.

Given this observation and using the indexes we have developed, we should be able to identify policy combinations that yield $\mathrm{MI} + \mathrm{ES} + \mathrm{FO} > 2$ for a certain period and are "unsustainable." Once we do this, we can hypothesize that unsustainable policy combinations that cause deviations from the trilemma constraint must be corrected by macroeconomic policy changes or economic and financial disruptions, such as an economic and a financial crisis.

As one attempt, we will observe how the sum of the three indexes behave around the time of an economic or a financial crisis. Here we use the indexes before adjustment by B_{it}.

Overall Crisis Analysis

We identify the following five types of crises: (i) a general crisis; (ii) a currency crisis; (iii) a banking crisis; (iv) a debt crisis; and (v) an inflation crisis, and show how the sum of the three indexes evolve before, during, and after each type of the crisis. The hypothesis we set up and test here is that, if the trilemma constraint is indeed binding, sustained deviations from the trilemma constraint must be followed by economic disruptions as the means of policy corrections. In other words, in the

precrisis period, the sum of the three indexes should be significantly higher than the value of 2. Once an economic or a financial crisis occurs, it should be brought down close to or even below the value two.

Figure 4.5a illustrates the average sum of the three indexes in the period from 2 years before and after the occurrence of a "general" crisis for the economies that experience the crisis. We identify a general crisis when the growth rate of per capita income is more than one standard deviation below its long-run mean.[25] We call this type of crisis merely a general crisis because we focus on the performance of per capita income growth without referring to the causes for the underperformance, which can be due to a currency, banking, or debt crisis, or by some political or geopolitical crisis. In the figure, we observe an inverted V-shape in the development of the sum of the three indexes over the crisis period for the group of emerging economies. The sum of the three indexes is not statistically different from the value two for any group of economies, even for the group of emerging economies. So there is no evidence of deviations from the trilemma constraint.

Figure 4.5b repeats the same exercise for a currency crisis. We identify a currency crisis in the same way as suggested by Eichengreen et al. (1995, 1996).[26] Here, we again observe the inverted V-shape in the average sum of the three indexes for emerging economies. Again the sum of the indexes before or during the crisis is not statistically different from the value two, and no strong evidence is found for deviations from the trilemma constraint.[27]

In the case of a banking crisis (Fig. 4.5c) or a debt crisis (Fig. 4.5d),[28] we do not observe any deviation of the sum of the three indexes from the value two in a way consistent with our prior. This result implies that a banking or a debt crisis is not related to "unsustainable" open macroeconomic management.

In the case of an inflation crisis (Fig. 4.5e),[29] we find that the sum of the three indexes for emerging economies significantly exceeds the value two in the year preceding the crisis.[30] This result suggests that an inflation crisis can be associated

[25] This identification is the same as "excessively severe recession" in Aizenman et al. (2012). The standard deviation is based on rolling 5-year windows. The long-run average of per capita income growth is the average of the growth in the 1950–2009 period. The per capita income data are retrieved from Penn World Table 7.0.

[26] It is also supplemented by the currency crisis identification by Reinhart and Rogoff (2009).

[27] However the sum of the three indexes for emerging economies is significantly greater than the subsample mean in the crisis year (t), with the statistical significance of 80 %. Here the subsample mean of the sum of the three indexes is calculated for both crisis and non-crisis emerging economies over the entire period. So as far as a currency crisis in concerned, there is some, though weak, evidence that there may have been such a deviation if a benchmark is the sample mean, rather than the value two.

[28] We identify a banking crisis and a debt crisis, respectively, by using the datasets developed by Laeven and Valencia (2010) and used by Reinhart and Rogoff (2009).

[29] We identify an inflation crisis if there are more than 5 months in a year when the annual growth rate of consumer price index (CPI) is over 20 %. This definition draws from Reinhart and Rogoff (2009).

[30] In addition, there is some evidence that the sum of the three indexes exceeds the subsample mean for crisis and non-crisis emerging economies over the entire period.

a

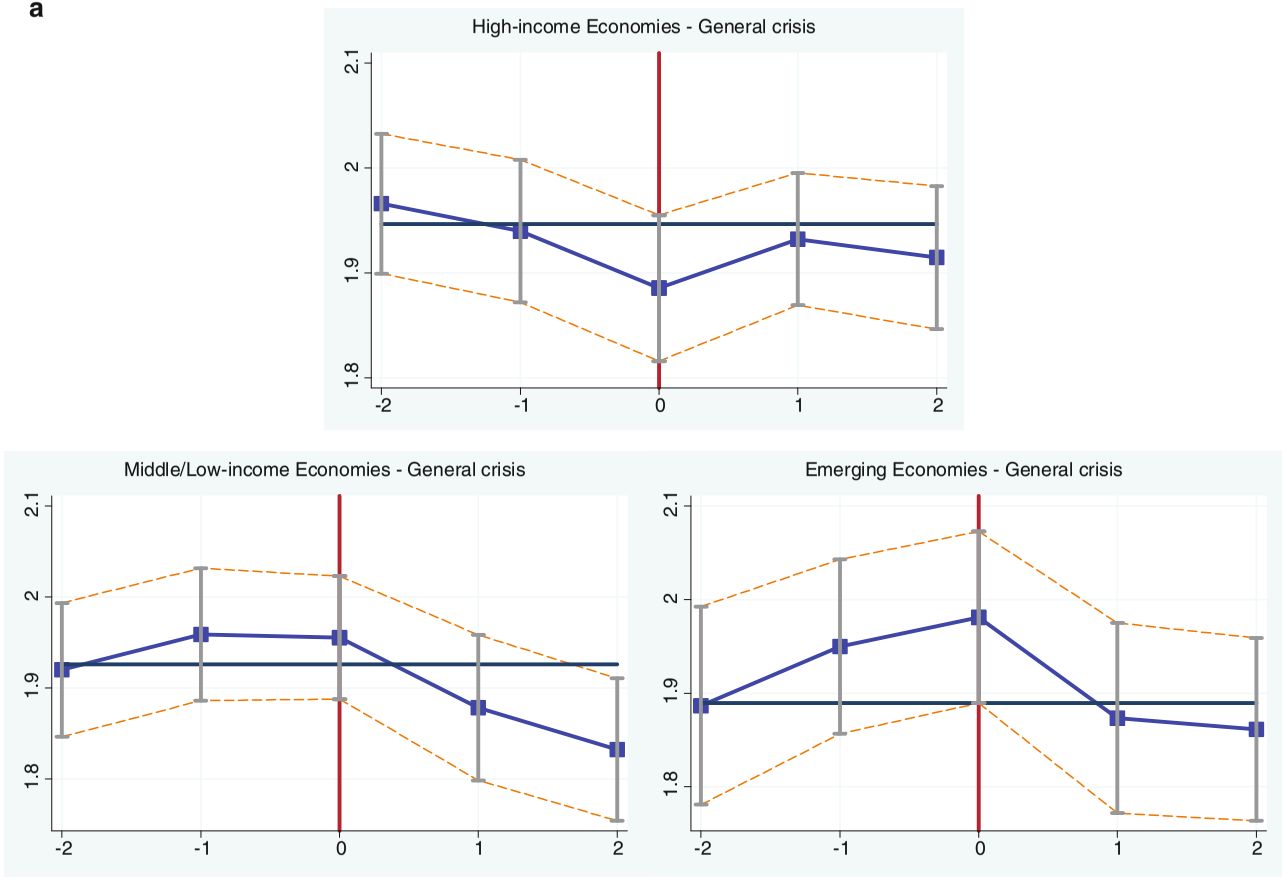

Fig. 4.5 (**a**) Development of the sum of the three indexes around the general crisis. (**b**) Development of the sum of the three indexes around the currency crisis. (**c**) Development of the sum of the three indexes around the banking crisis. (**d**) Development of the sum of the three indexes around the debt crisis. (**e**) Development of the sum of the three indexes around the inflation crisis. *Note*: The *gray bars* represent the 80 % confidence intervals of the average sum of the three indexes. *Source*: Authors' estimates

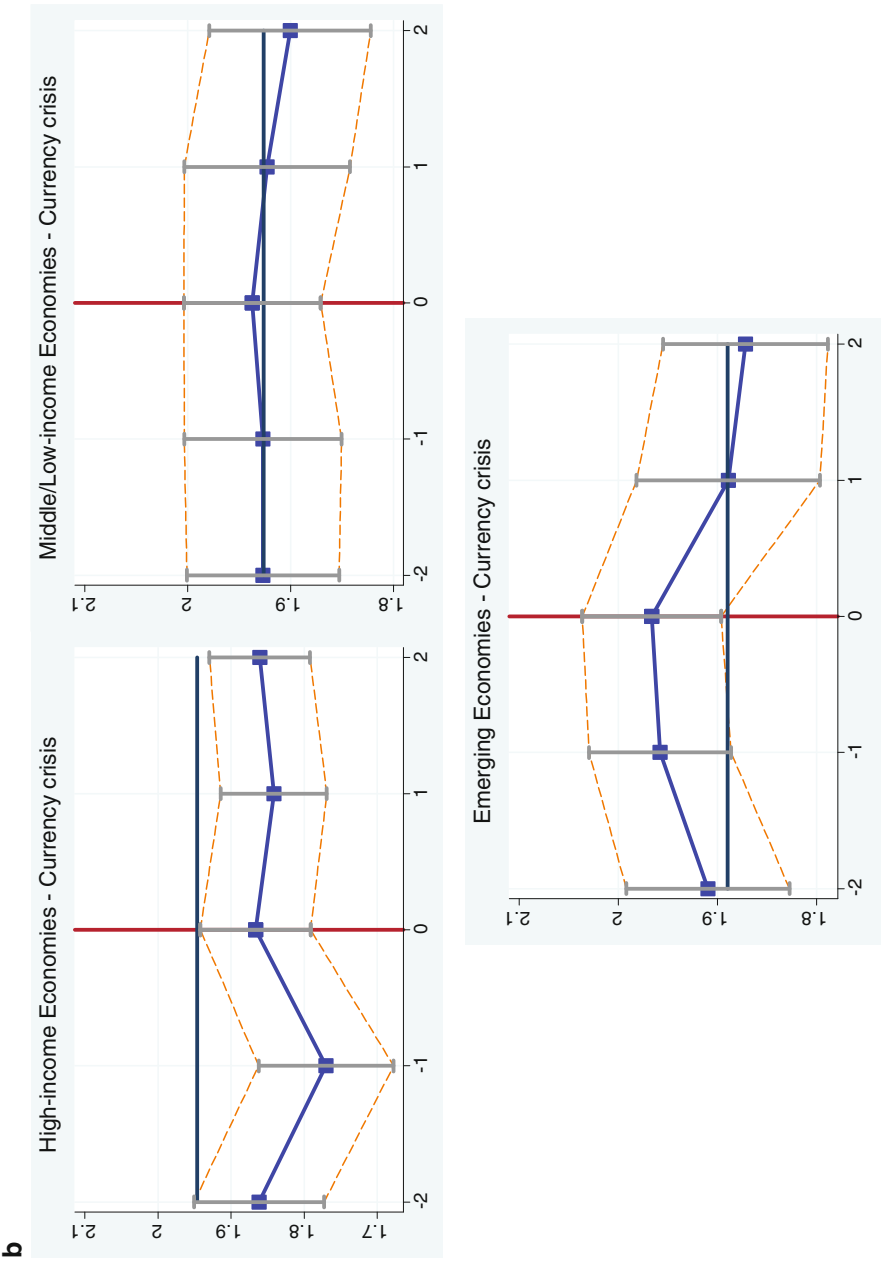

Fig. 4.5 (continued)

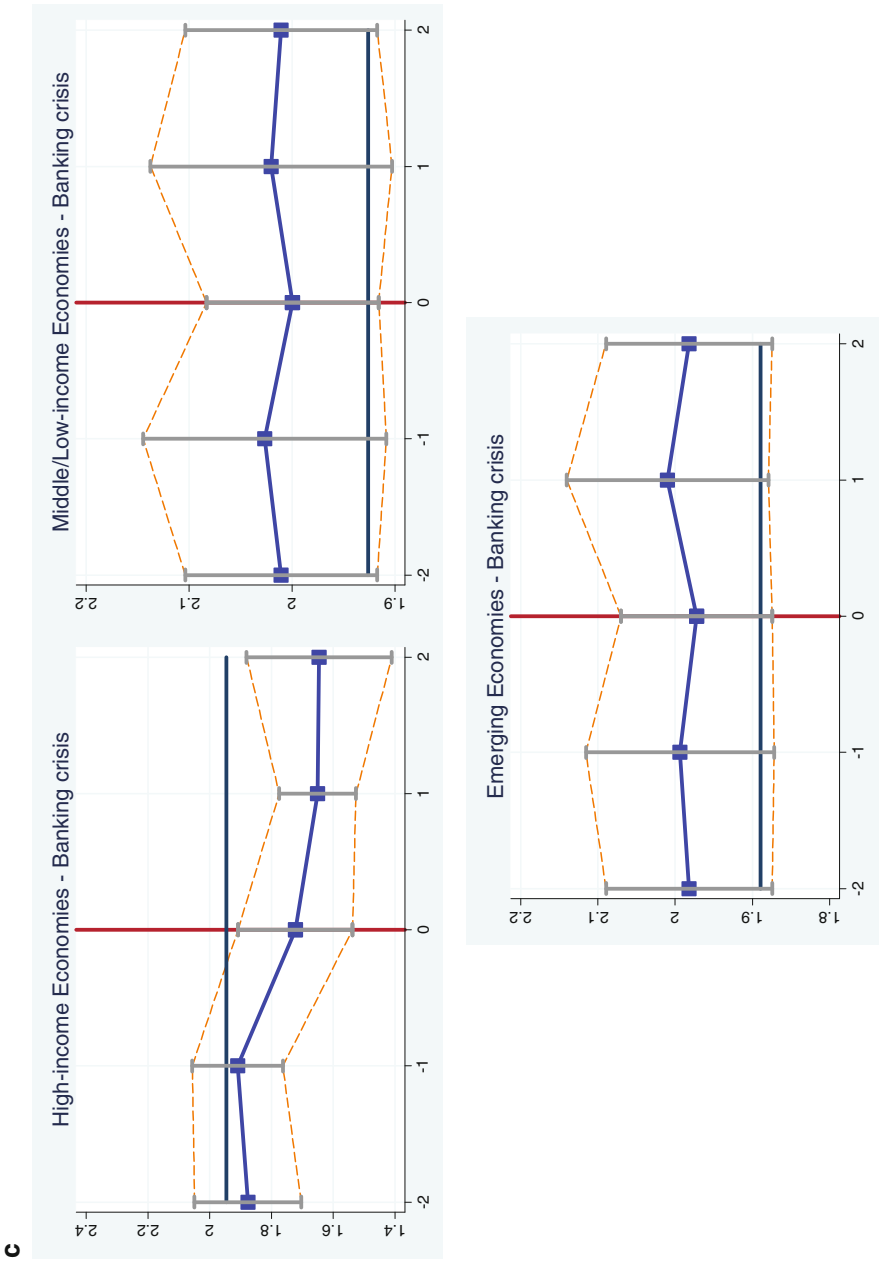

Fig. 4.5 (continued)

with unsustainable international macroeconomic policies. This is consistent with the historical evidence that many small open economies, especially those in Latin America, experienced high or hyper-inflation in the 1980s when they implemented unsustainable open macroeconomic policies that included rapid financial liberalization and opening under fixed exchange rate regimes.

Specific Crisis Analysis

Now, let us observe the sum of the three indexes of Asian economies at the time of the Asian financial crisis of 1997–1998. In Fig. 4.6a, we can see that the sum of Thailand's trilemma indexes surpassed the value two in 1996–1997, the period leading to the crisis, while others do not seem to have such policy combinations. In other words, Thailand, but not necessarily other crisis-affected countries, may have implemented unsustainable macroeconomic policies in the period immediately prior to the crisis. Also, once the financial crisis broke out, all economies appear to have lowered, or undershot, the sum of the three indexes as a reaction to the crisis. These results may indicate that Thailand's baht crisis was driven by the country authorities' mismanagement of open macroeconomic policies in the precrisis period, while other crisis economies were dragged to the currency crisis mainly through contagion from Thailand.

Looking at the experience of Latin American economies during the debt crisis period of the 1980s is also informative. Figure 4.6b suggests that many Latin American economies implemented unsustainable macroeconomic policy combinations throughout the 1980s, although the sum of the three policy indexes is in a declining trend toward the end of the decade in most of the economies. The lingering crisis situation of these economies can be attributed to their mismanagement of the three policies.

Although we must conduct a more formal analysis to reach more definitive conclusions, there seems to be some evidence that Thailand implemented unsustainable open macroeconomic policies prior to the baht crisis in a way similar to the Latin American economies during the debt crisis period of the 1980s.

4.7 Concluding Remarks

We have introduced a new set of indexes of exchange rate stability, monetary policy independence, and financial market openness, all of which are theoretically constrained as a trade-off as predicted by the famous impossible trinity or trilemma hypothesis. In our exploration, we have taken a different, and more nuanced approach than the previous indexes such as those developed by Aizenman et al. (2008). We showed that as long as the indexes are normalized between

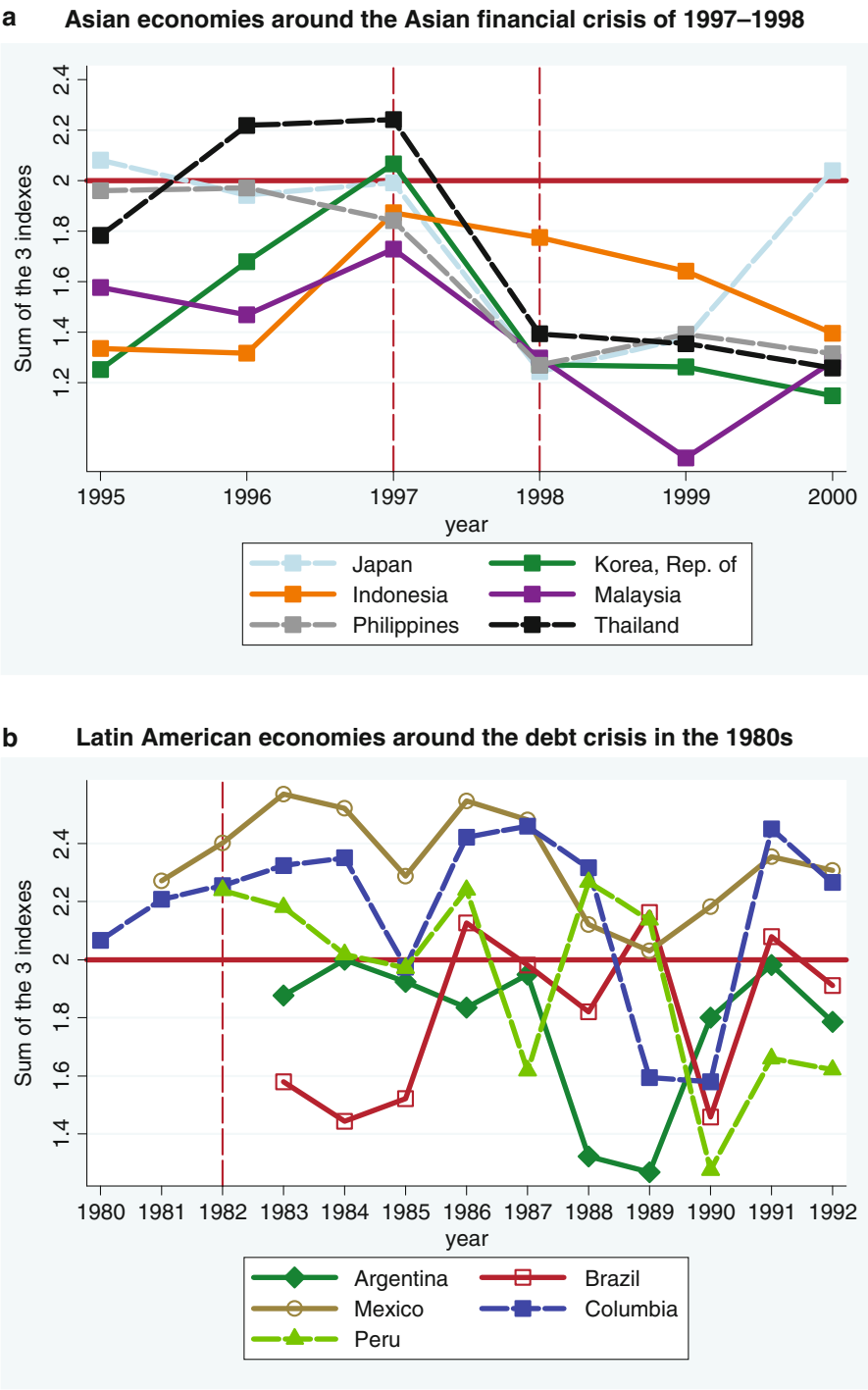

Fig. 4.6 The sum of the three indexes over the crisis period. *Source*: Authors' estimates

0 and 1, the three indexes of the trilemma must add up to the value of 2 to be consistent with the theory.

We tested if the new indexes are consistent with the trilemma hypothesis. We indeed found some statistical evidence for the sum of the three indexes being equal to the value two, particularly for middle- and low-income economies and emerging economies. This finding supported the view that monetary authorities do face the trilemma constraint in setting open macroeconomic policies as theory suggests.

For the first time in the literature, we presented our sample economies' policy mixes by plotting them in the famous trilemma triangle, which turns out to be useful in illustrating where policy mixes of a particular economy stand at a particular time and how they have evolved over time. We have shown that there is still room for the ASEAN economies to further open financial markets, moving away from the current policy preferences of maintaining relatively high levels of monetary policy independence and exchange rate stability with limited financial market openness.

While the sum of the newly defined indexes must add up to the value two theoretically, in reality it can deviate from two. The trilemma hypothesis suggests that a policy combination that creates a large, persistent deviation is unsustainable, and, hence, should be corrected by economic disruptions such as an economic or a financial crisis.

We examined how the sum of the three indexes evolved in crisis economies. We found that the average sum of the three indexes deviates from the value two for emerging economies that eventually experienced an inflation crisis, but not a general, banking, or debt crisis. Weak evidence may exist for such deviations for emerging economies that experienced a currency crisis. These results suggest that those economies that implement unsustainable open macroeconomic policies can face an inflation (or potentially a currency) crisis.

We looked at the Asian and Latin American economies at the time of the Asian financial crisis of 1997–1998 and the Latin American debt crisis in the 1980s. Before the baht crisis, Thailand seems to have implemented unsustainable policies, while other crisis-affected Asian economies do not seem to have had such unsustainable policies. Also, most Asian economies experienced a decline in the sum of the three indexes in the postcrisis period. Latin American economies seem to have had policies that were unsustainable throughout the 1980s, suggesting that mismanagement of open macroeconomic policies had a long-lasting impact on their economic performance.

These findings suggest that the new indexes of the trilemma we have developed can be used to identify the extent of an unsustainable policy mix at a country level. However, we still need to conduct a more formal analysis to unravel the nature of correlation between the indexes and the occurrences and severity of an economic and financial crisis. In addition, it would be useful to identify factors that affect the choice of policy combinations. We leave these as a future research agenda.

References

Aizenman, J., Chinn, M. D., & Ito, H. (2008). *Assessing the emerging global financial architecture: Measuring the trilemma's configurations over time* (National Bureau of Economic Research (NBER) Working Paper 14533).

Aizenman, J., Chinn, M. D., & Ito, H. (2012). The financial crisis, rethinking of the global financial architecture, and the trilemma. In M. Kawai, P. Morgan, & S. Takagi (Eds.), *Monetary and currency policy issues for Asia: Implications of the global financial crisis* (pp. 143–206). Cheltenham/Northampton: Edward Elgar Publishing.

Aizenman, J., Chinn, M. D., & Ito, H. (2013). The 'impossible trinity' hypothesis in an era of global imbalances: Measurement and testing. *Review of International Economics, 21*(23), 447–458.

Chinn, M. D., & Ito, H. (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics, 81*(1), 163–192.

Chinn, M. D., & Ito, H. (2008). A new measure of financial openness. *Journal of Comparative Policy Analysis, 10*(3), 309–322.

Eichengreen, B., Rose, A., & Wyplosz, C. (1995). Exchange market mayhem: The antecedents and aftermaths of speculative attacks. *Economic Policy, 21*, 249–312.

Eichengreen, B., Rose, A., & Wyplosz, C. (1996). Contagious currency crises: First tests. *Scandinavian Journal of Economics, 98*(4), 463–484.

Frankel, J., & Wei, S. J. (1994). Yen bloc or dollar bloc? Exchange rate policies: The East Asian economies. In T. Ito & A. Krueger (Eds.), *Macroeconomic linkage: Savings, exchange rates, and capital flows* (pp. 295–333). Chicago: University of Chicago Press.

Garcia, R., & Perron, P. (1996). An analysis of the real interest rate under regime shifts. *Review of Economics and Statistics, 78*, 111–125.

Huizinga, J., & Mishkin, F. (1984). Inflation and real interest rates on assets with different risk characteristics. *Journal of Finance, 39*(3), 699–712.

Ito, H., & Kawai, M. (2012). *New measures of the trilemma hypothesis: Implications for Asia* (ADBI Working Paper Series No. 381). Tokyo: Asian Development Bank Institute.

Kawai, M., & Akiyama, S. (1998). The role of nominal anchor currencies in exchange rate arrangements. *Journal of the Japanese and International Economies, 12*, 334–387.

Laeven, L., & Valencia, F. (2010). *Resolution of banking crises: The good, the bad, and the ugly* (IMF Working Paper 10/146). Washington, DC: International Monetary Fund.

Lane, P., & Milesi-Ferretti, G. M. (2001). The external wealth of nations: Measures of foreign assets and liabilities for industrial and developing countries. *Journal of International Economics, 55*, 263–294.

Lane, P., & Milesi-Ferretti, G. M. (2007). The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004. *Journal of International Economics, 73*(2), 223–250.

Mundell, R. A. (1963). Capital mobility and stabilization policy under fixed and flexible exchange rates. *Canadian Journal of Economic and Political Science, 29*(4), 475–85.

Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2005). The trilemma in history: Tradeoffs among exchange rates, monetary policies, and capital mobility. *Review of Economics and Statistics, 87*(August), 423–438.

Quinn, D., Schindler, M., & Toyoda, A. M. (2010). *Assessing measures of financial openness and integration*. Washington, DC: International Monetary Fund. Unpublished.

Reinhart, C. M., & Rogoff, K. (2009). *This time is different: Eight centuries of financial folly*. Princeton: Princeton University Press.

Shambaugh, J. C. (2004). The effects of fixed exchange rates on monetary policy. *Quarterly Journal of Economics, 119*, 301–352.

Part III
Asian Currency Arrangements

Chapter 5
Revisiting the Internationalization of the Yuan

Yongding Yu

Abstract As the world's second largest economy, largest trading nation, and the largest foreign holder of United States (US) government bonds, the People's Republic of China (PRC) needs a currency with international status that can match its economic status in the global economy. However, sequencing is important. Before the internationalization of the yuan can make meaningful progress, necessary conditions, such as the existence of deep and liquid financial markets, a flexible exchange rate and interest rates responsive to market conditions must be created.

The process of yuan internationalization essentially is a process of capital account liberalization. Due to the unprecedented and complex global financial crisis and the PRC's huge imbalances, capital account liberalization has to be pursued in a cautious way. As a result, the internationalization of the yuan is bound to be a long-drawn process.

The PRC's road map for the internationalization of the yuan is flawed with many missing links and wishful thinking. Yuan internationalization guided by the current road map may prove to be counterproductive.

Keywords Capital account liberalization • Invoicing currency • People's Republic of China • PRC • Sequencing • Settlement currency • Yuan internationalization

5.1 Introduction

Since its launch in early 2009, the internationalization of the yuan has been making rapid progress. As the world's second largest economy, largest trading nation, and the largest foreign holder of United States (US) government bonds, the People's

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_5,

Republic of China (PRC) needs a currency with international status that can match its economic status in the global economy. While PRC economists universally support the internationalization of the yuan as a long-term goal, worries about the possible negative impact of the PRC monetary authorities' current push for the internationalization on the PRC's welfare and financial stability have emerged since 2010. In fact, yuan internationalization has become one of the most controversial issues among economists in the PRC.

This chapter is a reexamination of the endeavor of yuan internationalization since 2009. The main findings are that, despite the progress made, the PRC does not have a viable road map for yuan internationalization yet, and perhaps it cannot have one. The much-proclaimed project could prove an anticlimax. In the short term, the PRC's policy focus should not be on promoting the internationalization of the yuan, because there are many more urgent challenges to face. The reform of the PRC's exchange rate regime and liberalization of interest rates should take precedence. Needless to say, to carry out capital account liberalization disguised as yuan internationalization without having met necessary prerequisites is dangerous.

Section 5.2 is a brief survey of the literature on the definition and characteristics of an international currency. Section 5.3 deals with the objectives of the PRC's efforts in promoting yuan internationalization. Section 5.4 gives critical assessments on the PRC's road map of yuan internationalization. Section 5.5 examines the progress the PRC has made and Sect. 5.6 discusses some of the problems arising from yuan internationalization. Section 5.7 discusses the relationship between yuan internationalization and capital account liberalization. The final section offers concluding remarks.

5.2 Functions of an International Currency

There is a large body of literature on the nature of an international currency and the ways to internationalize a national currency. According to Kenen (2009), an international currency is used and held beyond the borders of the issuing country. An international currency is not merely used for transactions with residents but is also used for transactions between residents and nonresidents. Theoretical discussions of currency internationalization usually begin with the functions of an international currency. Kenen (1983) presents some early thoughts on the roles of international currencies. Chinn and Frankel (2005) provide a list of international functions of an international currency (Table 5.1).

According to Chinn and Frankel (2005), an international currency should be a store of value, a medium of exchange, and a unit of account for both residents and nonresidents. The functions can be further divided into two subfunctions: private use and public use. When an international currency is used for private purposes, it is used for currency substitution, bridging currency trading in foreign exchange markets, and invoicing and denominating trade and financial transactions.

Table 5.1 The role of an international currency

Function of money	Governments	Private actors
Store of value	International reserves	Currency substitution (private dollarization) and investment (portfolio allocation)
Medium of exchange	Foreign exchange market intervention	Vehicle currency, invoicing trade and financial transactions, settlement currency
Unit of account	Anchor for pegging local currency	Denominating trade and financial transactions

Source: Based on Chinn and Frankel (2005)

Table 5.2 Dimensions of an international currency

	Private sector	Official sector
Unit of account	Trade invoicing Denomination of financial products	Being pegged by other countries Use in currency baskets of foreign central banks SDR composition currency Denomination of government bonds
Medium of exchange (settlement)	Trade and financial transactions	Currency circulation abroad Government financial transactions (such as ODA) Central bank swaps Currency intervention
Store of value	Cross-border deposits Cross-border securities	Foreign reserves (of other countries)

ODA official development assistance, *SDR* special drawing rights
Source: Ito (2011) based on the matrix first proposed by Kenen

When it is used for public purposes, it is used as a reserve currency, an intervention currency, and an anchor currency.

The above-mentioned functions of an international currency will be used as a point of reference as this study assesses the progress of yuan internationalization and explores possible routes for internationalization. A currency can play the role of an international currency on different levels. For example, among all the functions of an international currency, the most supreme is the role of an international reserve currency. It seems that on the second highest level stands the role of vehicle currency.

Understanding differs on the classification of the functions of an international reserve currency. For example, according to Ito (2011), the role of an international currency can be classified as follows (Table 5.2).

It is worth noting that in Table 5.2, "trade invoicing" is put under the category of "unit of account" rather than "medium of exchange." It seems that both roles of invoicing trade and denominating financial transactions should fall in the category

of unit of account. Another important point is that a distinction between the role of invoicing and that of settlement must be made clear. It is very common that while a currency is used as an invoicing currency in a certain transaction, settlement is made in another currency for the same transaction. As pointed out by Ito et al. (2010), special drawing rights (SDR) is a unit of account but not a settlement currency. The recognition of the difference between these two roles is very important.

As an international currency, the role of the invoicing currency is more fundamental than that of the settlement currency. If exporters' most important consideration is to avoid exchange rate risks, they would prefer to use their own national currency to invoice trade. As long as exporters can convert the settlement currency into their own national currency, it does not matter that much what currency is used for trade settlement. In contrast, if trade is invoiced in a foreign currency, then the use of the national currency as the settlement currency will not help exporters to avoid an exchange rate risk. The same is true of importers, though they are exposed to opposite exchange rate risks.

If the invoicing currency has been decided, the choice of settlement currency is not entirely irrelevant. Settlement currency as a medium of exchange performs different roles from those of an invoicing currency. Because of possible time lags between the settlement of trade and currency exchange and possible changes in the exchange rate during this time, the choice of settlement currency still makes a difference in terms of profits and losses for exporters and importers. When an invoicing currency is decided, the direction of change in the exchange rate should be a very important consideration. In contrast, when a settlement currency is chosen, the stability of a currency should be a priority.

Generally, when exporters are in favor of one currency as the invoicing currency, they would be in favor of the same currency as the settlement currency. This is also true of importers. But in reality, the situation can be more complicated. In many discussions an implicit assumption is made that a settlement currency must be an invoicing currency at the same time. This assumption is misleading, because the causes leading to the use of a currency as the invoicing currency or the settlement currency are not the same.

Park (2010) points out that a greater usage in financial denomination rather than trade invoicing appears to be a much more important qualification for a major international currency. Daily turnover of the world's currency markets (all instruments included) was close to $4 trillion a day in 2010, while the value of world merchandise exports fell 23 % to $12.15 trillion in 2009, and world commercial services exports declined 13 % to $3.31 trillion (WTO 2010).

When a currency is referred to as a store of value, it may refer to the currency in the form of cash and deposits, or to the fact that financial assets and liabilities are widely denominated by the currency. Holding a currency in the form of cash and deposits as store of value is different from holding financial assets denominated in the currency. The difference between the two forms becomes obvious during a financial crisis. It should be emphasized that an international currency need not be equally widely used in denominating both financial assets and liabilities of the

issuing country of the currency. For example, while US foreign liabilities are overwhelmingly denominated in the dollar, its foreign assets are mostly denominated in foreign currencies. The ultimate test for a currency's international position is the extent to which the currency can be used to denominate liabilities of the issuance country.

5.3 Possible Benefits of Yuan Internationalization for the PRC

Why did the PRC monetary authorities decided to push the internationalization of the yuan so vigorously? What are the specific results the PRC government wishes to achieve by pushing yuan internationalization?

First, the internationalization of the yuan will reduce exchange rate risks to which the PRC firms are exposed. The internationalization of the yuan means that more foreign trade and financial transactions will be invoiced and settled (paid) in the yuan. As a result, the exchange rate risks for the PRC firms will be reduced or canceled out accordingly. Because of the PRC's persistent current account and capital account surpluses, yuan appreciation pressure has been building up steadily since early 2003. Many believe that if exports are invoiced and settled in the yuan, the PRC exporters will be able to avoid exchange rate risk while the yuan is in the process of appreciation, and hence the momentum of the PRC's exports can be maintained.[1]

Second, the internationalization of the yuan will reduce the PRC's transaction costs in trade, including the cost of trade finance, and lead to a further expansion of international trade. The rapid increase in the use of the yuan as a settlement currency (payment currency) has greatly boosted the PRC's border trade.

Third, the internationalization of the yuan will improve the funding efficiency of the PRC's financial institutions, hence increasing their international competitiveness and lead to the expansion of the PRC's financial services sector. It is conducive to the PRC's efforts for developing Shanghai as an international financial center.

Fourth, the internationalization of the yuan means that the need for the PRC to hold the dollar as a medium of exchange and a store of value will be reduced accordingly, which in turn means that the PRC will be able to reduce seigniorage paid to the US.[2] Taking into consideration the high probability that in the long run the dollar will devalue further and the US government will inflate away its

[1] Unfortunately, the assumption is likely wrong. With the yuan as invoicing and settlement currency, the appreciation of the yuan will lead to the loss of market shares by the PRC exporters and hence the reduction of exports anyway.

[2] Seigniorage amounts to the return on the extra assets (real and financial) that a country is able to acquire because of the external holdings of its currency, less the interest paid on the assets in which the foreigners invest their holdings and less any extra administrative costs arising from the international role of its money (Pearce 1981: p. 389).

debt burden by monetizing its budget deficit (such is already the perception of quantitative easing), by reducing the holding of dollar denominated financial assets, the PRC will be able to reduce capital losses on its huge foreign exchange reserves in the future.

5.4 The Road Map of Yuan Internationalization

Historically, for most countries, the internationalization of their currencies has been market-driven and without any road maps.[3] In fact, many countries have resisted the pressure to internationalize their currencies. In Japan, the internationalization of the yen was launched under US pressure. The road map for yen internationalization was essentially a road map for capital account liberalization in line with US wishes (Takagi 2009). It seems that there is no precedent for successful internationalization of a currency that is guided by a predetermined road map. Among those countries with a form of road map, Japan failed to promote yen internationalization as planned. Germany succeeded in making the euro an international currency, but it came at the expense of the Deutsche mark and it is abundantly clear in the wake of the eurozone sovereign debt crisis that Germany was forced into a suboptimal monetary union. Although in the literature some clues for categorizing the routes leading to the internationalization of a national currency can be found, there is no extensive discussion on guiding principles for drawing a viable road map for currency internationalization.[4]

The PRC's road map[5] for the internationalization of the yuan follows what could be called "a functional approach." For the designers of the road map, the final destination of internationalization is to make the yuan on par with the dollar in playing the role of an international reserve currency. To arrive at this destination, conditions have to be created to enable the yuan, as much as possible, to fulfill the functions of an international currency. But the journey of the yuan to the world is staged in order of difficulty. Yuan internationalization has to start by making the yuan available to nonresidents. This appears logical. Without making the yuan available to non-residents, how can the yuan be used internationally? The PRC has a specific advantage in the form of the existence of Hong Kong, China—an international financial center and the single most important entrepôt for the PRC.

[3] Eichengreen and Flandreau have argued differently (2010).

[4] Park (2010) proposed that the PRC should follow a regional approach to the internationalization of the yuan.

[5] The PRC authorities have not published any formal documents to present the road map of yuan internationalization. However, based on available documents that are aimed at addressing operational problems with regard to yuan internationalization and talks and papers by those who are close to the decision makers, we still can have a glimpse at what is in the mind of authorities on how they are prepared to push yuan internationalization.

Hence, yuan internationalization starts with the promotion of the use of the yuan for settling imports from Hong Kong, China.

The PRC monetary authorities proclaim that no artificial incentives have been provided to encourage the PRC importers to use the yuan as a settlement currency. What it has done is to remove the restrictions on the choice of currency for trade settlement by the PRC enterprises in several steps. However, it has to be asked: although freedom of choice has been given to the PRC importers, why must they choose the yuan instead of other currencies for import settlement, especially when taking into consideration the fact that the yuan has been on the course of appreciation for 6 years and is likely to continue in the foreseeable future? Of course, Hong Kong, China exporters can be asked a similar question: why would they be happy to accept yuan payments? Unfortunately, in the PRC's road map, these questions are not asked, let alone answered.

There are a large number of theoretical and empirical studies exploring the selection of an invoicing currency (Grassman 1973; Goldberg and Tille 2008; Friberg and Wilander 2008; Kawai 1996; Ito et al. 2010). According to these studies, trade between industrialized countries in manufactured products tends to be invoiced in the exporter's currency. Trade between an industrialized and a developing country in manufactured products tends to be invoiced in the industrialized country's currency. Trade between any pair of countries in primary products tends to be invoiced in an industrialized country's currency (Kawai 1996). Despite the fact that no conclusive results have been achieved, it is clear that the determinants of the choice of the invoicing currency are multifold. Exchange rates and expectations of exchange rate changes will influence an enterprise's choice of invoicing currency. Other factors on industrial and enterprise levels, such as a country's industrial structure, corporation organizations, enterprise business models and marketing strategies, types of products available, and development of relevant financial markets, may fundamentally influence an enterprise's choice of invoicing currency. The bargaining powers of trade partners also play an important role in deciding the final use of invoicing currency.

It is worth noting that in the literature, there are a lot of discussions on the choice of the invoicing currency, but relatively few discussions on the choice of the settlement currency.[6] When people talk about the use of the yuan for trade settlement, no one has asked whether the yuan is also used for trade invoicing. For foreign observers, it must be the case. But it is not. When trade is settled in yuan, it is not necessarily invoiced in yuan. In the PRC's road map, promoting the use of the yuan as invoicing currency has rarely been explicitly discussed. As long as the yuan is used for trade settlement and hence yuan have flown out of the country, the designers of the road map do not seem to worry whether the yuan is used as the invoicing currency. However, if imports are still invoiced in dollars, the use

[6] Perhaps this is because the chosen settlement currency usually is the same currency for invoicing.

of the yuan for settlement is not a great accomplishment in yuan internationalization. On the contrary, this situation can be a result of some perverse activities such as betting on yuan appreciation and can be easily reversed when circumstances change.

Why does the use of the yuan for import settlement occupy such a central place in the PRC's road map? There are two possibilities. One is to enable Hong Kong, China residents to hold yuan assets. Another is to enable Hong Kong, China residents to use the yuan to pay for their imports from the PRC. It seems that the PRC's emphasis is on encouraging Hong Kong, China residents to hold more yuan assets. To achieve this, the PRC government created mechanisms for the recycling of the yuan, soon after the yuan settlement for trade was launched. The essence of recycling is to create channels for Hong Kong, China residents to invest their yuan proceeds received from the PRC importers (and yuan obtained via other channels) in yuan assets provided by the PRC financial institutions.[7] Without the recycling, Hong Kong, China residents would have no option but to deposit their yuan with Hong Kong, China banks, which is not a great incentive for them to hold yuan assets due to low interest rates. It is worth noting that the yuan deposits with Hong Kong, China banks end up with the Shenzhen branch of the People's Bank of China (PBOC), which in turn pays interest on deposits. Generally, investment in yuan denominated assets such as yuan government bonds and yuan corporate bonds, if available, would give investors in Hong Kong, China higher returns. The issue here is not how the yuan can be recycled. The yuan has been recycled when Hong Kong, China residents deposit their yuan proceeds with Hong Kong, China banks. The real issue is, given possible costs, how much freedom the PRC government is willing to give to Hong Kong, China residents to choose yuan denominated assets to invest their yuan and how Hong Kong, China residents would utilize these opportunities, if they become available. This is a matter of capital account liberalization rather than one of yuan internationalization.

According to the road map for yuan internationalization, as a result of the accumulation of yuan assets by nonresidents (mainly Hong Kong, China residents), "somehow" incentives will increase for nonresidents to pay for the PRC exports with the yuan, which they obtained from selling goods and services to the PRC. Unfortunately, the road map has mixed two different functions of an international currency—the function of medium of exchange and that of store of value. As a medium of exchange, the yuan should move back and forth across borders constantly[8] rather than be withdrawn from circulation and accumulated in various forms of yuan assets. If the objective is to make the yuan a store of value and the objective has been achieved, then there would be no yuan left for Hong Kong, China importers to settle their imports from the PRC. For Hong Kong, China residents, the yuan cannot play both the role of medium of exchange and that of

[7] Hong Kong, China institutions also created various types of yuan assets for investment.

[8] Or the yuan stays in Hong Kong, China to facilitate trade and financial transactions in Hong Kong, China, if the yuan is accepted to perform these functions.

store of value at the same time. There is no "somehow" as hoped for in the PRC's road map. The incentives for Hong Kong, China importers to use the yuan for import settlement should be different from the incentives for them to hold yuan assets. Hence, it is possible that, after a long journey, it is still difficult to encourage Hong Kong, China importers to use the yuan for settlement. Many links between different legs of the yuan's journey in the road map simply do not exist.

As mentioned earlier, an internationalized currency must be widely used not only in invoicing and settling international trade but also in denominating financial transactions. Although since the launch of yuan internationalization, the PRC government has promoted the sale of yuan denominated bonds (both public and corporate), there seems to be no plan for the promotion of the use of the yuan as a denominating currency for financial assets. As pointed out by Park (2010), while there is a large amount of literature on how a currency can be used internationally for trade invoicing, very little has been written on the determinants of a currency for the denomination of financial assets. Perhaps, the role of financial assets denomination is difficult to separate from the role of value storage. Hence, the promotion of the use of the yuan for the denomination of financial assets will not be high on the agenda, until headway has been made for the use of the yuan as store of value. Furthermore, the extensiveness of the use of the yuan as the denominating currency for financial assets depends on the role of the PRC financial institutions in global finance. Unfortunately, although the PRC has some of the biggest banks in the world in terms of market capitalization, the PRC financial institutions' global presence is insignificant. For whatever the reason, the question of how the yuan will play the role of denominating currency for international financial assets has not been explicitly addressed in the PRC's roadmap.

The promotion of the use of the yuan as store of value has taken a few different routes. First, as mentioned earlier, yuan denominated assets are provided mainly for Hong Kong, China residents in connection with the scheme of yuan recycling. Though the PRC has yet to put forward a timetable, the sequencing of the provision of yuan assets has emerged. Different types of yuan assets will be provided corresponding to their possible impact on the PRC's financial stability. So far, Hong Kong, China residents are allowed to hold yuan deposits, yuan corporate bonds, and yuan government bonds. In the future, they may be able to invest in the PRC "A share" markets. The restrictions on the amount of investment will be loosened accordingly. The increase in the holdings of yuan assets by Hong Kong, China residents means that the PRC is borrowing from nonresidents. But with huge surplus capital and $3.2 trillion in foreign exchange reserves, why should the PRC be so keen on attracting more foreign capital, even if these assets are denominated in the yuan? The escape route should be to encourage nonresidents to hold yuan liabilities, for example, panda bonds. Unfortunately, this route is not fully explored.

The PBOC has entered into swap arrangements with some foreign central banks. This can be regarded as a second route. The holding of yuan deposits by foreign central banks with the PBOC has the potential to become an important channel for promoting the use of the yuan as reserve currency, due to the PRC's strong external position and the liquidity shortage of the global economy.

The third route can be the further participation in regional financial cooperation. Park (2010: p. 19) points out, "In the event that the PRC decides on a regional strategy, it has two options to consider. The PRC might move to create a yuan bloc among the members of the Association of Southeast Asian Nations (ASEAN) + new 3, which includes the 10 ASEAN members, the PRC, Hong Kong, China, and Taipei,China. Alternatively, it could take advantage of ASEAN + 3 as a framework for yuan internationalization." The PRC's current road map is pointing to the direction of the first option in what Park labeled the "regional approach." The PRC's promotion of yuan trade settlement with Hong Kong, China can be regarded as the first leg in the long journey in line with the ASEAN + new 3 approach. However, the PRC monetary authorities have not given up pushing yuan internationalization via the second regional approach.[9] More precisely, the PRC authorities are still hoping more can be done to consolidate the regional financial architecture within the framework of the Chiang Mai Initiative. Something conducive to yuan internationalization may materialize as a by-product of the PRC's engagement in regional financial cooperation. Currency swaps between central banks are cases in point.

Another important direction in the yuan's journey to the world is the participation in the reform of the international monetary system. But it seems that the PRC has not yet decided how to participate in the reform. For example, there is not yet a policy on what role the yuan should play in redefining the SDR.

In summary, it is expected by the PRC's decision makers that with the increase in yuan import settlement combined with policies aimed at facilitating yuan recycling, cross-border yuan flows will increase gradually and so will the stock of yuan held by nonresidents. The continuation of such cross-border flows somehow will eventually make the yuan an international currency that will be able to perform a full scope of functions. Unfortunately, because there are too many missing links in the road map, the yuan's journey could be very bumpy and even may not end up at the planned destination.

