From Capital Surges to Drought

Seeking Stability for Emerging Economies

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palgrave
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in association with the United Nations
University/World Institute for Development
Economics Research

Studies in Development Economics and Policy

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Katajanokanlaituri 6B, FIN-00160 Helsinki, Finland

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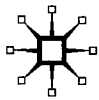

First published 2003 by
PALGRAVE MACMILLAN
Houndmills, Basingstoke, Hampshire RG21 6XS and
175 Fifth Avenue, New York, N.Y. 10010
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ISBN 1–4039–1631–4

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources.

A catalogue record for this book is available from the British Library.

Library of Congress Cataloging-in-Publication Data
From capital surges to drought: seeking stability for emerging economies / edited by Ricardo Ffrench-Davis and Stephany Griffith-Jones.
p. cm. — (Studies in development economics and policy)
Includes bibliographical references and index.
ISBN 1–4039–1631–4
1. Capital movements—Developing countries. 2. Monetary policy—Developing countries. 3. Capital market—Developing countries. I. Ffrench-Davis, Ricardo. II. Griffith-Jones, Stephany. III. Series.
HG3891.F765 2003
332'.042—dc21 2003049831

10 9 8 7 6 5 4 3 2 1
12 11 10 09 08 07 06 05 04 03

Printed and bound in Great Britain by
Antony Rowe Ltd, Chippenham and Eastbourne

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Preface

This book consists of two complementary parts: (1) an analysis of new trends in various categories of capital flows to emerging economies since the Asian crisis, their determinants and their international policy implications, and (2) an evaluation of national policies to reduce the volatility of capital flows and the negative impact of such volatility on domestic economies. The book aims to help fill the gap in knowledge on what determines lenders/investors' decisions to enter or withdraw from individual developing countries. It examines how the decision-making process has been modified in light of recent crises and by subsequent measures for a new financial architecture. It considers the policy implications for developing countries, especially in respect of macroeconomic and financial regulation policies, their interconnections, and volatile and reversible capital flows.

Key conclusions are that the volatility of capital flows has constrained the ability of developing countries to implement countercyclical policies in times of both surge and drought. Since the Asian crisis the drought in private flows (which has already lasted five years), plus the high stock of existing debt, has severely constrained growth in developing countries; for example in Latin America there has been no per capita growth since 1998. This book explores policy options at the national and international levels to remedy this highly unsatisfactory situation.

The book is the result of a UNU/WIDER project on 'Capital Flows to Emerging Markets since the Asian Crisis: How to Manage their Volatility', codirected by Ricardo Ffrench-Davis and Stephany Griffith-Jones. An initial workshop was held at the ECLAC headquarters in Santiago in March 2001. The workshop, whose purpose was to coordinate the participants' research projects, was inaugurated by José Antonio Ocampo, Executive Secretary of ECLAC. A final seminar took place at the WIDER Institute in Helsinki in October 2001, with the participation of the Director of WIDER and the Executive Secretary of ECLAC. We thank the contributors to this book and other participants for creative and fruitful discussions.

We appreciate the stimulating environment provided by ECLAC and WIDER for the development of the project, the contributions made by several specialists at ECLAC, the financing provided by WIDER and the support of staff at ECLAC and WIDER in the organization of the workshop and the seminar. Ricardo Gottschalk and Jenny Kimmis (at IDS) and Heriberto Tapia (at ECLAC) provided very useful assistance and advice.

RICARDO FFRENCH-DAVIS
STEPHANY GRIFFITH-JONES

Acknowledgements

This study has been prepared within the UNU/WIDER project on 'Capital Flows to Emerging Markets since the Asian Crisis: How to Manage their Volatility', codirected by Ricardo Ffrench-Davis and Stephany Griffith-Jones. UNU/WIDER gratefully acknowledges the intellectual contribution and substantial support given to the project by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC).

ECLAC, the Economic Commission for Latin America and the Caribbean (Comisión Económica para América Latina CEPAL), is one of five regional commissions of the United Nations, each of which is concerned with assisting and promoting economic and social development in a major region of the world. Created in 1948, ECLAC currently serves 33 governments from Latin America and the Caribbean, together with several nations of North America and Europe that maintain historical, cultural and economic ties with the region.

ECLAC serves as a center of excellence in the region. It collaborates with its member states and with a variety of local, national and international institutions in undertaking a comprehensive analysis of development processes based on an examination of the design, follow-up and evaluation of public policies. Many of the ECLAC divisions that carry out these analysis and research tasks also provide technical assistance, training and information services in selected cases.