5.5 Progress in Yuan Internationalization

The PRC seems to have made significant progress in the use of the yuan as a settlement currency, in the issuance of yuan-denominated bonds, and in signing currency swaps agreements with foreign central banks. The most hailed progress is the exponential growth of yuan deposits in Hong Kong, China until September 2011.

[9] The PRC's enthusiasm for yuan internationalization is partially a result of the disappointment for the lack progress of regional financial cooperation.

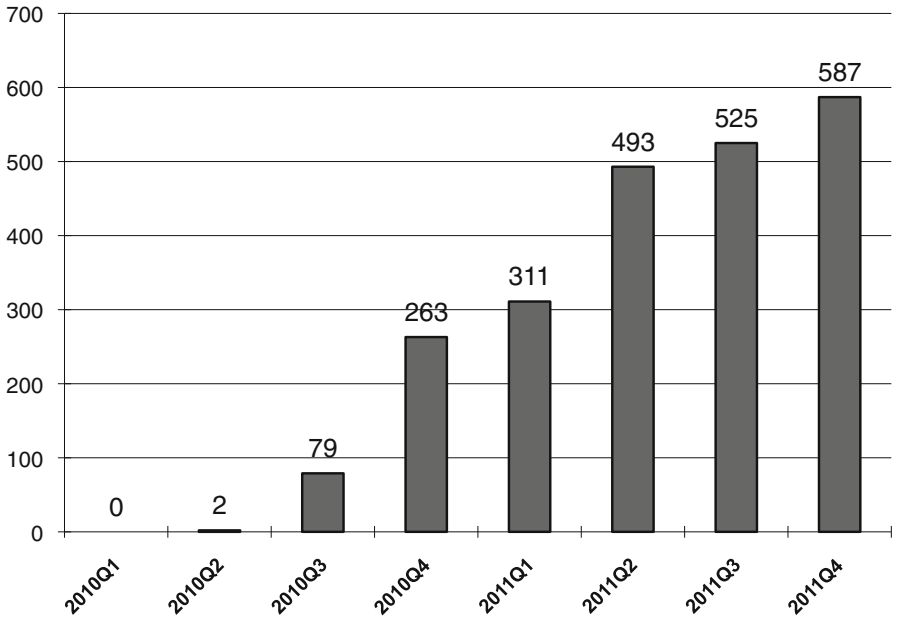

Fig. 5.1 Increase in the use of the yuan for trade settlement (CNY billion). *Source*: Zhang (2012)

Use of the Yuan for Trade Settlement

The PRC announced a pilot yuan trade settlement scheme in April 2009, with an extension of the scheme announced on 22 July 2010. Now virtually all important PRC firms are allowed to use the yuan to settle trade. The types of trade eligible for yuan settlement have also expanded to include not only physical goods but also services. As a result, the amount of yuan trade settlement has increased dramatically since the third quarter of 2010. According to the Hong Kong Monetary Authority, the volume of yuan cross-border trade settlement conducted through Hong Kong, China reached CNY1.9 trillion in 2011 (Fig. 5.1).

The share of yuan trade settlement in the PRC's total foreign trade is another important indicator for the progress in yuan internationalization. In 2010, yuan trade settlements accounted for only 2.5 % of the PRC's total trade. In 2011, the corresponding figure rose dramatically to 9 % of the PRC's total trade (PBOC 2011).

Yuan Deposits Held by Hong Kong, China

The most direct and immediate result of the increase in yuan settlement for imports is the dramatic increase in yuan deposits held by residents of Hong Kong, China. As of July 2011, the total amount of yuan deposits was CNY580 billion, equivalent to

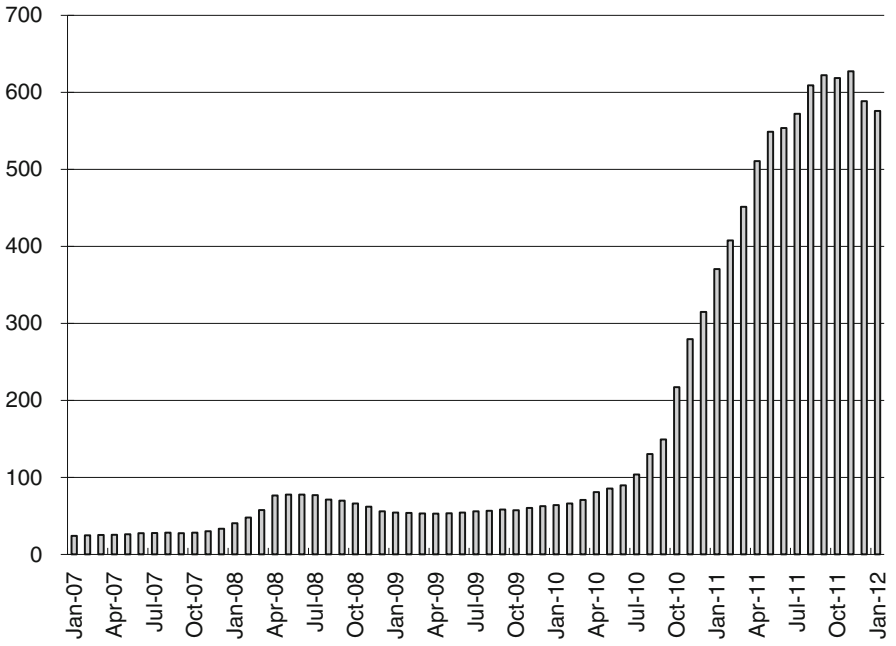

Fig. 5.2 Yuan deposits held by residents of Hong Kong, China (CNY billion). *Source*: CEIC Database. http://www.ceicdata.com/ (accessed February 2012)

HK$899 billion and accounted for 9.5 % of the total HK$947 billion of deposits in Hong Kong, China—up from less than 2 % just a year ago. It was widely expected that the total amount of yuan deposits would reach 1 trillion yuan by the end of 2011 (Fig. 5.2).[10]

However, the momentum in demand for yuan deposits in Hong Kong, China suddenly was lost in the third quarter of 2011 (Fig. 5.2). As of the end of March of 2012, total yuan deposits held by residents of Hong Kong, China were just CNY554.3 billion. The reason for this change is explained in Sect. 5.6.

The Issuance of Yuan Denominated Bonds

Yuan denominated bonds sold by non-PRC issuers in the PRC are called "panda bonds." The first two panda bonds were issued on the same day in October 2005 by the International Finance Corporation and the Asian Development Bank. When foreign-funded enterprises in the PRC are in need of yuan, they can issue panda

[10] As of the end of September 2011, deposits in Hong Kong, China reached CNY622.2 billion.

bonds to borrow yuan to finance their economic activities in the PRC. The yuan raised though such channels can only be used in the PRC.

Another important category of yuan denominated bonds is yuan bonds issued by PRC entities in Hong Kong, China. The important issuers include the PRC's Ministry of Finance, Bank of China, Export and Import Bank of China, and Ping An China Asset Management. In fact, the Bank of China and the Export and Import Bank of China have been issuing yuan denominated bonds in Hong Kong, China for several years. In addition, the Ministry of Finance issued CNY20 billion in yuan-denominated bonds in Hong Kong, China on 23 August 2011. This particular issuance was regarded in the mass media as a major boost to yuan internationalization and a "big gift" to the people of Hong Kong, China in both Hong Kong, China and the PRC.

The most popular category of yuan bonds are the so-called "dim sum" bonds, which are issued in Hong Kong, China. The amount of each such bond issue is relatively small. Hopewell Highway Infrastructure sold CNY1.38 billion ($147 million) 2-year yuan denominated bonds in July 2010, which were the first yuan bonds sold offshore by a nonfinancial company based in Hong Kong, China. McDonald's, Bank of East Asia, HSBC, Bank of Tokyo Mitsubishi UFJ, Deutsche Bank, Tesco, and Caterpillar are among the other important issuers. More than a total of CNY54 billion of dim sum bonds had been issued by August 2011, up from CNY34 billion for the whole of 2010 (Bloomberg News 2010).

Yuan Swaps with Foreign Central Banks

Central bank liquidity swap arrangements allow the PBOC to provide liquidity support to its counterparts. Foreign banks sell a specified amount of their currency to the PBOC for yuan, at the market exchange rate. Yuan funds obtained by foreign central banks are deposited in accounts held with the PBOC as PBOC liabilities. The countries that have currency swap arrangements with the PRC include Argentina, Australia, Belarus, Brazil, Iceland, Indonesia, Kazakhstan, the Republic of Korea, Malaysia, New Zealand, Singapore, the United Arab Emirates, and Uzbekistan. To facilitate yuan internationalization, the Hong Kong Monetary Authority has entered into a 3-year currency swap arrangement totaling CNY200 billion with the PBOC. Besides these swap agreements, more economies have expressed their interest in holding yuan assets as investment or foreign exchange reserves. This channel of yuan internationalization may be worth exploring further.

5.6 Problems of Yuan Internationalization

However, all is not well with yuan internationalization. Since late 2010, yuan internationalization has shown a clear pattern of asymmetry—the use of the yuan as an import settlement currency rose quickly, but not for exports. Yuan denominated

Table 5.3 Yuan import settlement to yuan export settlement ratio

Time (quarter)	Import-to-export ratio (yuan settlement)
2010Q1	6.67
2010Q2	7.97
2010Q3	7.97
2010Q4	11.00
2011Q1	8.11
2011Q2	2.90
2011Q3	1.67

Sources: CEIC database. http://www.ceicdata.com/ (accessed February 2012); People's Bank of China, Financial Reports, various issues

bonds met strong demand, yet nonresidents had no incentive to issue them. And, while Hong Kong, China banks are happy to extend yuan loans, they are not welcome by borrowers. Among all manifestations of asymmetry, the most important asymmetry is in the use of the yuan for import settlement in relation to export settlement. This asymmetry has caused much debate among the PRC economists.

Before the debate on asymmetry had settled, another anomaly emerged: the yuan suddenly devalued for 11 consecutive days in early December 2011, while the PRC was still running a large current account surplus and a long-term capital account surplus. The asymmetry in the use of the yuan as a settlement currency and the unexpected devaluation of the yuan have forced economists to reconsider the reliability of the road map of yuan internationalization and even about the desirability of internationalization.

A Symmetry of Yuan Internationalization and Resulting Welfare Losses to the PRC

The asymmetry between yuan import settlement and yuan export settlement (Table 5.3) peaked in the fourth quarter of 2010, when the amount of yuan used for import settlement was 12 times more than that used for export settlement. Certainly, the asymmetry has been dramatically reduced since the second quarter of 2011. However, this weaker asymmetry was not a natural development of yuan trade settlement as hoped by the designer of the road map of yuan internationalization, which is an issue to be discussed in next subsection.

It can be argued that, given strong expectations of yuan appreciation, internationalization will lead to serious asymmetry in yuan trade settlement. For example, with an undervalued exchange rate and expectations for the yuan to appreciate, it is natural that foreign importers of the PRC exports are reluctant to use the yuan to settle transactions, while foreign exporters are happy to accept yuan. Yuan appreciation expectations no doubt have played an important role in creating asymmetry.

However, more recent development shows that the asymmetry is much more than a result of yuan appreciation expectations.

Most researchers will assume that in the PRC's case, if the yuan is used for settlement, it must also be used for invoicing. But, as mentioned earlier, this is simply wrong. Investigations show that while indeed many PRC importers use the yuan for settlement, most of them still use the US dollars for invoicing. This finding partially resolved the puzzle that the PRC importers are willing to use the yuan for settlement when the yuan is in the process of appreciation. Now, it can be seen that, because imports are still invoiced in the US dollars, yuan settlement does not mean that the PRC importers need to forfeit potential gains from yuan appreciation. However, even this is not the end of the story. The true motivation behind the PRC importers to use the yuan for settlement is the existence of opportunities for exchange rate arbitrage, which will be discussed further below.

Since 2011 experience has shown that, if the incentive for the PRC importers to use the yuan for settlement is exchange rate arbitrage instead of more sustainable fundamentals, the willingness of the PRC importers to use the yuan for settlement by the PRC importers can suddenly disappear. In fact, due to the reversal of the spread between onshore and offshore exchange rates, both the increase in the use of the yuan as import settlement currency and yuan assets held by Hong Kong, China residents have stalled since the third quarter of 2011. Of course, if the reversal is reversed again, the fortune will change again. This re-reversal happened in the fourth quarter of 2011. The important point is that without making the yuan an invoicing currency, the progress in using the yuan as a settlement currency is superficial. If there is no way to make the yuan an invoicing currency within reasonable costs, could it be an indication that the conditions for using the yuan as a medium of exchange have not matured yet?

One of the most obvious adverse results with asymmetry is that, with the same trade surplus, the PRC ends up with more foreign exchange reserves, which is what the designers of yuan internationalization originally wanted to avoid. It is easy to understand why this has happened: while the PRC continues to receive dollars from its exports, it gets fewer chances than before to spend these dollar proceeds for imports.

The fact that residents of Hong Kong, China recycle yuan in the form of holding yuan assets instead of using yuan to purchase the PRC's exports means that they have lent to the PRC. Hence, there is another problem: yuan internationalization leads to extra capital inflows, which makes the PRC's balance of payments even more imbalanced. In the first three quarters of 2011, the PRC's capital account surplus was $226 billion, an increase of 110 % over the same period of 2010. The PRC's capital account surplus has surpassed its current account surplus once again since 2005. As a country that has been running a current account surplus for two decades and has accumulated $3.2 trillion, the PRC should not encourage net capital inflows.

Another adverse consequence of the asymmetry is the rising currency mismatch on the PRC's national balance sheet. As a result of the yuan import settlement and recycling, yuan, Hong Kong, China residents have increased their yuan assets,

probably at the expense of their dollar assets. At the same time, the PRC has increased its yuan liabilities (recycled yuan) and its foreign assets (mostly dollar assets). In other words, yuan internationalization under the current road map has led to a change in the currency structure of the PRC's assets and liabilities in disfavor of the PRC. Since the 1998–1999 Asian financial crisis, East Asia has accumulated huge amounts of dollar denominated assets—mainly US government securities. Due to the deterioration of the US fiscal position and the Federal Reserve's expansionary monetary policy since the subprime crisis, the PRC should replace dollar denominated assets with yuan denominated assets as well as replace yuan denominated liabilities with dollar denominated liabilities. Unfortunately, yuan internationalization has achieved the opposite result.[11]

By definition, an increase in yuan settlement for imports without a corresponding increase in yuan settlement for exports[12] means an increase in yuan liabilities, which in turn means that there must be a corresponding increase in assets in the PRC's international balance of payments. If the PRC does not wish to see the increase taking the form of an increase in US dollar denominated foreign exchange, what should the PRC do? Assume the PRC originally exports $1 trillion in products and imports $800 billion in products, its total balance of payments surplus is $200 billion. If the PRC pays for $100 billion worth of imports in yuan, it will end up with $100 billion more in foreign exchange reserves. If the PRC extends yuan credits equivalent to $100 billion to foreign receipts that in turn use the borrowed yuan instead of dollars to buy the PRC products worth $100 billion, the PRC's yuan assets (yuan credits to foreign borrowers) would increase and equal to the increase in its yuan liabilities (yuan deposits or other forms of yuan assets held by nonresidents). As a result, the increase in dollar denominated foreign exchange reserves would remain the same—$200 billion. In this second case, the yuan has been used as the medium of exchange by the PRC's importers, the store of value by residents of Hong Kong, China, the store of value by the PRC's creditors and, finally, the medium of exchange by foreign importers and the PRC's exporters. In other words, when the provision of yuan to the global market is realized through a capital account deficit, the PRC would be able not only to avoid further accumulating foreign exchange reserves and causing a perverse change in the currency structure of the PRC's assets and liabilities, but also give the yuan more room to play the role of an international currency. Of course, this is not to say that yuan internationalization should begin with the PRC running a capital account deficit. The reality is more complicated. But the argument that the yuan internationalization has to begin with yuan import settlement is flawed.

[11] It can be argued that if nonresidents invest in yuan assets with the yuan made available by yuan trade settlement scheme, an equivalent amount of dollar investment in the PRC will be reduced. This substitution between yuan investment and dollar investment is not very likely, because the investors are different with different motivations.

[12] This is the most discussed feature of asymmetry in the PRC.

Surge in Speculative Short-Term Capital Flows

On the surface, the trade settlement scheme merely allows the PRC enterprises to use yuan to settle their trade transactions. In reality it enables enterprises, especially large enterprises with subsidiaries outside borders, to channel funds across the border between the PRC and Hong Kong, China. The starting point of yuan internationalization is supposed to be the use of the yuan for import settlement. But in practice, many PRC importers did not use the yuan to pay for their imports—let alone to use the yuan for invoicing. Instead, they utilize the opportunity provided by the trade settlement scheme, to conduct exchange rate arbitrage.

As a result of the launch of the trade settlement scheme, an offshore yuan market, known as the CNH market, was created in Hong Kong, China, side by side with the onshore market, now dubbed as the CNY market. The CNH market is a free market, while the CNY market is tightly regulated by the PBOC. Hence, two yuan exchange rates coexist: an onshore CNY exchange rate and an offshore CNH exchange rate. Due to yuan appreciation expectations and many other factors, until September 2011 the CNH was more expensive in dollar terms than the CNY. The existence of the CNH–CNY spread creates opportunities for the PRC enterprises to benefit from exchange rate arbitrage. Before the introduction of the yuan settlement scheme, importers had to buy dollars onshore—in the CNY market. Now they can sell yuan for dollars in the CNH market, creating appreciation pressure on the CNY and depreciation pressure on the CNH. The arbitrage should have eliminated the CNH–CNY spread fairly quickly. However, the intervention by the PBOC in the CNY market and carry trade conducted by Hong Kong, China residents in the CNH market created offsetting pressure on the CNY and the CNH. As a result, the CNH–CNY spread was maintained and arbitragers and arbitrage activities by the PRC importers continue. It is not unreasonable to conclude that the bulk of yuan used in the name of import settlement actually is used to buy dollars in the CNH market and imports in fact are still settled in dollars.

Table 5.3 shows that that yuan import settlement and yuan export settlement has become more balanced since the second quarter of 2011. Would it not be proof for the argument that following the increase in yuan availability across borders, the use of the yuan for export settlement will increase accordingly? Unfortunately, the tendency for a more balanced yuan settlement is deceptive. Since the middle of September 2011, financial conditions suddenly changed in Hong Kong, China. Due to liquidity shortages caused by the European sovereign debt crisis, banks from developed countries, especially European banks with exposure in Hong Kong, China, withdrew their funds. As a result, CNH fell against the dollar and the CNH–CNY spread turned negative. The PRC importers stopped buying dollars from the CNH market and returned to the CNY market. The PRC exporters stopped selling dollars in the CNY market and sold dollars in the CNH market instead. At the same time, because of a dramatic rise in funding costs for carry trade and the reduced attraction of holding yuan assets, Hong Kong, China residents started to unwind the carry trade and some dumped their holdings of yuan assets.

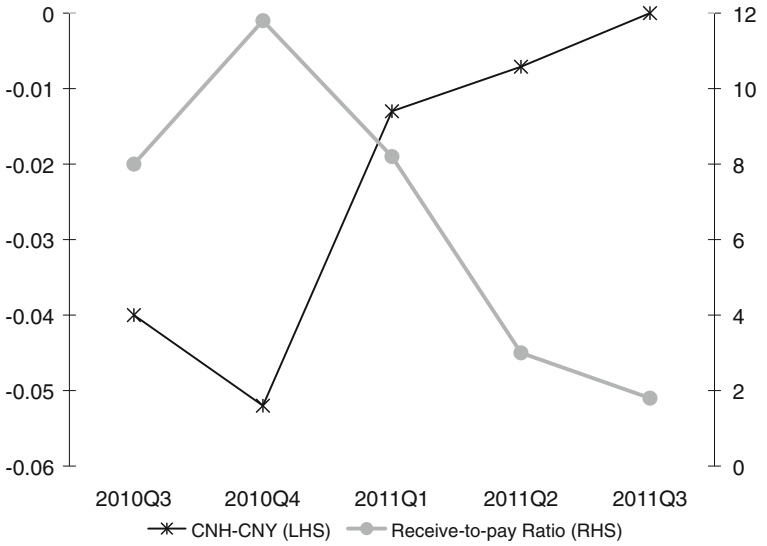

Fig. 5.3 Correlation between CNH–CHY spread and yuan import–export settlement ratio. *Source*: Zhang and Xu (2011)

Statistically, the yuan import–export settlement became more balanced. But this change is not a reflection of the success of yuan internationalization. It reflects the fluctuation of the movements of short-term capital flows across borders. Empirical studies (Zhang and Xu 2011) show that the yuan import–export settlement ratio (receive-to-pay ratio) is highly correlated with the CNH–CNY spread (Fig. 5.3).

Before the launch of the yuan settlement scheme, capital inflows were under tight control, and nonresidents couldn't obtain yuan assets freely. Yuan assets are now being made available in Hong Kong, China so nonresidents can obtain yuan assets outside their border. It can be seen that, ultimately, questions such as how to promote the use of the yuan for trade settlement and to make the use of the yuan more balanced so that the PRC can avoid further accumulating foreign exchange reserves are the wrong questions. The real question is: after a very big step towards capital account liberalization, how will speculative capital move across borders? Important questions include: what will be the consequences of these movements on the PRC's financial and macroeconomic stability?

5.7 Yuan Internationalization and Capital Account Liberalization

According to the trade settlement scheme, currency conversion between the yuan and other currencies is allowed only under the following circumstances:

- cross-border trade settlement in yuan up to the amount of the relevant transactions;

- yuan trade finance loans where the customer does not have sufficient yuan for repayment;
- expenses relating to yuan bond issuance to be settled in Hong Kong, China; and
- transactions allowed by the PRC's authorities to be ultimately squared by the yuan clearing bank—Bank of China, Hong Kong (BOCHK) in the PRC's foreign trading center in Shanghai.

To maintain control over the net cross-border flows of yuan between the PRC and Hong Kong, China, all cross-border yuan flows must be settled via the BOCHK. Yuan settlement is conducted via a particular settlement system established by the monetary authority of the PRC, which enables the latter to maintain controls over the net cross-border flows of the yuan.

There are quotas for monthly settlements. Initially, the quarterly amount of net buying from or selling through the BOCHK's clearing system was limited to CNY4 billion. Later it was raised to CNY8 billion. It is worth emphasizing that the quotas are net rather than gross amount of settlement. It is estimated that in 2011 around 70 % of the PRC's yuan cross-border trade settlement was done through the system (Zhang 2012).

One might ask how the yuan can be internationalized without first liberalizing the capital account. However, this is the wrong question. The truth is that yuan internationalization is an effort for capital account liberalization in disguise. Each step in yuan internationalization is a step in capital account liberalization. It can be said that if progress has been made in yuan internationalization, it is a result of capital account liberalization. In fact, since early 2002, the PBOC has started to call for a further liberalization of the capital account.

One can make a thought experiment. Assuming that no effort is made to promote yuan internationalization, but the capital account is partially liberalized so that foreign capital can flow into the PRC's financial markets to acquire yuan assets, compared to the circumstances where the yuan is used for trade settlement, will there be any differences in the role of the yuan between the two? If the CNH is more expensive than the CNY and the interest rate is higher in the PRC than in Hong Kong, China, dollars will flow from Hong Kong, China into the PRC to buy yuan assets, the PRC importers will buy US dollars in the CNH market instead of in the CNY market, and the PRC exporters will sell their dollar proceeds onshore. It can be seen that under the scenario of partial capital account liberalization, results will be the same as in the event of yuan internationalization. The differences exist only in channels and mechanisms leading to the same results. For example, under the scenario of partial capital liberalization, Hong Kong, China residents buy yuan assets directly in the PRC's financial markets instead of in Hong Kong, China. In event of yuan settlement, yuan assets are acquired in Hong Kong, China.

After over 2 years' effort despite the significant increase in yuan trade settlement, the PRC's trade is still largely invoiced in the dollar and yuan trade settlement is highly asymmetrical. Yuan internationalization has not achieved any of its original objectives, such as sheltering its export industries from exchange rate risks and reducing the holding of dollar denominated assets to avoid capital losses on foreign exchange reserves.

In contrast, the PRC's capital account liberalization has made some progress, which is evidenced by the surge of cross-border capital movements in response to changes in the global financial conditions. Since early 2010, the PRC government actually has been pushing two processes simultaneously—capital account liberalization and yuan internationalization—one by stealth and the other with much fanfare. Because each step toward yuan internationalization is prerequisite upon certain steps in capital account liberalization, an important question is whether the sequencing of capital account liberalization implied by the road map of yuan internationalization is consistent with the normal sequencing of capital account liberalization, which is well established in the literature and in practice. If the two sets of sequencing are the same, it will not make much difference which process should take precedence. If the two sets of sequencing are not the same, it becomes impossible for the government to have two correct sets of sequencing at the same time.

Despite the fact that each step toward yuan internationalization is a prerequisite upon certain steps in capital account liberalization, capital account liberalization and especially the sequencing have never been discussed explicitly. Yuan internationalization is widely talked about, while capital account liberalization hides in the shadows. The steps with consequences on capital account liberalization are taken in the need for yuan internationalization. This situation will easily lead to missteps in capital account liberalization. For example, the starting point of yuan internationalization is the use of yuan for import settlement. This step is prerequisite upon a certain degree of liberalization of cross-border capital movements. However, the road map for yuan internationalization has said nothing about the need for interest rate liberalization and a flexible exchange rate regime. As a result, the cross-border capital flows as a result of yuan import settlement certainly will create distortions in resource allocation and interruptions in the PRC's financial stability. In my view, it is much better to draw a road map for capital account liberalization and explicitly discuss the sequencing of the liberalization. The road map of yuan internationalization should be decided on the basis of the road map of capital account liberalization.

Capital account liberalization in the PRC is a drawn out process. After having entirely liberalized its current account, the PRC has also liberalized the best part of its capital account. There is no denying that, on top of a turbulent global financial environment, with a still fragile financial system, capital account liberalization should be pursued cautiously. However, this does not necessarily mean that the PRC should not discuss options for the completion of the few final steps in the long march toward capital account liberalization. If the conclusion is that no further action should be taken to liberalize the capital account, then action aimed at yuan internationalization should not be allowed to lead to a further liberalization of the capital account.

It seems that the PRC should first speed up interest rate liberalization so as to eliminate the enormous chances for arbitrage and rent seeking. At the same time, the yuan exchange rate should be liberalized in the sense that it is decided by market demand and supply. The PBOC could stop intervention in the

foreign exchange market. It is a much simpler way to stop the accumulation of foreign exchange reserves. If the PRC still does not wish to do so, then there should be no more talk about capital account liberalization. With inflexible interest and exchange rates, capital account liberalization will render monetary policy ineffective and create large welfare losses for the PRC.

The argument that exchange rate reform needs a longer time than yuan internationalization is difficult to understand. In my view, due to the eurozone sovereign debt crisis, and the sudden surfacing of bearish sentiment about the PRC, yuan appreciation expectations have reduced significantly. In the past few months since the last quarter of 2011, yuan devaluation expectations appeared in CNH forward and non-deliverable forward markets. In December 2011, the yuan devalued for 11 consecutive days. These changes in sentiment and the new trend of capital outflows from emerging economies have provided the PRC with a rare opportunity to allow the yuan to float. Certainly, because capital account controls in the PRC have not been fully dismantled, the government can always use the prudential rule and other laws and regulations to manage cross-border capital flows to prevent overshooting of the exchange rate. Only when the exchange rate can adjust constantly around its equilibrium level and domestic interest rates are flexible enough in response to the fluctuations of cross-border capital flows, can the opportunity for exchange rate arbitrage and interest rate arbitrage be minimized. Then the internationalization of the yuan can proceed in line with market conditions and with minimum welfare losses.

5.8 Conclusion

The internationalization of the yuan is a major challenge facing the PRC government. However, the PRC has yet to give a firm answer on what should be the final goal of internationalization. Fortunately, yuan internationalization does not currently conflict with other possible options, such as the creation of a supra-sovereign currency or a regional currency. While the PRC can benefit from the internationalization of the yuan, its possible negative effects on the PRC's financial stability may also be serious.

The twists and turns of yuan internationalization in 2011 raises a very important question: does the PRC want to take the risk of fully liberalizing its capital account without first putting its own house in order and giving market forces full play in determining interest rates and exchange rates? The question facing the PRC is not about the desirability of yuan internationalization. It is about the prioritization of the PRC's financial reforms and regime changes. The question becomes even more acute when taking into consideration the fact that the global financial market is still in turmoil and the PRC's financial markets are in a messy state. It is risky to pin the hope of the emergence of a healthier and more robust financial system on the creative destruction of external shocks, while the existing system is still too weak to withstand such shocks.

The internationalization of the yuan requires convertibility and liberalization of the capital account. Due to the fragility of the financial system and its lack of attractive financial instruments, the PRC's liberalization of the capital account and hence the internationalization of the yuan must proceed in a gradual fashion.

Yuan internationalization should be a natural course of economic development and capital account liberalization. To push yuan internationalization in an artificial way is counter-productive. Policies aimed at promoting yuan internationalization should not be based on yuan appreciation. Otherwise, internationalization will not be sustainable.

The PRC's growing economy and trade volume are favorable conditions for internationalization. However, other conditions, such as the existence of deep and liquid financial markets, have not been met. To create conditions for the internationalization of the yuan, the PRC government should encourage financial markets to play an increasingly important role.

Sequencing is important. Without the initial realization of establishing market-determined interest rates and exchange rates, yuan internationalization could easily go astray. The process of yuan internationalization essentially is a process of capital account liberalization. Due to the unprecedented and complex global financial crisis and the PRC's huge imbalances, capital account liberalization should be pursued in a cautious way. The PRC should first put its own house in order. Before the internationalization of the yuan can make progress, the PRC must speed up the reform of its financial markets. Interest rates should be liberalized. At the same time, the yuan exchange rate should be allowed to float freely. Only when the PRC's financial reform makes an important breakthrough, can the internationalization of the yuan be able to make meaningful progress.

References

Bloomberg News. (2010). http://www.bloomberg.com. Accessed 20 August 2010.

Chinn, M., & Frankel, J. (2005). *Will the euro eventually surpass the dollar as leading international reserve currency?* (National Bureau of Economic Research (NBER) Working Paper 11510). New York: NBER.

Eichengreen, B., & Flandreau, M. (2010). *The Federal Reserve, the Bank of England and the rise of the dollar as an international currency, 1914–39* (Bank for International Settlements (BIS) Working Paper 328). Basel, Switzerland: BIS.

Friberg, R., & Wilander, F. (2008). *The currency denomination of exports—A questionnaire study*. Unpublished.

Goldberg, L. S., & Tille, C. (2008). Vehicle currency use in international trade. *Journal of International Economics, 76*(2), 177–192.

Grassman, S. (1973). A fundamental symmetry in international payment patterns. *Journal of International Economics, 3*(2), 105–116.

Ito, T. (2011). The internationalization of the RMB: Opportunities and pitfalls. In: *Manuscript for CDRF–CFR Symposium*, Beijing. November 1, 2011.

Ito, T., Satoshi, K., Sato, K., & Shimizu, J. (2010). *Why Has the yen failed to become a dominant invoicing currency in Asia?* (The National Bureau of Economic Research (NBER) Working Paper 16231). New York: NBER.

Kawai, M. (1996). The Japanese yen as an international currency: Performance and prospects. In R. Sato, R. V. Ramachandran, & H. Hori (Eds.), *Organization, performance and equity: Perspectives on the Japanese economy* (pp. 305–355). Boston/London/Dordrecht: Kluwer Academic Publishers.

Kenen, P. (1983). *The role of the dollar as an international currency* (Occasional Papers 13). New York: Group of Thirty.

Kenen, P. (2009). Currency internationalization—An overview. Manuscript. *BoK–BIS Seminar on currency internationalization: Lessons from the global financial crisis and prospects for the future in Asia and the Pacific*, Seoul, Republic of Korea. March 19–20, 2009.

Park, Y. (2010). RMB internationalization and its implications for financial and monetary cooperation in East Asia. *China and World Economy, 18*(2), 1–20.

Pearce, D. W. (1981). *The Macmillan dictionary of modern economics*. London: Macmillan Press Limited.

People's Bank of China (PBOC). (2011). *Financial statistic report*. Beijing: PBOC.

Takagi S. (2009). The internationalization of the yen. In: *Currency internationalization: Lessons from the global financial crisis and prospects for the future in Asia and the Pacific* (BIS Paper No. 61) (pp. 75–85).

World Trade Organization (WTO). (2010). Press Release. PRESS/598. March 26, 2010.

Zhang, C. (2012). *The development of the offshore RMB business*. Presentation at ADBI–OECD Roundtable on Capital Market Reform in Asia, Tokyo. February 8, 2012.

Zhang, B., & Xu, Q. (2011). *RMB internationalization in the context of exchange rate and capital account control*. Unpublished (in Chinese).

Chapter 6
Exchange Rate Coordination in Asia: Evidence Using an Asian Currency Unit

Abhijit Sen Gupta

Abstract This chapter evaluates the extent of exchange rate coordination among Asian economies using a hypothetical Asian currency unit. Rising interdependence among Asian economies makes it vital for these economies to have a certain degree of exchange rate stability. However, the empirical evidence using an Asian currency unit suggests a widening deviation in exchange rate movements of the Asian currencies. The deviation has been driven by the adoption of different exchange rate regimes by the participating countries indicating diverse policy objectives. There are a number of institutions in the region that can assist exchange rate coordination and greater economic and financial integration. These institutions, including a multilateralized swap arrangement, a regional surveillance mechanism, and a bond fund; have to be significantly strengthened for them to play a role in fostering greater economic cooperation. The denomination of financial assets in the Asian currency unit in transactions involving these institutions would also enhance exchange rate cooperation.

Keywords Asia • Asian currency unit • Exchange rate coordination • Exchange rate regimes

6.1 Introduction

Economic integration in Asia has evolved in a significantly different manner than it did in Europe. In Europe, economic integration was driven by a top down approach through coordinated initiatives and the creation of regional institutions with the objective of creating a united front across various countries. In contrast, in Asia, market forces have driven economic integration. The market forces have taken the

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_6,

form of individual firms deciding on the location of business, the sourcing of parts and raw materials, the destination of the final product, and the hiring of workers, among others. This has led to a rise in intraregional trade reflecting intra-industry processing and assembly through vertically integrated production. IMF (2007) shows that while trade flows in the rest of the world increased by 3 times between 1990 and 2006, in emerging Asia inter-regional trade rose by 5 times, and intraregional trade increased by 8.5 times. By 2006, trade between the emerging Asian economies had increased to more than 40 %, from 30 % of total exports in 1990. A supportive economic policy initiated by Asian governments to open up the economy, attract investment, and promote exports has hastened the integration. The trade and investment nexus has been greatly enhanced by the pursuit of the "flying geese" pattern, and this has played an important role in fostering growth in the region.[1]

The rising interdependence among Asian economies is making it paramount to ensure a degree of exchange rate stability among the Asian economies. However, this will be challenging in a global environment that has been increasingly volatile since the subprime crisis in the United States (US) in 2007. The lure of developing Asia's strong fundamentals along with the uncertainty in the global environment reducing global investors' risk appetite will lead to increased volatility in capital flows. In this context, greater exchange rate flexibility vis-à-vis the developed economies will help countries to maintain macroeconomic and financial stability. Thus Asian economies could gain from pursuing a strategy whereby they maintain relatively stable exchange rates within the region and allow greater flexibility against extra-regional currencies. This would require a certain degree of exchange rate policy coordination (Kawai 2010).

One way to go about greater exchange rate coordination is to have a regional currency as the anchor. Given the size of their economies, Japan and the People's Republic of China (PRC) could possibly take on this role. While Japan is one of the dominant economies of the region and has a currency that is fully convertible, its growth rate since the early 1990s has been an issue of concern. On the other hand, the PRC has experienced rapid growth over the past two decades, and has taken steps towards internationalization of the yuan. However, the yuan continues to be tightly managed and has a long way to go before it can become fully convertible. Hence, as pointed out in several studies such as Kawai and Takagi (2005), Ogawa and Shimizu (2007) and Girardin and Steinherr (2008), it would be appropriate to create a basket of appropriately weighted regional currencies.

Most of these studies propose the creation of an Asian currency unit (ACU) as a basket of 13 regional currencies, comprising the 10 members of the Association of Southeast Asian Nations (ASEAN), the PRC, Japan, and the Republic of Korea.

[1] The flying geese paradigm, based on global division of labor on the basis of dynamic comparative advantage, argues that the Asian economies will converge to the developed economies through a process of regional hierarchy with production of goods shifting from the more advanced countries to the less advanced ones.

Kuroda and Kawai (2002) point out that such a basket would help to monitor the collective movement of the participating currencies vis-à-vis external currencies as well as the movement of the individual currencies compared to the regional benchmark. The regional benchmark could also be used to denominate regional assets and transactions such as bonds, loans, bank deposits, and foreign exchange deposits. This would also help to mitigate the region's overwhelming dependence on the US dollar that was a proximate cause in accentuating global imbalances in the 2000s.

The theory of an optimum currency area argues that countries that are affected by shocks in a symmetric manner should form a common currency area (Mundell 1961). Countries facing asymmetric shocks can also attempt to form a common currency area, if there is a sufficient degree of price flexibility and high labor and capital mobility to ensure that there are no persistent pockets of unemployment. Other criteria include similarity of preferences over output-inflation trade-offs and provision of supporting policies like fiscal transfers. However, Frankel and Rose (1998) point out that some of the traditional prerequisites for establishing a common currency area can develop after countries have established a currency area by fixing their exchange rates. The establishment of a common currency area can lead to an increase in the degree of economic integration as well as symmetry of economic shocks. Thus, as long as participating countries exhibit a strong commitment to the coordination of exchange rate policies, their attempt can be successful provided they meet the criteria to some extent initially.

Eichengreen and Bayoumi (1999) focus on trade and foreign direct investment (FDI) integration and the speed of adjustment to shocks and symmetric supply and demand disturbances, and conclude that the region satisfies the standard criteria. Kawai and Motonishi (2004) point out that a number of East Asian economies have witnessed a rapid increase in intraregional trade. Another prerequisite is the degree of factor market integration. In Asia, there is a great deal of variation in the degree of labor market integration. Economies like Japan and the Republic of Korea tend to maintain tight restrictions on labor mobility. On the other hand, the Southeast Asian economies of Thailand, Malaysia, and Singapore are characterized by greater labor mobility. Eichengreen and Bayoumi (1999) and Goto and Hamada (1994) note that labor markets are more flexible in Asia than they were in Europe in the early 1990s, when it embarked on a common currency.

Economic fundamentals suggest that some economies in Asia are more suited to undertake greater exchange rate coordination. While greater exchange rate coordination helps in significantly reducing transaction costs involved with international trade as well as reducing exchange rate uncertainty and the scope of speculation on changes in bilateral exchange rates that can result in instability in foreign exchange markets and have negative effects on economies' internal and external balances, it also imposes a constraint on monetary policy, which is an important tool for stabilizing economy. However, the introduction of an ACU as a parallel currency while providing the benefits of exchange rate coordination will alleviate the costs by allowing some degree of monetary policy autonomy.

6.2 An Asian Currency Unit

A key issue in the formulation of an ACU is the inclusion of participating currencies. The participating currencies have varied across different studies. Most of the studies such as Ogawa and Shimizu (2005), Ogawa and Yoshimi (2008), and Wyplosz (2010) have focused on the currencies of the ASEAN+3 countries.

This chapter expands the set of participating economies to include Hong Kong, China and India. Hong Kong, China has already established close trade and financial links with other East Asian economies, especially the PRC. Furthermore, it has been a part of a number of regional initiatives like the Executives' Meeting of East Asia Pacific Central Banks (EMEAP) and the Chiang Mai Initiative Multilateralization (CMIM). In contrast, India is still not a member of these initiatives and is not as closely linked to the East Asian economies. However, given that the process of exchange rate coordination is a long process, there is a need to have a dynamic outlook for the region. At its current growth rate, India is expected to be among the top three economies of the region during the next three decades. Furthermore, in recent years India has sought to increase its trade and financial links with other Asian economies. According to the International Monetary Fund's (IMF) Direction of Trade Statistics, India's exports to the region increased from 19 % in 2001 to 26.3 % in 2011 while its imports increased from 18.2 % to 27.7 % (IMF 2012). Trade links are likely to increase given that India has signed or is negotiating trade agreements with ASEAN, Indonesia, Japan, Malaysia, Singapore, and Thailand. Similarly, several Asian economies including Japan, the Republic of Korea, and Singapore have invested in India's infrastructure, automobiles, electronics financial, pharmaceutical, logistics, and information technology sectors.

After finalizing the composition of the currency basket, the next step is to assign weights to the various participating currencies. The choice of the economic indicators to assign weights can be complicated, as they would need to reflect both the current and the potential size of the economy, and the extent to which the economy will use the ACU. Thus, weights assigned are based on the average of the individual economy's share in the regional gross domestic product (GDP) measured at purchasing power parity, intraregional trade, and intraregional investment. While GDP measured at purchasing power parity is an indicator of the potential size of the economy, trade and investment based weights provide an indication about the extent to which participating currencies could employ the ACU.

Table 6.1 highlights the weights accorded to the 15 economies according to the average GDP based on purchasing power parity, intraregional trade, and investment. Thus one unit of the ACU would include $0.23 equivalent of yen, $0.28 equivalent of yuan, $0.12 equivalent of Hong Kong dollar, $0.09 equivalent of won and so forth. Given the bilateral exchange rate between the Asian currencies and the US dollar it implies that the ACU would comprise 25.6 units of yen, 2.2 units of yuan, 0.85 units of Hong Kong dollar, 103.0 units of won, and so on.

Next, to evaluate the collective movement of the participating currencies against the numèraire currency and the relative movement of these currencies against the

Table 6.1 Weights and shares of participating currencies in the Asian currency unit

	Average weights (%)	Base period average exchange rate	Units
Brunei Darussalam	0.12	1.7	0.002
Cambodia	0.10	3,697.7	3.603
People's Republic of China	27.98	8.0	2.237
Hong Kong, China	11.33	7.5	0.853
India	8.49	44.5	3.776
Indonesia	3.82	9,006.8	343.855
Japan	23.15	110.7	25.629
Republic of Korea	8.82	1,168.6	103.013
Lao People's Democratic Republic	0.06	8,219.5	4.695
Malaysia	4.82	3.7	0.177
Myanmar	0.24	6.3	0.015
Philippines	1.37	46.0	0.629
Singapore	5.01	1.7	0.085
Thailand	3.53	40.9	1.443
Viet Nam	1.19	13,986.3	166.131

Notes: The benchmark exchange rate is the average of the daily exchange rate in terms of the US dollar in 2000 and 2001. The GDP and trade weights are based on average weights between 2004 and 2007

Sources: World Development Indicators; IMF's Direction of Trade Statistics and Coordinated Portfolio Investment Survey databases. http://elibrary-data.imf.org/ and http://data.worldbank.org/data-catalog/world-development-indicators (accessed 10 January 2012)

ACU a base period needs to be identified. The base period is chosen as a year when the deviations among the important macroeconomic indicators are least. The rationale is that members of a common currency area need to follow a coherent set of domestic policies for the common currency area to be stable. The Maastricht convergence criteria for joining the European Economic and Monetary Union were established precisely for the purpose of ensuring coherent policymaking. It focused on convergence of government deficits, government debt, inflation rates, exchange rates, and long-term interest rates. To analyze external and internal stability we focus on these indicators as well as current account deficits and find that the divergence among these indicators was least in 2000 and 2001, and take them as the base period.

The US continues to be the dominant trade partner outside the region for most of the economies. The countries of the eurozone are the other major trading partners. The ongoing crisis in the eurozone has created a lot of uncertainty about the prospects of the euro continuing at least in its present form. Nevertheless, given the size of the economies in the eurozone, and their existing trade linkages with the Asian economies, it is evident that these economies will continue to be major trading partners even if some alternative exchange rate arrangement is formulated in the eurozone. Consequently, we include both the US dollar and the euro in the numèraire currency basket. Based on their trade shares between 2004 and 2007 the currency basket is made up of 60 % of the dollar and 40 % of euro. It is assumed

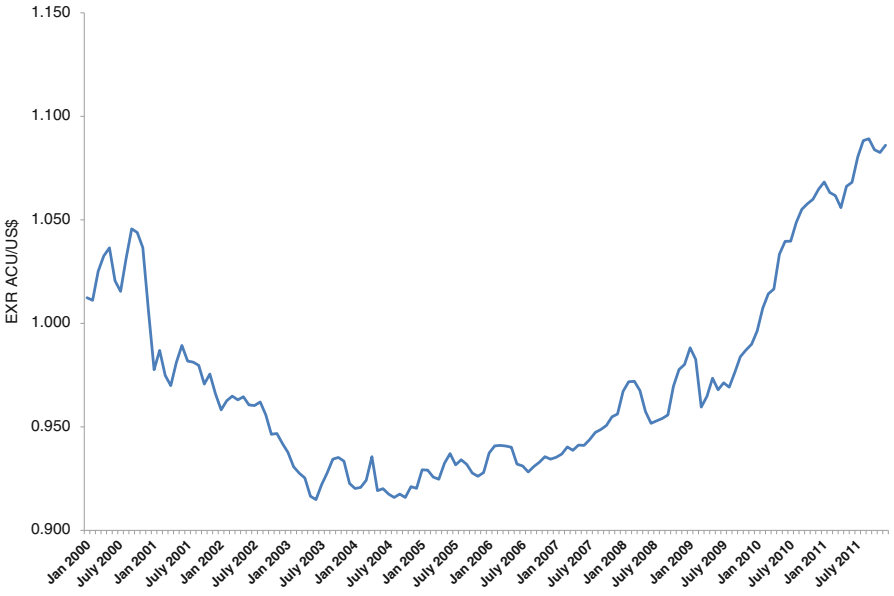

Fig. 6.1 Movement of the Asian currency unit against the US dollar. *Source*: Author's calculations

that 1 unit of the ACU is equivalent to 1 unit of the numèraire currency basket in the base period.

Based on economic size, an exchange rate of the Asian currency unit is calculated in terms of the US dollar according to

$$\varepsilon_{\mathrm{ACU,t}}^{Num} = \sum_{i} w_i \varepsilon_{\mathrm{i,t}}^{Num} \tag{6.1}$$

where

$\varepsilon_{\mathrm{ACU,t}}^{\mathrm{Num}}$ is the value of the ACU in terms of the numèraire currency basket at time t, i.e., the number of units of the numèraire currency basket that can be bought with one unit of the ACU, w_i is the share of the ith currency in the ACU, and $\varepsilon_{\mathrm{i,t}}^{\mathrm{Num}}$ is the value of the ith currency in terms of the numèraire currency at time t.

Figure 6.1 shows that the ACU appreciated by about 10 % between 2001 and 2011. However, the ACU did not strengthen in a monotonic manner. There was a decline in the value of the ACU vis-à-vis the numèraire basket by about 10 % between 2001 and mid 2003. This was largely due to the weakening of the yen and the yuan, which have a combined weight of nearly 50 % in the ACU, against the numèraire basket. The ACU was relatively stable between mid-2003 and late 2006. Most Asian currencies were relatively stable vis-à-vis the numèraire basket during this period. The only exceptions were the rupiah, which weakened by 12 % and the won, which strengthened by 18.5 %.

Since late 2006, the ACU strengthened by 17 % against the numèraire basket. During this period the yen appreciated against the euro by 39 % and against the US dollar by 51 %. The yuan, which had abandoned the tight peg in July 2005, also appreciated by 24 % against the US dollar between September 2006 and 2011. Other Asian currencies which experienced significant strengthening against the numèraire basket include the Singapore dollar, the baht, and the ringgit. The Brunei dollar, by virtue of the currency board arrangement with Singapore dollar, and kip also appreciated during this period. On the other hand, currencies that became weaker over this period include the won, the Indian rupee and the dong.

A regional currency unit would also help to monitor the movement of the participating currencies against the regional benchmark and analyze the co-movement of the participating currencies. To monitor the movement of the participating currencies we use the following arbitrage condition

$$\varepsilon_{\mathrm{i,t}}^{\mathrm{ACU}} = \varepsilon_{\mathrm{i,t}}^{Num} \varepsilon_{Num,\mathrm{t}}^{\mathrm{ACU}} \tag{6.2}$$

The above condition states that the value of a participating currency in terms of the ACU is a product of the bilateral exchange rate between the currency and numèraire basket and the value of the numèraire basket in terms of the ACU. Following Ogawa and Shimizu (2005) we look at the percentage deviation of these currencies from the ACU relative to the base period to trace the movement of individual participating regional currencies relative to the ACU. We define percentage deviation $D_{i,t}$ as

$$D_{i,t} = \frac{\varepsilon_{\mathrm{i,t}}^{\mathrm{ACU}} - \varepsilon_{\mathrm{i,0}}^{\mathrm{ACU}}}{\varepsilon_{\mathrm{i,0}}^{\mathrm{ACU}}} \tag{6.3}$$

Here $\varepsilon_{\mathrm{i,0}}^{\mathrm{ACU}}$ is the value of the participating currency in terms of the ACU in the base period. The base period value is calculated by taking the annual average of the daily values. Figure 6.2 traces the percentage deviation of the participating currencies vis-à-vis the ACU. It is evident that there is a lot of divergence in the performance of the individual currencies against the ACU.

As evident from Fig. 6.2, due to the high weight accorded to the yuan and the yen in the construction of the ACU, these currencies have remained relatively steady against the ACU through most of the period. The yuan strengthened by about 10 % between December 2007 and February 2009, but lost most of this gain by 2011. The yen weakened by nearly 15 % between January 2005 and July 2007 but since then has appreciated by over 30 %. In December 2011, the yen was nearly 20 % stronger vis-à-vis the ACU compared to the base period. The Hong Kong dollar, by virtue of being pegged to the US dollar, depreciated by about 18 % between 2006 and 2011. The movement of the ringgit closely paralleled that of the yuan till mid 2005 due to both their currencies being pegged to the dollar. Thereafter the ringgit continued to be relatively stable against the ACU moving in a narrow band. The won strengthened by nearly 24 % between January 2004 and December 2006 but depreciated

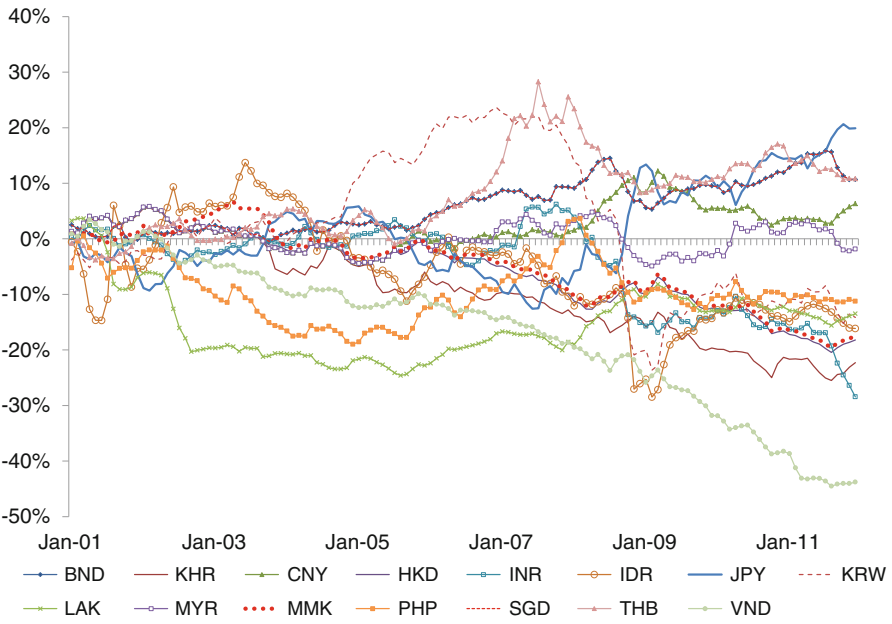

Fig. 6.2 Nominal deviation of the participating currencies vis-à-vis the Asian currency unit. *BND* Brunei dollar, *KHR* riel, *CNY* yuan, *HKD* Hong Kong dollar, *INR* Indian rupee, *IDR* rupiah, *JPY* yen, *KRW* won, *LAK* kip, *MYR* ringgit, *MMK* kyat, *PHP* Philippine peso, *SGD* Singapore dollar, *THB* baht, *VND* dong. *Source*: Author's calculations

considerably thereafter to be weaker by 23 % in March 2009 compared to its base period value. It regained some of these losses in the subsequent years. The baht also appreciated nearly 30 % vis-à-vis the ACU between July 2005 and July 2007. While it witnessed some weakening in the aftermath of the global financial crisis, it was nearly 12 % stronger in 2011 compared to the base period. The Singapore dollar and the Brunei dollar strengthened by nearly 12 % between mid 2005 and 2011 with some moderation during the global financial crisis.

The Philippine peso weakened by nearly 19 % between 2001 and December 2004, but regained most of these losses prior to the onset of the global financial crisis. However, since mid-2008, the Philippine peso has again depreciated by 12 % vis-à-vis the ACU. The rupiah exhibited considerable volatility between 2001 and 2003 and strengthened by nearly 14 % during this period. However, subsequently, it witnessed a steady depreciation and was nearly 24 % weaker in February 2009 compared to the base year period. In recent years it has witnessed some appreciation. The Indian rupee had been relatively stable against the ACU during 2001–2007. However, since the onset of the crisis, the Indian rupee has witnessed a continuous decline weakening by nearly 29 % between 2008 and 2011. The riel declined nearly 24 % between 2004 and 2011, having remained relatively steady against the ACU during 2001–2003. In contrast, the dong experienced sustained depreciation pressures through the period covered and weakened by more than 45 % between

2001 and 2011. Some of the other currencies such as the kip and the kyat also depreciated moderately against the ACU.

One possible reason for the large disparity in exchange rate movements of the participating currencies could be varying inflation rates in these economies. Many economies might aim to have a stable real exchange rate and hence use exchange rate movements to compensate for price changes. To analyze this aspect we focus on the real exchange rate deviations of the participating currencies. The real exchange rate is defined as

$$\theta_{\mathrm{i,t}}^{\mathrm{ACU}} = \varepsilon_{\mathrm{i,t}}^{\mathrm{ACU}} \frac{P_t^{ACU}}{P_t^i} \tag{6.4}$$

where $\theta_{\mathrm{i,t}}^{\mathrm{ACU}}$ is the real exchange rate, $P_{\mathrm{t}}^{\mathrm{ACU}}$ is the weighted average price level for the region, and $P_{\mathrm{t}}^{\mathrm{i}}$ is the price level in economy i. Thus, following Ogawa and Shimizu (2007), the extent of real exchange rate deviation is calculated by looking at the difference between nominal exchange rate deviation and the inflation differential between the region and the individual economy. Inflation is constructed using the consumer price index (CPI). To obtain the inflation for the ACU region we construct a weighted average of the CPI for the region using weights based on GDP measured in purchasing power parity, intraregional trade and intraregional investment. Since CPI data are available at a monthly frequency the real exchange rate deviation indicators are constructed at a monthly frequency.[2]

In the case of real exchange rate deviation, domestic inflation rates higher than the weighted average for the region add to the appreciation pressure while lower inflation results in depreciation pressure. Figure 6.3 shows that the extent of real exchange rate deviations, which take into account inflation differentials, are considerably different from the nominal exchange rate deviations. The yen, which had appreciated strongly in nominal terms, shows a sustained depreciating trend in real terms due to extremely low and sometimes negative inflation rates prevailing in the Japanese economy during this period. The large weight accorded to Japan in the creation of the regional price index has meant that a number of economies have witnessed inflation rates that are considerably higher than the regional average. The rupiah, the Philippine peso, and the Indian rupee, which experienced sharp depreciation in nominal terms, exhibited an appreciating trend in real terms due to relatively higher inflation. In the case of the baht, the appreciation trend gets accentuated when inflation differentials are taken into account. In contrast, due to Hong Kong, China experiencing inflation levels lower than the regional average, the depreciating trend of the Hong Kong dollar has increased in real terms.

[2] Data on consumer price index are obtained from the Global Economic Monitor and websites of the central banks and monetary authorities of the participating economies. Owing to a large difference between the weighted inflation rate for the region as a whole and Myanmar, Myanmar is removed from the sample.

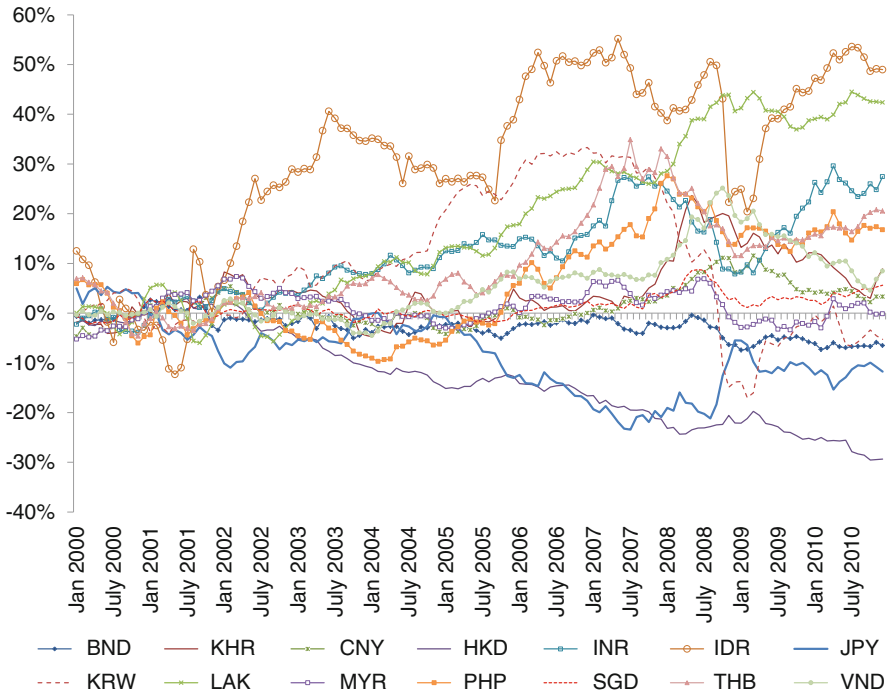

Fig. 6.3 Real deviation of the participating currencies vis-à-vis the Asian currency unit. *BND* Brunei dollar, *KHR* riel, *CNY* yuan, *HKD* Hong Kong dollar, *INR* Indian rupee, *IDR* rupiah, *JPY* yen, *KRW* won, *LAK* kip, *MYR* ringgit, *MMK* kyat, *PHP* Philippine peso, *SGD* Singapore dollar, *THB* baht, *VND* dong. *Source*: Author's calculations

Next, the chapter focuses on whether the extent of the deviation among the participating currencies has increased or declined over time. We look at the movement in the weighted averages of the nominal and real exchange rate deviations during the period. As described in Eq. (6.5) the weighted average is equal to the weighted sum of absolute deviations of the participating currencies or

$$WD_{i,t} = \sum_{i} w_i |D_{i,t}| \tag{6.5}$$

where $|D_{i,t}|$ is the absolute percentage real or nominal deviation for currency i at time t and w_i is the relative weight on currency i, which is the average of weights based on trade, investment, and GDP measured in purchasing power parity.

Figure 6.4a indicates that the deviation among the nominal exchange rates was relatively stable between 2000 and 2004. However, since early 2004 there was a sharp increase in the extent of deviation, which peaked prior to the onset of the global financial crisis. Between late 2008 and end 2009 a number of economies were impacted in a symmetrical manner by global events. The initial flight to safety of foreign capital in the second half of 2008 led to the weakening of many Asian

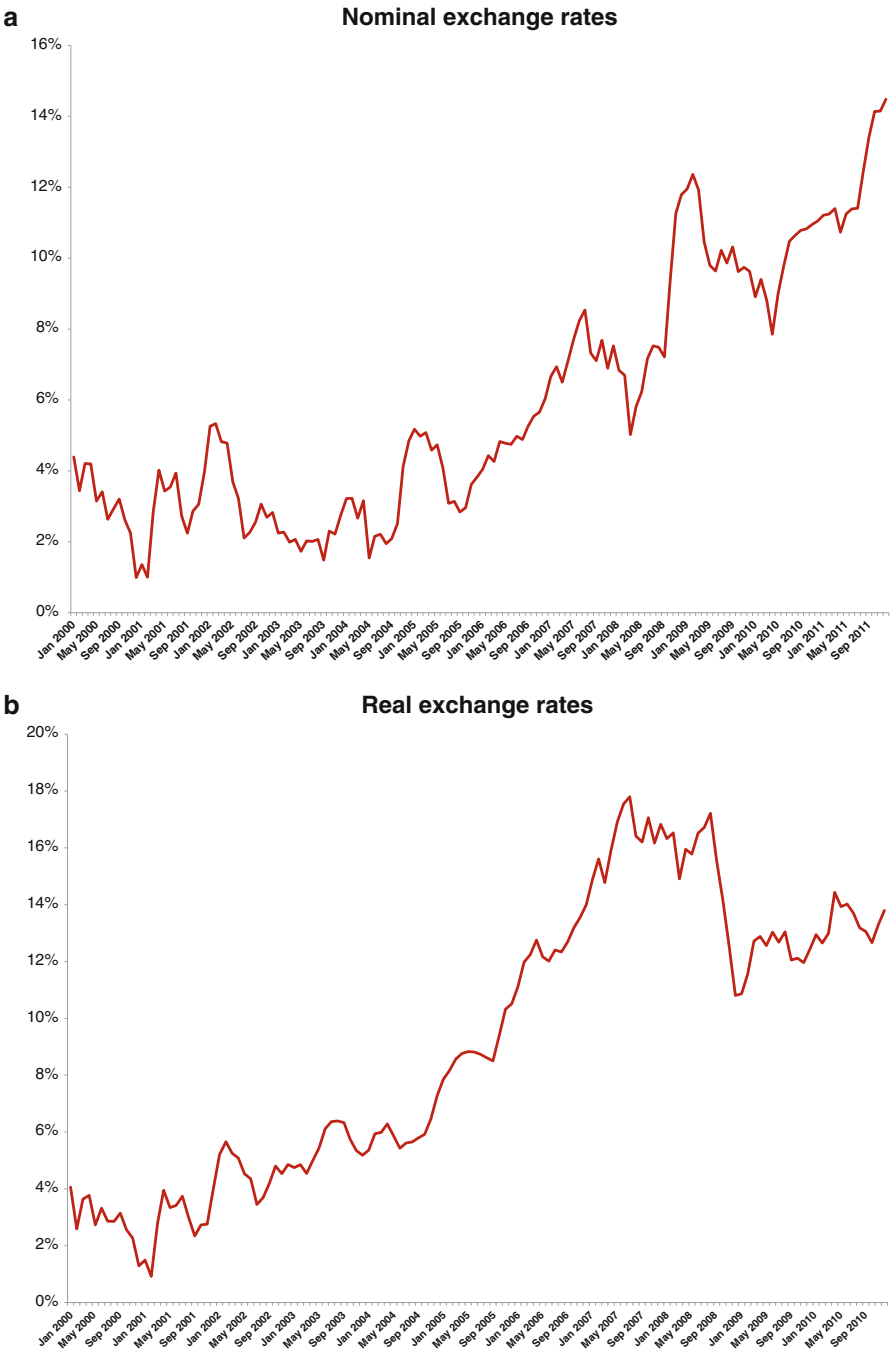

Fig. 6.4 Weighted average deviation. *Source*: Author's calculations

currencies, especially against the US dollar. With signs of recovery since mid-2009, these economies started witnessing an inflow of capital, which allowed many Asian currencies to appreciate. The extent of the deviation among these currencies again started increasing since 2010. In the case of real exchange rates also there was a persistent trend of widening deviation between 2001 and the global financial crisis (Fig. 6.4b). The subsequent dip in the extent of real exchange rate deviation was largely due to a drop in nominal exchange rate deviation and reduction of inflation differentials. The strengthening of commodity prices prior to the collapse of Lehman Brothers, and the subsequent dip in commodity prices, had an analogous impact on most of the economies. Much of the movement in the weighted average deviations has been driven by the yen and the won. In recent years there has been an increasing contribution from the Hong Kong dollar and the Indian rupee due to these currencies experiencing greater volatility than before.

A common approach to examine convergence of a series is to apply the unit root test to examine whether the difference is stationary. The rejection of the unit root hypothesis implies that the time series is stationary and will converge in the long run. However, if these tests fail to reject the hypothesis then the series follows a random path.

To evaluate the extent of nominal and real convergence among participating currencies we employ both the Augmented Dickey Fuller and the Phillips–Perron tests. However, as pointed out by Fan and Wei (2006) a constraint of these tests is that they have low power in the sense that they tend to reject too frequently the stationarity hypothesis of a time series. To account for this shortcoming we also focus on panel unit root tests.

The benchmark test of exchange rate convergence is based on the stochastic model given by Eq. (6.6) below:

$$D_{i,t} = \alpha_i + \rho D_{i,t-1} + \mu_{i,t} \tag{6.6}$$

where i is country index, α_i is the idiosyncratic factor in country i and $\mu_{i,t}$ is a white noise error term. This can be reformulated as Eq. (6.7)

$$\Delta D_{i,t} = \alpha_i + \psi_i D_{i,t-1} + \sum_{j=1}^{\rho_i} \xi_j \Delta D_{i,t-j} + \mu_{i,t} \tag{6.7}$$

Here $\psi_i > 0$ implies an explosive process, $\psi_i = 0$ describes random walk behavior, and $\psi_i < 0$ implies stationary process and convergence. To test the stationarity, we employ two methodologies developed by Levin et al. (2002) and Im et al. (2003). The methodologies in both these tests have been developed from a multivariate generalization of the ADF test. A limitation of the Levin–Lin–Chu test is that it imposes a cross-equation restriction on the first order autocorrelation coefficients. In contrast, Im–Pesaran–Shin test allows the autocorrelation coefficients to differ across panel members. Moreover, the Levin–Lin–Chu test requires the panels to be strongly balanced, while the Im–Pesaran–Shin test works with

Table 6.2 Convergence among participating currencies in nominal terms

	Averaged weighted deviation		Panel unit root test	
	Augmented Dickey–Fuller	Phillips–Perron	Im–Pesaran–Shin	Levin–Lin–Chu
2000–2011	−0.328	−0.342	1.616	2.767
	(0.92)	(0.92)	(0.95)	(0.99)
2000	−1.44	−1.916	1.794	1.205
	(0.56)	(0.32)	(0.96)	(0.88)
2001	−1.360**	−1.344*	−0.756**	0.480**
	(0.04)	(0.06)	(0.03)	(0.02)
2002	−1.218*	−1.177*	−0.859*	−0.797**
	(0.07)	(0.08)	(0.08)	(0.02)
2003	−2.37	−2.733**	3.013	1.995
	(0.15)	(0.05)	(0.99)	(0.97)
2004	−0.604	−0.493	2.589	3.152
	(0.87)	(0.89)	(0.99)	(1.00)
2005	−1.555	−1.794	0.827	−0.359
	(0.51)	(0.38)	(0.79)	(0.36)
2006	−1.007	−0.682	−1.332**	−1.759***
	(0.75)	(0.85)	(0.04)	(0.01)
2007	−2.148	−2.226	1.926	1.222
	(0.22)	(0.19)	(0.97)	(0.89)
2008	−0.486	−0.514	1.985	141
	(0.89)	(0.89)	(0.97)	(0.56)
2009	−1.651	−1.577	0.225	0.887
	(0.45)	(0.49)	(0.59)	(0.81)
2010	−1.235	−1.177	−0.115	−0.609
	(0.66)	(0.68)	(0.45)	(0.27)
2011	−0.059	−0.033	0.229	0.42
	(0.95)	(0.96)	(0.59)	(0.66)

P-values in brackets. ***, **, and * imply significance at 1 %, 5 % and 10 % respectively
Source: Author's calculations

unbalanced panel. To ensure that the panel is balanced we restrict our dataset on nominal deviation between January 2001 and September 2011 and for real deviation between January 2001 and December 2010.

Table 6.2 focuses on the extent of nominal exchange rate convergence. The null hypothesis that the averaged weighted deviation has unit root over the entire sample from 2000 to 2011 cannot be rejected. Next, the sample is split on a yearly basis and it is observed that in 2001 and 2002 there was some evidence of exchange rate convergence, but in the subsequent years there is no such evidence. The panel unit root tests also provide similar conclusions.

Table 6.3 looks at the extent of real exchange rate convergence. Since real exchange rate deviation is available only on a monthly basis, to ensure adequate degrees of freedom, the data are split by including data for two years at a time. A similar result is obtained where for the entire period as well as the sub samples, there is little evidence of convergence. Some evidence of convergence is observed

Table 6.3 Convergence among participating currencies in real terms

	Averaged weighted deviation		Panel unit root test	
	Augmented Dickey–Fuller	Phillips–Perron	Im–Pesaran–Shin	Levin–Lin–Chu
2000–2011	−1.177	−0.888	0.603	−0.148
	(0.68)	(0.79)	(0.73)	(0.44)
2000–2001	−1.81	−1.916	−1.734**	−1.547*
	(0.37)	(0.32)	(0.04)	(0.09)
2002–2003	−1.857	−1.273	−1.563	−2.891
	(0.35)	(0.64)	(0.15)	(0.19)
2004–2005	−0.227	−0.191	2.687	0.681
	(0.93)	(0.94)	(0.99)	(0.75)
2006–2007	0.138	0.084	2.581	0.803
	(0.97)	(0.97)	(0.99)	(0.79)
2008–2010	−2.453*	−2.787*	−1.009**	−3.089***
	(0.10)	(0.06)	(0.05)	0.00

P-values in brackets. ***, **, and * imply significance at 1 %, 5 % and 10 % respectively
Source: Author's calculations

during 2008–2010. As discussed above, this might be due to the simultaneous weakening of most currencies during the global financial crisis, and their subsequent revival once capital flows resumed. Moreover, the rise in commodity prices prior to the crisis and their subsequent slump could also have affected these economies in a coordinated manner.

6.3 Exchange Rate Regime Diversity

The diverse movement in participating economies' currencies is explained primarily by the different exchange rate regimes followed by these countries. This divergence in exchange rate regimes signals the difference in the priorities of the monetary and exchange rate policies. In a number of Asian economies the exchange rate serves as the nominal anchor or intermediate target of monetary policy. In these economies, the monetary authority intervenes in the foreign exchange market to maintain the exchange rate at its predetermined level or within a range. In these economies, the domestic currency can be tied to a major global currency like the US dollar, a basket of currencies, or some regional currency.[3]

Many of the developed and some of the emerging economies of the region have resorted to inflation targeting. This requires a greater degree of exchange rate flexibility as monetary policy decisions are guided by the deviation of forecasts of future inflation from the announced inflation target. Finally, some economies do not resort to a single explicit nominal anchor but monitor various indicators in conducting monetary policy. Table 6.4 lists the exchange rate regimes practiced by

[3] The Brunei dollar is tied to the Singapore dollar in a 1:1 ratio.

Table 6.4 Classification of exchange rate regimes and monetary frameworks

	Exchange rate arrangement				
Monetary policy framework	Currency board	Other conventional fixed peg arrangement	Crawling peg	Managed float with no predetermined path	Independently floating
Exchange rate anchor					
US Dollar	Hong Kong, China	Viet Nam	People's Republic of China	Cambodia, Lao PDR, and Myanmar	
Composite				Singapore	
Others	Brunei Darussalam				
Monetary target					
Inflation targeting				Indonesia and Thailand	Republic of Korea and Philippines
Others				India and Malaysia	Japan

Lao PDR: Lao People's Democratic Republic
Source: IMF's *de facto* classification of exchange rate regimes and monetary framework (2009)

the participating economies according to the IMF's de facto classification of exchange rates regimes and monetary framework.

Since 2000, a small amount of literature on data-driven methods for the classification of exchange rate regimes has developed (Reinhart and Rogoff 2004; Levy-Yeyati and Sturzenegger 2005). This literature has classified exchange rate regimes in operation using a variety of alternative algorithms. Such a classification helps in analyzing the evolution of an economy's exchange rate regime over a period. Figure 6.5 highlights the evolution of exchange regimes in the participating economies during 2000–2007 according to the Reinhart and Rogoff (2004) classification. Apart from the fact that exchange rate regimes in these participating economies continue to be quite diverse, except for India, Lao PDR, and Malaysia, all other economies have witnessed virtually no change in their exchange rate regimes.

These databases, though quite useful for many analyses, have limited success in measuring the finer structure of intermediate regimes. As an example, the Reinhart and Rogoff classification does not identify a break in the PRC's exchange rate regime after July 2005, when it announced a move towards pegging of the yuan to a currency basket.

Given the wide dispersion among the exchange rate regimes prevailing in various Asian economies, an empirical analysis is conducted to investigate the extent of their linkage with the three major global currencies: the US dollar, the euro, and the yen. The methodology outlined by Frankel and Wei (1994) is used to analyze these linkages. Frankel and Wei assume the Swiss franc as a numèraire in the denomination of exchange rates. Daily data of exchange rates are used to conduct regression of log differences of the local currency (in terms of the Swiss franc) on log differences of the three major currencies (in terms of the Swiss franc).

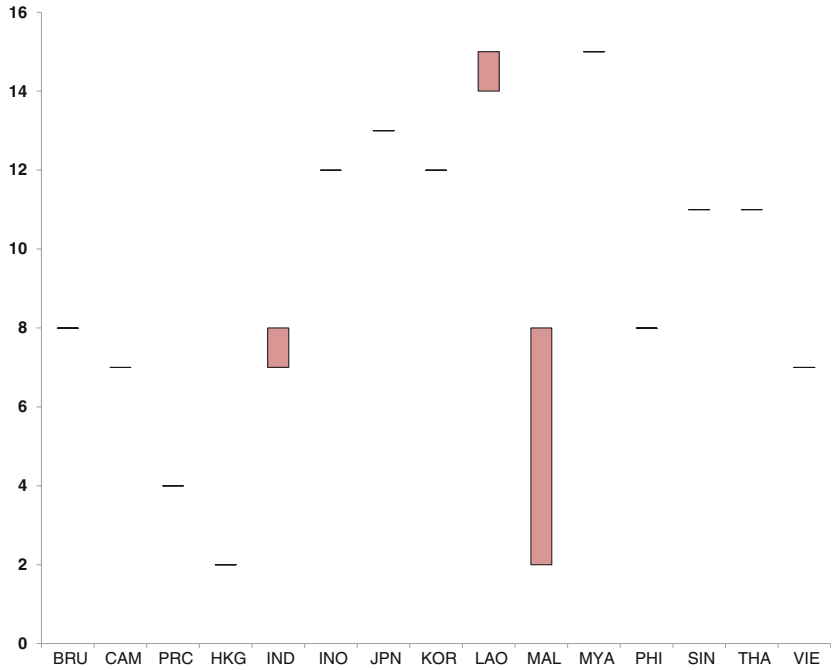

Fig. 6.5 De facto exchange rate regimes. *BRU* Brunei Darussalam, *CAM* Cambodia, *PRC* People's Republic of China, *HKG* Hong Kong, China, *IND* India, *INO* Indonesia, *JPN* Japan, *KOR* Republic of Korea, *LAO* Lao People's Democratic Republic, *MAL* Malaysia, *MYA* Myanmar, *PHI* Philippines, *SIN* Singapore, *THA* Thailand, *VIE* Viet Nam. *Notes*: 1. No separate legal tender, 2. Currency board arrangement, 3. Pre announced horizontal band = ±2 %, 4. De facto peg, 5. Pre announced crawling peg, 6. Pre announced crawling band = ±2 %, 7. De facto or crawling peg, 8. De facto crawling band, 9. Pre announced crawling band = ±2 %, 10. De facto crawling band = ±5 %, 11. Moving band = ±2 %, 12. Managed floating, 13. Freely floating, 14. Freely falling, 15. Dual market in which parallel market data is missing. *Source*: Reinhart and Rogoff (2004) and Exchange Rate Regime Reinhart and Rogoff Classification. http://www.carmenreinhart.com/data/browse-by-topic/topics/11/ (accessed March 2013)

The regression equation is as follows

$$\Delta \log \varepsilon_{i,t}^{CHF} = \alpha_0 + \beta_1 \Delta \log \varepsilon_{USD,t}^{CHF} + \beta_2 \Delta \log \varepsilon_{EUR,t}^{CHF} + \beta_3 \Delta \log \varepsilon_{JPY,t}^{CHF} + \mu_{i,t} \qquad (6.8)$$

where $\varepsilon_{i,t}^{CHF}$ is the value of currency i vis-à-vis the Swiss franc and $\varepsilon_{USD,t}^{CHF}$, $\varepsilon_{EUR,t}^{CHF}$ and $\varepsilon_{JPY,t}^{CHF}$ are the values of the dollar, euro, and yen in terms of the Swiss franc. The coefficients are considered to represent the weights of the respective currencies. We look at the recursive least squares estimate from January 2001 to September 2011. The recursive estimates are generated by running the above regression iteratively using a moving window of data by dropping old observations as new ones are added. Figure 6.6 plots the coefficients of the recursive estimates.

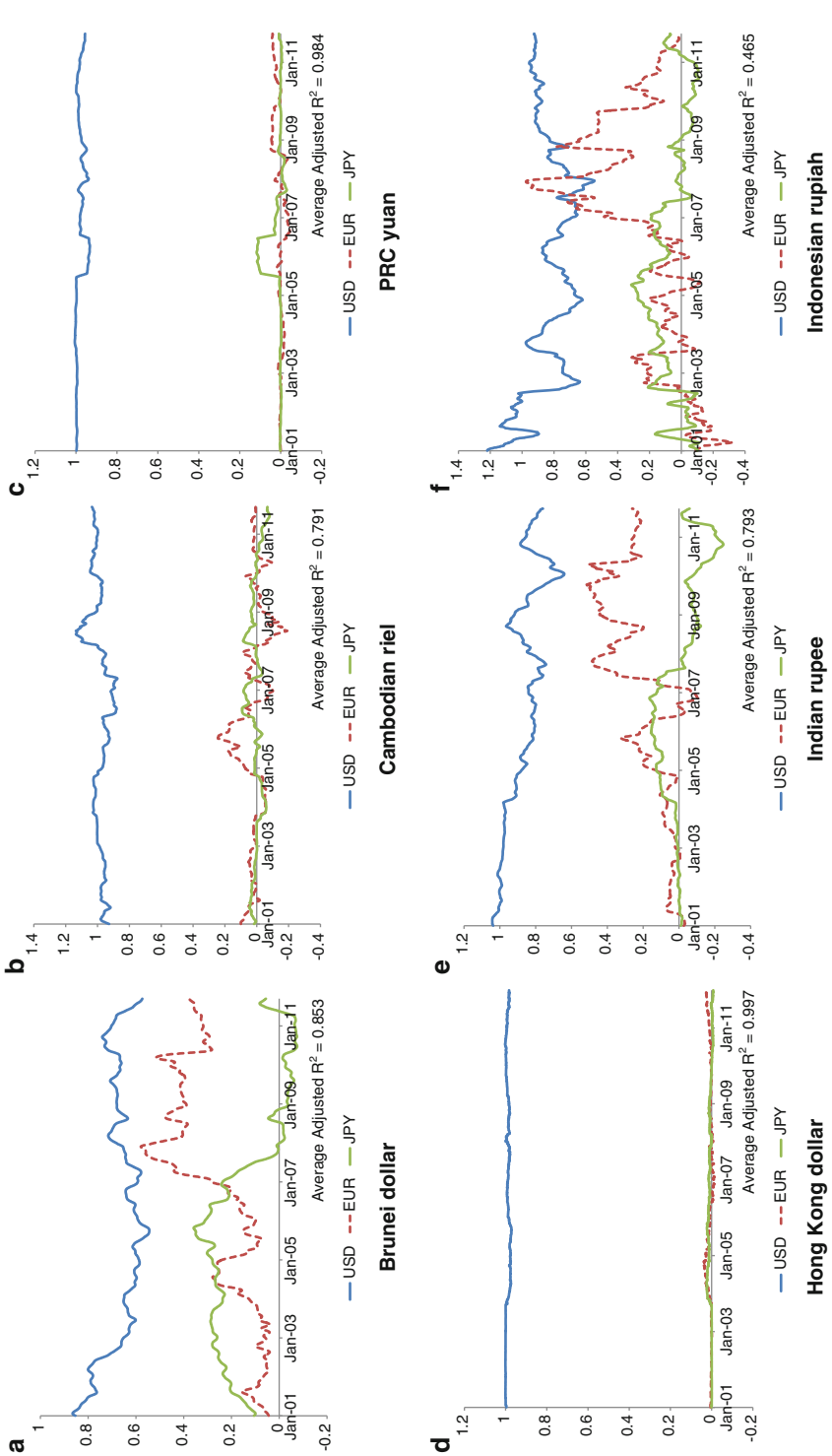

Fig. 6.6 Recursive least square estimates for participating currencies. *PRC* People's Republic of China, *Lao PDR* Lao People's Democratic Republic. *Source*: Author's calculations

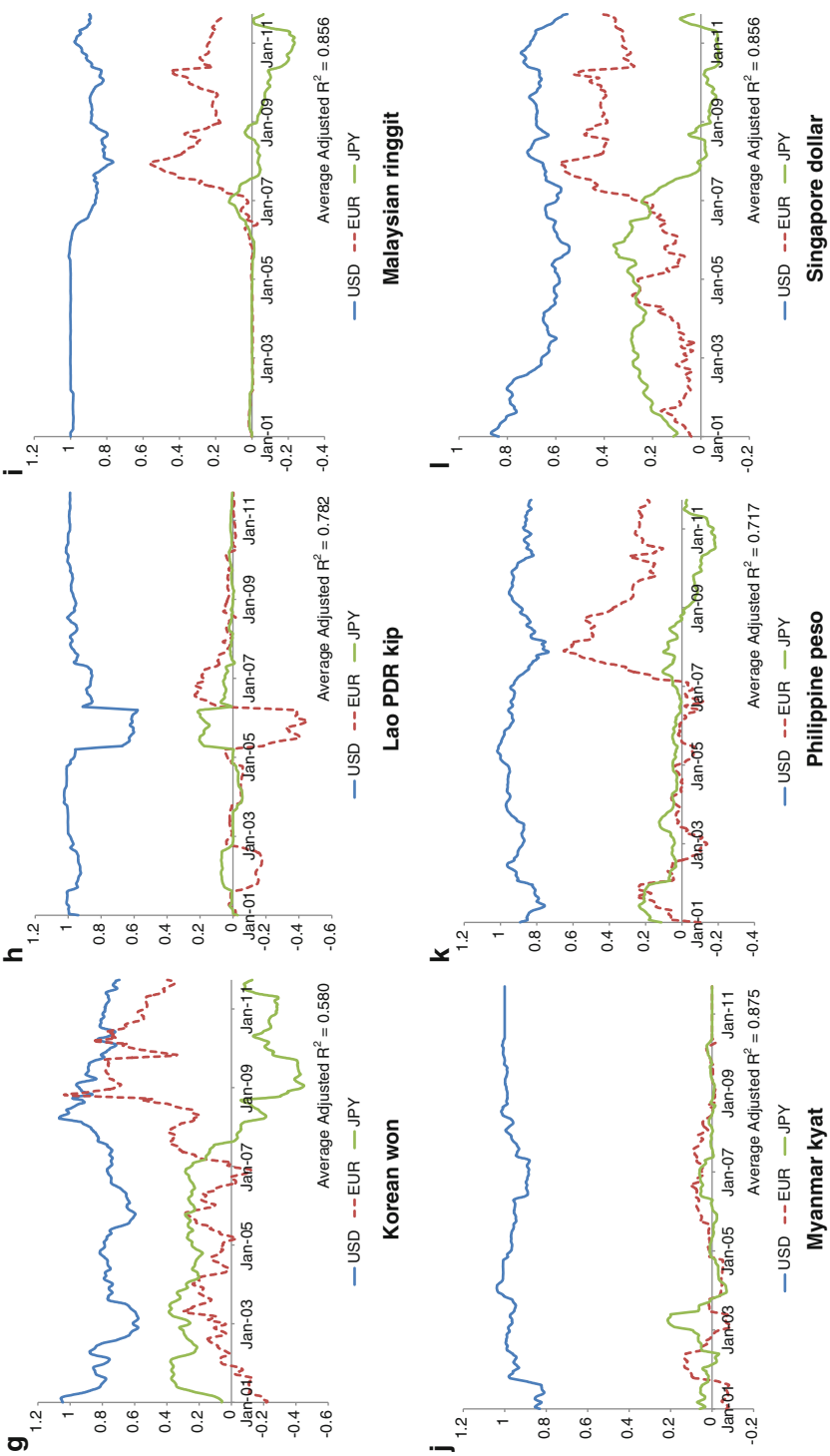

Fig. 6.6 (continued)

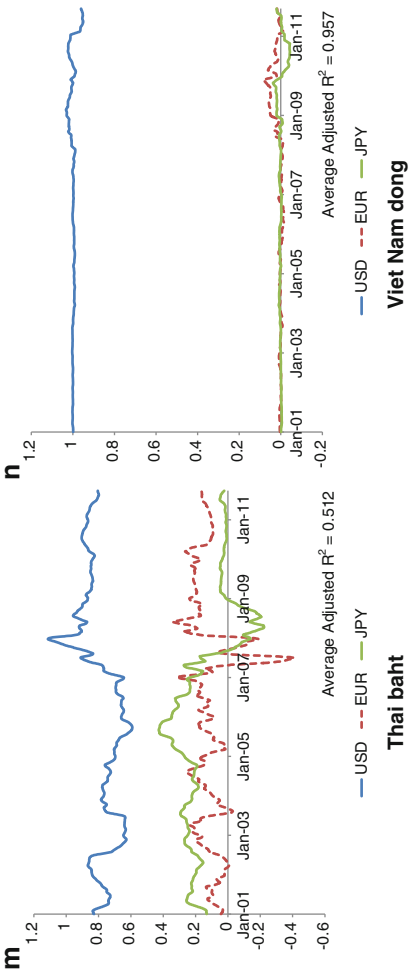

Fig. 6.6 (continued)

While most Asian currencies showed a high degree of linkage with the US dollar, the won, the rupiah, and the Philippine peso indicate the importance of other factors in their currency regime. The won's linkage with the dollar exhibited a decreasing trend between 2001 and 2005 when it dropped to below 0.6 compared to 1.05 in 2001. Subsequently, there was an increase in the linkage with the dollar, which again reversed after the onset of the global financial crisis. The linkage with the yen hovered around 0.2 during 2001–2006 but has significantly declined since then, turning negative since mid-2007. Since 2007, there has been an increase in the linkage with the euro, although the linkage was not significant for all the periods.

The extent of linkage of the rupiah and the baht with the dollar dropped from being over unity and around 0.8 respectively in 2001 to below 0.6 in 2007, after which there was some increase in the extent of linkage. While the rupiah's linkage with the euro increased sharply between 2006 and 2008 it stayed below 0.2 in case of the baht. In both cases the relationship exhibited considerable volatility and was not always statistically significant. Moreover, in the case of the rupiah the extent of the linkage also dropped considerably since the global financial crisis, while the baht remained relatively steady. In case of both the baht and the rupiah, the coefficient on the yen increased between 2001 and 2005 but declined thereafter to be close to zero.

The Brunei dollar is linked with the Singapore dollar in a currency board arrangement and hence both these currencies exhibit similar movements against the major currencies. The Monetary Authority of Singapore targets a basket of currencies giving relatively higher weight to the US dollar. However, there has been a decline in the weight accorded to the US dollar between 2001 and 2006, after which there has been a moderate increase. On the other hand there has been a sharp increase in the linkage with the euro, which has been offset by a decline in its linkage with the yen.

The yuan was perfectly linked to the US dollar from 2001 to the middle of 2005 with the coefficient on the dollar being 1.00 prior to 2005. After the PRC government announced in July 2005 to move from a dollar peg to a currency basket peg, there was a marginal decline in the linkage with the dollar and an increase in the linkage with yen. However, this was a short-term phenomenon as soon the linkage with the dollar increased to be in excess of 0.98. Through most of the period the linkage of the yuan with the euro has been statistically insignificant. In contrast, the ringgit, which was delinked from the US dollar in July 2005, has shown a substantial reduction in linkage with the dollar. The linkage dropped below 0.8 towards end 2007, although after the global financial crisis there was an increase in the linkage till 2010. On the other hand, linkage with the euro significantly increased in 2007 and has continued to be relatively high since then. Thus Malaysia seems to have made the successful transition from a US dollar peg to a currency basket peg. While the average adjusted R^2 for the yuan was in excess of 0.98, in the case of the ringgit it was around 0.88.

The Philippine peso continued to exhibit a strong linkage with the US dollar, with the linkage varying between 0.73 and 1.01 between 2001 and 2005. This was

higher than most other Asian economies. There was an increase in its linkage with the euro in 2007 but this declined sharply during the subsequent months. Moreover, the linkage was not always statistically significant. The Philippine peso also exhibited intermittent increase in linkage with the yen. The linkage between the Indian rupee and the dollar exhibited a downtrend between 2001 and 2007. However, there was an increase in the degree of linkage prior to the collapse of Lehman Brothers and again through most of 2010. After 2007, there was an increase in the linkage with the euro, but the there was a great deal of volatility in the extent of the relationship, and it was not statistically significant across all periods. The extent of linkage between the Indian rupee and the yen has been relatively low and insignificant through most of the period.

Among the other ASEAN members, the kip, the riel, the kyat, and the dong have been largely fixed to the dollar during 2001–2011. Almost across the entire period, the euro and the yen exerted an insignificant impact on the currencies of these countries.

6.4 Institutional Arrangements to Facilitate Exchange Rate Coordination

Enhanced Trade Integration

Intricate production networks and supply chains have fostered regional integration. Intraregional trade has increased from 20 % in the 1950s to well over 50 % in 2008. Most of this trade is concentrated in intermediate products, with about 58 % of Asia's trade in parts and components being sourced from within the region. Much of this integration is focused in East Asia, with South Asia and Central Asia accounting for a small part of such trade, although South Asia's manufacturing trade has been increasing rapidly (ADB 2010).

The rise in intraregional trade has been associated with a proliferation of regional free trade agreements (FTAs). Some of these FTAs have been driven by a desire to liberalize sectors that were earlier ignored at the multilateral negotiations and are described as "WTO-plus," while others have resulted in restoration or creation of newer markets.[4] Table 6.5 highlights the number of FTAs the participating countries have engaged in. While these FTAs have a significant potential in creating trade, there is also a potential cost associated with them. The creation of a web of overlapping FTAs can lead to the "spaghetti-bowl" effect, under which the inconsistencies between agreements (such as conflicting standards, different exclusion standards, and varying tariff phase out schedules) increase the cost of doing

[4] WTO-plus refers to obligations exceeding the existing requirements of the World Trade Organization agreements.

Table 6.5 Trade agreements of participating currencies

Economy	Proposed	Framework agreement signed/under negotiation	Concluded		Total	Within region	Outside region
			Signed but not in effect	Signed and in effect			
Brunei Darussalam	4	3	0	8	15	9	6
Cambodia	2	1	0	6	9	8	1
People's Republic of China	6	6	0	12	24	11	13
India	8	12	0	13	33	13	20
Indonesia	6	5	1	7	19	12	7
Japan	6	2	1	12	21	15	6
Republic of Korea	14	7	1	8	30	14	16
Lao People's Democratic Republic	2	1	0	8	11	10	1
Malaysia	6	6	2	10	24	13	11
Singapore	4	10	3	18	35	15	20
Thailand	6	7	0	11	24	16	8
Viet Nam	5	3	0	7	15	10	5

Source: Asia Regional Integration Center Database. http://aric.adb.org/FTAbyCountryAll.php (accessed 15 January 2012)

business and welfare losses associated with trade diversion. Some of these costs can be mitigated and the benefits enhanced by increasing the width and depth of the FTAs (Kawai and Wignaraja 2009).

The rising amount of trade integration provides an opportunity to promote the use of the ACU by denominating regional crossborder trade in the ACU. This would lead to a lowering of transaction costs as well as providing a defense against sharp exchange rate volatility. With trade being denominated in the ACU, central banks can be persuaded to hold a fraction of their reserves in the ACU. Such a move will help in alleviating global imbalances.

The Chiang Mai Initiative

To ensure greater exchange rate cooperation, it is important to have a mechanism that will collectively defend participating currencies when they come under a speculative attack. The Chiang Mai Initiative (CMI) was created primarily to address this concern. The CMI is made up of two components. The ASEAN Swap Arrangement (ASA) came into being in 1977 with the ASEAN 5 countries establishing a reciprocal currency or swap arrangements.[5] The primary objective of

[5] The countries involved under the ASEAN Swap Arrangement were Indonesia, Malaysia, Philippines, Singapore, and Thailand.

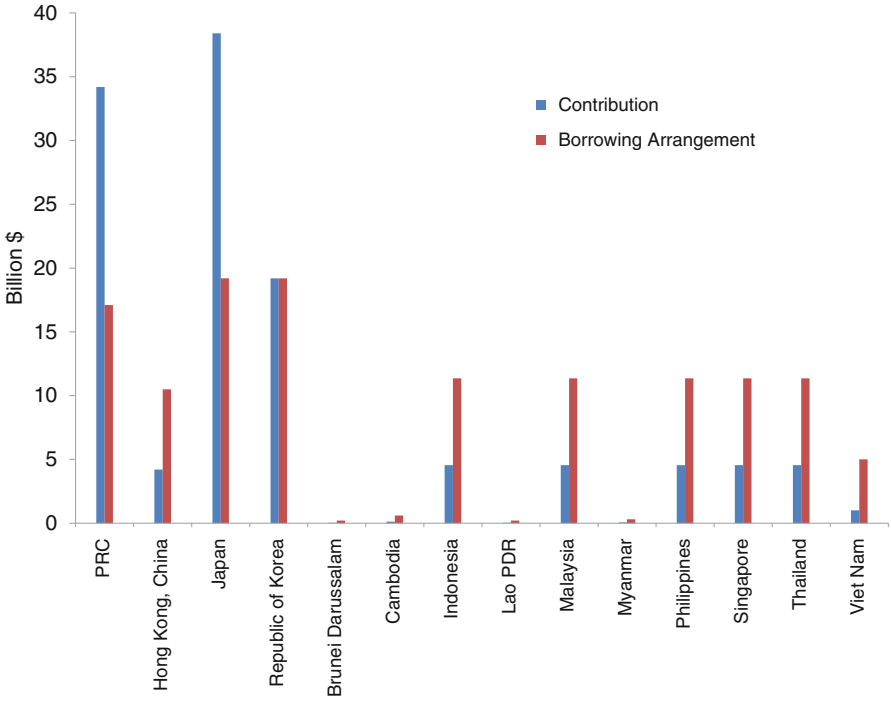

Fig. 6.7 Contribution and borrowing arrangements under the Chiang Mai Initiative Multilateralization. *PRC* People's Republic of China, *Lao PDR* Lao People's Democratic Republic. *Source*: Capannelli (2011)

this mechanism was to provide liquidity support against balance of payments difficulties. When the CMI was announced at the ASEAN+3 Finance Ministers' Meeting in 2000, the ASA was expanded to all current ASEAN members, although the swaps with the PRC, Japan, and the Republic of Korea (the +3 countries) were restricted to the original five members.