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List of Abbreviations

ALM	asset liabilities model
BCRA	The Argentine central bank
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
CEPA	Center for Economic Policy Analysis
CEPR	Center for Economic and Policy Research
CPSS	Committee on Payment and Settlement Systems
DEAR	daily earnings at risk
ECAIs	external credit assesment institutions
ECB	European Central Bank
ECLAC/CEPAL	Economic Commission for Latin America and the Caribbean/Comisión Económica para América Latina y el Caribe
EMBI	Emerging Markets Bond Index (JP Morgan)
ESCAP	Economic and Social Commission for Asia and the Pacific
EU	European Union
FDI	foreign direct investment
FSF	Financial Stability Forum
HLIs	Highly leveraged institutions
IAIS	International Association of Insurance Supervisors
IDB	Inter-American Development Bank
IDS	Institute of Development Studies, University of Sussex
IIF	Institute of International Finance
IMF	International Monetary Fund
IRB	internal ratings based (assessment)
IOSCO	International Organisation of Securities Commissions
LCPI	Liquidity and Credit Premia Index
LIBOR	London interbank offered rate
LTCM	Long Term Capital Management
NAFTA	North American Free Trade Agreement
NBER	National Bureau of Economic Research
NDF	non-deliverable forward
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
ORI	Overall regulation index
OSI	Overall supervision index
PERLs	principal exchange rate linked notes
ROSC	Report on the Observance of Standards and Codes (World Bank and IMF)

SMEs	small and medium-sized enterprises
UDROP	Universal debt rollover option with penalty
UF	Unit of Fomento (Chile)
UNDP	United Nations Development Programme
UNU	United Nations University
US SEC	United States Securities and Exchange Commission
VaR	value at risk
WIDER	World Institute for Development Economics Research
WTO	World Trade Organization

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Capital Flows to Emerging Economies: Does the Emperor Have Clothes?*

Stephany Griffith-Jones

Introduction

This chapter considers how capital flows to developing countries (and especially emerging markets) have changed since the Asian and other crises. It attempts to further our understanding of how investors, lenders and other financial actors make their decisions to supply capital to developing countries, and how this decision making influences or determines their main features, in particular their tendency for procyclicality and short-termism. The discussion draws on the chapters in this book on the supply of capital flows and extracts overall conclusions from them. Finally, it makes policy proposals to deal with the two most problematic current aspects of capital flows to developing countries: their very low levels and strong reversibility.

Since the Asian crisis there has been a drastic change in both the level and the structure of private capital flows to developing countries. To date insufficient emphasis has been placed by analysts and policy makers on the nature, causes and policy implications of these changes. A key question is whether the changes in capital flows – particularly their sharp decline, but also their composition – are mainly structural or cyclical. If they are cyclical, how long is the flow likely to remain low? Although this is a difficult question to answer, it is very important to attempt to do so, given the policy implications for all involved, but particularly for developing countries.

One scenario is that the recent trends will continue for a long time: net private capital flows to all emerging economies have declined since 1997, and were extremely low in 2000 and 2001, according to the IMF (2002) (see Table 1.1). As the IMF (2001a) asks, was the resurgence of such flows in the first half of the 1990s, after the debt crisis, a 'one-off portfolio stock adjustment' that has now run its course? This implies that the presence of foreign companies, banks and other investors in emerging economies will contribute very little foreign exchange or external savings to the emerging economies,

Table 1.1 Emerging market economies: net capital flows, 1994–2003 (US$ billion)

	1994	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*
Private capital flows, of which	150.9	212.0	234.2	111.9	65.4	69.4	7.7	31.3	58.0	76.8
Private direct investment	80.8	100.1	117.0	142.7	154.7	163.8	153.4	175.5	157.1	165.7
Private portfolio investment	113.0	41.2	86.9	46.3	−4.6	33.9	−4.3	−30.2	14.6	15.8
Other*	−42.9	70.7	30.3	−77.2	−84.7	−128.2	−141.4	−114.0	−113.7	−104.7
Official flows	3.5	26.9	−1.5	64.9	60.5	13.7	5.7	37.2	32.7	15.2
Change in reserves	−69.1	−116.7	−108.8	−59.8	−45.0	−85.8	−114.3	−134.3	−87.6	−60.6
Current account	−72.2	−92.4	−96.8	−69.0	−52.6	32.9	128.3	89.4	16.9	−16.7

* Mainly bank lending.
Source: IMF (2002).

and that their only contribution will be via the transfer of technology, management know-how and other expertise. The value of a foreign presence for developing countries – and especially but not only the more advanced ones – is in the blend of capital flows and the transfer of expertise; if only the transfer of expertise were to remain, the balance of benefits and costs would change quite significantly, as would the number of policy measures and other efforts to attract such flows. The emperor would have no clothes, or more accurately, would be half-naked.