The 2008–2009 global financial crisis renewed the calls for greater Asian financial cooperation. The need for a greater amount of resource pooling and the need to transform the system of bilateral swaps into a regional pooling arrangement of collectively managed reserves was realized. Consequently, in 2010 the existing institutional mechanism was transformed into the CMI Multilateralization (CMIM). The CMIM involved a new approach to contributions by participating economies to the common pool, a new decision-making mechanism to govern the fund, and the conduct of a new regional process. In the CMIM, the "+3" economies volunteered to provide 80 % of the funds. As shown in Fig. 6.7, Japan and the PRC agreed to contribute $38.4 billion (32 %) each, with the PRC's share including $4.2 billion from Hong Kong, China. The Republic of Korea is the next largest donor with $19.2 billion (16 %). The East Asian economies of Indonesia, Singapore, Thailand, Malaysia, and the Philippines each agreed to provide $4.55 billion (3.79 %).

The CMIM has an intrinsic bias in favor of the smaller economies with the PRC and Japan being able to borrow only up to 50 % of their contribution from the fund and the Republic of Korea being able to borrow an amount equivalent to its contribution. The larger ASEAN members can borrow up to 2.5 times their contribution while the smaller economies can borrow up to 5 times.

However, despite the recent reforms of the CMIM, there are continuing concerns. The first is to do with the amount of funds available. While the amount was increased to $120 billion from around $84 billion at the end of 2010, it might still be inadequate to meet the liquidity needs of the Asian economy. Capannelli (2011) argues that during the global financial crisis, the Asian economies required about $40 billion to $60 billion in liquidity support, while under the CMIM they are eligible for less than $12 billion. Moreover, countries like the Republic of Korea and Singapore, which had access to CMIM funds, opted for bilateral support lines from the US Federal Reserve instead of activating the CMIM. Many economies also find the close link of the CMIM with the programs of the IMF contentious. Under the current financing agreement, mobilization of more than 20 % of an individual country's quota has to be reviewed by the IMF, which can apply conditionality rules linked to the program. There has been demand to increase the amount of money the participating countries can access without being subject to IMF conditionality.

If the CMIM is to prove itself as a viable alternative there is a need to expand it both in terms of resources available as well as the number of participating economies. The resource pool could be enlarged by greater commitment of resources from the existing members as well as inviting new members. The CMIM could also help in promoting the use of the ACU by denominating a certain fraction of the contributions as well as borrowing arrangements in the ACU.

ASEAN+3 Macroeconomic Research Office

Another critical requirement for economies attempting exchange rate coordination is the need for an effective regional surveillance mechanism. Such a mechanism should monitor the national policies of the participating economies and ensure that no economy follows a policy that could destabilize the region. The original regional Economic Review and Policy Dialogue (ERPD) had several inadequacies as the final reports that were brought out under it were largely inoffensive and did not identify economies following regionally destabilizing policies. The newly instituted ASEAN+3 Macroeconomic Research Office (AMRO) is expected to address some of these inadequacies. The AMRO will serve as the independent regional surveillance unit of the CMIM. It will ensure timely monitoring and analysis of the participating economies that will help in early detection of risks and swift implementation of remedial actions. During the 2008–2009 global financial crisis, one of the reasons why the CMI swaps could not be used was the absence of a surveillance unit to conduct due diligence. In the absence of such a mechanism, the economies in the region were not willing to lend to each other as a result of which the Republic of

Korea and Singapore had to rely on national reserves or trigger their swap agreements with nonregional and regional economies outside the CMI.

During normal times, the AMRO is expected to regularly consult with the member countries and prepare reports on the macroeconomic assessment of the ASEAN+3 region and individual member economies. However, during episodes of crisis, the AMRO is expected to prepare recommendations on any swap request based on its macroeconomic analysis of the requesting member. As pointed out by Kenen and Meade (2008) and Girardin (2003) a noticeable characteristic of Asian economies is the pursuit of a policy of not intervening in affairs of other economies. This needs to change as with increased integration and enhanced exchange rate coordination shocks can quickly transmit from the originating economy to the region. Kenen and Meade (2008) and Grenville (2004) suggest a mechanism whereby an independent surveillance team would review the performance of an economy and submit a report, and the member economy government would be able to respond to the submission. A healthy debate on major macroeconomic and financial sector issues impacting the reporting economy is needed for better surveillance and greater coordination.

Development of Bond Markets

As stated above, a key factor that has been identified as a driver of the 2008–2009 global financial crisis is the extent of global imbalances, that is, the pattern of large, persistent current-account deficits in the US and, to a lesser extent, in the United Kingdom and some other developed economies, matched by surpluses in emerging markets, notably the PRC. It is widely perceived that the high savings rates and rapid growth in Asian economies led to a large demand for risk free assets. This resulted in a surge of capital flowing into the US, creating an asset bubble that eventually crashed and compromised the financial sector. The primary reason why Asian savings found their way to the US was the inability of some Asian countries to create savings and investment vehicles to keep up with the rapid growth, due to immature financial markets.

The Asian Bond Markets Initiative (ABMI) and the Asian Bond Funds (ABF) were established to help the development of bond markets and strengthen domestic financial sectors to enable the recycling of Asian savings into Asian investment. The ABMI was created in 2002 and became operational in 2003. It facilitates the establishment of credit guarantee mechanisms, propagates information on bond markets, creates new securitized debt instruments, strengthens domestic credit rating agencies, and assesses the feasibility of regional foreign exchange clearing and settlement mechanisms. In 2010, the ASEAN+3 finance ministers agreed to set up a Credit Guarantee and Investment Facility (CGIF), facilitating the development of capital markets. The CGIF is expected to provide credit guarantees to local corporations to allow them to raise long-term funds by improving the conditions to issue bonds.

In the first phase, the Asian Bond Fund (ABF1) invested $1 billion in a basket of US dollar denominated bonds issued by sovereign and quasi-sovereign issuers

in EMEAP member economies, with the exception of Australia, Japan, and New Zealand. However, the fact that it could invest only in bonds denominated in US dollars meant that it was unable to resolve an insolvency crisis of an Asian bond issuer on occasions involving sharp declines in values of Asian currencies vis-à-vis the US dollar leading to the critical problem of "currency mismatch." By borrowing in dollars and investing in domestic projects like housing and irrigation, Asian countries were being asked to take risks similar to the kind they were taking prior to the 1997 crisis. Furthermore, there were issues related to maturity mismatch. The majority of the bond issuers are private and use funds for long-term investments. However, foreign lenders mostly lend in the short term, creating the possibility of their withdrawing and reducing risk exposure under adverse business conditions.

Recognizing the need to develop a local currency denominated bond market and to address the maturity and currency mismatches, the second phase of the Asian Bond Fund (ABF2) was launched in 2004. The funds available for this initiative were doubled to $2 billion. ABF2 consists of a Pan-Asian Bond Index Fund and Fund of Bond Funds. The Pan-Asian Bond Index Fund is a single-index bond fund with $1 billion and invests in sovereign and quasi-sovereign local currency-denominated bonds issued in the eight EMEAP markets. In contrast, the Fund of Bond Funds is a two-tier structure consisting of a parent fund, which in turn invests in eight country funds. These eight single market funds have a combined amount of $1 billion and each of these funds invest in sovereign and quasi-sovereign local currency-denominated bonds issued in the respective EMEAP market. The purpose of these country sub-funds is twofold. While they provide local investors with low-cost and index-driven investment vehicles, they also give regional and international investors the flexibility to invest in the Asian bond markets of their choice.

While these initiatives have helped the growth of the bond market and reduced currency and maturity mismatches there is still a need to strengthen regulatory frameworks, improve market infrastructure, and harmonize rules.

These initiatives and the objective of exchange rate coordination can mutually benefit through greater interaction. While the denomination of local bond issues under these initiatives in the ACU could foster greater exchange rate coordination, it would also significantly add to the lowering of transaction costs and exchange rate uncertainty. Banks can also provide loans and accept deposits in the regional benchmark.

Exchange Rate Coordination

As discussed above, the diversity in the exchange rate regimes of the participating currencies is one of the major reasons for lack of convergence among these currencies. To achieve increased exchange rate coordination, the historical inertia associated with the use of national currencies will have to be overcome. Moreover, economies in the region that have relied on monetary and exchange rate policies to stabilize their economies might be concerned about relinquishing these

macroeconomic tools. Thus economies will have to undertake a gradual and calibrated approach towards exchange rate coordination. A policy dialogue needs to be initiated where the participating currencies discuss the implications of currency regimes and misalignment of individual currencies on the region as a whole. The ACU can be a useful indicator to provide information on the degree of flexibility of individual currencies and the degree of misalignment.

Subsequently economies could initiate greater coordination that would involve fostering greater flexibility vis-à-vis external currencies and improved stability within participating currencies. A number of alternatives have been put forward in the literature, but they all have associated costs. Oh and Harvie (2001) propose replicating the European Monetary System's Exchange Rate Mechanism (ERM) in the region. However, given the different characteristics of the Asian economies, an ERM should be adopted in Asia but with notable differences. An ACU similar to the one created in this study can be put in place, with participating members agreeing to float their currencies within a ± 15 % band of the central parity. This kind of an arrangement will lower inter-regional volatility of both nominal and real exchange rates resulting from intraregional parity changes and result in a greater degree of co-movement of intraregional exchange rates. However, since the target is a basket of member country currencies, realignments between currencies outside the basket are not reflected in bilateral exchange rates.[6]

In an alternate arrangement, Dornbusch and Park (1999) proposed the idea of monetary cooperation among Asian economies with the yen as the anchor currency, a role performed by the Deutsche mark under the ERM. However, given that the Japanese economy has not been very robust since the early 1990s, and the rising economic stature of other economies like the PRC, the Republic of Korea, and India, it will be difficult to push this proposal. Moreover such an arrangement will entail a loss of competitiveness of Asian exports vis-à-vis other dollar blocs like the Common Market of the South (Mercosur) and the North American Free Trade Agreement (NAFTA) area if the yen appreciates against the US dollar.

Williamson (2005) suggests that the rising intraregional trade relations and a fairly diversified extraregional trade pattern among participating countries make it reasonable to consider adopting a common basket numèraire.[7] Under this

[6] For example, if the US dollar depreciates against the euro but not the yen then exports from countries pegged to the US dollar will become more competitive in the euro area compared to these Asian economies. Similarly, if the Japanese yen appreciates by 10 % against the US dollar and Japan has 50 % weight in the ACU, then other members of the ACU will witness a 5 % appreciation, which may reduce their competitiveness vis-à-vis other dollar bloc countries.

[7] This arrangement argues for the initial exclusion of Japan, as if it were included the Japan basket numèraire would exclude the yen. Given the sharp fluctuations of the yen this would imply that the other countries of the region face significant variations in their effective exchange rates even though they stabilized their rates in terms of the dollar-euro basket. Thus the arrangement calls for Japan to use as numèraire a dollar-euro basket with weights proportionate to their weights in the East Asian basket and when Japan is capable of limiting the fluctuations of the yen in terms of that basket to a reasonable magnitude, it would become a candidate for admission to the East Asian basket. It also argues the exclusion of India due to its trade pattern being significantly different from rest of the region.

arrangement, countries could adopt weights based on their trade shares. On the choice of an individual currency basket and common basket, Williamson (2005) finds evidence of reduced instability of the participating countries' effective exchange rates in the case of a common basket compared to an individual currency basket.

A major advantage of the basket numèraire is that it is consistent with a wide range of alternative exchange rate systems. It could be used across a diverse set of exchange rate regimes ranging from a narrow-margins peg (the PRC), to a greater commitment to an unchanged rate (Hong Kong, China), to an intermediate regime involving wide margins and the possibility of small changes in the central rate (Singapore), and to a managed float, provided that the economy is willing to have its intervention disciplined by its (basket) central rate. The adoption of a common basket will also minimize the threat of losing competitiveness due to changes in exchange rates of third parties. This arrangement could also allow a wide band to provide ample flexibility. Finally, the central rate could also be changed in response to balance of payments disequilibrium or other macroeconomic shocks. However, each individual change in the central rate should be small.

The ACU should continue to serve as an important indicator to monitor the divergence of the participating currencies against a regional benchmark as well as joint movement of these movements against target currencies. With economies gaining greater intraregional stability and enhanced flexibility against the extra-regional currencies, further exchange rate and monetary coordination can be possible through the "parallel currency" approach argued by Eichengreen (2006).

6.5 Conclusion

Monetary and exchange rate coordination is a long and arduous process. The great diversity among the economies in the region in terms of institutional capability and policy frameworks further obscures this process. While countries like Japan, the Republic of Korea, Singapore, and Malaysia have fostered trade and financial linkages, the PRC, which has been the focal point of trade integration, has a long way to achieve financial integration. The loss of sovereignty over some aspects of economic policymaking, especially monetary policy, is another stumbling block toward enhanced exchange rate coordination.

A move toward greater monetary and exchange rate cooperation will also require the establishment of certain regional institutions that will promote economic and financial integration. Fortuitously, some of these building blocks are already in place in the region. These include a multilateralized swap arrangement, a regional surveillance mechanism, and a bond fund investing in local currency denominated bonds. However, as pointed out above, all these institutions have inherent drawbacks that need to be addressed before they can provide the foundation of greater regional integration. While the CMIM and ABF needs to be augmented, both in terms of funds at their disposal as well as coverage of economies, the surveillance

mechanism needs to be made more effective to ensure that regionally destabilizing policies are not being pursued by individual member countries.

The monitoring of an ACU and the deviation of the participating currencies from this regional benchmark can play an important role in the regional surveillance process. The ACU could also act as a benchmark to initiate policy dialogue on greater exchange rate coordination. The analytical exercise undertaken in this study shows that there has not been a convergence among the participating currencies since 2000. This has been driven by the adoption of various exchange rate regimes by the participating economies. While the smaller members along with the PRC have maintained a close peg with the dollar, other economies such as Singapore, the Republic of Korea, and Indonesia have reduced the linkage with the dollar. It is important to reduce the divergence among the various exchange rate regimes to move towards a path of exchange rate convergence. As pointed out in Kawai (2010), the most realistic option is the adoption of a managed float regime that will stabilize intraregional exchange rate stability and at the same time provide flexibility against external currencies.

References

Asian Development Bank (ADB). (2010). *Institutions for regional integration: Toward an Asian economic community*. Manila: Asian Development Bank.

Capannelli, G. (2011). *Institutions for economic and financial integration in Asia: Trends and prospects* (ADBI Working Paper 308). Tokyo: Asian Development Bank Institute.

Dornbusch, R., & Park, Y. C. (1999). Flexibility or nominal anchors? In S. Collignon, J. Pisani-Ferry, & Y. C. Park (Eds.), *Exchange rate policies in emerging Asian countries* (pp. 3–33). London: Routledge.

Eichengreen, B. (2006). The parallel currency approach to Asian monetary integration. *American Economic Review, 96*(2), 432–436.

Eichengreen, B., & Bayoumi, T. (1999). Is Asia an optimum currency area? Can it become one? Regional, global and historical perspectives on Asian monetary relations. In S. Collignon, J. Pisani-Ferry, & Y. C. Park (Eds.), *Exchange rate policies in emerging Asian countries* (pp. 318–336). London: Routledge.

Fan, C. S., & Wei, X. (2006). The law of one price: Evidence from the transitional economy of China. *Review of Economics and Statistics, 88*(4), 682–697.

Frankel, J. A., & Rose, A. K. (1998). The endogeneity of the optimum currency area criterion. *Economic Journal, 108*, 1009–1025.

Frankel, J. A., & Wei, S.-J. (1994). Yen bloc or dollar bloc? Exchange rate policies of the East Asian economies. In T. Ito & A. Krueger (Eds.), *Macroeconomic linkages: Savings, exchange rates, and capital flows* (pp. 295–333). Chicago, US: University of Chicago Press.

Girardin, E. (2003). Information exchange, surveillance systems, and regional institutions in East Asia. In Asian Development Bank (Ed.), *Monetary and financial integration in East Asia: The way ahead* (Vol. 1, pp. 53–95). Basingstoke, UK: Palgrave McMillan.

Girardin, E., & Steinherr, A. (2008). *Regional monetary units for East Asia: Lessons from Europe* (ADBI Working Paper 116). Tokyo: Asian Development Bank Institute.

Goto, J., & Hamada, K. (1994). Economic preconditions for Asian regional integration. In T. Ito & A. O. Krueger (Eds.), *Macroeconomic linkages: Savings, exchange rates, and capital flows* (pp. 359–385). Chicago, US: University of Chicago Press.

Grenville, S. (2004). Policy dialogue in East Asia: Principles for success. In G. D. Brouwer & Y. Wang (Eds.), *Financial governance in East Asia; policy dialogue, surveillance and cooperation* (pp. 16–37). London: Routledge.

Im, K.-S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics, 115*(1), 53–74.

International Monetary Fund (IMF). (2007). Evolution of trade in emerging Asia. In *Regional economic outlook: Asia and Pacific*. Washington, DC: IMF.

International Monetary Fund (IMF). (2012). Direction of trade statistics. http://elibrary-data.imf.org/. Accessed 15 January 2012.

Kawai, M. (2010). An Asian currency unit for Asian monetary integration. In J. D. Sachs, M. Kawai, J.-W. Lee, & W. T. Woo (Eds.), *The future global reserve system—An Asian perspective*. Manila: Asian Development Bank.

Kawai, M., & Motonishi, T. (2004). Is East Asia an optimum currency area? In M. Kawai (Ed.), *Financial interdependence and exchange rate regimes in East Asia* (pp. 157–203). Tokyo: Policy Research Institute, Ministry of Finance.

Kawai, M., & Takagi, S. (2005). Towards regional monetary cooperation in East Asia: Lessons from other parts of the world. *International Journal of Finance and Economics, 10*(2), 97–116.

Kawai, M., & Wignaraja, G. (2009). *The Asian "noodle bowl": Is it serious for business?* (ADBI Working Paper 136). Tokyo: Asian Development Bank Institute.

Kenen, P. B., & Meade, E. E. (2008). *Regional monetary integration*. Cambridge, UK: Cambridge University Press.

Kuroda, H., & Kawai, M. (2002). *Strengthening regional financial cooperation in East Asia*. Pacific Economic Papers No. 332. Canberra: Australian National University.

Levin, A., Lin, C.-F., & Chu, C.-S. J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics, 108*(1), 1–24.

Levy-Yeyati, E., & Sturzenegger, F. (2005). Classifying exchange rate regimes: Deeds vs. words. *European Economic Review, 49*(6), 1603–1635.

Mundell, R. A. (1961). A theory of optimum currency area. *American Economic Review, 51*(4), 509–617.

Ogawa, E., & Shimizu, J. (2005). *A deviation measurement for coordinated exchange rate policies in East Asia*. RIETI Discussion Paper Series 05-E-017.

Ogawa, E., & Shimizu, J. (2007). *Progress toward a common currency basket system in East Asia*. RIETI Discussion Paper Series 06-E-038.

Ogawa, E., & Yoshimi, T. (2008). *Widening deviation among East Asian currencies*. RIETI Discussion Paper Series 08-E-010.

Oh, J., & Harvie, C. (2001). Exchange rate coordination in East Asia. *Journal of Korean Economy, 2*(2), 249–296.

Reinhart, C. M., & Rogoff, K. S. (2004). The modern history of exchange rate arrangements: A reinterpretation. *The Quarterly Journal of Economics, 119*, 1–48.

Williamson, J. (2005). *A currency basket for East Asia, not just China*. Policy Briefs in International Economics No. PB05-1. Washington, DC: Institute for International Economics.

Wyplosz, C. (2010). An Asian monetary unit. In J. D. Sachs, M. Kawai, J.-W. Lee, & W. T. Woo (Eds.), *The future global reserve system—An Asian perspective* (pp. 16–17). Manila: Asian Development Bank.

Part IV
Regional Financial Cooperation

Chapter 7
Europe's Crisis, Coordination Failure, and International Effects

Stefan Collignon

Abstract This chapter gives an overview of the causes of the European crisis and the consequences for external relations. The euro crisis was triggered by a policy shock in Greece, but occurred on the background of a financial system that had been destabilized by the global financial crisis earlier. Two alternative models are frequently used to explain the crisis: irresponsible fiscal policies by autonomous member states and financial instability that paralyzes the banking system. The chapter finds little evidence for excessive public borrowing and unsustainable public debt. By contrast, the financial crisis in 2008–2009 after the Lehman Brothers' bankruptcy has weakened the balance sheets of banks and the new sovereign debt shock has re-enforced liquidity concerns. Collective action problems and political mishandling by member states have further increased uncertainty, which has spilled over into the real economy. The loss of confidence in European capacity to handle the crisis has contributed to a tendency for the euro to become weaker. Thus, Europe's debt crisis is in reality a political crisis. Either Europe will move forward and deepen its political integration, or it will disappear as a global player and sink into irrelevance.

Keywords Debt crisis • Financial crisis • Financial integration • Financial safety net • Fiscal union

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_7,

7.1 Introduction

After the Lehman Brothers' bankruptcy in 2008 and the ensuing global financial crisis, the euro crisis began as a local policy shock in Greece when newly elected Prime Minister Papandreou revealed in 2009 that his predecessor had violated the fiscal rules under Europe's Stability and Growth Pact. Due to severe coordination failures and policy mistakes, the Greek problem subsequently developed into a full-blown crisis of the euro that on several occasions threatened the survival of the European currency. Only in 2012 when the president of the European Central Bank (ECB) Mario Draghi declared that the ECB will do "whatever it takes to preserve the euro as a stable currency" and then set up the outright monetary transactions (OMT) program under which the ECB would buy bonds of distressed member states provided they accept serious adjustment programs, did stability return to financial markets (Collignon 2012b). Yet, the real economy keeps stagnating with high unemployment and social turmoil. Fundamental problems of Europe's economic governance remain unsolved.

One of the paradoxes of the euro crisis is that, despite its difficulties, the currency has remained relatively firm in its internal (inflation) and external value (exchange rate). Financial markets may be concerned with some parts of the euro area, mainly in the south (Greece, Cyprus, Italy, Spain, Portugal, and Ireland), but as long as they have no reasons to doubt the political commitment to continue it, the fundamentals behind the exchange rate seem to be stable. However, in the medium to long run the euro will only maintain this role as a global currency if the euro area returns to a reasonable rate of growth. Whatever the ultimate conclusion of the drama, the crisis has shown that Europe needs a much tighter form of economic governance if it wants to live up to the ambition of providing the world's alternative reserve currency. While a series of events has progressively deepened the European crisis, it is important to distinguish between sudden shocks—some economic, some political—and underlying structural problems in Europe's economic governance.

The interactions between shocks and structures have been the specific flavor of this crisis. Remarkable changes have been made to the architecture of the euro area since 2008 (Collignon 2013b). The most important reforms are:

- Setting up the "European semester" of integrated multilateral economic and budgetary surveillance.
- Reforming the Stability and Growth Pact (as part of the "six-pack" set of legislation).
- Setting up a stabilization mechanism consisting of the European Financial Stabilization Mechanism (EFSM), the European Financial Stability Facility (EFSF), both of which were supplanted by a permanent rescue mechanism for member states—the European Stability Mechanism (ESM).
- Introducing a new procedure for macroeconomic surveillance, the Macroeconomic Imbalance Procedure (as part of the "six-pack" set of legislation).
- Introducing two regulations to enhance economic surveillance, coordination, integration, and convergence amongst member states (two-pack).

- Establishing the Treaty for Stability, Coordination, and Governance and the Euro Plus Pact to strengthen budgetary discipline and economic governance among 25 member states.

These reforms were done in an *ad hoc* manner rather than by design. Some may be useful, some harmful, but they are making Europe's economic architecture more complex. They were largely driven by the underlying political analysis of the crisis.

Two explanations for the European crisis are predominant. To "fundamentalists" it was caused by excessive public and private debt and the lack of discipline in sticking to the principles of "a sound and competitive macroeconomic base and solid public finance" (Weidmann 2011). While some observers, many in Germany, have seen the remedy in the implementation of "painful reforms" and harsh fiscal consolidation necessary to rebuild trust and confidence in financial markets, others have emphasized macroeconomic imbalances between member states. In line with this thinking, the European Commission and the European Parliament have set up new European laws to "avoid excessive macroeconomic imbalances."[1] This new set of legislation has been an important step forward in the macroeconomic management of the euro area, but it has not helped to overcome the crisis. To "monetarists," on the other side, the European debt crisis is a liquidity crisis. According to their explanation, a small local liquidity shock can cause a sudden deterioration in a specific class of asset values, which may translate into a global systemic financial crisis. The need for liquidity spills over to banks that will get distressed because the deteriorating asset prices put their balance sheets into difficulties and reduce bank capital (Chacko et al. 2011). This is what happened after the Lehman Brothers' collapse and was then aggravated by the Greek shock. If this is correct, a crisis must be stopped by a lender of last resort that provides the necessary liquidity and stops the crisis from turning into a default avalanche.

These two views resemble the debate in the 1980s regarding the preconditions of monetary union. The economists, as the precursors of today's fundamentalists were then called, claimed that a monetary union was only possible between similar economies, while the monetarists argued that convergence would follow from the new institutions. At that time the conflict was overcome by the Delors Committee that proposed the creation of an independent centralized monetary institution, the ECB, and defined so-called convergence criteria that needed to be met in order to participate in the currency union. This proposal was subsequently enshrined in the Maastricht Treaty (Collignon and Schwarzer 2003). The solution of Europe's debt crisis requires a similar policy compromise between long-term fiscal consolidation objectives and short-term liquidity management. However, a coherent policy approach to Europe's macroeconomic policy mix is unlikely without a proper European economic government.

From a fundamentalist view, Europe's fiscal framework—the Stability and Growth Pact (SGP)—has failed to provide the fiscal discipline required to ensure

[1] The legislation was called Six-Pack. (European Commission. EU response to the crisis. http://ec.europa.eu/economy_finance/focuson/crisis/index_en.htm.)

financial stability. For this reason, 25 member states have concluded the Treaty for Stability, Coordination and Governance (the so-called Euro Plus Pact), by which they have committed to introduce a "debt brake" into their national constitutions to strengthen budgetary discipline. They have also agreed on new procedures for fiscal coordination during the so-called European Semester[2] and tighter surveillance by the European Commission.

However, in some member states, most notably in Ireland and Spain, the crisis was driven by private debt generated during an unsustainable property bubble. Excessive private borrowing was financed by current account surpluses in the north, most importantly in Germany. When the bubble burst, governments had to bail out local banks and this also caused an explosion of public debt. As a consequence, fundamentalists argued that, even in a monetary union, national current accounts must be balanced, and the new Macroeconomic Imbalance Procedure[3] served this purpose. Again, these policies can be questioned on theoretical and empirical grounds. Within a monetary union, current account deficits are financed by monetary flows in domestic currencies that are facilitated by the banking system, and not by foreign currency transfers that require earning foreign exchange. Balancing current accounts by imposing severe austerity increased the risks of debt default and further destabilized the banking system in the euro area as a whole. In recent years, current account deficits have fallen in the south because austerity has reduced import demand, but this is not the solution to economic instability in the euro area.

Nevertheless, despite the institutional fragility, the euro crisis started as a genuine liquidity crisis that pushed the banking system to the brink. Trouble began in 2008 when the Lehman Brothers' collapse caused a banking crisis and plunged the world into a deep recession. As a consequence of the resulting output and revenue losses, concerns about the debt position of member states in the euro area arose, but a second shock made things worse in 2009 when European policymakers discovered that the Greek government had violated the rules of the SGP for years. This disclosure immediately destabilized financial markets. The situation worsened further when the German government refused bailout packages, and talked about expelling Greece from the euro area. Risk-averse markets became reluctant to hold bonds from Greece, Ireland, and Portugal and soon bond yields shot up for Spain, and later for Italy and France as well.

[2] The European Semester represents a yearly cycle of European Union (EU) economic policy guidance and country-specific surveillance. Each year the European Commission undertakes a detailed analysis of EU member states' programs of economic and structural reforms and provides them with recommendations for the next 12–18 months. (The European Semester. http://ec.europa.eu/economy_finance/economic_governance/the_european_semester/index_en.htm.)

[3] The Macroeconomic Imbalance Procedure is a surveillance mechanism that aims to identify potential risks early on, prevent the emergence of harmful macroeconomic imbalances, and correct the imbalances that are already in place. (Macroeconomic Imbalance Procedure. http://ec.europa.eu/economy_finance/economic_governance/macroeconomic_imbalance_procedure/index_en.htm.)

These developments reflected a lack of trust in the European Union's (EU) institutional and political capacity to handle the crisis.

In May 2010 the crisis had attained systemic proportions. The European Council was forced to create the European Financial Stability Facility (EFSF) by which euro member states provided a mainly credit-funded facility to lend to small countries that had lost access to capital markets.[4] For financial markets the EFSF offered too little too late. When financial crisis contagion spilled over into large member states, especially into Italy, it became obvious that the original EFSF bailout fund was insufficient and the European Council had to increase the fund's resources from the initial amount of €440 billion to €780 billion in July 2011. Yet again, this was not enough. Given that Italy had to refinance approximately €350 billion in 2012 and there were large liquidity risks for lenders, the European Council in October 2011 agreed to leverage the EFSF up to €1 trillion, although by mid-November it became clear that this had failed again to calm the markets. At that point, the prime ministers of Italy and Greece, Berlusconi and Papandreou, resigned, and the European Central Bank recurred to unconventional monetary policies by conducting long-term refinancing operations amounting to nearly €1 trillion with a maturity of 36 months (ECB 2011). Thereafter, a temporary reprieve was gained until markets again started to doubt the political commitment to sustain the euro.

No doubt, fundamental factors played a role too. Highly indebted member states faced important structural problems. Contrary to the situation in Germany, their governments had not undertaken structural reforms during the years of the euro area boom.[5] One problem was that, as a consequence of falling and low interest rates in the 1990s and early 2000s, the capital productivity in southern member states had started to slow down. This caused them to lose competitive advantages and they became more vulnerable to large shocks. These structural handicaps did require—and still do require—deep reforms, although it will take time before tangible results are visible. In the meantime, governments could either finance deficits until the reforms have improved economic performance, or they could implement austerity measures that would reduce demand. Fundamentalists were critical of the first option because it carried the risk of excessive deficits and unsustainable debt. Monetarists criticized the second option, because it could bring the reform process to a halt, when excessive austerity was becoming socially unsustainable. The EU tried to steer a middle path. To accommodate the fundamentalists, the ECB liquidity-providing measures were subject to severe conditions of fiscal consolidation in borrowing countries. Yet, the severe budget consolidation programs did not bring down public debt. In Greece, economic growth has consistently been negative

[4] In October 2012, this temporary facility was transformed into a permanent European Stabilization Mechanism (ESM). The ESM issues debt instruments in order to finance loans and other forms of financial assistance to euro area member states. (European Stabilization Mechanism. http://www.esm.europa.eu/index.htm.)

[5] There are doubts whether governments will ever undertake structural reforms without crises. German reforms of the labor market were certainly a response to the decade of economic stagnation that followed unification.

and the deficit stabilized in 2011 at rates close to 6 % of gross domestic product (GDP), although Greece is expected to achieve primary balance in 2013 (European Commission 2013). The ratio of public debt to GDP in 2012 was 156.9 %, down from 170.3 % in 2011, a reduction mainly driven by the debt buy back completed on 11 December 2012. Nevertheless, large deficits persist everywhere, because the lack of domestic demand in the highly indebted countries is reducing revenue and low growth is undermining the confidence of financial markets. Monetarists have therefore argued that there was an increasing need for bailing out member states that had lost access to capital markets. But this was also problematic, as a general bailout commitment could have generated moral hazard, while the volumes of financial bailouts were becoming increasingly more awesome. While the EU could bail out Greece, for larger member states like Italy this is impossible. Thus, the uncertainty about policy commitments by member state governments has fuelled high volatility in European financial markets. By mid-2012, there was a real danger that the euro area could fall apart. At that point, ECB President Mario Draghi did what governments had failed to do by creating the outright monetary transaction (OMT) program. Financial markets were appeased and since then the euro crisis has abated.

The diverging opinions about policy options may be normal in a pluralist society, but in Europe they create fault lines between member states. There is no doubt that the fragility of Europe's governance structures has at least contributed to, if not been the cause, of the euro crisis. The system seemed to have worked well during the benign first decade of the European Monetary Unit (EMU), but it seems it was no longer able to cope with the policy requirements in the crisis.

7.2 Economic Fragility of the Euro Area

Market Worries and Liquidity

When the Maastricht Treaty was established, it centralized monetary policy in a new institution, the ECB; fiscal policy remained decentralized with member states retaining control over their budgets. Nevertheless, the treaty[6] set up a loose policy framework for avoiding excessive deficits. A surveillance procedure was set up where the European Commission would check that budget deficits of member states would remain below 3 % of GDP and debt would not stay persistently above 60 %. The excessive deficit procedure (EDP) in the European Treaties was operationalized in the SGP through European secondary legislation by setting up "preventive" and "corrective" arms that assure member states avoid excessive

[6] Initially the Maastricht Treaty, now the Treaty on the Functioning of the European Union (TFEU), article 126.

deficits, and, if they arise, they adopt appropriate policy responses to them.[7] If a member state violated these criteria, the European Council could impose penalties, although this has never happened.

The Treaty on the Functioning of the European Union (TFEU) (or Lisbon Treaty) article 125 was interpreted as stipulating that national governments ought not to be bailed out by other member states or the EU, so that markets had to shoulder the full risk of a default and carefully assess the creditworthiness of borrowers. It was believed that yield spreads would reflect differences in credit standings, because the SGP and the European fiscal framework were insufficient to ensure that all member states have the same creditworthiness. Yield differentials would then signal market perceptions of fiscal vulnerability and, since higher bond yields imply higher debt service costs, they would impose market discipline on national governments' fiscal policies. The impact of even small differentials could be substantial in countries like Greece, Italy, and Belgium, where debt exceeded GDP, and even a tenth of a percent spread (ten basis points) increases government outlays by more than 0.1 % of GDP (Codogno et al. 2003).

However, it is now clear that this mechanism has failed. Markets first underpriced the default risk with only about 20 basis points above German debt, and then overshot after the Greek elections revealed the breakdown of the SGP. Figure 7.1 shows that before the crisis in 2008–2009, government bonds of all member states in the EU traded at similar returns as those in Germany. Yields increased moderately after the Lehman Brothers' collapse, but quickly came down again. The game changed in 2009 with the Greek shock that raised questions about how sustainable the Greek debt actually was. Yield spreads shot up and soon risk considerations spilled over to other southern debtors.

Clearly, markets became weary about sovereign defaults. This is also evident from the prices for credit default swaps, an insurance premium that is paid to protect against defaults (Fig. 7.2). The price of credit default swaps rose everywhere after the Lehman Brothers' crash, and then fell again in 2009. But the default risk reflected in credit default swaps increased steadily in all euro area member states after the election of Greek Prime Minister Papandreou in late 2009. However, the risk assessment clearly diverged between states. In Germany the price for credit default swaps did not reach $200, while in Greece it climbed to $4,617 in Greece on 16 September 2011. Even in Japan, where the debt to GDP ratio is 220 %, credit default swaps never cost more than in France. The creation of the EFSF in May 2010 provided temporary relief, although market confidence deteriorated further soon after. The increase of funds in July 2011 also had only a very short-term effect. However, there is not an obvious correlation between debt or deficit ratios and yield spreads. Spreads have increased for governments with high (Greece and Italy) and low (Spain and Ireland) debt *levels*; they have remained low in member states with

[7] The Stability and Growth Pact is secondary legislation in the form of two Council Regulations (EC Council Regulation 1466/97 and 1467/97). The Council Regulations were amended by the reform of the SGP in 2005 (EC Council Regulations 1055/2005 and 1056/2005).

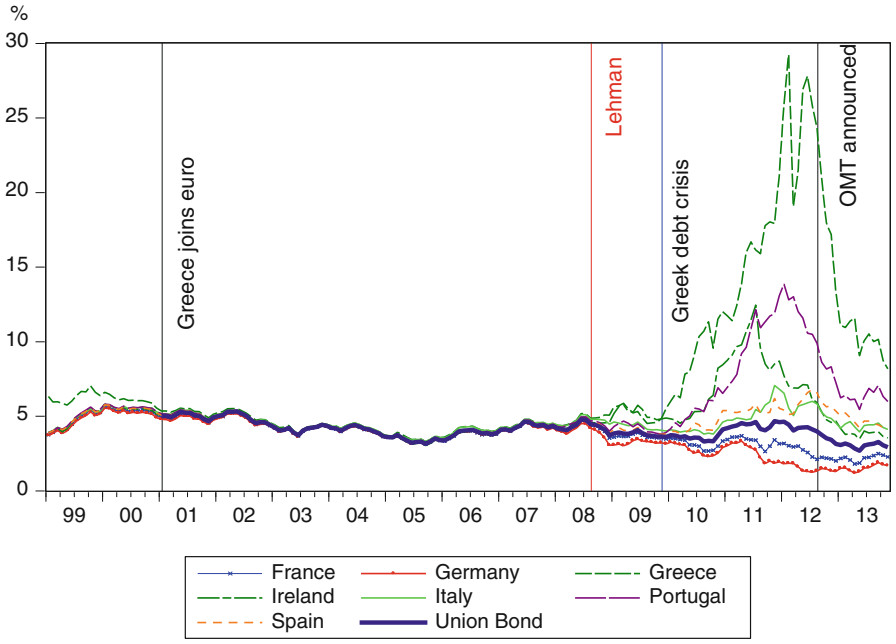

Fig. 7.1 10-year government bond yields. *Note*: Union Bonds are the weighted average of all euro area yields (see below). *OMT* outright monetary transactions. *Source*: Bloomberg. www.bloomberg.com (accessed January 2014)

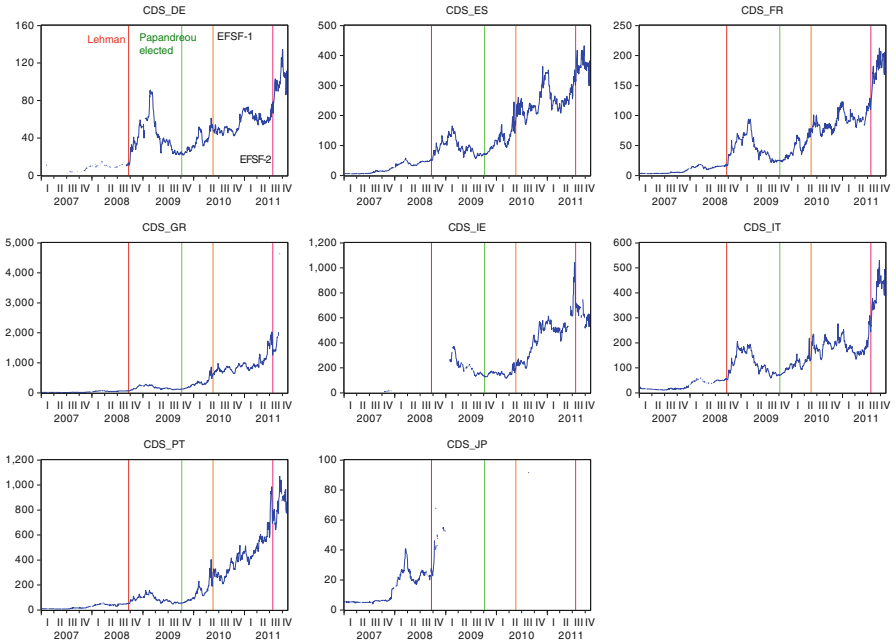

Fig. 7.2 Prices for credit default swaps. *CDS* credit default swap, *DE* Germany, *ES* Spain, *FR* France, *GR* Greece, *IE* Ireland, *IT* Italy, *JP* Japan, *PT* Portugal. *Source*: Bloomberg. www.bloomberg.com (accessed February 2012)

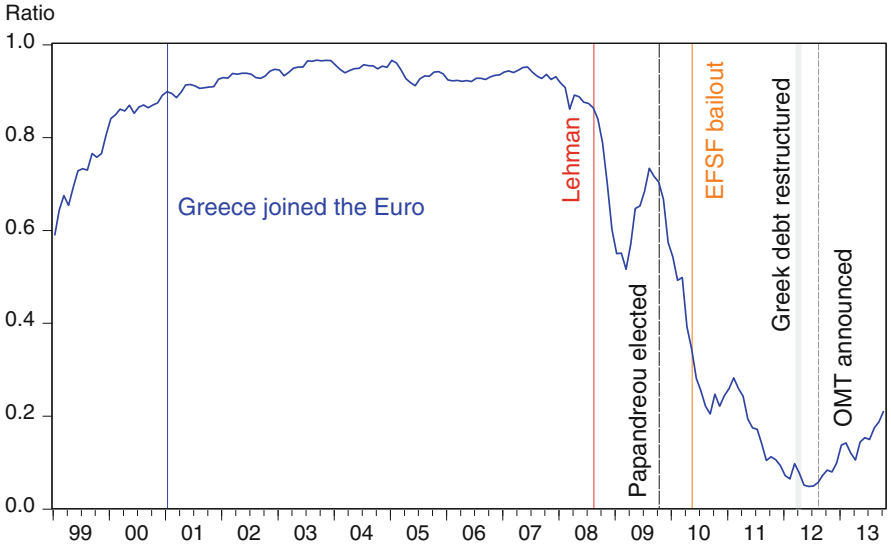

Fig. 7.3 Greek 10-year government bond prices relative to German bund. *EFSF* European Financial Stability Facility, *OMT* outright monetary transactions. *Source*: Bloomberg. www.bloomberg.com (accessed January 2014); author's calculations

relatively high *deficits* (Germany and France), but also risen in member states with low deficits (Italy). This is puzzling, for it looks as if neither the level nor the dynamics of the debt ratio can explain why markets were nervous. This must mean that economic fundamentals were only one of many reasons for the European crisis. The other reason was the liquidity shock, which was enlarged by the political mishandling of the crisis.

The explosion of yield spreads was a consequence of a market run which reflected the expected rising probability of a sovereign default. Bondholders sought to realize liquidity before prices fell further. The herding effect in markets then generated a self-fulfilling prophecy. Figure 7.3 shows the deterioration of Greek bond prices relative to German bond prices implicit in the yield spread. From 2002 to 2007, yields on 10-year government bonds in Greece and Germany were stable and nearly identical. After Papandreou's revelation of the true deficit, Greek bond prices fell, and Germany became the safe reserve asset, which pushed German bond prices up and yields down. Thus, the relative price of Greek bonds fell to an absolute low of 5 % of German bonds, before the Greek debt was restructured in March–April 2012. Prices started to improve thereafter, and especially after the ECB announcement of the OMT program. Such price developments must have caused a massive reallocation of resources and potentially important distortions in banks' balance sheets. To prevent a further collapse of asset prices, and then of banks, European governments or the ECB had to bail out Greece, and later Ireland and Portugal. Having first argued wrongly that the Lisbon Treaty prohibited

sovereign bailouts, policymakers now discovered correctly that the wording of the TFEU article 125 only barred the "assumption" of debt, but did not prevent the EU from making loans.[8] This new interpretation made it possible to set up the EFSF and establish the ESM although bailouts undertaken under these programs were conditional on very strict and harsh austerity measures.

European Debt in Context

Markets feared that sovereign debtors in Greece and elsewhere would default, because their debt levels were possibly unsustainable. This raises the question how much debt is sustainable and where the danger zone begins. According to the standard fundamentalist argument, distressed southern European member states in the euro area got into trouble because they had accumulated excessive debt by irresponsible behavior. Hence, accelerated fiscal consolidation and harsh austerity measures were needed to bring affairs back in order. Sometimes it was added that the debt problems were generated by lack of competitiveness and current account imbalances that required painful macroeconomic adjustment. However, the evidence supporting these arguments is not clear-cut.

Figure 7.4 shows the evolution of debt to GDP ratios for the euro area as a whole and for the United States (US) and Japan. In Europe, government debt fell from 74 % in 1996 to 67 % in 2007; since then it has jumped to 89 %. In the US it fell during the Clinton years (1992–2000) from 77 % to 55 %, and then rose again under Bush (2000–2007) to reach 85 %. However, following the 2008–2009 global financial crisis, the US debt ratio climbed to 99 %. This is still far below the Japanese debt ratio, which stood at 67 % in 1991 and is now 220 %. The relative importance of public debt in absolute terms is clear from Table 7.1, which also shows the share of euro area member states in the total outstanding public debt of €9 trillion. Japan carries a debt stock of nearly the same size, but in the US it is €13.2 trillion, more than 45 % higher. Public debt per person is lower in Europe (with the exception of Ireland) than in the US and Japan. However, with respect to deficits, the situation is different. In 2013, the euro area borrowed €290.9 billion, while the US deficit was 2.8 times as much and Japan's deficit 23 % higher.

[8] TFEU, article 125.1 says: "The Union shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project." Hence, the prohibition concerns assuming liabilities by another state, which means one country's liability becomes another country's liability. By contrast, making loans increases liabilities for the borrower and generates assets for the lender. The argument that the EFSF breaks the treaty provision of "no bailout" confuses assets and liabilities. The Maastricht Treaty prohibits, rightly or wrongly, a "federalization" of member state debt of the kind that took place in the United States in 1792, when Alexander Hamilton assumed state debt by the federal government in order to stabilize financial markets, but it does not prevent governments from making loans to other governments.

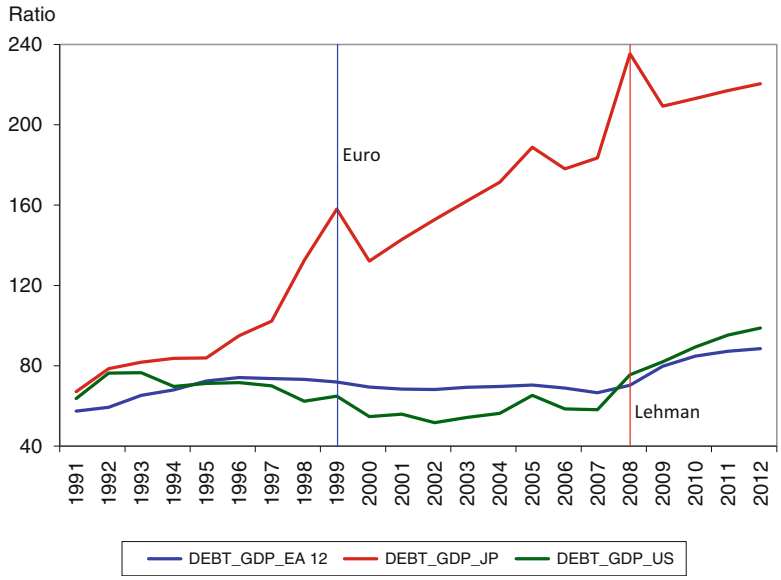

Fig. 7.4 Debt to GDP ratios. *EA* euro area, *GDP* gross domestic product, *JP* Japan, *US* United States. *Source*: Eurostat. http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (accessed December 2013)

Thus, the euro area's overall debt performance should be more sustainable than in the US or in Japan.

However, Europe's problems do not emerge from the aggregate, but from particular member states. Given the different size of member states, the relative weight of debtors is unequally distributed. Germany is Europe's biggest sovereign debtor with €2.1 trillion in outstanding debt and a share of 24.0 %, followed by Italy (22.8 %) and France (21.3 %). Greece's public debt of €322 billion represents only 3.5 % of total debt in the euro area (Table 7.1). With respect to new borrowing, France exceeds all others, followed by Spain and Italy; while Germany's net borrowing has nearly stopped. The annual deficit for 2013 was estimated to be €85.8 billion in France, nearly twice as much as Italy. Greece was still borrowing €24.8 billion, which represented a share in new borrowing well above its share in the outstanding debt stock. This was also true for Spain, Ireland, and Portugal. Among the non-euro member states, the United Kingdom (UK) borrowed far more than any other euro member, with €120.1 billion, which amounts to 41 % of the euro area's new borrowing.

Table 7.1 also shows the changes of the debt ratio since 2007. Debt levels have increased everywhere, but least in Sweden and Bulgaria. The highest increases relative to initial levels have been, not surprisingly, in Ireland, Spain, Portugal and Greece (where debt was restructured). Yet, debt has increased in relative terms at least as much in the non-euro countries of Romania, Lithuania, Latvia, and the

Table 7.1 Public debt and deficits of euro area member states and other countries

	Debt in 2013 € billion	Country share (%)	Debt per head € thousands	Debt to GDP level in 2007	Absolute change 2007–2013	Relative change *2007*–2013 (%)	Deficit in 2013 € billion	Country share (%)
Euro area 12	9086.7	100.0	28.2	66.6	*29.7*	*44.5*	−290.9	100.0
Germany	2177.7	24.0	26.5	64.9	*14.7*	*22.6*	−1.0	0.3
Italy	2073.1	22.8	34.7	103.6	*29.4*	*28.4*	−44.3	15.2
France	1932	21.3	29.4	63.8	*29.7*	*46.5*	−85.8	29.5
Spain	966.6	10.6	21.0	36.1	*58.7*	*162.5*	−69.1	23.8
Netherlands	451.3	5.0	26.9	45.3	*29.5*	*65.2*	−19.8	6.8
Belgium	385.7	4.2	34.4	84.2	*16.2*	*19.3*	−11.1	3.8
Greece	322.2	3.5	28.5	105	*71.2*	*67.8*	−24.8	8.5
Austria	235.4	2.6	27.7	59.3	*15.5*	*26.2*	−7.8	2.7
Ireland	206	2.3	44.5	25	*99.4*	*397.5*	−11.9	4.1
Portugal	211.3	2.3	20.2	62.7	*65.1*	*103.9*	−9.8	3.4
Finland	114.3	1.3	21.0	35.2	*23.2*	*65.9*	−5.1	1.8
Slovakia	39.56	0.4	7.3	29.6	*24.7*	*83.6*	−2.2	0.8
Slovenia	22.08	0.2	10.7	23.4	*39.8*	*169.9*	−2.0	0.7
Cyprus	18.87	0.2	21.6	58.3	*57.7*	*99.0*	−1.3	0.5
Malta	5.16	0.1	12.2	61.7	*10.9*	*17.6*	−0.2	0.1
Estonia	1.846	0.0	1.4	3.7	*6.3*	*169.8*	−0.1	0.0

		relative to EA						*relative to EA*
United Kingdom	1779.6	19.6	27.8	44.5	*49.8*	*111.9*	−120.1	41.3
Poland	226.1	2.5	5.9	45.0	*13.2*	*29.3*	−18.8	6.5
Sweden	174.3	1.9	18.1	40.0	*1.3*	*3.3*	−4.5	1.6
Denmark	110.1	1.2	19.7	27.3	*17.0*	*62.2*	−4.7	1.6
Hungary	79.15	0.9	8.0	66.1	*14.6*	*22.1*	−3.1	1.1
Czech Republic	73.49	0.8	7.0	29.0	*20.0*	*69.1*	−4.3	1.5
Romania	54.56	0.6	2.6	12.6	*25.9*	*205.9*	−3.5	1.2
Lithuania	13.85	0.2	4.7	16.9	*23.0*	*136.2*	−1.0	0.4
Latvia	9.9	0.1	4.9	9.0	*33.5*	*371.7*	−0.3	0.1
Bulgaria	7.97	0.1	1.1	17.2	*2.2*	*13.0*	−0.8	0.3
United States	13201.9	145.3	41.8	62.4	*42.3*	*67.8*	−806.4	277.2
Japan	9151.4	100.7	71.8	187.7	*55.7*	*29.7*	−359.5	123.6

EA euro area, *GDP* gross domestic product. Crisis countries shown in bold
Sources: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm; ECB for member state shares in ECB capital. http://www.ecb.europa.eu/ecb/orga/capital/html/index.en.html (accessed December 2013)

United Kingdom (UK).[9] Within the euro area, Malta, Belgium, and Germany had the lowest debt increases. On average, performance is worse outside the euro area, which could indicate that the fiscal rules in the euro area have effectively constrained public borrowing.[10]

Figure 7.5 shows the evolution of debt ratios over time for selected member states. Their performance is very diverse. Prior to the Lehman Brothers' crisis in 2008, debt ratios had fallen in Ireland, Spain, and Italy, remained stagnant in Greece and the UK, but had risen in Germany, France, and Portugal, as well as in the US. Greece and Italy had debt levels close to 100 % of GDP and only Ireland, Spain, and the UK had remained well below the required 60 %. However, the shock of the global financial crisis pushed debt up everywhere, although it affected member states unevenly.

These data do not show any significant correlation between the debt levels or their changes and the financial vulnerability revealed by the yield spreads on government bonds in Fig. 7.1. Financial markets seem to have criteria for evaluation, which are different from fundamentals, and this is why political action is required to remove distortions and market failure.[11] To prevent market failure from turning into a systemic run, authorities must provide liquidity to markets. However, European governments keep bickering and are drawn into collective action dilemmas, where the attempt to minimize national costs leads to a suboptimal outcome for all.

Economic Fundamentals and European Public Debt

Europe's debt problems occurred on the basis of long run structural deficits that were not corrected during the benign first decade of the EMU, despite the imperatives of the SGP. They turned into an acute confidence crisis when the global recession caused a major liquidity shock after Lehman Brothers collapsed. This recession reduced revenue for all governments,[12] and pushed up debt. The importance of the 2008–2009 global financial crisis is often underestimated for the euro debt crisis because fundamentalists blame the lack of discipline

[9] Latvia joined the euro area on 1 January 2014.

[10] This statement is also supported by regressing the deficit share on the debt share, which yields a coefficient of 0.8789 for the euro area and 1.161 for non-euro states.

[11] Some observers believe in market perfection and argue that sustainable debt is whatever markets believe it to be. This rejoins the Keynesian hypothesis of a beauty contest, where newspaper readers are asked to vote for whom they think will win the competition. But this implies that there is no stability in public debt dynamics and markets would behave irrationally. While psychological factors and herding may explain temporary deviations from equilibrium, government intervention can prevent a systemic breakdown and return market sentiment to a more stable path.

[12] The income elasticity of government revenue relative to GDP is close to 1 (European Commission 2011b).

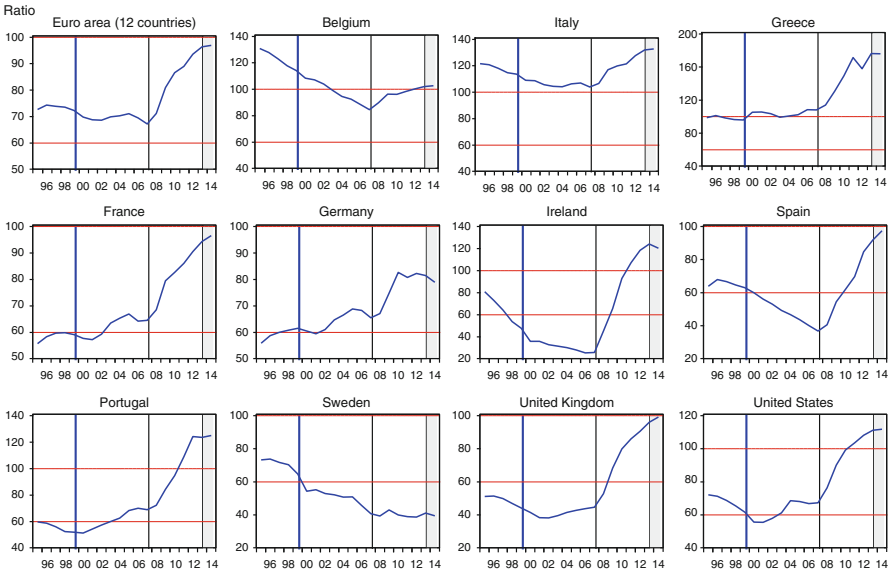

Fig. 7.5 Debt to GDP ratio for EU member states and United States. *EU* European union; *GDP* gross domestic product. *Source*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed May 2013)

in fiscal behavior. Although it cannot be ignored that mistaken policies have contributed to the crisis, using debt or deficit ratios can give misleading evidence.[13] In order to enable comparisons between member states, the analysis of public finances usually refers to debt and deficit ratios relative to GDP. However, if government revenue is a stable proportion of GDP, but expenditure is exogenous, a drop in GDP will appear as an increase in the spending ratio, while the revenue effect is underestimated. The policy conclusion is that spending must be reduced, and this will slow down growth and public revenue. Because the drop in GDP distorts the ratio, it is more appropriate for assessing the crisis effect to look at absolute amounts of expenditure, revenue, and deficits.

Greece is the paradigmatic example. Figure 7.6 shows expenditure, revenue, and deficits. The deficit had already started to deteriorate after 2007, when the GDP growth rate had slowed down; it exploded after the Lehman Brothers' crash when GDP growth became negative. Expenditure increased at a linear trend until the last quarter of 2009, when Prime Minister Papandreou took over, but revenue fell as GDP shrank. Under pressure from European authorities to return to the SGP criteria, public expenditure was cut and this had the effect of reducing the need

[13] The European Commission's reformed surveillance method of the SGP makes the same mistake in that it calculates the expenditure benchmark for avoiding excessive deficits with reference to GDP growth.

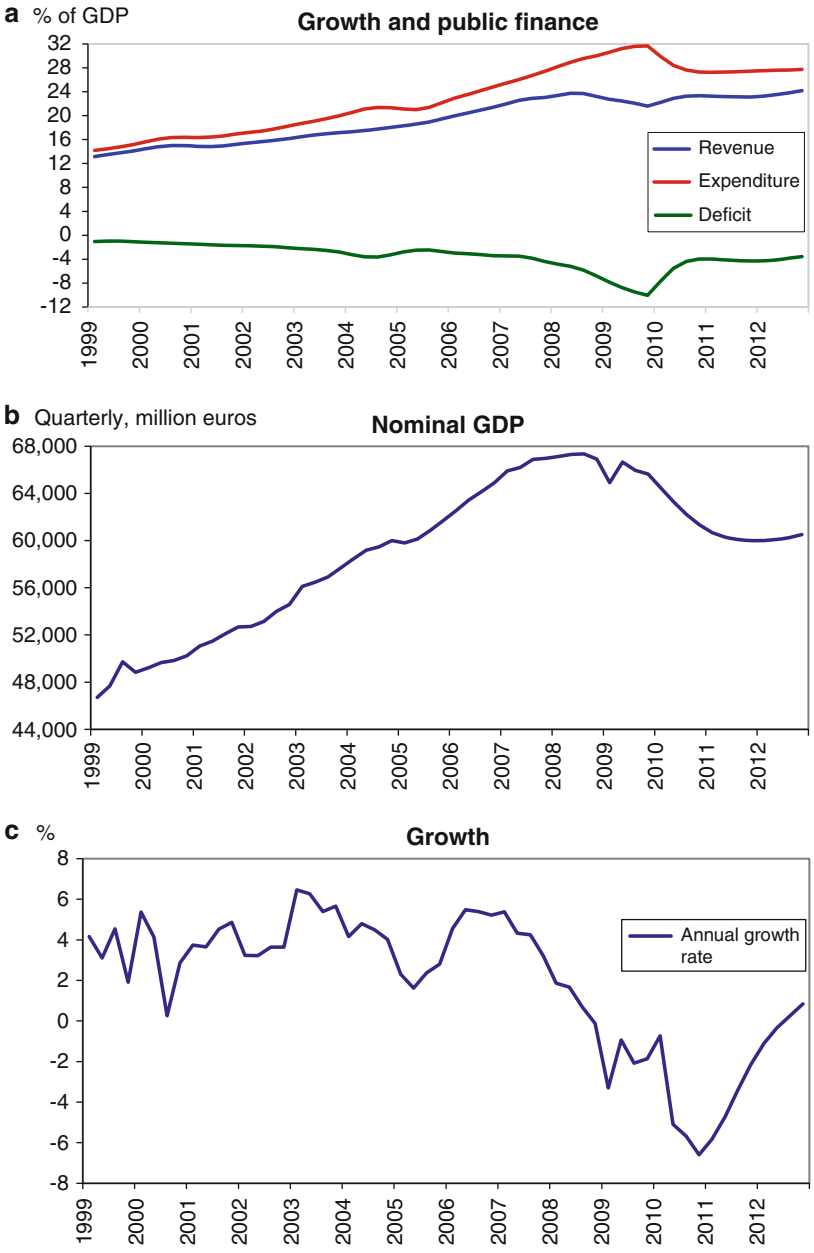

Fig. 7.6 Greece. *GDP* gross domestic product. *Source*: European Commission. AMECO database; Eurostat for quarterly accounts. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed February 2013)

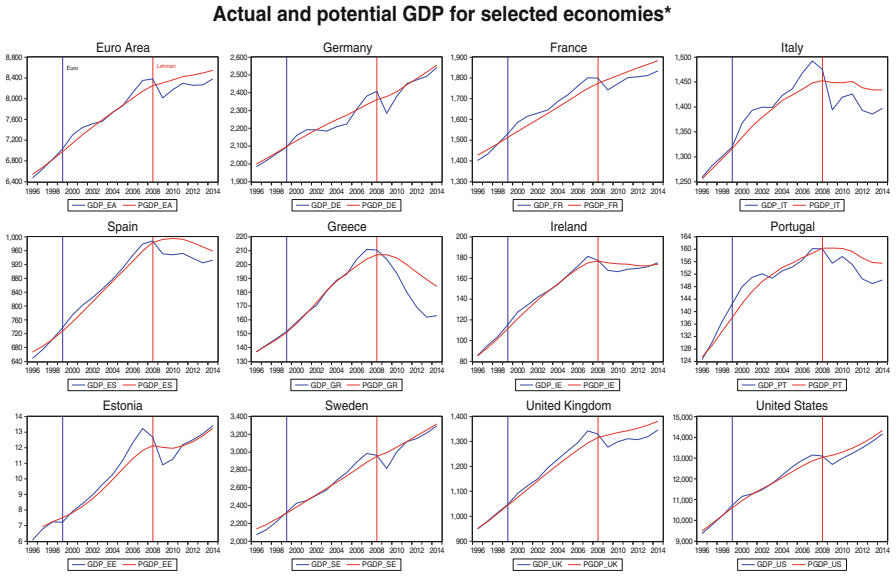

Fig. 7.7 Nominal GDP in major economies. *Note*: *Values shown on vertical axis are million euros for euro area and European economies; million pounds sterling for United Kingdom; million US dollars for United States. *GDP* gross domestic product, *PGDP* potential gross domestic product. *Source*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed December 2013)

for new public borrowing. However, Greece's GDP has continued to fall and the deficit persists, so that the debt ratio continues to climb.

The situation in Greece is different from the performance in other countries, where economic growth has picked up and became positive in 2010, although the output losses of 2009 have had lasting effects and still contribute to the structural deterioration of public finances in all countries (Fig. 7.7).

The slow return to growth is a consequence of the harsh consolidation programs imposed by European authorities. The lack of effective demand has pushed actual GDP below potential output and output gaps became negative everywhere. Figure 7.7 shows evidence from the euro area, some selected member states, and the US. The fall in income is significant everywhere. In the euro area as a whole, and especially in the crisis economies in the south, actual GDP is lagging far behind potential. By contrast, in the US the gap is closing again.

While most economies outside Europe have managed to slowly return to the growth path of their potential capacity, the euro area has failed to do the same. The difference between the US and Europe is revealing. In the US, domestic demand, that is, the mix of private and public consumption and investment, has picked up and is nearly absorbing potential output again. In the euro area, domestic drivers of growth are by and large absent and the little demand there is comes from net exports into the rest of the world. Furthermore, we observe that the growth of potential output has slowed down since the crisis started. Thus, the crisis has not only done temporary damage, which will be overcome in time, but it has also done structural

damage, which will not improve without counteracting policies. With lower investment, potential output is shrinking, because employment is destroyed, skills are eroding, labor force participation rates are falling, and productive infrastructure is worn out. These depressing effects will prevent the consolidation of public debt and raise the probability of private sector defaults and bankruptcies. The euro crisis is the manifestation of such a negative feedback loop. A closer look also reveals that Europe's problems were sharpened by a premature and overly rapid exit of stimulative fiscal and monetary policies in 2010 (Collignon 2013a).

These observations reveal a deeper problem with Europe's fiscal rules. The SGP stipulates specifically that the corrective arm of the pact is suspended when a member state's economy shrinks by more than 1.7 %. However, it does not give criteria for ending the suspension. Presumably the corrective procedures are put back into motion as soon as the critical shrinkage has stopped and growth returns. But this is too early, as it implies that budgets would have to be adjusted to the lower output level. This early adjustment will prevent growth and output from returning rapidly to its normal steady state. Furthermore, if the demand restraints contribute to lower investment and employment, long run growth is persistently impaired. Hence, if a large part of the deficit is caused by a revenue gap after a severe output shock, it might be more appropriate to smoothen the adjustment over time. A simple rule to achieve this would be to freeze nominal expenditure until the pre-shock output level has been reached again and let the deficit adjust endogenously during this period. Once the previous GDP level has been surpassed, the ordinary preventive and corrective mechanisms of the SGP should be fully implemented again.

Debt Sustainability

Given that excessive austerity will lower growth, increase default risk, and push up interest rates that in turn will lower growth, a vicious circle must be avoided by stretching fiscal adjustment over time. The question then emerges whether the rising public debt during the adjustment period remains sustainable. The well-known formula for debt dynamics says that the debt ratio increases by a snowball effect minus the primary surplus. The snowball effect is determined by the difference between interest and growth rates (sometimes called the growth-adjusted interest rate) multiplied by the debt ratio; the primary surplus must compensate this effect if the debt ratio is to remain stable. Hence, the larger the growth-adjusted interest rate and the larger the debt ratio, the more difficult it is to finance public debt. This difficulty can lead to multiple equilibriums and self-fulfilling prophesies when doubts about the solvability of debtors lead investors to sell bonds, thereby further pushing up interest rates This logic also applies to excessive austerity policies that lower growth and raise fears about the debtor's solvency, which will further increase debt spreads and deteriorate the primary budget position via lower revenue.

There is a clear criterion for assessing debt sustainability: fiscal policy must fulfill the intertemporal budget constraint. This means that today's debt must be paid back by future primary surpluses. Hence the debt ratio can temporarily deteriorate, as long as it will improve in the future. Sustainability does not require that the debt ratio is stable and constant at all times. How can we judge that this condition is fulfilled? It turns out that there is a very simple condition that makes public debt sustainable (Collignon 2012a). The condition is derived from a system of two differential equations, one describing the intertemporal budget constraint (7.1), the other describing the fiscal policy reaction function stipulated by the EDP and the SGP (7.2).

The well-known intertemporal budget constraint is:

$$\Delta d = (r - y)d - s \tag{7.1}$$

with r standing for the real interest rate and y for the growth rate (and the difference is the growth-adjusted real interest rate). $(r - y)d$ is the snowball effect. The EDP-rule for the policy reaction is described as

$$\Delta s = \alpha(def - z_1) + \beta(d - z_2) \tag{7.2}$$

where *def* stands for the deficit/GDP ratio and d for the debt/GDP ratio and s is the primary surplus (that is, the surplus of government revenue over expenditure net of the debt service), z_1 is the deficit target and z_2 the debt target. A government has two ways of reacting to an excessive deficit: it may correct the excess borrowing by bringing the deficit down by a fraction alpha of what is required to reach the target. For example, if the deficit is 4 % while the target is 3 %, a coefficient $\alpha = 0.5$ means that the budget correction is half a percentage point of GDP. Similarly, β is a coefficient for correcting the excess of the debt ratio over 60 %. The recent reform of the SGP sets β now normatively at 5 % (European Commission 2011a).

The solution for this system of two differential equations has two parts. First, the steady state of the debt/GDP ratio is determined by the following formula:

$$\overline{d} = \frac{\alpha z_1 + \beta z_2}{\alpha(y + \pi) + \beta}$$

It turns out that the steady state evolves as a function of the targeted policy objectives, the size of the reaction coefficients alpha and beta, and the nominal growth rate of GDP. If policy focused only on debt levels and ignored deficits ($\alpha = 0$) the steady state of the debt to GDP ratio will be the debt target of 60 %. If $\beta = 0$, the steady state debt level will vary with the nominal growth rate. Nevertheless, as the nominal growth tends to zero, the debt-GDP ratio would tend to infinity. Fiscal policy rules that focus on β, that is, on correcting debt levels, are therefore more likely to generate stable debt levels. From this point of view the recent reform of the SGP is to be welcomed. If both coefficients are positive, debt ratios will converge to lower levels. However, the more economic growth falls,

the more important it becomes to focus on the debt rule rather than on the deficit rule, for otherwise the long run equilibrium debt will rise to very high levels. Japan is an example for such high steady state debt levels, as nominal growth tended to zero.

The second part of the solution determines the conditions under which the actual debt ratios will converge to the steady state. Whether the debt dynamics are stable, depends on how quickly governments react to the violation of the EDP and on the macroeconomic environment. The conditions for stability are:

1. *If* $\alpha = 0: \ \beta > (r - y)^2$
2. *If* $\beta = 0$ and $r > y : \alpha > r - y$ *is the sufficient condition*
3. *If* $\beta = 0$ and $r < y : \alpha > \left(\sqrt{r + \pi} - \sqrt{y + \pi}\right)^2$ *is the sufficient condition*

These conditions boil down to the simple statement that public debt is sustainable, and therefore that sovereign solvency is guaranteed, as long as the primary budget position is adjusted by more than the growth-adjusted real interest rate. In normal times this is a fairly soft requirement. Collignon (2012a) shows that this condition has been fulfilled on average over the last 20 years. Although beta is rarely significant in Europe, alpha varies in the range of 16 % (Belgium) to 73 % (Germany), with Greece (35 %) and Italy (23 %) in the middle. Thus, it must be concluded that public finances have been sustainable over time. Furthermore, the Ramsey Golden Rule of dynamic efficiency, described by Blanchard and Fischer (1989), says that in the long run the growth-adjusted real interest rate should tend toward zero, which implies that fiscal consolidation could be accomplished by economic growth. This does not mean that European debt ratios will never rise, but that they fulfill the intertemporal budget constraint and are sustainable as long as the stability condition is fulfilled and the necessary liquidity is provided.

A good measure of how far a government is from a stable debt position is the difference between the primary budget position and the interest liability as a share of GDP. If this gap is closed, the debt ratio will be stable. The interest liability is sometimes also called the "snowball effect," because if the interest rate exceeds the nominal growth rate, the liabilities will increase at the growth-adjusted interest rate and this will also require rising primary surpluses.

Figure 7.8 presents the evolution of the primary budget positions in selected member states. The euro area as a whole had a small surplus before the crisis, which became a big deficit and has returned to a positive position since 2012. The horizontal punctuated line indicates the level of interest rate liabilities. The only countries close to financial stability are Germany, Italy and, according to the European Commission forecasts, Greece.

The consolidation effort that would stabilize the debt ratio is the difference between the snowball effect and the cyclically adjusted primary surplus. When the gap is negative, the debt ratio is falling; if it is positive, the ratio rises. Table 7.2 shows that in the north debt is stable, in the south it is rising. For the euro area as a whole, the consolidation gap in 2012 was nearly 2 %. In Germany, Luxembourg,

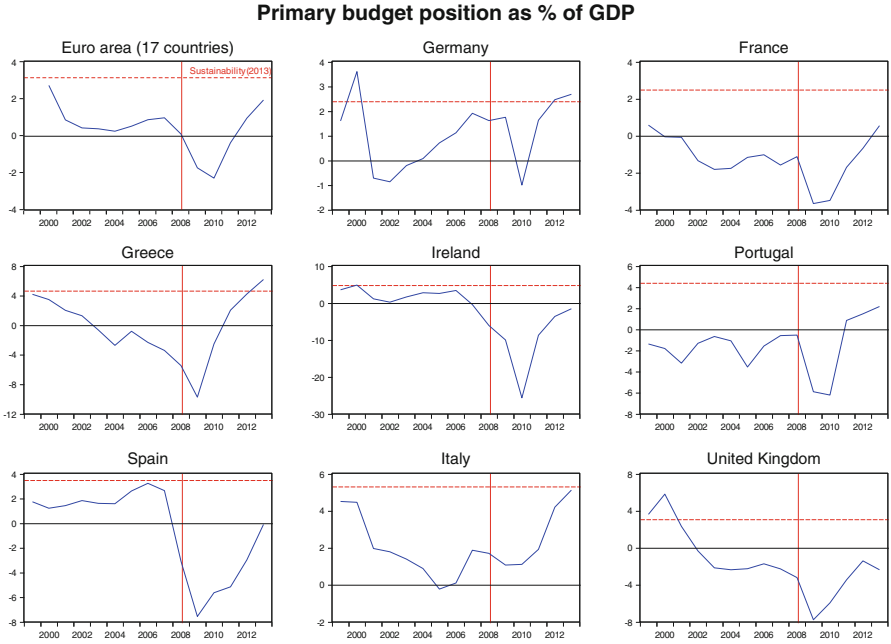

Fig. 7.8 Primary budget position (% of GDP). *Source*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed December 2013)

and Finland debt ratios were coming down and in Austria and Estonia they were nearly stable. Malta and Belgium are slightly below the euro average, France and Italy above. In Slovenia, Ireland, Cyprus, Portugal, Spain, and Greece significant consolidation efforts would have to be made in order to stabilize the debt ratio. In Cyprus, Portugal, Spain, and Greece this seems practically impossible. Outside the euro area, the Czech Republic and the UK are also in difficult positions.

However, the factors behind these adjustment requirements are not all the same. Most of the southern countries, except Italy and Greece, but including France have negative structural primary budget positions. This is also true for Romania, Denmark, Lithuania, Poland, Czech Republic, and the UK. By contrast, most northern euro members have positive primary budgets. The problems in the south are accentuated by the high snowball effect, which comes from higher interest rates and negative economic growth. Thus, we are back to the central issue: how to bring back growth.

But this is precisely where European policymakers are failing. They resist providing the liquidity required to prevent a liquidity shock turning into a solvency crisis. To understand this cooperation failure, Europe's intergovernmental system of policymaking must be understood.

Table 7.2 Consolidation gap to stabilize public debt

2012 % of GDP	Snowball effect	Structural primary surplus	Gap
Germany	0.90	2.64	−1.74
Luxembourg	−0.35	0.52	−0.86
Finland	−0.22	0.22	−0.44
Austria	0.45	0.27	0.18
Estonia	−0.22	−0.51	0.29
Malta	1.08	−0.05	1.13
Belgium	1.64	0.09	1.55
Euro area (17)	*2.50*	*0.51*	*1.99*
France	1.18	−0.99	2.17
Italy	6.51	4.20	2.31
Slovakia	0.42	−2.13	2.55
Netherlands	2.06	−0.73	2.79
Slovenia	3.04	−0.62	3.66
Ireland	0.75	−3.21	3.97
Cyprus	3.52	−3.15	6.68
Portugal	8.09	−0.41	8.51
Spain	3.90	−5.46	9.35
Greece	17.98	0.79	17.19
Latvia	−2.04	0.47	−2.51
Hungary	3.05	4.15	−1.09
Sweden	0.13	0.96	−0.83
Bulgaria	0.39	0.49	−0.11
Romania	−0.05	−0.40	0.35
Denmark	0.98	0.39	0.59
Lithuania	−0.49	−1.25	0.77
Poland	0.47	−0.82	1.29
Czech Republic	1.46	−2.02	3.48
United Kingdom	1.57	−2.17	3.74

Source: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed April 2013)

7.3 Political Fragility of the Euro Area

Collective Action Problems

The European debt crisis was a liquidity crisis that could have turned into a solvency crisis with devastating domino effects. Southern European member states had difficulties raising funds to roll over their debts at reasonable cost, because political mismanagement had scared investors who were seeking to unload risky assets. If European authorities had not bought the excess supply of securities, financial asset prices would have collapsed and the whole banking system would have become dysfunctional. The crisis was reinforced by the collective action problems within European economic governance. Europe's political

mismanagement is the big difference between Japan and the US on the one side, and Europe on the other. It could explain why Japan was able to increase its debt ratio beyond 220 %, while in the euro area debt ratios above 100 % are already problematic. In Japan and the US, governments borrow to stimulate the real economy and the central banks provide the liquidity necessary to prevent bank and bond runs when liquidity gets too tight; Europe had exited stimulative policies prematurely in 2010 (Collignon 2013a). Fiscal policy tightened too soon, and a restrictive interpretation of the central bank's role as lender of last resort constrained the ECB's capacity to intervene in secondary public debt markets. Northern governments were also reluctant to commit taxpayers' money to bail out other member states. All these factors together created a credit crunch. Under normal circumstances, monetary and fiscal policy should interact in such a way that investors feel reassured and start investing again. But in Europe, policymakers were not willing or able to agree and commit to coherent policies. In response to this political uncertainty, investors sold risky assets and bond prices collapsed. To get private investors to supply credit at reasonable cost, political authorities would have had to be much clearer in their communication. In the end, the job was done by the ECB, because it was the only stakeholder able to act in the common interest of Europeans. Intergovernmental governance, where 17 governments are autonomous and accountable to 17 local parliaments, had failed to generate unified action. But the policy dilemma has pushed the ECB into an uncomfortable role of being Europe's policymaker of last resort.

Because the political problems of the EU's governance are intractable, analysts have mainly focused on economics. But without solving the governance issue, economic advice can be misleading. In an influential paper, de Grauwe (2011: p. 1) likened public debt in the European Monetary Union to emerging market debt because "members in monetary union issue debt in currency over which they have no control." By this, he means that a European government "cannot force the central bank" to buy its debt and therefore markets can force any member state into default. There is truth in the argument that an ultra-hard budget constraint can turn into a default crisis, as one has learnt from endless historical experiences. But it is a mistake to believe that this is a characteristic feature of a monetary union. Member states' inability "to force the central bank" is a consequence of the combination of central bank independence and the primary objective to maintain price stability. Both these two principles are the foundation of monetary union. If Greece had its own currency, and an independent central bank committed to price stability, the likelihood of default would not be lower than it is in the euro area. As de Grauwe shows, the difference in yields between the UK (that controls its currency) and Spain (that does not) is best explained by the difference in inflation rates. It may be debated whether the primary objective of price stability is desirable in the present situation, but there are many reasons why the ECB should be independent and preserve the internal and external value of the euro.

De Grauwe points out that capital outflows from any currency area, whether it is a stand-alone country or a currency area, will weaken the exchange rate. In any country that issues its own currency, including those in the euro area, unsustainable

Table 7.3 Changes in M3 bank deposits in member states (September 2008–2011)

	€ (billion)	Basis points shift	Growth rate (%)	Contribution (%)
Germany	214.3	109	11.2	41.9
France	135.0	43	8.6	26.4
Italy	110.4	44	9.6	21.6
Netherlands	61.7	26	9.9	12.1
Spain	38.2	–3	3.6	7.5
Belgium	37.1	15	9.6	7.3
Finland	13.1	7	11.5	2.6
Cyprus	7.2	6	18.9	1.4
Austria	4.9	–12	2.0	1.0
Slovakia	1.6	0	5.1	0.3
Slovenia	1.1	0	6.1	0.2
Estonia	1.0	1	13.4	0.2
Malta	0.5	0	6.1	0.1
Portugal	–4.0	–6	–2.5	–0.8
Ireland	–12.6	–32	–5.1	–2.5
Greece	–35.8	–58	–15.6	–7.0
Luxembourg	–62.2	–97	–18.2	–12.2
Euro area	511.7	0	6.3	100.0

Source: Data provided by European Central Bank on request; author's calculations

public debt would cause a currency crisis. As was seen, the euro exchange rate has remained reasonably stable, because aggregate euro debt is not excessive when compared to the United States or Japan. However, de Grauwe also claims that monetary movements within the currency area shift the stock of money supply from one region to another and that such movements tend to depress local activity and increase the likelihood of a local default. Yet, the evidence for this claim is mixed. Within the euro area payment flows related to bond holdings can be compensated by other monetary movements including bank credit to the local private sector, foreign direct investment, and factor income regional intergovernmental transfers. As discussed earlier, the effect of a shift in the bond portfolio on the money stock is uncertain. More important are the evolution in bank loans and the shift in deposits.

Table 7.3 provides evidence about the shifts in bank deposits within the euro area from the Lehman Brothers' crisis in September 2008 up to 2011, which was the worst period of the crisis. Total deposits, as accounted for in the broad money aggregate, which the ECB calls M3, have increased over the three years by €511.7 billion; a rate of increase of 6.3 % over three years. Of this increase, the biggest share (41.9 %) was recorded in Germany, where deposits grew at a rate of 11.2 %, although growth was even faster in Cyprus, Estonia, and Finland. As a percentage of the euro aggregate, the shifts in the relative shares of money supply are relatively small: Germany gained 109 basis points, France and Italy over 40 basis points. The losers have been Greece, Ireland, and Portugal. This could confirm de Grauwe's claim of a financially depressing outflow of money from these economies. However, while the shift of deposits as a share of the euro area aggregate seems to

support the idea that money has gone from Greece, Ireland, and Portugal to Germany (the shares compensate each other), the increase in total deposits in Germany is significantly higher in absolute billions of euro. It is also true that France, Italy, and Spain have increased their M3 deposit stock, most probably because there is additional bank lending in these regions. Interestingly the largest monetary outflow took place in Luxembourg, which does not have a debt problem and is usually considered to be a safe haven. However, Luxembourg may be a special case, given that it is a small state with a huge banking sector. Risk-averse investors may have retired their funds to place them in Switzerland or elsewhere in dollars. According to the de Grauwe model of a "sudden shift," Greece, Ireland, Portugal, and Luxembourg should have experienced a serious liquidity crisis but not Italy or Spain. Yet this is only partially supported by our evidence. It seems reasonable to argue that southern Europe suffers from a reduction in money supply, but the reasons may not be the presumed systemic features of a monetary union that is not able to print money at governments' will, but rather to the design of the economic governance in the euro area. The real issues in Europe's debt crisis are collective action problems in intergovernmental governance.

Collective action problems occur when rational individual actors make decisions that are suboptimal in the aggregate. The policy dilemma in the European monetary union is that the euro is a limited common resource to which all actors must have free and equal access. However, fiscal policy makes autonomous and often incoherent claims on this resource because sovereign governments do not take into consideration the external effects of their budget decisions. The ECB imposes (correctly) the hard budget constraints by controlling money supply for the euro area as a whole, but each member state has an incentive to raise its own share in available funds at the expense of others. Cooper and John (1988) have shown that such a situation leads to a unique non-cooperative equilibrium, which is Pareto-suboptimal. The spillover effects from this uncooperative equilibrium are pernicious. In principle, high deficit countries could be funded by low-debt member states. This would not impose undue burdens on lenders, for credit is a form of wealth, and taxpayers in lending states would build up assets that they should be able to liquidate in the future. From this point of view, bailing out a member state in the euro area is like banking: a form of maturity transformation. Illiquid claims on, say, future Greek taxpayers are made liquid by other member states, say Germany, which dispose of greater liquidity margins. Like in any other bank in the world, lenders must monitor borrowers and impose conditions that ensure solvency. However, given that lenders in the European Union are a collective, even if Germany is an important actor, such monitoring is subject to collective action dilemmas unless it is delegated to a European institution. However, if borrowing member states defaulted, foreign taxpayers would lose their asset claims and their wealth would be reduced. Given the possibility of default, each member state has a desire—just as private investors—to minimize its own contribution to the collective bailout, and in aggregate all of them are likely to generate the under-provision of bailout funds. This collective action problem is likely to cause falling bond prices and could ignite a banking crisis.

The euro area's problem is therefore, first of all, a problem of governance. In federal states with fiscal unions, the problem is solved by a central government that redistributes funds through budget transfers. In Europe, governments are autonomous and most cooperate voluntarily if they wish to bail out a state in distress. But because, by definition, national governments serve their national constituencies first, they will seek to limit their exposure to potential defaults losses, and their crisis communication is dominated by discourses that say "no, we can't." Nevertheless, assuming that the benefits from the existence of the European Union, of a single market, and of a stable currency are still valid and clearly recognized, the preference for preserving the system should be high enough to ensure that governments will ultimately provide the necessary bailout. Saying no may then simply be a step in a drawn out bargaining process that aims at limiting national bailout contributions. But even if governments made the right decisions, the political noise around the negotiation process would make the bailout more costly than if a centralized authority made decisions. By definition, a centralized European economic government would eliminate the collective action problems and therefore minimize the noise and uncertainty in the bailout process. By contrast, Europe's decentralized governance has increased political and economic uncertainty and pushed up interest rates on sovereign debt. As a consequence, the cost to taxpayers in the form of high yields, larger bailouts, and higher risks of bank failures have gone up as well. It follows that a centralized macroeconomic government should be in the interest of all European taxpayers, as it would reduce the cost of bailouts and risks of defaults and bank crises.

Collignon et al. (2013) show that political communication contributes significantly to the rising yield spreads between Greece and Germany. In the short run, every time Germany's Chancellor Angela Merkel has made a declaration on Greece, uncertainty measured by the volatility of spreads has increased and this higher volatility has required higher returns on bonds from Greece. However, over the longer run, there was an additional effect whereby her statements reduced the yield spread again, although to a lesser extent. Thus, the picture is one of chaotic cacophony that irritates markets (and citizens), although in the end sound policies prevail. The price for this political inefficiency is high in terms of credit risk (Fig. 7.1) and credit cost (Fig. 7.3).

A liquidity crisis becomes systemic when the risk of an avalanche of defaults spreads through the banking system. Table 7.4 shows the early exposure of banks as a percentage of banks' net capital in some member states with respect to southern European economies. The vulnerability toward Greece was relatively low for the euro area as a whole, but significant for Portugal. A forced Greek default was most likely to spill over into Portugal and from there to Spain and then to the Netherlands, Belgium, Germany, and France. Overall, a disorderly default of the four risky sovereign debtors with a recovery rate of 50 % would have wiped out between one-fifth to more than one-third of the banks' own capital reserves. This would have come after the banks had already made losses of similar proportion after the Lehman crisis, to which governments had to respond by emergency funds and help from international organizations. Experiencing a second major financial

Table 7.4 Bank balance sheet exposure vs. southern Europe, 2010 (claims % of total capital)

	Euro Area	France	Germany	Belgium	Netherlands	Italy	Greece	Ireland	Portugal	Spain
Exposure vs. Greece	*4.5*	8.9	6.7	2.6	3.7	0.9		0.6	17.7	0.3
Exposure vs. Ireland	*8.6*	4.6	23.2	34.3	12.3	2.9	0.8		8.9	2.6
Exposure vs. Portugal	*6.4*	4.2	7.1	4.8	4.8	0.9	0.1	1.8		22.4
Exposure vs. Spain	*19.3*	22.0	35.7	29.0	56.7	6.3	0.6	10.1	46.0	
Potential losses in southern Europe (with a recovery rate of 50 %)	*19.4*	19.9	36.3	35.3	38.7	5.5	0.8	6.2	36.3	12.6
Effective losses registered during 2008–2009 crisis	*13.5*	9.8	22.7	42.9	18.9	7.9	15.6	16.3	0.0	10.4

Source: Author's calculations done by Centro Europa Ricerche, Rome

shock so quickly after the Lehman Brothers' collapse created an extremely dangerous situation.

The implication of this strong interdependence of member states' economies and banks in monetary union is that autonomous decisions by national governments have far reaching consequences for all and generate important externalities, which require central governments to internalize the external effects. Here is not the space to speculate whether such a deepening of European integration will be realized, although European policy debates have moved into a more "federal" direction during this crisis. Instead, this chapter now looks at how the euro area's political fragility affects its external relations with other currencies and particularly with the dollar.

External Effects

Given the vulnerability of the European banking system, non-euro area investors may seek to reduce their euro-denominated portfolio holdings. This should have consequences for euro exchange rates, as some investors might shift their assets into other safer currency denominations, notably the dollar. The extent of such shifts will depend on the degree of uncertainty in risky environments. How much has Europe's governance impacted the dollar–euro exchange rate? Exchange rate economics is a controversial field. No universal model exists for explaining exchange rate movements that holds under all circumstances. Fundamental variables such as relative growth, budget developments, and interest spreads, all play varying roles in determining the level and volatility of interest rates. This section concentrates on the impact of political uncertainty in the euro area on the dollar–euro exchange rate.

Financial markets have only incomplete information about the fundamental value of risky bonds in their portfolio; by contrast, governments and central banks have an asymmetric information advantage, given that their actions shape the macroeconomic outcome that determines the solvency of bonds. For this reason, markets must closely monitor the discourse of political decision makers. But if the statements made by policymakers are incoherent, controversial, or unrealistic, the ensuing uncertainty will deter investors from holding risky assets as the visibility of the future macroeconomic outcome is impaired. Collignon et al. (2013) formally modeled the interaction between Greek bond spreads bailouts and the political risk generated by controversial policy statements. I am using the same method here to assess the impact of political uncertainty with regards to the Greek debt crisis on the dollar–euro exchange rate.

Figure 7.9 shows the movements in the daily exchange rate of the euro relative to the dollar and the yen. Three major periods are clearly distinguishable: an initial weakening of the euro in 1999–2000, a gradual euro appreciation from the time of the dot.com bubble crash in late 2000 and the terrorist attacks in the US on 9 September 2001 (9/11) up to the global financial crisis in 2008, and finally a

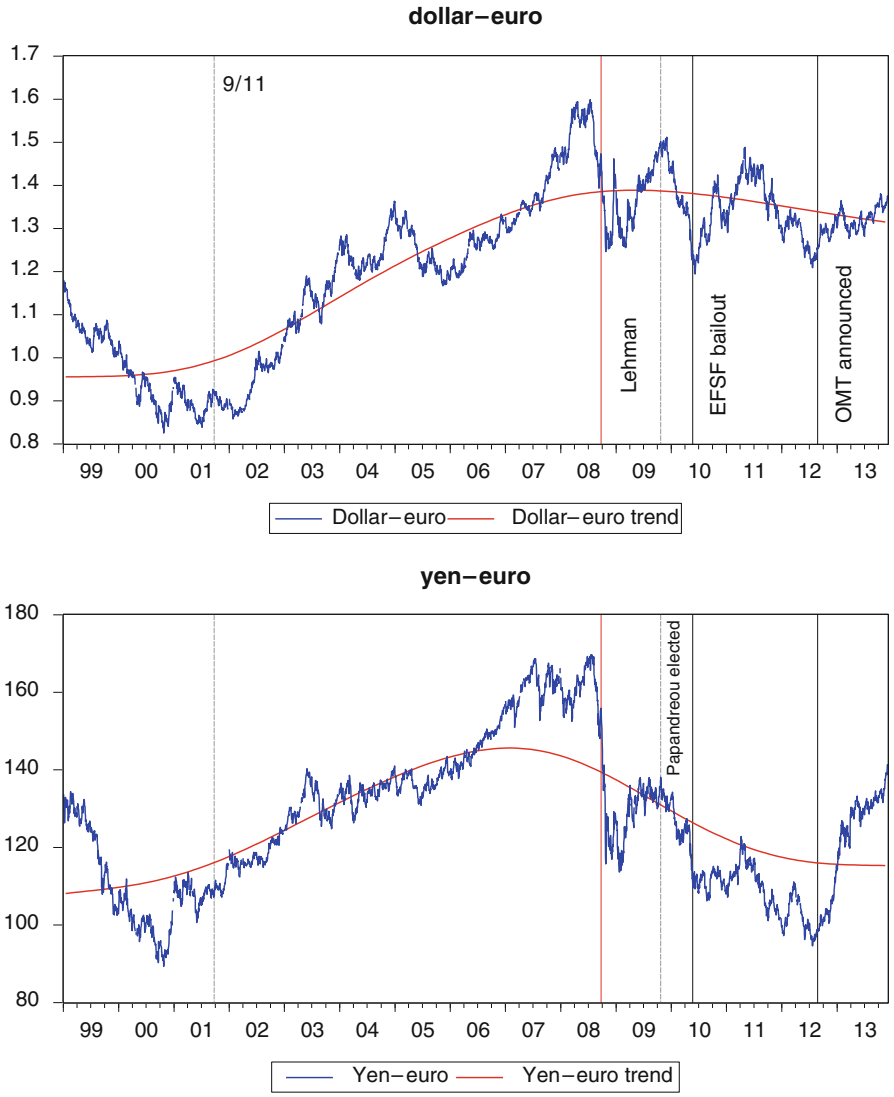

Fig. 7.9 Dollar–euro and yen–euro daily exchange rates. *EFSF* European Financial Stability Facility, *OMT* outright monetary transactions. *Source*: ECB Statistical Data Warehouse. http://sdw.ecb.europa.eu/browse.do?node=2018794 (accessed February 2012)

period with a long run stable trend but high volatility after the Lehman Brothers' bankruptcy. The tendency for the euro to weaken was stronger against the yen than against the dollar, which reflects the "safe haven" factor of the Japanese economy, since it did not experience a financial crisis then, and the aggressive monetary easing adopted under Prime Minister Shinzo Abe was still in the future. The turning points of the large swings in the euro exchange rates are clearly associated with

major policy events; Papandreou's election in 2009 and the deterioration of the Greek economy in 2011 sent the euro down. Bailout packages like the EFSF and ESM in 2010 and the OMT announcement in 2012 reassured markets and strengthened the euro. Thus, the external value of the euro has been strongly affected by the politics of the euro area, while the fundamentals seem to have been more stable, although they have also deteriorated under the excessive austerity drive (Fig. 7.10).

The volatility of the euro exchange rate is driven by political uncertainty. This is confirmed by estimating a GARCH-M model,[14] where the change in the daily exchange rate is affected by global economic fundamentals, measured by the proxy of the dollar–yen exchange rate, and by European developments, measured by the change in the Greek bond yield spread over Germany. Table 7.5 gives the results.[15] The upper part gives the coefficients for the direct impact of the variables, the lower part shows the variance equation, which estimates the impact of uncertainty.

A negative sign in the upper equation indicates a weakening of the euro relative to the dollar. Higher Greek spreads and higher uncertainty weaken the euro. By contrast, a depreciation of the dollar relative to the yen also translates into a stronger euro relative to the dollar. The GARCH-term is of particular interest as it is a measure for risk and uncertainty. An increase of noise by 10 % will depreciate the daily euro exchange rate by 1.3 basis points.

The GARCH equation in the lower part of Table 7.5 measures noise, that is, the variance conditioned on its autoregressive process and on the change of the Greek spread and good news on the Greek situation. The study found a noise-increasing effect resulting from higher Greek spreads and from political news, although the impact is small. The sign of the coefficient and the statistical significance are acceptable according to conventional evaluation standards.