On the other hand, if the other scenario is more likely and the sharp decline is mainly driven by general cyclical factors and the memory of recent crises (and if crises stop happening), then the pay-off will be far greater for policy makers (in developed and developing countries, as well as in international organizations) if they make an effort to attract private flows to developing countries and encourage more of those which are stable.

In the following sections we shall first examine the new pattern of private flows, particularly to emerging countries, and then the extent to which the recent changes are likely to be permanent or temporary. We shall then look briefly at some of the new features that make different capital flows to developing countries so procyclical and easily reversible, and conclude with policy implications.

New pattern of private flows

Sharp decline of flows

As briefly sketched out above, and as shown in Table 1.1, capital flows to developing countries have undergone a major change since the East Asian crisis. According to the IMF (2002), net private capital flows to emerging market economies, which peaked at almost US$240 billion in 1996 (having grown consistently throughout the first half of the 1990s), more or less halved to less than US$120 billion in 1997, fell by around 40 per cent to less than US$70 billion in 1998 and 1999, collapsed to less than US$10 billion in 2000 and recovered only very slightly to US$31 billion in 2001. As a result, emerging markets' current accounts have also shifted dramatically, from significant deficits to very large surpluses since 1999.

FDI maintains its level but is increasingly hedged

At the same time there has been a dramatic change in the structure of flows. FDI tripled between the early 1990s and 2001, when it peaked at US$175 billion. Since 1998 it has been the only large source of foreign capital inflow for emerging markets, and in terms of the net transfer of resources it has been the only source for emerging markets. Overall this change in the structure of flows is a very positive development as FDI includes the transfer of expertise and tends to be long term. However there are important caveats.

The first is that the FDI flow to developing countries may not be sustained at its current high levels because of changes in the developed economies and because the easy purchase of companies being privatized or large attractive companies already in the private sector may gradually come to an end. In successful dynamic economies or sectors this may be followed by additional FDI to seize profitable opportunities for expansion (for example as occurred in telecommunications in several Latin American countries) or for 'green-field' investment. However in less dynamic economies or sectors FDI may just decline, as it is beginning to do in Latin America.

The second caveat has been explored less in the literature but has become a major new issue. Although FDI is relatively more stable than other forms of investment it does have a volatile component. Historically this has taken the form of variability in the remittance of dividends, but it now relates to increased and variable external debt financing of FDI. The latest concern is that multinational companies, especially those producing for the domestic market, are hedging their short-term foreign exchange risk (see Chapter 9). This could reduce the positive net foreign exchange impact of FDI through, for example, the purchase of US dollars or dollar-denominated government paper in a country (for example Brazil, Mexico), or by hedging offshore. Particularly problematic would be companies dramatically increasing their hedging of exchange rate risk if devaluation seemed likely. As there might be no one who was willing to 'take the other side', this could lead to an outflow of foreign capital and/or put pressure on the exchange rate. As Dodd explains in Chapter 6, if there were an unbalanced market in which most participants wanted to be short in the local currency, the forward exchange rate might have to fall so risk takers would be willing to hold greater amounts of the long positions or dealers could create a synthetic forward by borrowing locally and buying as well as investing in foreign exchange. This could result in a temporary outflow equal to the size of the hedge. Although the intention would be to hedge and not to speculate, the impact on reserves and/or the exchange rate might be the same. Reportedly the increased use of hedging by foreign direct investors whose sales are in the local currency has been an important factor in Latin America in recent years, significantly intensifying the pressure for devaluation. A matter of concern is that such hedging takes place with both fixed and floating exchange rate regimes.

Bank lending: water flowing upwards

In sharp contrast to FDI, whose levels have remained high since the East Asian crisis, net international bank lending has not only collapsed but also became highly negative during 1997–2001 (Tables 1.1 and 1.2: see also Chapters 4 and 5).