Collignon et al. (2013) have shown that the Greek–German spread is increasing in response to political miscommunication by European leaders represented by a variable tracing Germany's Chancellor Merkel's statements. The implication from that model for this study's exchange rate analysis is that the political system of governing the euro area has a tendency to weaken the euro. To check this hypothesis, the estimation included the variable of political statements by Chancellor Merkel described in Collignon et al. (2013). The results (Table 7.6 in Appendix) are similar to Table 7.5, although the statistical significance is now weaker, but still acceptable according to conventional criteria.

The conditional variance measured by the GARCH model is an indicator for the uncertainty which foreign investors experience when deciding whether to hold euro assets in their portfolio. It is generated by the variables of Greek spreads, political news, and indirectly by the role of Germany. Figure 7.10 shows that this uncertainty has continually grown as a consequence of the Greek crisis and the hesitations of

[14] A GARCH-M model estimates a time series' mean as a function of the conditional variance.

[15] The estimates were done using Eviews software and Table 7.5 reproduces the standard Eviews output.

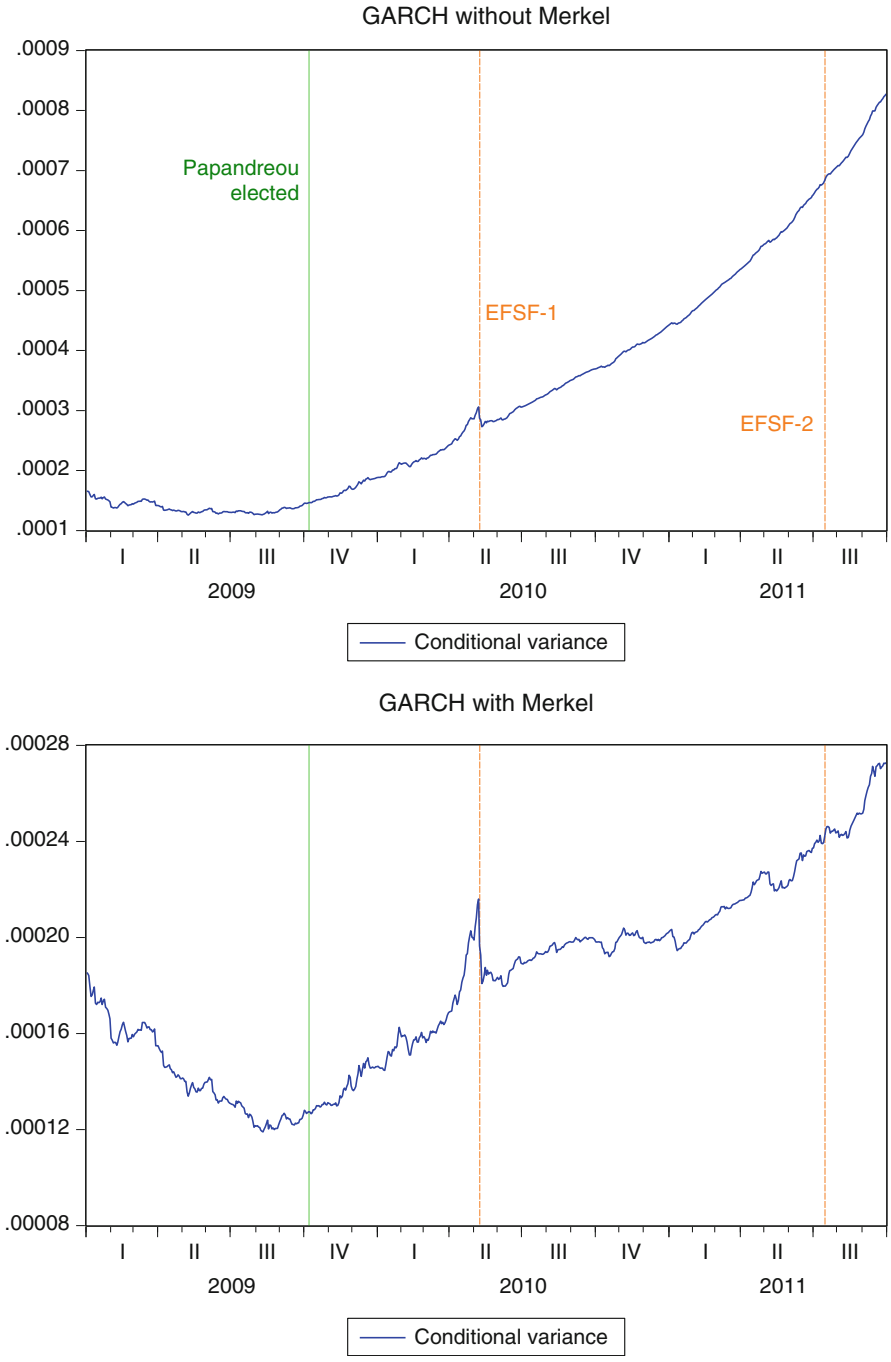

Fig. 7.10 Political uncertainty reflected in dollar–euro rate. *EFSF* European Financial Stability Facility. *Source*: Author's calculations based on data in Collignon et al. (2013)

Table 7.5 GARCH estimate

Variable	Coefficient	Std. error	z-statistic	Prob.
LOG(GARCH)	−0.001314	0.000527	−2.494277	0.0126
C	−0.013037	0.005337	−2.442695	0.0146
DLOG(USYEN)	0.210485	0.028866	7.291751	0.0000
DLOG(SPREADGR)	−0.043833	0.005119	−8.562533	0.0000
Variance equation				
C	1.44E-07	1.35E-07	1.065614	0.2866
RESID(−1)^2	−0.001615	0.000789	−2.046765	0.0407
RESID(−1)^2*(RESID(−1) < 0)	−0.018689	0.008513	−2.195371	0.0281
GARCH(−1)	1.002918	0.005311	188.8306	0.0000
POLGRG	1.27E-06	5.30E-07	2.393281	0.0167
DLOG(SPREADGR)	2.83E-05	8.53E-06	3.312546	0.0009
T-DIST. DOF	15.83733	10.58604	1.496058	0.1346
R-squared	0.117640	Mean dependent var		−4.21E-05
Adjusted R-squared	0.113927	S.D. dependent var		0.007349
S.E. of regression	0.006918	Akaike info criterion		−7.170607
Sum squared resid	0.034118	Schwarz criterion		−7.100418
Log likelihood	2581.663	Hannan-Quinn criterion		−7.143505
Durbin-Watson stat	2.036840			

Dependent variable: DLOG(ER)
Method: ML-ARCH (Marquardt)—Student's t distribution
Sample: 1/01/2009 9/30/2011
Included observations: 717
Convergence achieved after 23 iterations
Presample variance: backcast (parameter = 0.7)
GARCH = C(5) + C(6)*RESID(−1)^2 + C(7)*RESID(−1)^2*(RESID(−1) < 0) + C(8)*GARCH (−1) + C(9)*POLGRG + C(10)*DLOG(SPREADGR)
Source: Data from Collignon et al. (2013); author's calculations

political leaders. Figure 7.10 also shows the clear but only temporary effect of setting up the bailout fund. Markets seemed at first reassured of getting the necessary liquidity, but quickly lost this confidence when the political bickering among European policymakers continued. The German chancellor, who at first seemed unwilling to bail out Greece, has been an important factor in generating this uncertainty, just as the ECB reassured markets in later years.

Political Implications

It has become clear that Europe's problems are essentially grounded in its dysfunctional political decision-making system and much less in economic fundamentals. Japan has lower yields than many European member states, despite a debt ratio of 220 % and the US despite having a higher deficit ratio. Japan and the US have monetized a significant part of their debt, without experiencing runaway inflation.

Although it is true that in the medium-term deficits must be balanced and European debt ratios must come down, the success of such consolidation policies depends largely on economic growth. Excessive austerity programs do not help southern member states to return to growth; they risk destabilizing the European monetary union.

Because private investors are less willing to hold risky sovereign debt from southern states in a climate of political uncertainty, bond prices have fallen to levels where they are destabilizing the banking system. For this reason, it was important to find a buyer of last resort. Given the reluctance of member states to pool their fiscal policies, the European Central Bank was finally forced to step in. The creation of the EFSF and ESM was an insufficient attempt to provide liquidity to member states that had lost access to capital markets. It has had temporary effects of bringing down yields on southern European debt, but these effects did not last because the volumes of financial resources were insufficient to reassure financial investors. The reasons for this under-provision of resources are a simple collective action problem: each government seeks to minimize its own contribution of taxpayers' money and the overall consequence is the suboptimal provision of bailout money. However, this behavior has caused policy outcomes that have damaged the interests of all Europeans. It is unlikely that Europe's intergovernmental system can solve this coordination problem. What would be needed would be to centralize Europe's debt and deficit management at the European level.[16] In 2012, there was increasing talk in European policy circles about the need for a "federalist jump" in the EU. No doubt, a European economic government could implement coherent and less noisy fiscal policies in the euro area. But although this is clearly an efficient solution, it poses important questions of democratic legitimacy (Collignon 2003). Not surprisingly, member state governments have buried such ideas after the ECB had saved the euro.

While the ECB was able to restore sufficient trust in financial markets by fulfilling its role as lender of last resort, it cannot substitute for politics. Ultimately, member state governments must assume responsibility for the European policy mix. As Japan has taught the world, monetary policy is helpless in a liquidity trap with near-zero nominal interest rates and deflationary tendencies. Fiscal policy must then step in. But fiscal policy is a matter of government responsibility and euro area governments have not been willing to assume this responsibility. In addition, northern member states, and especially Germany, benefit from a comparative advantage: German interest rates are low because German debt is considered the risk-free asset in the euro area; the low cost of borrowing keeps German deficits down, further lowering the risk premia for German bonds. By keeping payments to other member states as low as possible, Germany improves its competitive advantage. Hence, German policymakers maintain maximum pressure

[16] This does not exclude that members could retain the allocation function of public finances.

on southern states to cut their deficits so that Germany can keep transfers down. On the other hand, the southern member states must lower the social cost of adjustment by receiving funds from the northern member states. This conflict is generating significant political risks in the euro area.

One way out of the dilemma is the creation of euro bonds through which the EU could raise funds and lend them to distressed member states. Again, this is a highly controversial subject. The European Commission (2011b) proposed the introduction of stability bonds in its *Green Paper on the Feasibility of Introducing Stability Bonds*, but so far Germany has vetoed the idea, for fear that it would become liable for the debt accumulated by others and would ultimately have to pay higher interest rates. Fundamentalists reject euro bonds, because they believe such an instrument would lead to the collectivization of sovereign risks among taxpayers in the monetary union, creating "appetite for ever more of that sweet poison and harms the credibility of the central bank in its quest for price stability" (Weidmann 2011: p. 1). Monetarists argue that euro bonds are an expression of European solidarity where the "strongest" guarantee the "weakest."

An alternative practical solution is the creation of an asset-backed security, which I have called union bonds (Collignon 2011). It would consist of authorizing a European institution like the ESM—as the counterparty—to buy debt titles issued by member states and bundle them according to a fixed portfolio share equal to the proportion of share holdings in the ECB. In this case, the stronger member states would not be liable for the weaker states. According to the laws of portfolio theory, such a bundled union bond would be less risky and more stable than individual member state bonds. The risk-free elements of the union bonds could be increased by tranching these bonds into risky and risk-free tranches. These union bonds could cover a large share of outstanding government debt. This has the desirable side effect of creating a deep and liquid bond market that would be of interest for foreign investors. The liquidity of such a bond market could be further reinforced by the commitment of the ECB to accept union bonds as privileged collateral for discounting purposes.

7.4 Conclusion

The euro-crisis crisis is in reality a political crisis. The euro area economy is fully integrated by the fact that the ECB alone sets monetary budget constraints on domestic economies, but the political heterogeneities and different member state jurisdictions prevent economic policies that are consistent with the requirements of a single currency. Either Europe will move forward and deepen its political integration, or it will disappear as a global player and sink into irrelevance.

Appendix

Table 7.6 GARCH estimate with Chancellor Merkel

Variable	Coefficient	Std. error	z-statistic	Prob.
LOG(GARCH)	−0.001442	0.000807	−1.786455	0.0740
C	−0.014156	0.008176	−1.731375	0.0834
DLOG(USYEN)	0.211648	0.029657	7.136499	0.0000
MERKEL2	−0.001259	0.000801	−1.570980	0.1162
DLOG(SPREADGR)	−0.045337	0.005173	−8.764105	0.0000
Variance equation				
C	1.64E-07	1.44E-07	1.135365	0.2562
RESID(−1)^2	0.000763	0.006831	0.111644	0.9111
RESID(−1)^2*(RESID(−1) < 0)	−0.019221	0.011520	−1.668584	0.0952
GARCH(−1)	1.000230	0.005029	198.8866	0.0000
POLGRG	1.32E-06	5.04E-07	2.630957	0.0085
DLOG(SPREADGR)	2.85E-05	1.05E-05	2.725873	0.0064
T-DIST. DOF	17.95679	13.01142	1.380079	0.1676
R-squared	0.119345	Mean dependent var		−4.21E-05
Adjusted R-squared	0.114398	S.D. dependent var		0.007349
S.E. of regression	0.006916	Akaike info criterion		−7.169682
Sum squared resid	0.034053	Schwarz criterion		−7.093112
Log likelihood	2582.331	Hannan-Quinn criterion		−7.140116
Durbin-Watson stat	2.049970			

Dependent variable: DLOG(ER)
Method: ML-ARCH (Marquardt)—Student's t distribution
Sample: 1/01/2009 9/30/2011
Included observations: 717
Convergence achieved after 18 iterations
Presample variance: backcast (parameter = 0.7)
GARCH = C(6) + C(7)*RESID(−1)^2 + C(8)*RESID(−1)^2*(RESID(−1) < 0) + C(9)*GARCH(−1) + C(10)*POLGRG + C(11)*DLOG(SPREADGR)
Source: Data from Collignon et al. (2013); author's calculations

References

Blanchard, O., & Fischer, S. (1989). *Lectures on macroeconomics*. Cambridge: MIT.

Chacko, G., Evans, C. L., Gunawan, H., & Sjöman, A. (2011). *The global economic system: How liquidity shocks affect financial institutions and lead to economic crises*. New Jersey: Pearson FT Press.

Codogno, L., Favero, C., & Missale, A. (2003). Yield spreads on EMU government bonds. *Economic Policy, 18*, 503–532.

Collignon, S. (2003). *The European republic: Reflections on the political economy of a future constitution*. London: The Federal Trust for Educational Research and Bertelsmann Foundation. http://www.stefancollignon.de/PDF/The%20European%20Republic-text1.pdf.

Collignon, S. (2011). Eurobonds: The financial equivalent of a single currency. In: *Eurobonds: Concepts and implications* (pp. 17–40). Brussels: European Parliament, Economic and Monetary Affairs Committee. IP/A/ECON/NT/2011–01.

Collignon, S. (2012a). Fiscal policy rules and the sustainability of public debt in Europe. *International Economic Review, 53*(2), 539–567.

Collignon, S. (2012b). *ECB interventions, OMT and the bankruptcy of the no-bailout principle*. Brussels: European Parliament, Economic and Monetary Affairs Committee. IP/A/ECON/NT/2012–05.

Collignon, S. (2013a). *Exit strategies and the impact on the euro area*. Brussels: European Parliament, Economic and Monetary Affairs Committee.

Collignon, S. (2013b). *The various roles of the ECB in the new EMU architecture*. Brussels: European Parliament, Economic and Monetary Affairs Committee. IP/A/ECON/NT/2013-03.

Collignon, S., Esposito, P., & Lierse, H. (2013). European sovereign bailouts, political risk and the economic consequences of Mrs. Merkel. *Journal of International Commerce, Economics and Policy, 4*(2), 1–25.

Collignon, S., & Schwarzer, D. (2003). *Private sector involvement in the euro: The power of ideas*. London: Routledge.

Cooper, R., & John, A. (1988). Coordinating coordination failures in a Keynesian model. *Quarterly Journal of Economics, 103*(August), 441–463.

De Grauwe, P. (2011). *A fragile eurozone in search of a better governance* (Cesifo Working Paper No. 3456)

European Central Bank (ECB). (2011). *ECB announces measures to support bank lending and money market activity*. ECB Press Release, 8 December. Frankfurt: European Central Bank. http://www.ecb.europa.eu/press/pr/date/2011/html/pr111208_1.en.html. Accessed 15 January 2014.

European Commission. (2011a). *Public finances in EMU. European Economy*. Brussels: European Commission, Directorate-General for Economic and Financial Affairs.

European Commission. (2011b). *Green paper on the feasibility of introducing stability bonds* (COM/2011/0818 final)

European Commission. (2013). *Report on public finances in EMU*. European Economy, 4/2013. Brussels: European Commission, Directorate-General for Economic and Financial Affairs.

Weidmann, J. (2011). Managing macroprudential and monetary policy—a challenge for central banks. *Speech at the SUERF/Deutsche Bundesbank IMFS Conference, the ESRB at 1*, Berlin, 8 November 2011.

Chapter 8
Prevention and Resolution of Foreign Exchange Crises in East Asia

Chalongphob Sussangkarn

Abstract This chapter discusses mechanisms to prevent and resolve foreign exchange crises in East Asia. Policies and mechanisms at the country level as well as regional and global levels are discussed. Policies at the level of a particular country to prevent foreign exchange crises include the management of short-term foreign currency liabilities, the adequacy of reserves, and managing episodes of rapid short-term capital inflows. The author discusses the development of regional mechanisms for crisis prevention and resolution in conjunction with the global mechanisms, including the Chiang Mai Initiative (CMI) and the Chiang Mai Initiative Multilateralization (CMIM). The author then suggests how the CMIM can evolve into an integrated crisis prevention and resolution mechanism for East Asia.

Keywords Chiang Mai Initiative Multilateralization • Financial crisis • Prevention • Resolution

8.1 Introduction

East Asia has been through two crises over the past decade and a half. The first one, in 1997–1998 was particularly severe, with three countries in the region, Thailand, Indonesia, and the Republic of Korea, becoming essentially insolvent in terms of not having enough foreign currency to meet their foreign currency obligations. All three countries had to enter into International Monetary Fund (IMF) supervised programs, and were forced to undertake harsh policies under IMF conditionality. In the global financial crisis of 2008–2009, the region fared much better on the foreign exchange front, with most countries being able to manage the volatility arising from

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_8,

the rapid capital outflows from the region following the closure of Lehman Brothers. However, some countries had severe dollar liquidity shortages and had to enter into bilateral swap agreements with other countries to help them cope with the liquidity shortages.

This chapter discusses mechanisms to prevent and resolve foreign exchange crises in East Asia. Section 8.2 discusses policies at the level of a particular country to prevent foreign exchange crises, including the management of short-term foreign currency liabilities, the adequacy of reserves, and episodes of rapid short-term capital inflows. Section 8.3 discusses the development of regional mechanisms for crisis prevention and resolution in conjunction with the global mechanisms, including the Chiang Mai Initiative (CMI) and the Chiang Mai Initiative Multilateralization (CMIM). The chapter suggests how these can evolve into an integrated crisis prevention and resolution mechanism for East Asia.

8.2 Country Policies to Prevent Foreign Exchange Crises

The most effective policies to prevent foreign exchange crises are at the country level. Past crises occurred mainly because of policy mistakes arising from a misunderstanding of the risks and from viewing situations with a wrong paradigm. This section will address issues related to the 1997–1998 crisis, the management of the adequacy of foreign reserves, and the management of short-term capital inflows.

Short-Term Foreign Debt and the 1997–1998 Crisis

The 1997–1998 Asian financial crisis highlighted the importance of having appropriate policies at the country level to manage the adequacy of foreign reserves in order to prevent foreign exchange crises. Prior to the crisis, the main paradigm for viewing the adequacy of foreign reserves was that based on current account transactions, that is, foreign reserves should be adequate to back up current account transactions with the rest of the world. A widely used measure was the number of months of imports that reserves can cover, with at least 3 months of imports often used as a guideline, although there was no absolute scientific backing for the number.

This current account paradigm guided the Thai authorities' perception of the Thai macroeconomic position in the early to mid-1990s. Reserves were increasing rapidly up to 1996, and they were adequate to cover more than 5 months of imports (Fig. 8.1). The increase in reserves and the high ratio of reserves to average monthly imports led the authorities to believe that Thailand's macro position was strong. This was in spite of the fact that the annual current account deficit averaged about 7 % of gross domestic product (GDP) between 1990 and 1996.

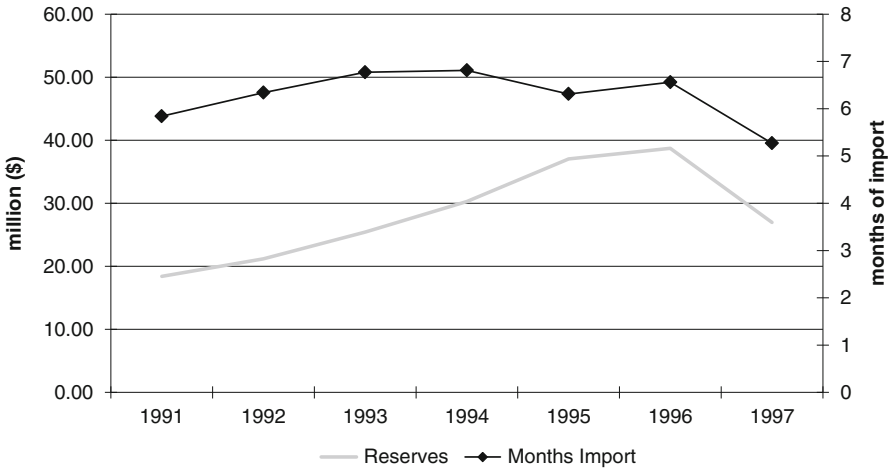

Fig. 8.1 Reserves and months of imports. *Source*: Bank of Thailand data. http://www.bot.or.th/English/Statistics/EconomicAndFinancial/Pages/index1.aspx (accessed December 2010)

Given the large current account deficits, the main reason why reserves were increasing was because of large capital inflows. These were mainly foreign currency bank borrowing from abroad. In the early 1990s, the Thai authorities aimed to make Bangkok a regional financial center to rival Hong Kong, China and Singapore. Many financial liberalization measures were carried out and by 1993 most foreign exchange controls on current account and capital account transactions had been lifted. In March 1993, the Thai government established the Bangkok International Banking Facilities (BIBF) to serve as a means to develop Bangkok into an international financial center. Tax privileges were given to BIBF transactions to enable it to compete with other financial centers. It was hoped that the BIBF would result in a lot of in-out financial flows, so that Bangkok would become a financial center providing financing to other regional economies. Instead, most of the inflows remained in Thailand and were fueling an economic bubble, leading to a rapid increase of short-term foreign debt, which were the key elements that brought about the crisis.[1]

Adopting a flawed macroeconomic policy regime further fueled the rapid capital inflows. The authorities liberalized cross-border capital flows while sticking to a fixed exchange rate system and also pursuing an independent monetary policy. This was, of course, the classic Mundell "impossible trinity" (Mundell 1963). Thailand had successfully used a fixed exchange rate system since the end of the Second World War. However, these successes were mostly in a global environment of modest financial capital flows. The mistake was to stick to this old paradigm in the 1990s when capital flows became very large and very volatile.

[1] For more details on the evolution of the crisis, its resolution, and lessons see Sussangkarn and Vichyanond (2007).

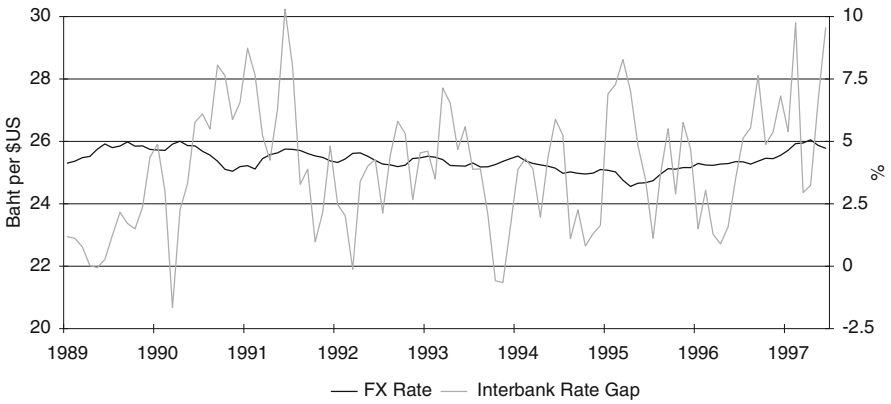

Fig. 8.2 Exchange rate and interbank rate gap. *FX* foreign exchange. *Sources*: Bank of Thailand data. http://www.bot.or.th/English/Statistics/FinancialMarkets/Pages/index.aspx (accessed December 2002); US Federal Reserve data. http://www.federalreserve.gov/releases/h15/data.htm (accessed December 2002)

Prior to the crisis, the baht was fixed to a basket of currencies, with the dollar having a dominant weight, resulting in a fairly stable baht–dollar rate for many years prior to the crisis. However, Thailand also tried to pursue an independent interest rate policy. This can be seen from the gap between the Thai overnight interbank rate and the overnight Federal Reserve fund rate. This gap averaged about 3.97 % between January 1989 and June 1997 (the last month before the float of the baht), and sometimes reached up to 10 % (Fig. 8.2). With liberalized capital flows, this inevitably led to a large amount of capital flow into Thailand.

Most of the inflows were in the form of foreign currency bank borrowing, and most of the bank borrowing was short term (maturity less than 1 year). The predominance of short-term borrowing in foreign currency bank borrowing of most of the emerging market economies, including Thailand, had to do with the Basel Capital Accord. In the provisioning requirements of the Basel Capital Accord, a 20 % risk weighting was applied to short-term loans to non-Organisation for Economic Co-operation and Development (OECD) banks, while 100 % risk weighting had to be applied for long-term loans (with a maturity of 1 year or more) (Basel Committee on Banking Supervision 1988; Basel Committee on Banking Supervision 1998). Therefore, it was much less costly for the lender to lend short term. This may have made sense in the context of a particular loan, because in the short term there is less chance of the borrower turning non-performing. However, more and more short-term borrowing coming into a country led to more challenges for the authorities to make sure that these short-term borrowings were sufficiently backed up by foreign reserves.

The paradigm on the adequacy of foreign reserves prior to the 1997–1998 crisis was mainly derived from a current account paradigm. As short-term borrowing increased, the authorities were observing that reserves were increasing rapidly. Not much attention was paid at that time to the fact that short-term borrowing was also

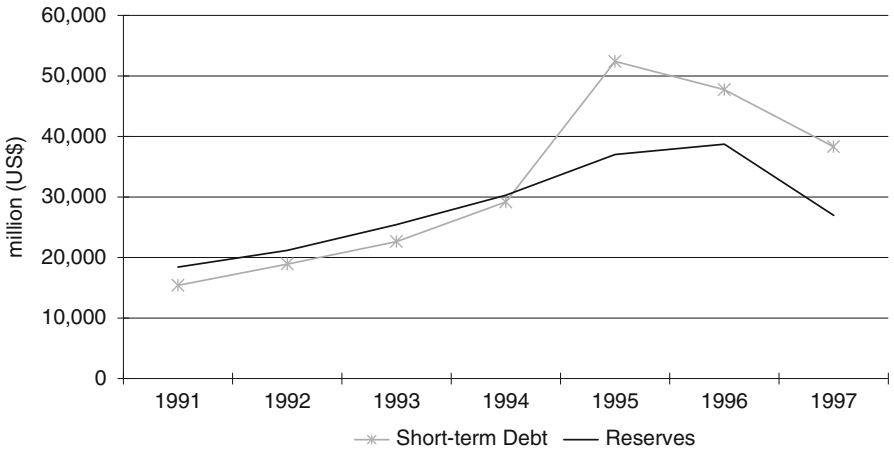

Fig. 8.3 Short-term debt and reserves. *Source*: Bank of Thailand data. http://www.bot.or.th/English/Statistics/EconomicAndFinancial/Pages/index1.aspx (accessed December 2010)

increasing rapidly, and was actually the main reason why reserves were increasing. Data on short-term foreign borrowing were also not readily available. In the case of Thailand, when the issue of short-term borrowing was eliciting the attention of the authorities in 1996, it took some time to gather the required data and what could be gathered was incomplete. In hindsight, it can be seen that the size of outstanding short-term foreign debt was about the same as foreign reserves between 1991 and 1994 and became much larger than the reserves in 1995 and 1996 (Fig. 8.3).

The situation became risky as the financial market feared that reserves were insufficient to back up all the short-term foreign currency obligations of the country, particularly as Thailand was also running a monthly current account deficit of about $1 billion around that period. In fact, by the end of 1996, financial markets became convinced that the value of the baht could not be maintained and expected a sizeable devaluation or depreciation of the baht. Speculators attacked the baht a number of times and the Bank of Thailand made the fatal mistake of using more and more of the reserves to fight off speculators and defend the value of the baht. Forward sales of dollars were made at a similar rate to the spot rate to show the authorities' commitment to defend the value of the baht. The outcome, however, was that net reserves (reserves net of forward obligations to sell the dollar) fell rapidly, and by the end of June 1997, net reserves were only about $2.8 billion (Fig. 8.4). This was tiny compared to outstanding short-term foreign debt at that time of about $48 billion and the continued current account deficit of about $1 billion per month. Thailand was basically insolvent in terms of no longer having sufficient foreign currencies to meet its foreign currency obligations. The baht had to be floated on 2 July 1997 and Thailand had to enter an IMF supervised program.

Having inadequate reserves to back up short-term foreign debt was also the case for two other countries in East Asia: Indonesia and the Republic of Korea. Together with Thailand, these were the countries with a much higher level of short-term

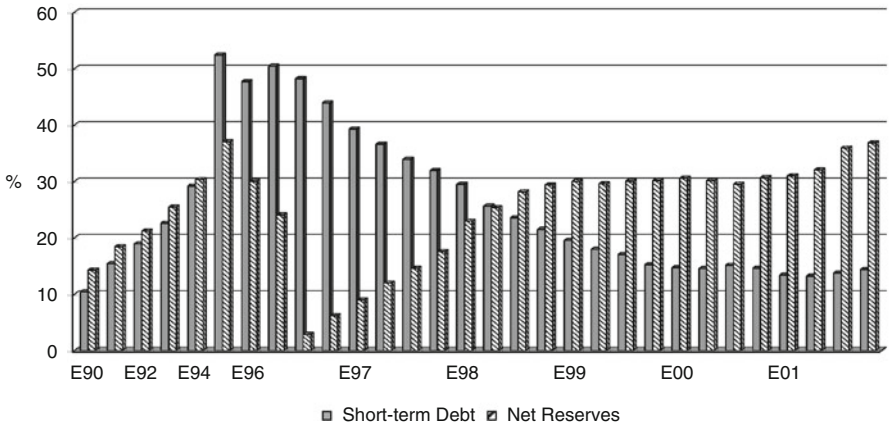

Fig. 8.4 Short-term foreign debt and net reserves. *E* end of year. *Source*: Bank of Thailand data. http://www.bot.or.th/English/Statistics/EconomicAndFinancial/Pages/index1.aspx (accessed December 2005)

Table 8.1 Ratio of short-term foreign debt to official reserves (%)

	1991	1992	1993	1994	1995	1996
People's Republic of China	24.3	64.8	66.5	32.6	29.4	23.6
Indonesia	*139.7*	*158.5*	*145.6*	*147.4*	*175.6*	*167.2*
Malaysia	18.8	21	25.4	24.2	30.4	40.8
Philippines	109.2	98.5	85	80.3	67.9	67.9
Singapore	2.7	2.3	2	1.7	1.8	2.6
Republic of Korea	*81.6*	*69.5*	*60.2*	*123.1*	*142.5*	*195.4*
Thailand	*83.6*	*89.3*	*89*	*96.4*	*141.5*	*123.3*

Note: Countries in italics are Asian crisis countries
Sources: Asian Development Bank (ADB) (2001); Bank of Thailand data. http://www.bot.or.th/English/Statistics/EconomicAndFinancial/Pages/index1.aspx (accessed December 2005)

foreign debt compared to reserves (Table 8.1). When the crisis hit Thailand, information about the extent of short-term foreign debt and reserves became more publicly available. Capital flows quickly reversed and there was a rush to get hold of foreign currencies resulting in rapid depreciation of the baht. Attention also turned to other countries in the region that could suffer the same predicament. In the end, a rush to exit also led to Indonesia and the Republic of Korea needing to enter IMF supervised programs. The IMF conditionality imposed on the three countries was very harsh and controversial and this has left a stigma on the IMF within the region to this day, even though the IMF itself has evolved quite a lot from that time.[2]

[2] For discussions of the IMF program for Thailand, see Sussangkarn (2002).

Managing Foreign Reserves Adequacy

After the 1997–1998 crisis, the danger of allowing short-term foreign debt to become too large, in particular to become larger than foreign reserves, was widely recognized. Most countries developed appropriate and timely data on important economic indicators, including foreign debt, both short and long term. For example, in Thailand, the availability of data that were essential for risk assessments and economic management was woefully inadequate before the crisis. Gross domestic product (GDP) data were only available on an annual basis and with a time lag of a year or so. Regularly available quarterly or monthly data were extremely limited, and data on short-term foreign debt were hardly available at all. Significant improvements were made after the crisis. Many monthly and quarterly data series were produced. A quarterly GDP series was developed and has been available with a one-quarter lag for many years now. Vast amounts of monthly official data are now accessible for downloading through the Internet from public agencies such as the Bank of Thailand and the National Economic and Social Development Board. The availability of these data allows public and non-public sector organizations, as well as academics and financial analysts, to better track economic developments and make more accurate risk assessments. In addition, important variables related to a potential foreign exchange crisis, such as short-term foreign debt and foreign reserves (including net forward commitments), have been regularly monitored and analyzed.

Although the issue regarding the need to have sufficient reserves to back up short-term foreign debt (as well as for current account transactions) was a prominent one associated with the 1997–1998 crisis, it would be a mistake to ignore other potential sources of short-term foreign exchange liabilities. Foreign holdings of domestic stocks and bonds, for example, can quickly be liquidated and the local currency proceeds converted to foreign currencies to take out of the country. When these other potential short-term foreign exchange liabilities are taken into account in addition to short-term foreign debt, reserves may be insufficient to cover all of them together. Also, while a country's reserve may be large, rapidly liquidating large amount of reserves may be difficult. Thus, countries can still find themselves facing foreign exchange liquidity problems in periods of rapid capital outflows. This was certainly the case for some countries during the period of dollar liquidity shortage resulting from the global financial crisis.

The Republic of Korea and Indonesia were particularly vulnerable to sudden capital outflow shocks when acute dollar liquidity shortages developed after the closure of Lehman Brothers on 15 September 2008. The won depreciated rapidly, falling by about 25 % over the next 3 months (Fig. 8.5). The Republic of Korea had to enter into a swap agreement with the United States (US) Federal Reserve for $30 billion in order to stabilize the situation. Eventually, when the depreciation of the won led to a sustained current account surplus, the won began to appreciate and eventually stabilized at a level about 8.5 % weaker than its level prior to Lehman's closure. Indonesia also suffered foreign currency liquidity problems, although to a

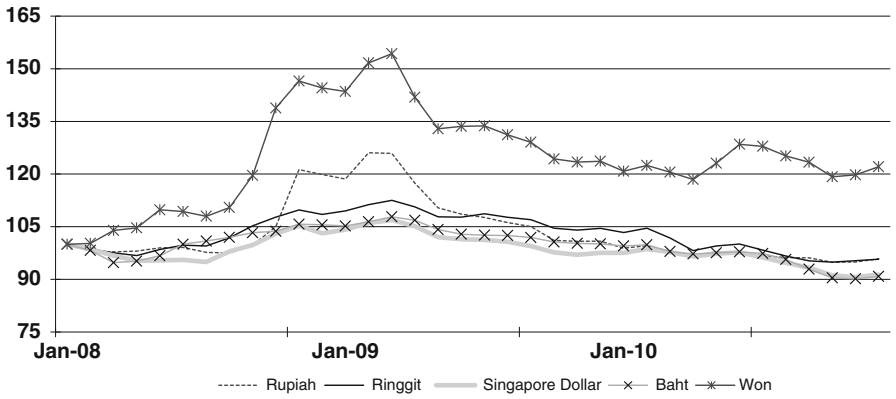

Fig. 8.5 Trend in exchange rate indices (January 2008 = 100). *Source*: Bank of Thailand data. http://www.bot.or.th/English/Statistics/FinancialMarkets/ExchangeRate/Pages/StatExchangeRate_old.aspx (accessed December 2011)

lesser extent than the Republic of Korea. The rupiah depreciated by about 20 % in the 3 months after the closure of Lehman Brothers, and Indonesia also requested a swap with the US Federal Reserve, similar to the one the Federal Reserve gave to the Republic of Korea. This was, however, refused, and Indonesia eventually got a swap with the People's Republic of China (PRC) amounting to CNY100 billion (about $15 billion) and increased the maximum amount of its pre-existing swap agreement under the Chiang Mai Initiative with Japan to $12 billion.[3]

The experiences of the 1997–1998 Asian financial crisis and the global financial crisis showed that unexpected capital outflows can occur rapidly, possibly through domestic policy mistakes or from global shocks. Countries need to make sure that such a situation remains temporary and does not turn into a full blown financial crisis like the situation in 1997–1998. Having sufficient reserves to ride through the storm is very important. If it is known or suspected that a country does not have enough reserves, whether the country's own or through its bilateral, regional, or global arrangements, then there will be a rush to exit to make sure that foreign currencies will still be available and also to race against the inevitable rapid and large depreciation of the local currency.

There are various types of potential short-term foreign currency liabilities that foreign reserves should back up. An IMF study (IMF 2011) developed new guidelines for assessing the adequacy of foreign reserves. A metric was developed based on variables that might be behind drains on foreign reserves. Five variables were highlighted: short-term debt (STD); other portfolio liabilities (OPL), such as foreign holdings of stocks and bonds; broad money (M2), for countries with limited

[3] Although only 20 % of this could be utilized without linking to an IMF supervised program (see discussion of the Chiang Mai Initiative below. Japan and Indonesia also supplemented this in July 2009 with a rupiah–yen swap agreement amounting to ¥1.5 trillion (about $19 billion).

controls on capital outflows from residents; and exports (X), in case there is an export shock leading to reduced foreign exchange inflows from exports. Based on data from previous capital outflow episodes from various countries, a metric is suggested for emerging market economies with fixed exchange rate and floating exchange rate regimes as follows:

$$\text{Fixed} : 0.3^{*}\text{STD} + 0.15^{*}\text{OPL} + 0.1^{*}\text{M2} + 0.1^{*}\text{X}$$

$$\text{Float} : 0.3^{*}\text{STD} + 0.1^{*}\text{OPL} + 0.05^{*}\text{M2} + 0.05^{*}\text{X}$$

It is then suggested that foreign reserves should be in the range of 100–150 % of the respective metric to be able to deal adequately with potential outflow episodes. The report certainly makes advances to the analysis of what might be an adequate level of foreign reserves. However, it should be made clear that the authors emphasized that this is really a work in progress and should not be taken as policy recommendations. The paper stated:

> The proposal above reflects work in progress and should at best be regarded as a potential advance on existing metrics, and still providing guidance only at the most general level. Additional experience and analysis can yet be brought to bear both on what weights should be put on different sources of risk and also on how much of the resulting metric is reasonable to hold. And considerable judgment would be required in application to individual countries (IMF 2011: 27).

For a country like Thailand that has been through a foreign exchange crisis and the pain of having to implement harsh IMF conditionality, it would not be surprising that a much more conservative approach to an adequate level of reserves would be adopted. And indeed, based on the above metric, the IMF study showed that Thailand's foreign reserve was around 300 % of the proposed metric in 2009, and Thailand ranked among the very top countries in terms of the ratio of reserves to the suggested metric (IMF 2011).

In the Thai context, M2 is probably not so important, as there are still strict controls on capital outflows by residents that are not backed up by underlying current account transactions. Exports, particularly manufactured exports, also tend to be related to imports as a lot of parts and components are imported for the assembly of exports. So when exports declined, such as during the global financial crisis following the closure of Lehman Brothers, imports also tended to decline. Indeed, in the first quarter of 2009, when exports declined by about 20 % year on year, imports declined by about 38 % and the current account surplus in that quarter was the largest quarterly current account surplus ever, amounting to almost $10 billion compared to an average quarterly current account surplus of about $3 billion in the 2 years prior to the global financial crisis. So the most important potential foreign exchange short-term liabilities for a country like Thailand are the short-term foreign debt and other portfolio liabilities. And based on past crises and rapid capital outflow episodes, it would be safest for reserves to be able to easily cover all of these potential liabilities; that is reserves should be well above the total of short-term foreign debt and other foreign portfolio liabilities.

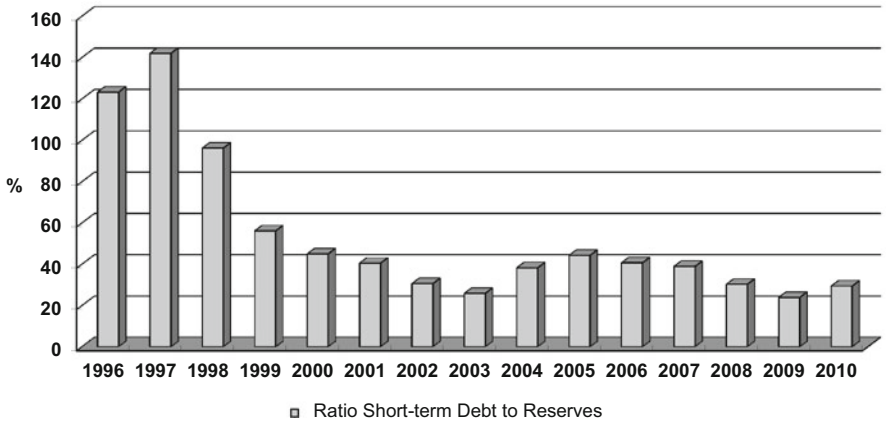

Fig. 8.6 Ratio of short-term debt to reserves: Thailand. *Source*: Bank of Thailand data. http://www.bot.or.th/English/Statistics/EconomicAndFinancial/ExternalSector/Pages/StatExternalDebt.aspx (accessed December 2011)

It should also be noted that having a certain amount of reserves does not mean that all of the reserves can be drawn upon quickly. Most of the reserves are normally held in US treasuries or other hard currency government bonds. If a sizeable amount of the reserve holdings need to be liquidated quickly, this may result in bond market disruptions and also possible capital loss. So liquidity of the foreign currency assets is an issue that also needs to be borne in mind.

Managing Short-Term Capital Inflows

Making sure that foreign reserves are adequate to cover potential short-term foreign currency liabilities is related to managing short-term capital inflows. After the 1997–1998 crisis, most countries have carefully monitored short-term foreign debt and have made sure that short-term foreign debt remains a low proportion of reserves. In Thailand, for example, the ratio of short-term foreign debt to official reserves has remained in the range of 20–40 % over the past 10 years (Fig. 8.6). More of a problem for Thailand and many other countries in the region have been periods of rapid portfolio capital inflows.[4] The rapid inflows created challenges for reserves management and, the closely related issue, exchange rate management.

When there are surges in short-term portfolio capital inflows, the short-term contingent liability on foreign currencies increases in line with these inflows. In recent years, international financial markets have become very volatile, so capital

[4] And, of course, the rapid capital outflows during the global financial crisis.

flow reversals can occur frequently. Short-term funding from money markets in the developed countries finances a lot of these short-term portfolio investment inflows. So when there are market disruptions, as when Lehman Brothers was closed down, liquidity can tighten rapidly, and this can lead to massive capital outflows from emerging markets. To make sure that these surges in inflows and outflows do not lead to major negative spillovers into the real economy, it is important to have sufficient reserves to back up these short-term foreign currency liabilities (as was discussed above). To do this, the authorities should buy up these short-term foreign currency inflows, so reserves will increase by a similar amount to the inflows, and be available to use when capital flow reversals occur. With this strategy, as short-term foreign exchange contingent liability increases from the inflows, reserves will also increase in line and be sufficient to back up the liability.

Absorbing the short-term capital inflows into reserves will also mean that the exchange rate will not be affected too much by the inflows. This seems to be the right approach, as the exchange rate should be based more on fundamental factors, such as current account transactions and long-term foreign direct investment, rather than short-term speculative flows.[5] Also, when the situation changes to one of rapid outflows, the reserves that were previously absorbed from the inflows can then be used to bring relative stability to the exchange rate. This issue of managing reserves and the exchange rate under volatile short-term capital flows has been very important for many East Asian economies that rely a lot on exports to drive their growth. When rapid capital inflows lead to significant currency appreciation, exporters complain, and there are political pressures to manage the exchange rate more intensively. This can even lead to the adoption of drastic capital control measures, such as that in Thailand in December 2006.[6]

There are, however, constraints to absorbing all the short-term capital inflows into reserves. The increase in reserves will lead to increased liquidity of the domestic currency. This will need to be sterilized to prevent over-heating and a build up of inflationary pressures. However, what can be earned from foreign reserves has been somewhat lower than the cost of issuing treasury bills to sterilize the inflows in recent years. So the central bank will make a loss from the operation. In addition, if the inflows also lead to appreciation of the local currency, the central bank also suffers another loss from the fall in value of the reserves in local currency terms.

Depending on the specific institutional context of various economies, this loss of the central bank may be more or less important. In the context of Thailand, this has very important fiscal implications. After the 1997–1998 Asian financial crisis, the government incurred huge clean up costs of the financial system. A large number of bonds were issued to pay for this clean up cost. It was agreed that the Bank of

[5] However, in recent years, many East Asian economies have also been preventing their currencies from appreciating even though they have large current account surpluses and net foreign direct investment inflows.

[6] See more discussions on the Thai case below.

Thailand would be responsible for the capital amount of the bonds and the Ministry of Finance will be responsible for the interest costs via the regular fiscal budget. Because of the losses that the Bank of Thailand has been incurring from reserve and exchange rate management, the capital amount of the clean up bonds has hardly declined for many years, and was still more than B1.1 trillion (about $37.7 billion) at the end of 2011. Each year the government has to set aside about $1.5 billion to $2 billion to pay for the interest on these bonds in the fiscal budget. This issue has led to tensions between the Bank of Thailand and the Ministry of Finance on exchange rate management and monetary policy (as the policy rate also affects the cost of sterilizing the capital inflows).[7]

The difficulty in dealing with large capital inflows and their impacts on the exchange rate, the Bank of Thailand's balance sheet, and political pressures to protect the export sector that has been Thailand's main engine of growth since the 1997–1998 crisis, led to the imposition of capital controls in December 2006. The capital inflows in 2006 were large and sustained. Although the Bank of Thailand had been buying foreign currencies to ease the strengthening trend of the baht, the baht strengthened from about B41 to the dollar at the end of 2005 to about B37.6 to the dollar at the end of the third quarter of 2006. The capital inflow became even more rapid in the last quarter of 2006. Between the beginning of October 2006 and the middle of December 2006, the central bank intervened extensively in the foreign exchange market to buy up foreign currencies that were flowing into the country. It was buying an average of about $800 million per week for ten consecutive weeks. Yet, the baht strengthened at the most rapid pace ever, reaching about B35.2 to the dollar by the middle of December 2006.

Because of the baht appreciation, the authorities were under tremendous political pressure from businesses to intervene more. On 18 December 2006, Thailand imposed capital controls on capital inflows by copying measures that Chile had used in the early 1990s. Inflows were subject to a 30 % unremunerated reserve requirement (so only 70 % of the inflows can be invested) and the capital inflow needed to be kept in the country for at least 1 year, otherwise there would be a fine equal to 10 % of the capital amount. The next day the stock market crashed by 15 % and the authorities had to reverse the controls on those inflows coming to invest in the stock market.

In hindsight, it seemed clear that the authorities did not really understand that the requirement to keep the capital inflow in the country for at least 1 year was extremely strong, because very few investors can afford to park their money in one place for that long, particularly as a lot of the funds behind the inflows were raised in the short-term money market. When different inflows were treated differently, there were possibilities of leakages of one type of inflow into another,

[7] From January 2012, the Thai government shifted the whole interest burden of the clean up bonds to the Bank of Thailand and diverted most of the bank contributions to the Deposit Protection Agency to the Bank of Thailand to help meet the interest burden. The change will impact the balance sheet of the Bank of Thailand for many years to come as well as reduce credibility of the Deposit Protection Agency.

and this created a lot of administrative challenges for the authorities. Also, when inflows into the stock market were excluded from the controls, the controls were not very effective in discouraging capital inflows and their impacts on the exchange rate. Inflows into the stock market led to increases in stock prices in local currency and they also led to appreciation of the local currency, given that the authorities did not buy up all the inflows into reserves, so inflows created double profits for the speculators, from stock price increases and from the appreciation of the baht. The baht continued to appreciate throughout the duration of the capital control measures, which were eventually abandoned in March 2008.

In spite of the failure of the Thai capital control measures, capital control measures should not be ruled out per se, as they can provide a valuable added instrument for the authorities to manage the volatility arising from capital flows, if they are well designed. However, it would be dangerous to copy measures that may have worked for some country at some point in the past. The financial system changes so rapidly and financial globalization is now very extensive, so measures that might have worked in the past may be counter-productive in the present day. If capital controls are to be introduced then they must be well designed and the authorities must be sure of how the financial markets will respond to them. More research is needed on the appropriate capital control measures in various circumstances.[8] Equally important, it would be risky for a single country to adopt capital control measures without some regional or global agreement on the need and appropriate norms for such measures. Unilateral measures by a particular country can lead to credit rating downgrades and even retaliatory measures. So this is an area for regional or global discussions and agreements. Similarly, regional and global mechanisms to help countries prevent and resolve foreign exchange crises are also needed to supplement measures at the country level, given that there are many limitations on what a country can do by itself in the current period of large and volatile capital flows.

8.3 Regional and Global Mechanisms

While the most important measures to prevent the occurrence of a foreign exchange crisis are those taken by the countries concerned, the ability of countries to adequately protect themselves from unexpected capital outflows may be limited and costly. Certainly, the severe dollar liquidity shortages and rapid capital outflows from emerging markets that occurred after the closure of Lehman Brothers were totally unexpected. The key is to keep the disruptions from these outflows temporary and prevent these events from leading to a full-blown financial crisis for countries facing these outflows.

[8] Kawai and Lamberte (2010) is an excellent example of the kind of studies that are needed.

Most economies in East Asia weathered the storm arising from the capital outflows well, mainly because they had accumulated large reserves that were very useful in cushioning the impacts of the outflows. However, some economies, such as the Republic of Korea and Indonesia, had liquidity problems, and in the end they relied on ad hoc bilateral swap agreements to cushion them through the outflow episode. While these bilateral swap agreements were helpful during the global financial crisis, they have limitations in that it depends on the swap providing countries whether these swaps will be provided to particular countries, as illustrated by the refusal of the US Federal Reserve to provide a swap to Indonesia.

It would be more effective if foreign exchange support mechanisms were developed at the regional and global level in a systematic way. Indeed, East Asian economies have been developing regional liquidity support mechanisms since the early 2000s, through the Chiang Mai Initiative (CMI) and the Chiang Mai Initiative Multilateralization (CMIM). These mechanisms have to be developed further to become an integrated crisis prevention and resolution mechanism for the region. This section describes the CMI and CMIM and discusses how the current CMIM can evolve to become such an integrated mechanism.

Building Up East Asian Regional Mechanisms: CMI and CMIM[9]

The harsh nature of the IMF conditionality imposed on Thailand, Indonesia, and the Republic of Korea led to dissatisfaction within the region. The region as a whole also had a lot of financial resources, whether in terms of foreign reserves or net savings. Many parties in the region felt that if there had been more financial cooperation within the region prior to the crisis, the crisis could possibly have been avoided, or at least could have been resolved with more sensitivity to the socio-political circumstances of each economy and with less pain. The Association of Southeast Asian Nations (ASEAN)+3 group (ASEAN plus the PRC, Japan, and the Republic of Korea) was formed and they embarked on a number of financial cooperation initiatives, such as developing liquidity support mechanisms, the CMI and CMIM, and developing the region's bond markets. These financial cooperation initiatives have since expanded to other areas, with annual ministerial level meetings in many sectors apart from finance.

Soon after Thailand entered the IMF program, Japan proposed the setting up of an Asian Monetary Fund (AMF). The proposal was too radical for that time and there had not been enough prior consultation within the region so it did not get full support. The proposal was also attacked—particularly by the IMF and the US—on the grounds that a regional fund would create a lot of moral hazard in relation to the IMF. The idea was quickly dropped (Manupipatpong 2002).

[9] For more details on the development of the CMI and CMIM, see Sussangkarn (2011a).

In spite of the AMF setback, key players in the region continued to explore ideas for financial cooperation. At a meeting of Asian finance and central bank deputies in Manila, in November 1997, the so-called "Manila Framework" was developed. This was to be "A New Framework for Enhanced Asian Regional Cooperation to Promote Financial Stability." Given the involvement of the US and the IMF at the meeting, the ideas incorporated into the framework were not very radical and stressed the central role of the IMF. The Manila Framework explicitly acknowledged the need for any East Asian regional framework that may emerge to be consistent with and supportive of the global framework.

The Manila Framework was endorsed at a meeting of finance ministers from ASEAN; Australia; the PRC; Hong Kong, China; Japan; the Republic of Korea; and the US, in Kuala Lumpur on 2 December 1997. Work on the regional cooperative financing arrangement to supplement IMF resources continued. Eventually, in May 2000 at the ASEAN+3 finance ministers' meeting in Chiang Mai, Thailand (back-to-back with the Asian Development Bank Annual Meeting), the ministers recognized "a need to establish a regional financing arrangement to supplement the existing international facilities," and agreed to "strengthen the existing cooperative frameworks among our monetary authorities through the Chiang Mai Initiative (CMI). The CMI involves an expanded ASEAN Swap Arrangement[10] that includes all ASEAN countries, and a network of bilateral swap and repurchase agreement facilities among ASEAN countries, the PRC, Japan, and the Republic of Korea" (ASEAN+3 Finance Ministers 2000).

The CMI was designed as a regional financing arrangement that provides short-term liquidity support to any of its members that may experience balance of payment difficulties. It was intended to supplement the existing international financial arrangements and was designed to be closely linked to the IMF. Only 10 % of the swap amount could be accessed without being under an IMF program (later increased to 20 %). Because of this, the US and the IMF cautiously welcomed the initiative. The most recent total amount of swaps under the CMI, before the CMI was replaced by the CMIM in March 2010, was $90 billion, with various bilateral amounts (Fig. 8.7).

While $90 billion may appear to be a reasonable size, the amount available to each country was in fact not very large, especially if the drawing was not linked to an IMF program. For example, if the latest structure of the CMI had been available before the crisis in 1997, Thailand would have been able to draw about $2 billion from the CMI swap arrangements prior to asking for IMF assistance. This amount is insignificant compared to the scale of problem that Thailand faced in mid-1997, or

[10] The ASEAN Swap Arrangement (ASA) was established in 1977 by the central banks of the original ASEAN member countries (Indonesia, Malaysia, Philippines, Singapore, and Thailand) to provide short-term (1–6 months) liquidity assistance to members that might experience a temporary international liquidity problem. The initial size was $100 million. The expanded ASEAN Swap Arrangement increased the size to $1 billion, which was later increased further to $2 billion and the membership was expanded to include all 10 ASEAN member countries.

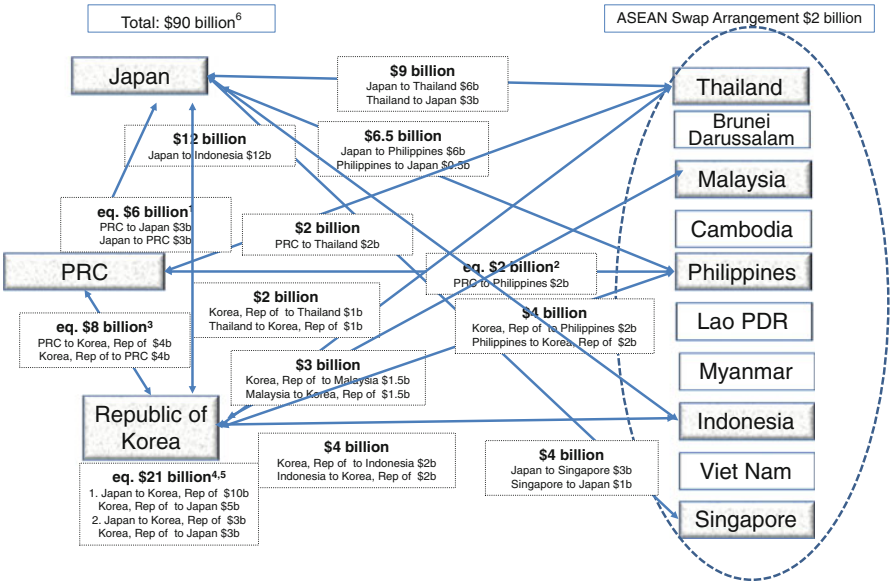

Fig. 8.7 Network of bilateral swap arrangement under the Chiang Mai Initiative (April 2009). *b* billion, *eq*. equivalent, *Lao PDR* Lao People's Democratic Republic, *PRC* People's Republic of China, *US* United States. *Notes*: 1. Local currency swap between yen and yuan; 2. Local currency swap between yuan and peso; 3. Local currency swap between yuan and won; 4. Local currency swap between yen and won; 5. The maximum amount was increased to $20 billion equivalent until end October 2009; 6. The sum of $90 billion does not include the ASEAN Swap Arrangement. *Source*: Ministry of Finance, Japan. http://www.mof.go.jp/english/international_policy/financial_cooperation_in_asia/cmi/CMI_0904.pdf

compared with the size of the IMF package for Thailand ($17.2 billion). Therefore, the amount of money available under the CMI was too small to make a lot of difference.

With the small amount of money available in the IMF unlinked portion of the CMI, the CMI cannot be regarded as a crisis prevention facility. With the required link to an IMF supervised program if more than 20 % of the swap amounts are drawn upon, there is little difference from a normal IMF facility in times of crisis. IMF conditionality will still be applied, so the CMI does not get away from the problem of East Asia not having much say in the IMF conditionality. The CMI is therefore more of a crisis resolution facility with the IMF having the supervisory role as in 1997–1998. While the CMI swaps can be regarded as contributing to funding that can be made available to resolve a crisis, this is no different to the actual IMF packages in 1997–1998, when only a small portion of the money making up the various packages came directly from the IMF. For Thailand, for example, only $3.9 billion out of the $17.2 billion package was the IMF's own money, and most of the package was from contributions from countries within the region. So the CMI does not seem to add anything much to the situation that existed before the 1997–1998 crisis.

This also explains why the CMI did not play any significant role for economies in the region requiring foreign currency liquidity support during the global financial crisis. During the period of US dollar liquidity shortages following the closure of Lehman Brothers, countries like the Republic of Korea and Indonesia were not in crises like they were in 1997–1998. The economies and financial systems were sound, and they also had reasonably large reserves. The problem was one of temporary foreign exchange liquidity shortages and nowhere near one of insolvency. In such a situation, asking these countries to go under an IMF supervised program in order to be able to access sufficient funds from the CMI is unrealistic.[11] In any case, there is still a stigma attached to the IMF that may create a lot of political problems for any East Asian government that takes its country into another IMF supervised program.

Although the CMI did not really bring much value-added to what had existed before the Asian financial crisis, it can, however, be viewed as a significant symbolic initiative, showing that the economies in East Asia were willing to work together to develop self-help mechanisms. The CMI was clearly a work in progress that needed to be developed into something more tangible and substantive. The next step in this process was the Chiang Mai Initiative Multilateralization (CMIM).

In 2006, a task force was set up to explore various possible approaches towards a more advanced framework of regional liquidity support arrangement. Upon the task force recommendations, the ASEAN+3 finance ministers agreed in principle at their meeting in May 2007 in Kyoto, Japan that the CMI should evolve into a CMIM, which would take the form of a self-managed reserve pooling arrangement governed by a single contractual agreement. The officials were tasked with working out the details of such an arrangement. These were not finalized until after the onset of the global financial crisis.

In spite of the CMI not playing any role to help economies with foreign exchange liquidity problems during the global financial crisis, ASEAN+3 still pushed ahead with CMIM. This is likely to be from the realization that a regional liquidity support mechanism can be made to work and the institution building involved will yield benefits in the longer term far beyond simply providing liquidity support. Negotiations to finalize the CMIM were not straightforward, particularly on economy contributions and voting weights. However, these were mostly concluded by May 2009 with some final revisions in 2010. The CMIM came into effect and replaced the CMI on 24 March 2010. The economy contributions, purchasing multiples, and voting weights were as shown in Table 8.2.

The total size of the CMIM was $120 billion, with ASEAN countries contributing 20 %, and the plus three economies the other 80 %. Japan and the PRC each contribute 40 % of the plus three's contributions (with Hong Kong, China included as part of the PRC contribution) and the Republic of Korea contributing the other 20 %. Each economy's maximum swap quota equals its contributions multiplied by

[11] The Republic of Korea, for example, could have accessed $16.5 billion through its won–dollar swaps under the CMI if it was willing to go into an IMF supervised program.

Table 8.2 CMIM contributions, purchasing multiples, and voting weights

Economy	Contribution (US$ billion)		Purchasing multiple	Voting weight (%)
Brunei Darussalam		0.03	5.0	1.158
Cambodia		0.12	5.0	1.222
People's Republic of China (PRC)	PRC, excluding Hong Kong, China 34.2	38.4	0.5	25.430
	Hong Kong, China 4.2		2.5	2.980
Indonesia		4.552	2.5	4.369
Japan		38.4	0.5	28.410
Republic of Korea		19.2	1.0	14.770
Lao People's Democratic Republic		0.03	5.0	1.158
Malaysia		4.552	2.5	4.369
Myanmar		0.06	5.0	1.179
Philippines		4.552	2.5	4.369
Singapore		4.552	2.5	4.369
Thailand		4.552	2.5	4.369
Viet Nam		1.00	5.0	1.847

CMIM Chiang Mai Initiative Multilateralization
Source: Joint Ministerial Statement of the 13th ASEAN+3 Finance Ministers' Meeting, Tashkent, Uzbekistan, 2 May 2010. http://www.asean.org/archive/documents/JMS_13th_AFMM+3.pdf

its purchasing multiple, so for example, Thailand's quota was $4.552 billion times 2.5 or $11.38 billion. However, there was still a link with the IMF if more than 20 % of the swap quota is used. Since May 2012, the size of the CMIM has been doubled to $240 billion with each economy's contribution being double that shown in Table 8.2 (the purchasing multiples and voting weights remaining the same). The size of the portion unlinked to the IMF was also increased to 30 % with the possibility of increasing this to 40 % in 2014.

On decision rules, fundamental issues, such as size of pool, contributions, borrowing multiples, membership and terms of lending, will be decided by consensus at the minister of finance level. Executive decisions on lending, renewal, and default will be done using two thirds majority by the executive-level decision making body, which comprises the deputy-level representatives of the ASEAN+3 finance ministries and central banks and the Hong Kong Monetary Authority.

As of the beginning of 2014, the IMF unlinked portion of CMIM is a 6-months swap facility with three possible renewals (total of 2 years), while the IMF linked portion is a 1-year facility with two possible renewals. The 2012 meeting of the ASEAN+3 finance ministers and central bank governors also proposed setting up a CMIM Precautionary Line (CMIM-PL) as a crisis prevention facility, similar to the IMF's Precautionary and Liquidity Line and with similar pre-qualification criteria. As of the beginning of 2014, details of how the CMIM-PL would be put into operation and how the CMIM-PL would work with the CMIM (crisis resolution function) still remain to be finalized.

The CMIM process is supported by the ASEAN+3 Macroeconomic Research Office (AMRO), which was set up in Singapore in April 2011. The AMRO's role is to monitor, assess, and prepare quarterly reports on the macroeconomic situation and financial soundness of the ASEAN+3 countries; assess macroeconomic and financial vulnerabilities in any of the ASEAN+3 countries and provide assistance in timely formulation of policy recommendations to mitigate such risks; and ensure compliance of swap requesting parties with the lending covenants under the CMIM agreement.

The CMIM is still a work in progress. As with the CMI, the IMF link of the CMIM is still problematic. The crisis prevention and resolution facilities should also be designed as an integrated mechanism. In fact, whether an economy is in temporary foreign exchange liquidity shortage or in a foreign exchange crisis is not always clear-cut. With rapid and unexpected capital outflows, an economy may face foreign exchange liquidity problems, like the Republic of Korea during the global financial crisis. Even an economy with large foreign reserves may have difficulty liquidating a large amount of reserves quickly. In such a situation, having access to additional foreign exchange, similar to that made available to the Republic of Korea by the swap with the US Federal Reserve, can help to calm markets and ride the country through a temporary liquidity shortage situation. Without access to sufficient additional foreign exchange liquidity, the situation may actually deteriorate quickly and turn into a crisis situation.

Under the current CMIM, the portion unlinked to the IMF is still too small to provide effective liquidity support for situations of temporary liquidity shortages. For example, Thailand's unlinked portion (whether for crisis prevention or resolution) is $6.828 billion. This is very small compared to the IMF package of $17.2 billion that Thailand needed in 1997, or compared to bilateral swap arrangements of $30 billion that the Republic of Korea got from the US Federal Reserve during the global financial crisis. Under the current structure of the CMIM, some part of the IMF linked portion is likely to be needed in order for the swap to be effective, but this again raises the issue of IMF stigma as well as the question about the value added, or lack of, of the CMIM. It is true that an economy may pre-qualify for the IMF's precautionary and liquidity line, but if this is the case, the CMIM would not be needed. Also, economies in East Asia may not want to take the IMF exam for pre-qualification. What if an economy fails the test?

The next section suggests how the CMIM can be developed into an integrated crisis prevention and resolution mechanism, still with links to the IMF but in a different way than the current system.

An Integrated Crisis Prevention and Resolution Mechanism for East Asia

The CMIM can be developed into an integrated crisis prevention liquidity support facility and a more medium-term crisis resolution facility for structural imbalance problems. Sussangkarn (2011a) proposed that the IMF link be invoked not based on

a percentage of an economy's swap quota, but rather if an economy needs to roll over the CMIM swap longer than a certain predetermined length of time.

The part of the CMIM unlinked to the IMF is a relatively short-term swap facility, like a central bank swap. Each drawing is only of 6 months maturity, so the CMIM is best regarded as a crisis prevention facility meant to assist an economy in dealing with short-term temporary shortages of foreign currencies, like that faced by the Republic of Korea during the global financial crisis. If an economy faces temporary foreign currency liquidity shortages, such as from an unexpected episode of rapid capital outflows, and comes to the CMIM for the first 6 month swap arrangement, it does not make sense to impose conditionality of an IMF loan on the economy. An IMF loan is more appropriate for dealing with fundamental imbalances of a longer duration in the economy. The current IMF link based on drawing the CMIM swap above a certain percentage (currently 30 %) of an economy's quota should be removed. This will also remove the reluctance of economies to use the CMIM because of the IMF stigma.

The IMF link with the CMIM however, can be retained, but in a different form. Instead of imposing an IMF link if the swap drawing is above a certain percentage of an economy's quota, an IMF link can be invoked if the swap period exceeds a certain length of time, possibly at the first rollover, that is, after 6 months, or possibly the period without an IMF link could be 9 months. This will make the CMIM into both a crisis prevention facility, the swaps over the first 6 (or 9) months, and a crisis resolution facility, for those economies unable to deal with the liquidity shortages within 6 (or 9) months.

The point is that what is a temporary foreign exchange liquidity shortage and a more enduring one is usually not easy to judge a priori. Given the East Asian experiences with two major crises over the past 15 years, East Asian economies should have learnt valuable lessons and have become much more resilient to a foreign exchange crisis than in the past. If an economy requests the first 6 months swap facility from the CMIM, the probability is that it is more of a temporary liquidity problem, especially in the current world of very volatile capital flows, especially under a tapering scenario by the US (unless there are clear indicators otherwise). However, if the economy cannot solve the liquidity problem within the specified time period (6 or 9 months), then it becomes more likely that the problem is not a short-term temporary one, but a more fundamental one, with the need for significant adjustments in macroeconomic policies. This is where the link to an IMF program together with conditionality can be invoked.

Cutting the IMF link based on a certain percentage of a country's quota will allow the full quota to be used, and quick access to a sufficient amount of funds is crucial to generate market confidence in a situation of temporary liquidity shortages. Conditions for access to the period of IMF unlinked portion should be mild, or even automatic. This may create concerns that the country accessing the swap may not take appropriate actions. However, the CMIM can learn from the experiences of the Latin American Reserve Fund (Fondo Latinoamericano de Reservas, FLAR). The FLAR is a liquidity support or credit guarantee facility for the members comprising seven Latin American countries (Bolivia, Colombia, Costa Rica,

Ecuador, Peru, Uruguay, and Venezuela). While the size of FLAR is much smaller than the CMIM, with paid in capital of about $2 billion, this is actually paid in money rather than self-managed reserve pooling of the CMIM. It has no operational link to the IMF. Member countries frequently borrow from it, totaling about $10 billion throughout its 30 years history. There is no conditionality but no country has defaulted on the loans from FLAR.[12] This suggests that the sense of ownership by the members lead them to attach high priority to making the facility effective and sustainable, and this makes conditionality unnecessary. This is something that the CMIM should strive to achieve.

Changing the link to the IMF in the above manner brings many benefits. First, the CMIM will be complementary to the global facility, being the first line of defense suitable for problems of temporary foreign exchange liquidity shortages, with the IMF having a role if the problem appears not to be a temporary problem but a more fundamental one. This is more desirable than an East Asian regional mechanism that is completely independent from the IMF. Given that East Asia is a very important part of the global economic and financial system, an East Asian mechanism should supplement rather than replace the global mechanism. Second, economies having temporary foreign exchange liquidity problems will be able to access the CMIM to their full quota without any IMF link (at least for 6 or 9 months), and thereby avoid any potential political problems domestically. This will make the CMIM more attractive to member economies. With the IMF link remaining as it is, countries will be reluctant to use the CMIM, and the IMF unlinked portion (30 % or 40 %) is unlikely to be enough to generate market confidence, which will make the whole exercise rather futile. Third, invoking the IMF link after a certain time may actually be a way to indirectly push problem countries to undertake necessary corrective actions, as all countries are likely to want to avoid going under an IMF program, with all the potential domestic political fallouts. Fourth, when it becomes apparent that serious conditionality will be necessary to turn around an economy, bringing the IMF into the picture may be a way to avoid intra regional political problems that may arise if East Asian economies impose stringent conditionality on another East Asian economy. The IMF may become a good excuse for stringent conditionality in such a circumstance. With the suggested change in the way the CMIM is linked to the IMF, the CMIM can then be regarded as an integrated crisis prevention and resolution mechanism for East Asia with complementary functions to the global mechanism.

Strengthening Regional Mechanisms

Apart from changing the way the CMIM is linked to the IMF to develop an integrated foreign exchange crisis prevention and resolution mechanism, there are

[12] For details on FLAR see https://www.flar.net/ingles/contenido/default.aspx.

many measures that can be carried out to the strengthen the regional mechanism. These are briefly described below.[13]

The current size of the CMIM ($240 billion) can easily be increased if necessary. This is not too much of a burden on contributing economies, as the CMIM is a self-managed pooling mechanism so that economies do not actually put money into a common pool (unlike FLAR). The CMIM contributions remain with the respective economies, including all the income earned from these nominal contributions. Where real resources will be needed is when a swap agreement is actually implemented. Another way to increase effective resources is to allow bilateral economy swaps linked to the CMIM swap. For example, if Thailand implements a swap with the CMIM for, say $10 billion, there is no reason why Japan and the PRC, as important economic partners of Thailand, cannot add bilateral swaps with Thailand attached to the CMIM swap of, say, $10 billion each. This will make the effective resources available through CMIM much larger than the current $240 billion.

The role of the AMRO is critical for the success of the whole mechanism. Good surveillance on possible foreign exchange liquidity shortages and the policies to reduce the risks of such shortages are needed to support the operation of CMIM. Full support from all the CMIM members, in terms of financial resources, data, and technical support will be critical for the success of the AMRO. The AMRO also needs to develop effective modes of working with other agencies such as the IMF, the Asian Development Bank, the Bank for International Settlements, and the ASEAN Secretariat.

The AMRO has made remarkable progress in the first 3 years of its existence and has strengthened the ASEAN+3 Economic Review and Policy Dialogue (ERPD) process substantially. The aim is to transform the AMRO into an international organization rather than simply a non-profit institution registered in Singapore as at present. When the AMRO does become an international organization, then it will effectively become an East Asian Monetary Fund.

The regional architecture for surveillance and financial cooperation has also evolved. A significant change in 2012 is that the central bank governors of the ASEAN+3 economies (and Hong Kong, China) joined the ASEAN+3 finance ministers' meeting for the first time. This has been institutionalized to a regular annual event and is an important forum for discussing the region's economic situation and the broad range of regional financial cooperation activities. In the longer term, the AMRO, as the region's monetary organization, can provide secretariat support to this process.

[13] For more detailed discussion see Sussangkarn (2011b).

8.4 Conclusion

This chapter discusses various mechanisms for the prevention and resolution of foreign exchange crises in East Asia. Appropriate policies of individual countries are most important for the prevention of foreign currency crises. Viewing economic situations with the wrong paradigm can lead to policy mistakes that lead to crises. The risks from short-term foreign debts, and the need to have sufficient reserves to cover these debts, were not well understood before the 1997–1998 crisis. Apart from short-term foreign debts, other potential short-term foreign reserves liabilities also need to be backed up by sufficient reserves. This has implications for how the authorities should manage periods of rapid short-term capital inflows. If possible, the inflows should be absorbed into reserves, so that when capital flow reversals occur, there will be sufficient foreign exchange liquidity to manage the outflows. There are, however, limitations in the ability of the authorities to do this arising from the cost to the central bank's balance sheet and the fiscal implications. Given this, regional and global mechanisms are also need to provide foreign exchange support when necessary.

The chapter concludes that the regional liquidity support mechanism that has been developed in East Asia—the CMIM—is still a work in progress. The current link to the IMF is problematic and the crisis prevention and resolution mechanisms are not well integrated. It is suggested that the CMIM can evolve to become an integrated crisis prevention and resolution mechanism for East Asia. The link to an IMF program should be changed—so that it is based on an economy needing to use the swap with the CMIM longer than a certain time, possibly 6 or 9 months—then the CMIM can be the first line of defense for temporary foreign exchange liquidity problems with the IMF becoming involved as it becomes clearer that the liquidity problem is not temporary but rather structural, needing substantial changes in macroeconomic policy.

References

ASEAN+3 Finance Ministers (2000). Joint Ministerial Statement of the Finance Ministers' Meeting, Chiang Mai, Thailand. http://www.mof.go.jp/english/international_policy/convention/asean_plus_3/20000506.htm.

Asian Development Bank (ADB). (2001). *Key indicators of developing Asian and Pacific countries 2001*. Manila: Asian Development Bank.

Basel Committee on Banking Supervision. (1988). *International convergence of capital measurement and capital standards, Annex 2*. Basel: Bank for International Settlements.

Basel Committee on Banking Supervision. (1998). *Amendment to the Basel capital accord of July 1988*. Basel: Bank for International Settlements.

International Monetary Fund (IMF). (2011). *Assessing reserve adequacy*. Washington, DC: International Monetary Fund.

Kawai, M., & Lamberte, M. B. (Eds.). (2010). *Managing capital flows: The search for a framework*. Cheltenham, UK: Edward Elgar Publishing.

Manupipatpong, W. (2002). The ASEAN surveillance process and the East Asian monetary fund. *ASEAN Economic Bulletin, 19*(1), 111–123.

Mundell, R. A. (1963). Capital mobility and stabilization policy under fixed and flexible exchange rates. *Canadian Journal of Economics and Political Sciences, 29*, 475–485.

Sussangkarn, C. (2002). Economic crisis and recovery in Thailand: The role of the IMF. In T. K. Yam (Ed.), *Asian economic recovery: Policy options for growth and stability* (pp. 204–221). Singapore: The Institute of Policy Studies, Singapore University Press.

Sussangkarn, C. (2011a). The Chiang Mai initiative multilateralization: Origin, development and outlook. *Asian Economic Policy Review, 6*(2), 203–220.

Sussangkarn, C. (2011b). Institution building for macroeconomic and financial cooperation in East Asia. *The International Economy, 15*, 1–14.

Sussangkarn, C., & Vichyanond, P. (2007). 10 years after the financial crisis in Thailand: What has been learned or not learned? *Asian Economic Policy Review, 2*(1), 100–118.

Part V
Linking Regional and Global Initiatives

Chapter 9
Regional and Global Monetary Cooperation

Mario B. Lamberte and Peter J. Morgan

Abstract The increasing occurrence of national, regional, and global financial crises, together with their rising costs and complexity, have increased calls for greater regional and global monetary cooperation. This is particularly necessary in light of volatile capital flow movements that can quickly transmit crisis developments in individual countries to other countries around the world. Global financial safety nets (GFSNs) are one important area for monetary cooperation. This chapter reviews the current situation of regional and global monetary cooperation, focusing on financial safety nets, with a view toward developing recommendations for more effective cooperation, especially between the International Monetary Fund (IMF) and regional financial arrangements (RFAs).

A GFSN should have adequate resources to deal with multiple crises, should be capable of rapid and flexible response, and should not be encumbered by historical impediments such as the IMF stigma that would limit its acceptance by recipient countries. Oversight of a GFSN needs to be based on cooperation between global and regional forums, for example, the Group of Twenty (G20) and the Association of Southeast Asian Nations (ASEAN)+3 or East Asia Summit (EAS). Such a GFSN should include the IMF and RFAs at a minimum, and it is highly recommended to find ways to include central banks as providers of swap lines and multilateral banks as well. The basic principles governing the cooperation of IMF and RFAs include rigorous and even-handed surveillance; respect of

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1_9,

independence and decision-making processes of each institution and regional specificities; ongoing collaboration as a way to build regional capacity for crisis prevention; open sharing of information and joint missions where necessary; specialization based on comparative advantage; consistency of lending conditions and conditionality, although with flexibility; respect of the IMF as preferred creditor; subsidiarity; avoidance of moral hazard; and transparency.

Keywords Financial safety nets • Global financial cooperation • Global monetary cooperation • Monetary cooperation • Regional financial arrangements • Regional monetary cooperation

9.1 Introduction

The increasing occurrence of national, regional, and global financial crises, together with their rising costs and complexity, have increased calls for greater regional and global monetary cooperation. This is particularly necessary in light of volatile capital flow movements, which can quickly transmit crisis developments in individual countries to other countries around the world. Global financial safety nets (GFSNs) are one important area for monetary cooperation. The Group of Twenty (G20) Cannes summit final declaration noted that:

> As a contribution to a more structured approach, we agreed to further strengthen global financial safety nets in which national governments, central banks, regional financial arrangements and international financial institutions will each play a role according to and within their respective mandate. . .We agreed on common principles for cooperation between the IMF and Regional Financial Arrangements, which will strengthen crisis prevention and resolution efforts (G20 Secretariat 2011a: p. 3).

Other potential areas for cooperation include "international harmonization of supervision and regulation as well as crisis prevention, management, and resolution" (Kawai 2009a: p. 6). In particular, the disruptive effects of volatile international capital flows call for a coordinated approach to global supervision and management of such risks.

This chapter reviews the current situation of regional and global monetary cooperation, focusing on financial safety nets, with a view toward developing recommendations for more effective cooperation, especially between the International Monetary Fund (IMF) and regional financial arrangements (RFAs). Section 9.2 describes the reasons for international monetary cooperation and the basic principles that should guide it. Section 9.3 describes the background and recent experience of international monetary cooperation. Section 9.4 describes major cooperation issues. Section 9.5 provides some suggestions for alternative arrangements for cooperation, and Sect. 9.6 concludes.

9.2 Reasons for and Principles of Regional and Global Monetary Cooperation

Reasons for Cooperation

Major reasons for regional and global monetary cooperation include scale, the need to avoid forum shopping and duplication, gains from specialization, and legacy issues, especially the so-called "legitimacy deficit" or "stigma" of the IMF.

Scale. With the rise in the frequency and severity of financial crises, the expansion in the size and number of regional financial arrangements, and the increase over the last decade in the level of international reserves that can be placed at the disposal of bilateral and regional facilities, the necessity and complexity of coordinating these facilities with the IMF has increased dramatically. ADB and IIE (2011) argue that it is unrealistic to expect a single institution to manage such developments at the global level. Particularly in the case of regional contagion, demands for funds can increase rapidly. The case of southern Europe and Ireland is the most recent and largest example of this. As will be described in more detail below, very few national governments have been content to rely solely on the IMF for balance of payments and other official financing. Many large countries have engaged or contributed to bilateral, regional, and plurilateral financial facilities as well, including members with substantial influence in the IMF, such as the United States (US), the United Kingdom (UK), France, Germany, and Japan.

The scale of most regional facilities is still relatively small. The Chiang Mai Initiative Multilateralization (CMIM)—the world's second largest regional facility after the European Financial Stability Facility (EFSF)—totals $240 billion. However, the borrowing limits for individual ASEAN members of the CMIM (those most likely to make use of the facility) are only about $126 billion at most, and only 30 % of that is accessible without an IMF program. Other regional facilities, such as the Arab Monetary Fund (AMF) and the Latin American Reserve Fund (FLAR) are much smaller, both less than $3 billion total.

The possible provision of currency swap lines by central banks of reserve currency countries potentially changes the equation for lending, because of the ability of such banks to print unlimited amounts of their currencies. Theoretically, the CMIM, for example, could borrow any amount from the Bank of Japan, and therefore would not need to cooperate with the IMF. However, as will be explained below, there are many practical obstacles and limitations to this possibility. Moreover, this would not obviate the need for cooperation in surveillance activity.

Reduce Forum Shopping. The existence of multiple sources of funding makes it possible for borrowing countries to "shop" for the easiest borrowing conditions leading to institutional arbitrage, thereby undermining the effectiveness of surveillance. However, as discussed in more detail below, there will be a strong incentive

to offer consistent conditionality among cooperating safety nets, given the need for cooperation in the face of large borrowing requirements.

Reduce Duplication or Cancelling Out. Existence of multiple facilities can lead to wasteful duplication. Even worse, on the other hand they could lead to cancelling out of facilities, where the opening of one credit line leads to another being closed. These potential problems underscore the need for cooperation between regional and global safety nets.

Mutual Gains from Division of Labor and Specialization Along Lines of Comparative Advantage. Global and regional institutions may bring different strengths and weaknesses, offering room for specialization to comparative advantage. The IMF clearly dominates in terms of the amount of resources available for both surveillance and financial assistance, but may lack local knowledge and/or legitimacy. The case of the IMF stigma in Asia (and Latin America) is a major example of where countries would be extremely reluctant to rely on IMF funding and programs if this was not made palatable by coordination with a regional facility. On the other hand, the regional entity may lack sufficient resources, both in terms of staff and reserves, particularly if more than one country in the region is hit as a result of contagion (Glick and Rose 1998; Eichengreen 2006; Park and Wyplosz 2008). Some scholars, for example, Takagi (2010), argue that regional groupings have greater ability to apply peer pressure to members, but others are skeptical.

Need for General Improvement of International Financial Architecture. There is a widespread view that the current international monetary system, centered on the IMF and the Financial Stability Board (FSB), failed in its basic mission in the run-up to the global financial crisis. Camdessus et al. (2011) notes that the IMF, as the central institution of the system, has suffered from a "legitimacy deficit," reflecting both the underrepresentation of some emerging market and developing countries, and the failure of the IMF's peer review process to have much influence over the policies of its largest members. Fernández-Arias and Levy-Yeyati (2010) argue that the IMF's lending facilities were not sufficiently effective during the global financial crisis. Goldstein (2010) argues that IMF surveillance of the People's Republic of China's (PRC) currency policy was ineffectual. Cho (2011) and Park and Wyplosz (2008) assert that the IMF, as a key institution of the international monetary system (IMS), has not played an effective role in the surveillance or management of the global economy and financial markets. Kawai (2009a: p. 5) concludes:

> [T]hey failed to detect the buildup of systemic risk in the US, the UK, and the eurozone, send clear warnings to policymakers, and provide policy advice on measures to reduce the risk. These organizations clearly underestimated the looming risk in the shadow banking system, interconnections across financial firms, markets, and countries and global macroeconomic–financial links.

Schinasi and Truman (2010) argue that the global financial architecture was not effective in encouraging or persuading remedial actions at the national, regional,

continental, or global level until a full-scale global systemic crisis was a reality to be dealt with. They are similarly critical of the role of the Financial Stability Forum (FSF, the predecessor of the FSB) in the period prior to the global crisis, although it must be said that FSF staff were some of the most vocal in terms of warning about the buildup of systemic risks prior to the crisis.

Key Principles of Regional and Global Cooperation

Recognizing the need for increased cooperation between the IMF and RFAs, the G20 member countries have agreed on the following six principles for cooperation:

1. An enhanced cooperation between RFAs and the IMF would be a step forward towards better crisis prevention, more effective crisis resolution and would reduce moral hazard. Cooperation between RFAs and the IMF should foster rigorous and even-handed surveillance and promote the common goals of regional and global financial and monetary stability.
2. Cooperation should respect the roles, independence and decision-making processes of each institution, taking into account regional specificities in a flexible manner.
3. While cooperation between RFAs and the IMF may be triggered by a crisis, ongoing collaboration should be promoted as a way to build regional capacity for crisis prevention.
4. Cooperation should commence as early as possible and include open sharing of information and joint missions where necessary. It is clear that each institution has comparative advantages and would benefit from the expertise of the other. Specifically, RFAs have better understanding of regional circumstances and the IMF has a greater global surveillance capacity.
5. Consistency of lending conditions should be sought to the extent possible, in order to prevent arbitrage and facility shopping, in particular as concerns policy conditions and facility pricing. However, some flexibility would be needed as regards adjustments to conditionality, if necessary, and on the timing of the reviews. In addition, definitive decisions about financial assistance within a joint programme should be taken by the respective institutions participating in the programme.
6. RFAs must respect the preferred creditor status of the IMF (G20 Secretariat 2011b).

Principle 3 is important because it highlights the need for greater precrisis planning and institutionalization of cooperation. Such cooperation and coordination should start as early as possible. The emphasis on the role of the IMF in regional capacity building is also positive. Principle 4 highlights the needs for information sharing and specialization according to comparative advantage, which will be discussed further in Sect. 9.5 below. Principle 5 regarding consistency of lending conditionality to reduce forum shopping is crucially important. As discussed in

Sect. 9.5 below, we believe that Principles 4 and 5 will impose significant limits on the ability of RFAs to be truly independent from the IMF. Principle 6 means that the IMF gets priority in terms of loan repayment relative to sovereign lenders.

Some additional principles that we believe should be included are subsidiarity, avoidance of moral hazard, and transparency. The principle of subsidiarity suggests that government activities should be devolved to the lowest level that is capable of handling them. This is on the grounds that the lower-level entity has greater local knowledge and fewer potential conflicts of interest. Subsidiarity is one of the general principles of the European Union Law. Using the approach of club theory, Kawai et al. (2009) argue for a "decentralized" approach to coordination of global and regional institutions, where activity is shifted from the global to the sub-global level where feasible. Regarding the IMF, such decentralization could include institutionalization of the involvement of regional and national co-lenders, strengthening those regional institutions, and expanding cooperation in surveillance.

Moral hazard arises when the existence of insurance may lead a country to take riskier policies than it would otherwise, since it is assured of being bailed out of difficulties. The main way to avoid moral hazard is through surveillance and conditionality (Eichengreen 2006). This strongly suggests the need to coordinate surveillance standards and loan conditionality to minimize moral hazard in the presence of multiple insurance institutions. However, countries may resist conditionality if other options are available, such as swap agreements. Perhaps two cases need to be distinguished: (i) a country experiences a liquidity squeeze because of inappropriate policies that require a structural adjustment program; and (ii) a country experiences a liquidity squeeze as an "innocent bystander," as a result of, for example, stresses elsewhere that result in large-scale capital outflows from that country. Conditionality would be appropriate in the first case but not in the second.

The basis for surveillance is gradually becoming more transparent, partly as a result of pressure from the G20 countries for a more consistent approach. Other areas that require further improvements in transparency include prequalification for lending and coordination activities. Finally, it should be noted that the principles quoted above only refer to cooperation between the IMF and RFAs, and do not refer to other possible cooperating entities, that is, central banks and multilateral banks. As will be seen, a broad-based and effective GSFN requires their participation as well.

9.3 Status of Cooperation of Regional and Global Institutions

This section describes the current major global and regional institutions concerned with the international monetary system, as well as some of the major recent cooperation episodes. Global and regional entities involved in surveillance and stabilization lending are summarized in Table 9.1. The table shows that most but not all entities conduct both surveillance and lending activities.

Table 9.1 Global and regional entities involved in international monetary cooperation

Institution	Surveillance	Lending
Global		
International Monetary Fund	X	X
Bank for International Settlements-FSB	X	
Regional		
EU Commission	X	X
EU Balance of Payments Facility		X
European Financial Stability Mechanism (EFSM)		X
European Financial Stability Facility (EFSF)		X
Chiang Mai Initiative Multilateralization	X	X
ASEAN+3 ERPD	X	
Asian Development Bank	X	X
Arab Monetary Fund		X
Latin American Reserve Fund		X
North American Framework Agreement	X	X

ASEAN Association of Southeast Asian Nations, *ASEAN+3* ASEAN members plus the People's Republic of China, Japan, and Republic of Korea, *ERPD* Economic Review and Policy Dialogue, *EU* European Union, *FSB* Financial Stability Board
Source: Authors' compilation

Global and Regional Institutions and Their Roles

Global Level. The IMF has had prime responsibility for both surveillance and lending activity within the international monetary system. Its role in these activities has been increasingly formalized over time, as a result of crisis experiences and pressures from international bodies. The IMF is still unique among crisis-fighting facilities in the universality and diversity of its membership, and remains the final resort in efforts to combat national and regionwide systemic financial crises. Whereas an RFA can turn to the IMF if the former's operation alone is considered inadequate, there is no similar fallback among international financial facilities (ADB and IIE 2011).

The IMF's surveillance activity is massive. In terms of human resources alone, the IMF is estimated to have devoted over 1,100 staff years to surveillance activities in fiscal year 2005, which is the last year for which such numbers are publicly available. Given the additional expenditures associated with surveillance, the total financial cost of IMF surveillance activities is likely to total hundreds of millions of US dollars per year (Takagi 2010).

The IMF's main surveillance mechanism is the bilateral consultation process it conducts with members, usually once a year, under Article IV of the IMF's Articles of Agreement. There are two other surveillance mechanisms. One is through multilateral discussions held in the context of twice-yearly World Economic Outlook reviews by the IMF executive board. The other is through IMF lending programs to support adjustment in member countries, although this is usually referred to as conditionality. An important aspect of IMF surveillance pursued in

collaboration with the World Bank is the Financial Sector Assessment Program. This program aims to increase the effectiveness of efforts to promote the soundness of financial systems in member countries.

On the lending side, the IMF's lending capacity was tripled to $750 billion as a result of a G20 agreement in April 2009, plus a general allocation of special drawing rights (SDR) totaling $250 billion, and the introduction of two new lending facilities—the Flexible Credit Line (FCL) and the Precautionary Credit Line (PCL) that provide member countries access to financing (with some conditionality in the case of the PCL) for crisis prevention, rather than crisis resolution (ADB and IIE 2011).[1]

Nevertheless, the resources available to the IMF are still far smaller than current global capital flows, and are a small fraction of total foreign reserves held by emerging market economies.

The Bank for International Settlements (BIS) is also involved in international monetary cooperation and surveillance by virtue of its role in assisting central banks and other financial authorities in their efforts to promote greater monetary and financial stability; and acting as a bank, almost exclusively for central banks. In particular, it provides a forum to promote discussion and facilitate decision making among central banks and within the international financial and supervisory community. The meetings of governors and senior officials of member central banks that are held every two months represent the primary instrument through which the BIS seeks to promote international financial cooperation (Lamberte 2005). Various committees tied to the BIS also perform important roles in monetary cooperation. The Committee on the Global Financial System is a central bank forum with a mandate to identify and assess potential sources of stress in global financial markets, to further the understanding of the functioning and underpinnings of financial markets, and to promote the development of well functioning and stable financial markets. The FSB, whose secretariat is based at the BIS, promotes international financial stability through enhanced information exchange and cooperation in financial supervision and surveillance. Unlike the IMF, the BIS does not provide loan support to countries.

Since 2007, the G20 has assumed the primary role of coordinating global economic and financial policies, including providing guidance to the IMF and the FSB. The members of the G20 account for about 85 % of world GDP (in purchasing power parity terms) and about 65 % of the world's population. They also hold 65.8 % of the quotas and 64.7 % of the votes of the IMF. Moreover, almost all of them participate in a bilateral or regional financial arrangements. One member, the European Union, is itself a regional organization that operates several financial arrangements which are described below.

Since the G20 membership includes major emerging economies that at times have been the recipients of IMF programs and policies, or at least been recipients of IMF criticism, the G20 has been instrumental in pushing for broad-based reforms of

[1] More recent developments in IMF lending programs are discussed below in Sect. 9.3.

the IMF, including its governance, voting shares, surveillance activity, and lending activity. As noted above, the Seoul Summit gave the G20 a broader mandate to strengthen GFSNs. Work on the GFSNs is currently being steered in the G20 by a Financial Safety Nets Experts Group, co-chaired by the Republic of Korea and the UK (ADB and IIE 2011).

The G20 finance ministers and central bank governors agreed to strengthen the international monetary system by focusing their work in the short term on assessing developments in global liquidity, developing an improved toolkit to strengthen the GFSNs, enhancing cooperation between the IMF and regional financial arrangements, and strengthening the effectiveness and coherence of bilateral and multilateral IMF surveillance, among others (ADB and IIE 2011).

One major product of G20 activity has been the development of the Mutual Assessment Process (MAP) that is aimed at both identifying areas of international systemic risk and putting pressure on members to take corrective actions to reduce those risk factors.[2] All G20 member countries are subject to this assessment process. This mutual assessment of macroeconomic policies represents the first instance of multilateral surveillance on a global scale in recent history (Cho 2011: p. 10). This is a response to the perception that the IMF was not even-handed in its approach to analyzing risks in the major advanced economies as compared with emerging economies. The IMF provides technical assistance to the MAP, but this is separate from the IMF's own bilateral and multi-lateral surveillance processes.

The MAP has been further strengthened through improvements in the IMF's surveillance activities. Shortly after the onset of the global financial crisis, the G20 tasked the IMF and the Financial Stability Board (FSB) to collaborate on regular early warning exercises that have since become firmly established, and now provide timely information on high impact risks to the global economy (ADB and IIE 2011). For surveillance, the biggest challenge lies in strengthening the MAP as a framework of global policy dialogue and cooperation to deal with policy spillovers. The G20 needs to support the establishment of a stronger peer review process that will "discipline" countries and make them internalize policy spillovers (ADB and IIE 2011).

As described in "Financial Safety Nets' Cooperation Experience," the World Bank has also played a role in international bailout programs, although this has been much more limited than that of the IMF, as it is not part of the World Bank's major mission.

Regional Level. Table 9.2 summarizes the features of the major regional financial arrangements, including their contributing members, stated purpose, size of reserves, and relationship with the IMF.

European institutions, including the EU Balance of Payments Facility (EUBPF), the European Financial Stabilization Mechanism (EFSM), the European Financial Stability Facility (EFSF) and the European Stability Mechanism (ESM)

[2] See IMF (2011) for a detailed description.

Table 9.2 Relation between selected regional financial arrangements and the IMF

Name of fund	Contributing members	Purpose	Size	Relationship to the IMF
EU Balance of Payments Facility	All EU members	Medium-term financial assistance for non-euro members of the European Union	€50 billion	Not formally linked to IMF programs, but organized jointly in recent cases; members obliged to consult EU before approaching IMF
European Financial Stabilization Mechanism (EFSM)	All EU members	To address severe disturbances beyond members' control; available to all EU members	€60 billion	Not legally linked to IMF programs, but linked as a matter of Council policy
European Financial Stability Facility (EFSF)[a]	All members of the euro area	Preserve financial stability of monetary union via temporary financial assistance to euro area members (only) with exceptional problems beyond their control	€440 billion	Not legally linked to IMF programs, but linked as a matter of Council policy and members' domestic politics
European Stability Mechanism[a]	All members of the euro area	Preserve financial stability of monetary union via temporary financial assistance to euro area members (only) with exceptional problems beyond their control	€500 billion	Not legally linked to IMF programs, but linked as a matter of Council policy and members' domestic politics
Chiang Mai Initiative Multilateralization (CMIM)	10 members of ASEAN plus PRC, Japan, Republic of Korea, and Hong Kong, China	Address balance of payments and short-term liquidity difficulties; supplement existing international financial arrangements	$240 billion	Beyond 30 % of a country's allotment, disbursements must be linked to an IMF program; not yetactivated

Arab Monetary Fund	22 Arab countries in North Africa, and the Middle East	Broad, including correcting payments disequilibria and currency instability, through short- and medium-term credit facilities	$2.7 billion	Ordinary loans are usually accompanied by an IMF program; other types of assistance are not necessarily linked
Latin American Reserve Fund	Bolivia, Colombia, Ecuador, Costa Rica, Peru, Uruguay, and Venezuela	Support members' balance of payments with credits and guarantees	$2.34 billion	No role for the IMF
North American Framework Agreement	United States, Canada, and Mexico	Provide short-term liquidity support through 90-day central bank swaps, renewable up to one year	$9 billion	US treasury requires letter from IMF managing director

EU European Union, *IMF* International Monetary Fund, *PRC* People's Republic of China, *US* United States

Notes: [a]The EFSF was superseded by the establishment of the permanent European Stability Mechanism (ESM) in July 2012, although both will coexist for some time as existing EFSF programs are wound down (European Commission 2012)

Sources: Adapted from Henning (2011), European Stability Mechanism (http://www.esm.europa.eu/)

collectively have by far the biggest resources among RFAs. The EUBPF was created in 1988, and the EFSM, EFSF, and ESM are much more recent, having been created since 2010 in response to the sovereign debt crises in a number of European countries. The former two can be accessed by any EU member, while the last two are available only to euro area members. None of these programs are legally linked to IMF programs, but all EU programs have conditionality and are linked to IMF programs as a matter of policy. In the case of the EUBPF, members are obliged to consult with the EUBPF first before approaching the IMF.

After the European institutions, the second largest regional entity is the Chiang Mai Initiative Multilateralization (CMIM), which includes the 10 member countries of the Association of Southeast Asian Nations (ASEAN)[3] and the People's Republic of China (PRC), Japan, and the Republic of Korea, known collectively as ASEAN+3. It was originally formed as a set of bilateral swap agreements in 2001 in the aftermath of the Asian financial crisis, and then was expanded to a multilateral pooling arrangement in 2009. Unlike the European regional arrangements, it has a formal link with the IMF, as members must have an IMF program in order to borrow beyond 30 % of their borrowing limit. In 2011, the ASEAN+3 Macroeconomic Research Office (AMRO) was established in Singapore as a formal surveillance unit for the CMIM. However, its scale is small, with only 17 professional staff in early 2014 (including consultants and secondees), and expected to increase to 23 by the end of 2014.

Several other bodies in Asia also have surveillance responsibilities, including the Economic Review and Policy Dialogue (ERPD) under ASEAN+3, the ASEAN Integration Monitoring Office (AIMO) within the ASEAN Secretariat, and the Asian Development Bank (ADB). ADB's Office of Regional Economic Integration has 21 staff working to support ERPD-related activities. It remains to be seen how the AMRO will interact with these other bodies. Currently the AIMO has a professional staff of four, and total required staffing of ten economists depending on budget availability. AIMO's mandate is to monitor regional economic integration while AMRO is doing IMF-style macroeconomic surveillance.

The Arab Monetary Fund (AMF), founded in 1976, includes 22 member countries in North Africa and the Middle East. It has a broad mandate including not only assistance in balance of payments adjustment but also wider monetary cooperation and paving the way for a unified Arab currency (AMF 2011). Total funding is $2.7 billion. Ordinary loans are usually accompanied by an IMF program, and it does not appear to have its own macroeconomic surveillance activity.

The Latin American Reserve Fund (FLAR) is a common reserve fund that seeks the stability of member countries by improving their external position and strengthening regional support. The FLAR was established in 1978. Member countries

[3] Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam. The CMIM also includes Hong Kong, China.

include Bolivia, Colombia, Costa Rica, Ecuador, Peru, Uruguay, and Venezuela. The objectives of the FLAR are to:

- Support the balance of payments of member countries by granting loans or guaranteeing third-party loans.
- Improve the conditions of international reserve investments made by member countries.
- Contribute to the harmonization of exchange rate, monetary, and financial policies of member countries (FLAR 2011).

Total funding of the FLAR is about $2.34 billion. There is no role for the IMF, and the FLAR does have its own regular surveillance activity of member countries.

The North American Framework Agreement (NAFA) comprising the United States (US), Canada, and Mexico was established in 1994. Total funding is $9 billion, and the US Treasury requires a letter from the IMF managing director to activate cooperation with the IMF.

The most salient difference between the European institutions, the CMIM, and the NAFA versus the AMF and the FLAR is that the former RFAs include large reserve-currency economies as members, while the latter do not. Therefore, in theory at least, the members of the former groups could obtain unlimited amounts of reserve currencies via swap agreements from member reserve-currency central bank or banks, while the latter cannot. This highlights two important points: (i) the need to include the role of reserve-currency banks in the discussion of regional and global monetary cooperation; and (ii) the need to understand the relative strengths and weaknesses of all three categories of participants in international monetary cooperation.

Financial Safety Nets' Cooperation Experience

This section describes the recent experience of regional and global cooperation for financial safety nets and summarizes some major lessons from this experience. In some cases, the absence of cooperation provides significant information as well. Table 9.3 summarizes the major episodes of joint programs by global institutions (mainly the IMF) and regional financial facilities since 1997. Strikingly, among major episodes, only the experiences of Europe included the participation of one of the RFAs.[4] As a result of the global financial crisis of 2007–2009 and the ongoing sovereign debt crisis in Europe, there have been programs for Greece, Hungary, Ireland, Latvia, Portugal, and Romania.[5] Notably, the program for Ireland included

[4] The AMF has also cooperated with the IMF, as will be discussed below, but the amounts have been small in comparison.

[5] The programs for Hungary, Latvia, and Romania were under the Balance of Payments Adjustment Program.

Table 9.3 Joint programs of global and regional institutions, 1997–2011

Country	Global institution	Regional facility	Other	Total
Portugal 2011	IMF: €26 billion	EFSM: €26 billion EFSF: €26 billion		€78 billion
Ireland 2010	IMF: €22.5 billion	EFSM: €22.5 billion EFSF: €22.5 billion	National contribution: Ireland Treasury, Pension: €17.5 billion	€85 billion
Greece 2010	IMF: €30 billion	EU: €80 billion	ECB: provide technical support	€110 billion
Romania 2009	IMF: €13 billion Others: €2 billion	EC: €5 billion		€20 billion
Latvia 2008	IMF: €1.68 billion World Bank: €0.4 billion	EU: €3.1 billion	Other central banks: €1.9 billion Others: €0.4 billion	€7.5 billion
Hungary 2008	IMF: €12.5 billion World Bank: €1.0 billion	European Commission: €6.5 billion		€20 billion
Brazil 1998	IMF: $18.1 billion World Bank: $4.5 billion	IDB: $4.5 billion	Bilateral guarantees of BIS credits: $14.5 billion	
Indonesia	IMF: $15 billion World Bank: $5.5 billion	ADB: $4.5 billion	Japan: $5.0 billion Others: $19 billion	$49 billion
Republic of Korea 1997	IMF: $21 billion World Bank: $10 billion	ADB: $4.015 billion	Japan: $10 billion	$55 billion
Thailand 1997	IMF: $3.9 billion World Bank: $1.5 billion	ADB: $1.2 billion	Bilateral loans: Japan: $4 billion Others: $1 billion–500 million each	

ADB Asian Development Bank, *BIS* Bank for International Settlements, *ECB* European Central Bank, *EFSF* European Financial Stability Facility, *EFSM* European Financial Stabilization Mechanism, *EU* European Union, *IDB* Inter-American Development Bank, *IMF* International Monetary Fund

Sources: Adapted from EC (2011), Henning (2011), IMF (2000), Radelet and Sachs (1998)

contributions from a number of individual European governments as well, while those for Greece and Hungary also included contributions from the World Bank. For Greece, the European Central Bank (ECB) provided technical support rather than direct contributions, although it has also been active in buying Greek government bonds in the secondary market.

The Latvian program is particularly interesting because it is a case where the IMF disagreed with the regional partner about the program, the European Union, yet the conflict was successfully resolved (Henning 2011). The IMF had originally proposed currency devaluation as part of the program, but the European Union resisted this, since Latvia was a candidate for euro membership. The IMF eventually agreed to a more stringent program that was not accompanied by currency devaluation.

None of the other four cases shown in Table 9.3—Brazil, Indonesia, the Republic of Korea, and Thailand—involved any of the regional facilities described in the previous section. The reasons are simple—the CMIM did not exist at that time, and Brazil is not a member of the FLAR. Instead, in all four cases there was significant participation by the relevant multilateral bank—the Asian Development Bank or the Inter-American Development Bank. This highlights another important point—multilateral banks also need to be included in the discussion of regional and global monetary cooperation.

The experiences of Europe provide two broad lessons. "First, the region with the best-developed regional institutions, including a common currency and elaborate regional surveillance mechanism, was not sufficiently equipped to deal with a major financial emergency among one of its member governments (Henning 2011: p. 6)."

The ad hoc nature of cooperation between the IMF and the European Union was risky on a number of fronts. For example, the crisis highlighted the fact that there is no institutional mechanism for the IMF to commit itself in advance to a hypothetical contingency, much less one of such an unprecedented magnitude (Henning 2011). Also, the IMF had no formal mechanism for negotiating directly with the European Commission. Historically, the process of IMF–EU interaction has been complicated. The executive director of the country holding the chair of the Eurogroup (euro area member countries) represents the euro area countries at the IMF, while the Economic and Financial Committee's Sub-Committee on the International Monetary Fund (SCIMF) is responsible for coordinating EU policy on IMF business from Brussels. The SCIMF alone includes over 60 officials and operates on the basis of consensus. The informal "EURIMF" body facilitates exchanges of views in Washington, DC between IMF executive directors and alternate directors from EU member states, the ECB's observer to the IMF, and an official from the EU Delegation to the US (Hodson 2011).

The system worked relatively smoothly when the rescue package for Romania was arranged in October 2008 between the EU, the IMF, and the World Bank. Moreover, the EU was able to retain a say over the conditions attached to the overall package and the assessments of its implementation (Hodson 2011). The EU also moved quickly during the financial crisis to coordinate international efforts to support Latvia and Romania. However, unlike the cases of Hungary, Latvia, and

Romania, the political processes of the European Union led to significant indecision and hesitation regarding policies on euro area states such as Greece. In particular, there was (and is) much local political resistance to large bailouts and international fiscal transfers, as well as to a full lender-of-last-resort role for the European Central Bank. For example, it took three months of haggling between member countries before the terms of a rescue package for Greece were finally agreed on, and these difficulties continued in negotiating later packages as well. This suggests that the basic problem of political coordination among the EU members is a bigger issue than the specific mode of coordination with the IMF. This has important implications for other RFAs such as the CMIM.

Second, despite the above points, the IMF–EU relation has been relatively close and may not be easily transferable to other regional institutions (Henning 2011; ADB and IIE 2011). This reflects, among others, the strong European orientation of the leadership and staff of the IMF and the lack of a historical IMF stigma problem in Europe. There is a broad perception, certainly among Asian countries, that IMF programs for European economies were significantly less stringent and more narrowly focused than those imposed on Asian economies during the Asian financial crisis of 1997–1998.

There have been numerous instances of joint lending by the IMF and the AMF to AMF member countries. As mentioned above, AMF ordinary loans are usually accompanied by IMF programs. It would be interesting to identify the reasons for this difference in cooperation behavior. It may have reflected the lack of the AMF resources to conduct its own surveillance activity. This pattern strongly suggests that, for whatever reason, the IMF stigma has not been an important factor in this region. Perhaps closeness to Europe is the most obvious reason.

In contrast, the most obvious feature about Asia during the global financial crisis was the lack of involvement of either the IMF or the CMIM. Two countries experienced significant difficulties arising from shortages of foreign exchange—the Republic of Korea and Indonesia. However, both ended up resorting instead to bilateral swap agreements with central banks or other arrangements. The Republic of Korea obtained a $30 billion swap agreement with the US Federal Reserve (Fed), while Indonesia secured a $5.5 billion "standby loan facility"—or "deferred drawdown options"—from Japan ($1 billion), Australia ($1 billion), ADB ($1.5 billion), and the World Bank ($2 billion) in 2009 (Kawai 2009b).[6] The key reason appears to be the IMF stigma and the continuing linkage of the CMIM with an IMF program. The IMF stigma remains so strong in Asia (and Latin America) that it is considered politically unacceptable to go to the IMF unless all other options have been exhausted.

There appears to have been no instance of joint lending by the IMF and the FLAR. In years when member countries had IMF programs, they did not borrow from the FLAR, and vice versa. Thus, loans from the IMF and the FLAR appear

[6] Singapore also obtained a $30 billion swap agreement with the Fed, but never drew on it.

historically to have been substitutes rather than complementary, an unsatisfactory situation that also may be a reflection of an IMF stigma problem.

The recent experiences of regional and global lending programs have sparked debate on a number of other issues, including the need for an international lender of last resort, the need for precautionary lending facilities, the need for prequalification and reduced conditionality for qualified borrowers to allow rapid disbursement, the need for a broader array of instruments, including swap arrangements and emergency SDR allocations, and the need for a more formalized multi-tier structure of a global financial safety net. For example, Camdessus et al. (2011: p. 12) proposed that:

> The IMF should work with relevant governments, central banks, and regional pools to put in place, with appropriate safeguards, permanent crisis financing mechanisms akin to a global lender of last resort.

Such calls have been echoed by Eichengreen (2006) and Kawai (2009a) among others.

The IMF has been rethinking its global crisis prevention programs, with two related issues in mind: the need for rapid disbursement without significant conditionality, encouraging a trend toward "preapproval-type" approaches based on the comprehensive assessment for prequalification, and the IMF stigma problem. This led to the development of the Flexible Credit Line (FCL), which offers pre-approved loans without conditionality to highly qualified borrowers, in 2009, and the Precautionary Credit Line (PCL), which offers pre-approved loans with limited conditionality to somewhat less qualified borrowers, in 2011. However, the response to these programs has been quite limited so far, suggesting that these have not solved the stigma problem. For example, so far only Colombia, Mexico, and Poland have applied for the FCL, and only Macedonia for the PCL.

More ambitiously, the IMF is also studying the establishment of a global stabilization mechanism (GSM), with itself at the center of a network of central banks and regional financial arrangements.[7] The GSM would be specifically aimed at dealing with systemic crises that might affect a large number of countries simultaneously, requiring a rapid and relatively standardized approach fund disbursement. Such an approach would also reduce any stigma involved with countries being a "first mover" to apply for aid. The IMF Board would play a key role in the system, as the GSM would be activated after it made an assessment that a "systemic event" had taken place (IMF 2010b).

Once the system is activated, the Board would have a number of options to provide and expand funding, including making unilateral offers to member countries; activating short-term liquidity instruments available only in systemic events; augmenting existing arrangements; modifying access limits; increasing access under the first credit tranche; coordination with central banks and multilateral institutions; augmentation of the IMF's sources where judged necessary; and making a general SDR allocation (IMF 2010b). These measures could require

[7] See IMF (2010b) for a description.

substantial cooperation with central banks and multilateral institutions, but the details of such coordination, especially with regard to the availability of central bank swap lines, have not yet been spelled out. A key aspect is that the plan would extend the scope of prequalification by creating a new liquidity window (the Short-term Liquidity Line, or SLL) without ex post conditionality, which would be available to some PCL-eligible countries during episodes of global distress.

Nevertheless, Fernández-Arias and Levy-Yeyati (2010) point out that the plan entails considerable uncertainties, such as access to credit would still be decided by the IMF executive board, the criteria for the executive board to declare a systemic crisis are unclear; and the increased access to non-conditional liquidity by non-systemic countries would be limited. Access to such credit would still entail considerably more uncertainty than a country having its own reserves.

Other proposals envisage somewhat different structures to attain the same ends. For example, (Camdessus et al. 2011: p. 12) proposes "...a single three-level architecture, ensuring universal representation through a system of constituencies, the finance ministers and central bank governors, taking strategic decisions related to the functioning of the international monetary system in the framework of a 'Council' as envisaged in the Fund's Articles of Agreement." The report also suggests that the BIS, the FSB, the World Trade Organization, the World Bank, and possibly other organizations should be invited to meetings of the Council. Swap arrangements have also been proposed by Bénassy-Quéré et al. (2011), Cho (2011), and Cordella and Levy-Yeyati (2005). The Government of the Republic of Korea made a proposal to the G20 for extending the system of official currency swaps on a more multilateral basis. Fernández-Arias and Levy-Yeyati (2010) also argue that the IMF should be the core intermediary in an international network of swap lines.

9.4 Cooperation Issues

From the above discussion, it can be seen that both the G20's and the IMF's strategies for addressing systemic crises are evolving. Therefore any proposals for regional-global cooperation must take into account the likely evolution of both the G20's and the IMF's surveillance and crisis management frameworks. There are three major aspects of cooperation—pure coordination issues, surveillance, and financing activities.

Pure Coordination Issues

Pure coordination issues are those related to institutionalizing relationships and communications between the IMF, RFAs, multilateral banks, and national monetary authorities. (National finance ministries probably should be involved as well.) Traditionally, the IMF dealt only with individual countries, and does not have

formal procedures for communicating with regional financial arrangements such as the CMIM. The arrangements with the European Union developed during the current European crisis only emerged in an ad hoc way.

The IMF has begun to take concrete steps toward working more closely with RFAs in both surveillance and financing. In October 2010, the IMF hosted the first high-level meeting of RFAs, to start a dialogue on developing greater synergies with RFAs (ADB and IIE 2011; IMF 2010a). However, there is still a lack of formal relations/hierarchy between international agencies (Henning 2011). For example, no explicit arrangement for representation has been agreed among ASEAN+3 members; the IMF must engage with the CMIM through its members, none of which is authorized by the group to speak for the region (ADB and IIE 2011). The IMF and other international finance institutions (IFIs) should provide mechanisms for facilitating and receiving the collective representation of the regional institutions. They should also consider allowing membership of regional organizations in the IMF (ADB and IIE 2011). Bini Smagi (2004) proposed that the European Union should become an official member of the IMF, replacing the membership of its constituent states. This would of course raise issues about their voting powers in the IMF, governance, among others.

The IMF also needs to engage more with central banks and vice versa because of the close links and policy challenges in simultaneously achieving and safeguarding both macroeconomic and financial stability. However, Schinasi and Truman (2010) argue that such a division of labor is complicated by the fact that central banks tend not to want to be engaged with the IMF, and are reluctant in any institutional context to consider the global impact of their monetary policies on financial stability.

Surveillance Coordination

The IMF does not have an official definition of what its surveillance activities include, but they have clearly expanded far beyond the initial remit of exchange rate and external balance policies. A recent IMF report accepts the extremely broad characterization of "...all aspects of the Fund's analysis of, scrutiny over, and advice concerning, member countries' economic situations, policies, and prospects" (IMF 2005: p. 3).

There are ostensible gains to global and regional cooperation in surveillance. ADB and IIE (2011) propose joint surveillance among national, regional, and global institutions. Global forums could identify issues that can lead to systemic failure, regional dialogues could forge common policies to ward off contagion, and national surveillance could identify specific vulnerabilities in individual economies. This could become a three-tiered filtering mechanism for identifying emerging risks and vulnerabilities, and for achieving consensus on shared policy responses. In particular, a regional surveillance mechanism could strengthen channels of communication by taking a "bottom-up" approach to evaluation, with

regional institutions playing the central role. The peer dialogue process would then draw on national and regional, rather than global, analyses. Last, but not least, such cooperation could help eliminate the IMF stigma problem.

Nevertheless, such surveillance coordination entails many practical difficulties. The *raison d'être* of some RFAs is to provide an alternative to IMF surveillance and conditionality. However, as mentioned above, there is a huge imbalance between the surveillance resources and expertise at the IMF and those at RFAs. Second, in a serious crisis, it is unlikely that an RFA by itself could supply all the funding needed, particularly if multiple countries in the same group are hit because of contagion. In the absence of access to a sufficiently large central bank swap line, the RFA would be forced to call on the IMF for additional financing, which would make it difficult to overrule the IMF's surveillance assessment. The only clear exception to this was Europe, where the funding provided by the European Union in the case of Latvia was greater than that of the IMF, and the European Commission was able to obtain agreement for stricter conditionality than originally proposed by the IMF. Third, the increasing emphasis on precautionary lending facilities calls for a more standardized approach to ex ante classification of countries' economic fundamentals and capacity to borrow.

The literature on surveillance by RFAs shows a wide division of views. Proponents of independent surveillance by the CMIM include ADB and IIE (2011), Kawai (2009a), and Takagi (2010).

> With effective surveillance, the multilateralized CMI could rely more on its own judgment to make a lending decision, including both the amount and any conditionality, without creating moral hazard or raising concerns that the problems leading to balance of payments difficulties may be fundamental in nature (Takagi 2010: p. 2).

Takagi (2010) argues that East Asia needs its own mechanism because the region has a different objective for conducting surveillance than the IMF. East Asian authorities want to be able to make their own independent decisions with respect to the use of reserves pooled under the CMIM. Takagi (2010) and ADB and IIE (2011) argue that peer pressure within a regional organizational structure is where regional surveillance potentially has the greatest advantage over global surveillance. When surveillance is undertaken by a regional institution that reports directly to key decision makers, the ability to exercise peer pressure in preventing crises could be considerably enhanced. Cho (2011) also notes that strengthened peer pressure could give the IMF's bilateral surveillance more bite.

Nonetheless, even these authors recognize that it will take much work to raise the AMRO's surveillance capacity to an adequate level. Kawai (2009a: p. 13) makes the following recommendations:

- Clarify rules for activating CMIM lending;
- Establish a joint forum for finance ministers and central bank governors to intensify policy dialogue among them;
- Set up a strong professional secretariat, with the required analytical expertise and policy experience, to enable it to support regional economic surveillance (ERPD);

- CMIM activation, and independent conditionality formulation; and
- Move beyond the simple "information sharing" stage to a more rigorous "peer review and peer pressure" stage, and eventually to a "due diligence" stage, to improve the quality of economic surveillance.

Takagi (2010) also notes that it would be critical that the surveillance unit be granted complete access to all surveillance outputs produced on the region's economies by the IMF and other institutions. Even so, he concedes that "[f]inancial surveillance, though critical in assessing crisis vulnerability, is another area where duplication with global surveillance should be carefully avoided" (Takagi 2010: p. 9) because it is a labor-intensive activity that would drain the regional facility's limited resources. This is a very significant concession, and would certainly limit the capacity of the regional body to come up with independent assessments of systemic financial risk.

On the other hand, there are numerous skeptics about the capacity of RFAs to conduct independent surveillance. Eichengreen (2006) argues that peer monitoring is costly and subject to increasing returns; if scale economies are strong, there may be an argument for centralizing it at a global institution like the IMF. He also suggests that there are arguments for why responsibility for surveillance and conditionality should be delegated to an entity outside the region, such as the IMF, that is better capable of following time-consistent policies. Henning (2011) asserts that the AMRO will probably be too small to replicate the work of the IMF; and that a division of labor should be identified. He suggests that the AMRO could. . ."(1) provide contrasting assessments of vulnerabilities within the region when the director and staff disagree with the findings of the IMF; (2) update assessments more frequently than the annual cycle for IMF Article IV consultations; (3) participate in surveillance discussions in which Asian officials might be more candid with one another than in the presence of IMF officials; and (4) otherwise provide a greater sense of Asian ownership" (Henning 2011: p. 16).

Leaving these difficulties aside, there are some practical suggestions for increasing coordination between the IMF and regional groups. The participation of the IMF in the ASEAN+3 finance and central bank deputies' process, as a regular policy dialogue partner, has proved to be quite useful and important. It could be equally useful if regional groups and entities could play a more direct role in the IMF surveillance process. For example, the IMF may invite staff from relevant regional organizations and groups to join the IMF's annual Article IV consultation mission to regional member countries (Kawai 2009a: p. 15). However, it is important that joint surveillance does not weaken the IMF's approach to surveillance. The independence of the institutions involved needs to be maintained. Also, to be effective, surveillance ultimately needs "strength" in terms of enforcement and coverage.

Monitoring of capital flows is a vitally important aspect of coordinated surveillance, given the vulnerability of emerging economies to fluctuations on capital flows resulting from events that may take place far away. This would include coordination of macroprudential and capital flow management policies to minimize spill-over effects.

Aside from the IMF, the other global body that needs to be liaised with in the area of systemic financial stability is the FSB. ADB President Kuroda (2008) proposed that Asian economies set up an Asian Financial Stability Dialogue (AFSD) to strengthen cross-border financial supervision and regulation at the regional level and further Asia's financial stability, by developing effective early warning systems. The AFSD would be the regional equivalent of the FSB. This forum—to be created among finance ministries, central banks, and financial market regulators and supervisors—could also serve to promote longer-term financial market deepening and integration, establish standards for governance and transparency, and improve investor confidence. A close working relationship should also be established between the AFSD and the AMRO. Of course, these are moot points until the AFSD is actually established.

Coordination of Financing Activity

Similar to surveillance activity, coordination of financing activities promises a number of potential gains, including most obviously greater financial resources and the potential of reducing the IMF stigma. ADB and IIE (2011) argue that the biggest challenge lies in addressing the stigma attached to IMF lending. Until it is resolved, efforts to increase IMF resources and improve its lending facilities will not amount to much, and countries will continue to rely on foreign reserves and bilateral swap agreements.

Leaving aside the stigma issue, the experience during the European sovereign debt crisis shows that it is possible to arrange coordinated lending by the IMF and RFAs. Perhaps, the biggest challenge for such cooperation going forward is to address the above-mentioned shift in the IMF's lending policy toward greater emphasis on prequalification and precautionary (precrisis) lending. At the moment, the CMIM and other RFAs do not have such precautionary lending facilities or prequalification schemes. Therefore, developing these capabilities at the regional level appears to be important (although not absolutely necessary) for increased cooperation with the IMF going forward.

The ASEAN+3 finance ministers recognized the desirability of establishing precautionary lending facilities at the 2011 Ha Noi meeting, noting that "...we instructed the Deputies to initiate a study on the design of a possible crisis prevention function for CMIM, including the size, further collaboration with the IMF, and the role of AMRO" (ASEAN Secretariat 2011). Kawai (2009b) proposes that CMIM support should be provided flexibly by (i) enabling precautionary lending rather than just crisis lending; (ii) delinking CMIM from IMF programs or requiring that no conditionality be imposed, in a way comparable to the IMF's recently introduced Flexible Credit Line; and (iii) supplementing the CMIM by additional bilateral contributions, involving sufficiently large amounts, from economies inside and outside the region to make ample resources available for potential needs in the region.

If the CMIM developed such facilities, the following issues would need to be examined: the financing mechanisms for such a facility; the conditions under which they would be triggered; conditions regarding the amount of funding available to member countries; and whether or not IMF funding would be required and the allocation of burden sharing (ADB and IIE 2011). Henning (2011) notes that the IMF's approach of offering different facilities to different categories of economies—"tiering"—has important implications for the solidarity of ASEAN+3 and other regional groupings. The CMIM (or other RFA) would have to decide its own classification scheme for its member economies.

Jeanne (2010) proposes a two-tier system in which the regional RFA lends up to a certain extent, which can be increased by IMF lending associated with more demanding conditionality. This model might make sense if regional conditionality is politically more acceptable than IMF conditionality. On the other hand, if the crisis called for more funding that the RFA could provide, then agreement on conditionality with the IMF would need to be reached. Also, as described below, central bank swap lines and lending by multilateral banks also should be included, making the structure more complex.

This raises further issues regarding IMF conditionality. Currently, the CMIM requires a member to have an IMF program if it borrows more than 30 % of its quota. However, recent and proposed IMF financing innovations raise the issue of what constitutes an IMF program and whether precautionary loans should be included. Henning and Khan (2011) propose that the ASEAN+3 members accept qualification for IMF's FCL program as the equivalent of a traditional IMF program, thereby allowing qualifying countries to access more than 30 % of their quota. This would be consistent with the two kinds of liquidity crises identified in Sect. 2.2 above. Of course, if the IMF conditionality is dropped altogether, this point becomes moot.

Another issue is whether the IMF could lend to the CMIM or other RFAs. Currently, it can only lend to countries. If it could lend to the CMIM, this again might ease the stigma problem, assuming that the conditionality issues could be worked out.

Holding reserves is costly and inefficient. ADB and IIE (2011) and Fernández-Arias and Levy-Yeyati (2010), among others, note that, since central banks like the Fed can print unlimited quantities of reserve currencies on short notice, they should occupy a prominent place in discussions of global financial safety net arrangements. The problem is that central banks are reluctant to make blanket or advance guarantees to supply liquidity, both on domestic political grounds and as a result of concerns about possible moral hazard and the risk of not being repaid. Nonetheless, efforts should be made to explore ways to involve key central banks in the development of a global financial safety net and to identify the conditions under which their participation in a GFSN could be institutionalized. As noted above, the IMF's own GSM plan envisions it acting as a broker on the part of central banks, but this is by no means the only possible organizational structure. Indeed, if the CMIM could obtain a swap line from, say, the Bank of Japan, this would greatly reduce the need to cooperate with the IMF, except in the case of a very large crisis.

9.5 Possible Changes in Cooperative Arrangements

This section suggests some general principles and more specific proposals to help promote regional and global cooperation in the areas of surveillance and financing activity, in order to support the development of more effective financial safety nets.

General Principles

The first requirement is greater coordination at the leader and finance minister levels between regional and global organizations. Since the IMF now takes its guidance from the G20, regional organizations must make greater efforts to have their views appropriately represented at the G20. This must go beyond expecting the regional G20 member countries to represent the views of non-member countries in their region. This immediately raises the question of what the relevant regional grouping might be. In the case of Asia, for example, this could either be the ASEAN +3 or the East Asia Summit. Similarly, the G20 needs to make explicit allowance for the representation of such regional views. This also requires establishment and consolidation of various forums for regional finance ministers, central banks and other regulators. The meetings of the ASEAN+3 finance ministers and those of the Executives' Meeting of East Asia and Pacific Central Banks (EMEAP) need to be coordinated more systematically. As described above, the establishment of an Asian Financial Stability Dialogue could contribute to this process.

A number of institutional innovations need to be made to establish a clear and transparent framework for regional and global monetary cooperation, including:

- RFAs should establish a clear mechanism for their external representation in other forums, rather than simply being represented, for example, by their member countries that belong to the G20, the IMF, or other forums.
- The IMF needs to establish mechanisms to communicate with RFAs, multilateral banks, and other regional bodies, and should consider extending some form of membership to them.
- IMF governance needs to be reformed to accommodate the proposed additions and/or changes to its membership.
- The IMF should have the capacity to lend to RFAs, rather than only lending directly to member countries.

Nonetheless, as mentioned above, the lessons of the European sovereign debt crisis suggest that the biggest challenge is to develop cooperation among member countries of an RFA to arrive at a policy consensus. Such policy coordination has not yet been tested in, for example, the CMIM.

Proposals for Surveillance

Cooperation on surveillance activity requires agreement on objectives, delegation of responsibilities, sharing of information, and ultimately, agreeing on standards for assessing the information and analysis assembled collectively. As described previously, delegation of responsibilities is difficult, because of the sheer size of the IMF's resources compared with those of RFAs and the desirability of avoiding needless duplication of effort. The key question is what value-added can an RFA bring to the table. The answer must lie in local knowledge and insight, but how to implement this is not clear. This is particularly difficult in a situation where it is not practical for the RFA to carry out assessments of financial sectors, as suggested by Takagi (2010). A subsidiary question is how the AMRO makes use of the assessments of other regional entities, including the EMEAP, ERPD, and ADB.

Specific steps should be taken to monitor capital flow movements that may have implications for systemic risk, and to coordinate the use of macroeconomic, macroprudential, and capital flow management tools to minimize spillover effects. Such coordination also requires practical innovations. The suggestion by Kawai (2009a) to include RFA members in IMF Article IV assessment missions is a step in the right direction.

Coordination Proposals for Financial Safety Nets

As described above, the evolution of the IMF's lending programs and philosophies, together with the still developing nature of some of the RFAs, especially the CMIM with its nascent AMRO, coordination must aim at a moving target. Perhaps the biggest moving target is the question of what extent the current system should aim to evolve toward becoming an "international lender of last resort" that could be counted on to provide financing on a timely basis without conditionality. Such a facility would be needed particularly during a global systemic financial crisis. This kind of capability was strongly advocated by the Government of the Republic of Korea at the G20 Seoul Summit of 2010 (SaKong 2010), but this understandably has met strong resistance from the IMF and other potential lenders because of concerns about moral hazard in the absence of conditionality. Similar proposals have been made by Fernández-Arias and Levy-Yeyati (2010) and Kawai (2009a). The most practical approach for achieving this is to move increasingly toward prequalification. This points to a further systematization of the Article IV assessment process to become a kind of certification or rating process that would vary the terms of lending according to the rating applied. Such a rating process also points strongly in the direction of coordinated assessments by the IMF and RFAs. This would leave little room for "independent" assessments by an RFA. Along with this, RFAs also need to develop precautionary credit lines similar to those of the IMF. On the other hand, the experience of the European sovereign debt crisis suggests that conditionality is a key part of the surveillance and financing process,

and should not be lightly abandoned, unless it is determined that structural reforms are not necessary.

Another key question is how to involve central banks in financial safety nets. This means identifying ways to overcome their reluctance to make ex ante commitments to provide funding, when they typically desire to maintain the maximum degree of flexibility in deciding when and how much to lend to whom. The most practical solution could be to channel such borrowing through the most creditworthy borrowers, with appropriate guarantees. This implies lending either to the IMF or to the RFAs, and using them as a conduit to reach the individual borrowing countries. Either the central banks could lend to the IMF and the RFA separately, or they could lend only to the IMF, and then the IMF would lend to the RFA.

Another potential source of funding is easier expansion of SDR allocations. Bénassy-Quéré et al. (2011) argue that the problem with IMF facilities is that potential beneficiaries might remain unsure that they will get access to them in times of need, which makes them imperfect substitutes for reserves. New SDR allocations would not have this shortcoming, as they would provide countries with SDR reserves that they could exchange for reserves denominated in the currency of their choice. As mentioned above, this is already being considered by the IMF as part of the GSM facility being considered. Again, however, it may not be desirable to eliminate conditionality in some cases.

Involvement of RFAs and increased automaticity of lending are probably the ways forward to reducing the IMF stigma problem. The IMF can still do the heavy lifting in terms of surveillance, but involvement of the RFA can make the lending and conditionality more palatable. However, some degree of stigma is inevitable if conditionality is still required in some cases.

9.6 Conclusions and Policy Implications

The experience of the global financial crisis, where financial shocks emanating from key countries led to contagion being transmitted around the world, shows the need for a large-scale and effective GFSN. A GFSN should have adequate resources to deal with multiple crises, it should be capable of rapid and flexible response, and it should not be encumbered by historical impediments such as the IMF stigma that would limit its acceptance by recipient countries. Oversight of the GFSN needs to be based on cooperation between global and regional forums, for example, the G20 and ASEAN+3 or the EAS.

Such a GFSN should include the IMF and RFAs at a minimum, and it is highly recommended to find ways to include central banks as providers of swap lines and multilateral banks as well. The basic principles governing the cooperation of the IMF and RFAs include rigorous and even-handed surveillance; respect of independence and decision-making processes of each institution and regional specificities; ongoing collaboration as a way to build regional capacity for crisis prevention; open sharing of information and joint missions where necessary; specialization based on

comparative advantage; consistency of lending conditions and conditionality, although with flexibility; respect of the IMF as preferred creditor; subsidiarity; avoidance of moral hazard; and transparency.

Relations between the IMF and RFAs should be institutionalized. This would include having the IMF and other IFIs provide mechanisms for facilitating and receiving the collective representation of the regional institutions, including possibly including RFAs as members in the IMF; and having RFAs establish their own institutions for dealing with the IMF, rather than simply being represented by their member countries. However, probably the biggest challenge is to institutionalize the process of policy consensus among member countries of an RFA.

Cooperation of surveillance activities needs to be institutionalized as well. RFAs should be included in IMF Article IV consultation missions, and a general structure for sharing information and assessments should be established. The most difficult aspect is to decide the division of responsibilities between the IMF and RFAs. For the foreseeable future, most RFAs are unlikely to have sufficient resources to provide viable independent alternatives to IMF surveillance, especially with regard to financial surveillance. Moreover, the increasing shift to prequalification of borrowers means that standardized schemes for classifying the credit-worthiness of borrowers will need to be developed, which will further limit the room for independence of RFAs. The key issue is how to bring their regional expertise to bear in the assessment process. Most likely, the solutions to this issue will need to be developed on a case-by-case basis.

Cooperation in financing activities probably presents the most challenges. A number of key developments need to be taken into account. First, as with surveillance, the relatively small size of most RFAs compared with likely funding demands in possible crisis scenarios means that action independent from the IMF is unlikely to be feasible.[8] Second, the shift toward prequalification and precautionary lending programs by the IMF requires the RFAs to follow suit if they are to participate at this stage of the lending process. Both these trends will limit the scope for independent action by RFAs.

The development of an effective GFSN requires the involvement of central banks to provide hard currency swap lines. Linking together these disparate elements is likely to prove difficult in light of the desire of central banks to maintain maximum flexibility in terms of their commitments. The other requirement for an effective GFSN is elimination of the IMF stigma, particularly in Asia and Latin America, where it is strong. Otherwise, countries in those regions will still prefer alternative arrangements, such as directly obtaining swap lines from central banks. The IMF needs to implement reforms of its governance and mission, and make a thorough and open assessment of its previous surveillance and conditionality activities. RFAs need to obtain sufficient resources to give them credibility in terms of the surveillance activity and the size of funding they can provide relative to the IMF. Expanded and more flexible capacity for additional SDR allocations need to be considered.

[8] The European Commission is probably the major exception to this.

Finally, a reduction in conditionality that requires a shift toward prequalification needs to be considered. In cases where countries are "innocent bystanders" in global systemic events, conditionality should be dropped completely, but it needs to be retained in the case of inappropriate policies. Distinguishing between these two ex ante and ex post is likely to prove a major challenge.

References

Arab Monetary Fund (AMF). (2011). *About AMF*. Abu Dhabi, UAE: Arab Monetary Fund. http://www.amf.org.ae/aboutamf. Accessed 8 November 2011.

ASEAN Secretariat. (2011). *Joint ministerial statement of the 14th ASEAN+3 Finance Ministers' meeting*, Ha Noi, 4 May 2011. http://www.asean.org/26280.htm. Accessed 5 November 2011.

Asian Development Bank (ADB) and Peterson Institute for International Economics (IIE). (2011). *Reshaping global economic governance and the role of Asia in the Group of Twenty (G20)*. Manila: Asian Development Bank.

Bénassy-Quéré, A., Pisani-Ferry, J., & Yu, Y. (2011). *Reform of the international monetary system: Some concrete steps* (La Lettre du CEPII No. 309). Paris: CEPII.

Bini Smagi, L. (2004). A single EU seat in the IMF? *Journal of Common Market Studies, 42*(2), 229–248.

Camdessus, M. Aleksashenko, S., Al Sayari, H., Boorman, J., Crockett, A., de la Dehesa, G. et al. (2011). *Reform of the international monetary system: A cooperative approach for the twenty-first century* (Camdessus Report). Paris: The Palais Royal Initiative.

Cho, Y. J. (2011). *What do Asian countries want the seat at the high table for? G20 as a new global economic governance forum and the role of Asia* (ADB Working Paper Series on Regional Economic Integration No. 73). Manila: Asian Development Bank.

Cordella, T., & Levy-Yeyati, E. (2005). *The case for an IMF insurance facility*. Paper prepared for the IIE Conference on IMF Reforms. Washington, DC: Institute for International Economics. September 23, 2005.

Eichengreen, B. (2006). *Insurance underwriter or financial development fund: What role for reserve pooling in Latin America?* (NBER Working Paper 12451). Cambridge, MA: National Bureau of Economic Research.

European Commission. (2011). *Programme for Portugal*. Brussels: European Commission. http://ec.europa.eu/economy_finance/eu_borrower/portugal/index_en.htm. Accessed 28 November 2011.

European Commission. (2012). *European Financial Stability Facility (EFSF)*. Brussels: European Commission. http://www.efsf.europa.eu/attachments/faq_en.pdf. Accessed 2 February 2012.

Fernández-Arias, E., & Levy-Yeyati, E. (2010). *Global financial safety nets: Where do we go from here?* (IADB Working Paper No 231). Washington, DC: IADB. http://www.iadb.org/en/research-and-data/publication-details,3169.html?pub_id = idb-wp-231.

G20 Secretariat. (2011a). *Cannes Summit final declaration, Cannes*. http://www.g20.org/Documents2011/11/Cannes%20Declaration%204%20November%202011.pdf.

G20 Secretariat. (2011b). G20 principles for cooperation between the IMF and regional financing arrangements. http://www.g20-g8.com/g8-g20/root/bank_objects/0000005999-G20_Principles_for_Cooperation_between_the_IMF_and_RFAs_PostCannes.pdf.

Glick, R., & Rose, A. (1998). *Contagion and trade: Why Are currency crises regional?* (NBER Working Paper no. 6806). Cambridge, MA: National Bureau of Economic Research.

Goldstein, M. (2010). *Integrating financial regulatory reform with reform of the international monetary system* (PIIE Working Paper WP11-5). Washington, DC: Peterson Institute for International Economics.

Henning, R. (2011). *Coordinating regional and multilateral financial institutions* (Working Paper No. WP11-9). Washington, DC: Peterson Institute for International Economics.

Henning, R., & Khan, M. (2011). *Asia and global financial governance* (Working Paper No. WP11-16). Washington, DC: Peterson Institute for International Economics.

Hodson, D. (2011). *The Paradox of EMU's external representation: The case of the G20 and the IMF*. Paper presented at EUSA Twelfth Biennial International Conference. Boston, Massachusetts, March 3–5, 2011. http://euce.org/eusa/2011/papers/6e_hodson.pdf

International Monetary Fund (IMF). 2000. *Recovery from the Asian crisis and the role of the IMF*. Washington, DC: IMF. http://www.imf.org/external/np/exr/ib/2000/062300.htm#box3. Accessed 17 November 2011.

International Monetary Fund (IMF). (2005). *The IMF's multilateral surveillance*. Washington, DC: International Monetary Fund. http://www.imf.org/external/np/ieo/2005/ms/eng/092305.pdf.

International Monetary Fund (IMF). (2010a). *Regional financial safety nets to create stronger links*. http://www.imf.org/external/pubs/ft/survey/so/2010/pol102610a.htm. Accessed 3 November 2011.

International Monetary Fund (IMF). (2010b). *The fund's mandate—The future financing role: Reform proposals*. Washington, DC: International Monetary Fund. http://www.imf.org/external/np/pp/eng/2010/062910.pdf.

International Monetary Fund (IMF). (2011). *The G-20 mutual assessment process (MAP)*. Washington, DC: International Monetary Fund. http://www.imf.org/external/np/exr/facts/g20map.htm. Accessed 7 November 2011.

Jeanne, O. (2010). *Dealing with volatile capital flows*. Peterson Institute for International Economics Policy Brief 10–14. Washington, DC: Peterson Institute for International Economics Policy. http://www.iie.com/publications/interstitial.cfm?ResearchID=1620. Accessed 2 August 2010.

Kawai, M. (2009a). *Reform of the international financial architecture: An Asian perspective* (ADB Institute Working Paper Series 167). Tokyo: Asian Development Bank Institute.

Kawai, M. (2009b). *From the Chiang Mai Initiative to an Asian monetary fund*. Paper prepared for ADB International Monetary Advisory Group (IMAG) Meeting, New York. September 16–17, 2009.

Kawai, M., Petri, P., & Sisli-Ciamarra, E. (2009). *Asia in global governance: A case for decentralized institutions* (ADB Institute Working Paper Series 157). Tokyo: Asian Development Bank Institute.

Kuroda, H. (2008). Asia's contribution to global economic development and stability. In: *Closing Remarks at the ADBI Annual Conference*, Tokyo. December 2, 2008.

Lamberte, M. (2005). *ASEAN+3 policy dialogue and surveillance process: Some proposals for enhancements*. Unpublished.

Latin American Reserve Fund (FLAR). (2011). *About the FLAR*. Bogota: Latin American Reserve Fund. https://www.flar.net/ingles/contenido/contactenos.aspx. Accessed 8 November 2011.

Park, Y. C., & Wyplosz, C. (2008). *Monetary and financial integration in East Asia: The relevance of European experience* (European Economy Economic Paper 329). Brussels: European Commission.

Radelet, S., & Sachs, J. (1998). *The East Asian financial crisis: Diagnosis, remedies, prospects*. Cambridge, MA: Harvard Institute for International Development.

SaKong, I. (2010). The G20 summit: Looking back at Toronto and forward to Seoul. Speech at the Peterson Institute for International Economics on behalf of the Korean Presidential Committee for the G20 Summit, Washington, DC. June 30, 2010.

Schinasi, G. J., & Truman, E. M. (2010). *Reform of the global financial architecture* (Peterson Institute for International Economics Working Paper 10–14). Washington, DC: Peterson Institute for International Economics Policy. http://www.iie.com/publications/wp/wp10-14.pdf

Takagi, S. (2010). *Regional surveillance for East Asia: How can it be designed to complement global surveillance?* (ADB Working Paper Series on Regional Economic Integration No. 50). Manila: Asian Development Bank.

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M. Kawai et al. (eds.), *Reform of the International Monetary System: An Asian Perspective*, DOI 10.1007/978-4-431-55034-1,