The decline was across the board, but far deeper in the crisis-hit East Asian economies. The main reason was banks' greater perception of the risk of

Table 1.2 International banks' involvement with all developing countries, 1998–2001

	June 1998 (US$ bn)	*Dec. 2001 (US$ bn)*	*Percentage change (at annual rate)*
Loans outstanding	924	742	−7.0
Other assets*	110	157	9.1
Loans by subsidiaries in local currency	248	434	23.7

* Includes holding of debt securities, some derivative positions and equities.
Sources: Chapter 4; BIS, www.bis.org.

lending to developing countries, especially to Asia. A secondary reason was that, once recession or lower growth hit the countries concerned, their demand for international loans fell. Hence the increased perception of and aversion to risk in international lending to developing countries is due to the frequency and scale of recent crises. Bankers argue that currency mismatch is dangerous for lenders and borrowers alike.

As Kumar and Persaud (2001) argue persuasively, for investors and bank lenders, at any point in time their appetite for risk is in one of two states: risk loving or risk averse, although in the boom phase there is little perception of risk. Recent experiences, particularly the losses made in Russia and Argentina and on developing-country corporates[1] (especially in the East Asian crisis countries), have contributed to bankers' aversion to developing-country risk. This is occurring in a context where banks have generally become more risk sensitive and therefore more reluctant to assume risk. This is related to a greater emphasis on shareholder value, which is forcing banks to reassess the balance of their activities against the criterion of rate of return, and not the volume of business. This pressure on shareholder value is being further encouraged by the growing importance of and competition from capital markets. Banks are increasingly behaving more like portfolio investors and are using similar instruments, such as credit risk derivatives. Furthermore the increasing trend amongst banks to use VaR (value at risk) models has not only increased risk sensitivity but also, according to some analysts, contributed to herding and procyclicality (see Chapter 3).

A second, positive, change is that the average maturity of bank loans has increased. Thus for all developing countries the ratio of short-term to total debt fell from 54 per cent in 1996 to 46.5 per cent in 2000, according to World Bank data. The decline was particularly sharp in East Asia and the Pacific. One reason for this change is that borrowers have, as a result of the painful experience of suddenly losing bank credit during the recent crises, become reluctant to depend overly on short-term loans. Indeed several countries have adopted specific guidelines restricting short-term borrowing

by banks and lengthening debt maturities.[2] Some of the bank officials interviewed said that they would like to increase their short-term exposure to developing countries, especially to large banks (which they consider safe), but there is insufficient country demand.

In the case of low-income countries, especially in Sub-Saharan Africa, banks have traditionally concentrated on short-term lending, typically related to trade finance, and on the whole have avoided medium-term international bank lending. Their reluctance to make medium-term loans to poor countries holds even if a country has improved its fundamental and structural features.

A third major change is that international banks have significantly increased their lending via domestic subsidiaries in the local currency (Table 1.2). This has been made possible by the dramatic increase in the ownership by international banks of bank subsidiaries in developing countries, that is, banks are 'crossing the border' (see Chapter 5). The greater foreign ownership of banks is also partly a result of the recent crises, which have significantly reduced the entry costs for foreign banks, not only through currency devaluations but also because the crises caused an erosion of the net worth of banks (see Chapter 4). From the perspective of international banks, lending through subsidiaries has the advantage of allowing better quality control by lending officers located in specific emerging economies. However the main advantage for banks is the ability to avoid a currency mismatch, and therefore exchange rate risk.

Such loans are funded locally via deposits in the domestic currency. While some bankers argue that local currency lending by foreign subsidiaries can be complementary to international bank lending, recent trends suggest the opposite, that is, there is a substitution effect. Indeed bankers argue that there has been a large redistribution of banks' overall emerging-market portfolios, in which banks have substituted onshore lending for cross-border lending. From the perspective of developing countries, this may have some advantages, for example the possibility of stronger and more efficient banks, as well as less vulnerability to crises (however the latter point seems far more doubtful since the Argentinean crisis).

Foreign bank ownership also has large costs and other disadvantages. One cost, which can be very significant, is a smaller capital inflow to the developing country (with the one-off purchase via FDI of the bank, replacing a far larger stream of international bank lending). Another potential disadvantage is that domestic lending by international bank subsidiaries may have certain biases that are not suited to developing countries. For example, in comparison with the domestic banks they have taken over, they may be more inclined to lend mainly to large companies and less oriented towards lending to small and medium-sized enterprises (SMEs), which account for a high proportion of employment in developing countries. Furthermore they may give greater priority to consumer lending (for example credit cards),

especially to middle- and high-income persons, and less to lending to companies, especially for long-term investment. Given the need in developing countries for greater and more efficient investment, this may be very problematic.[3] The effects on development, in different categories of developing country, of these new trends – increased foreign ownership of banks, and bank lending 'crossing the border' – needs careful empirical research.

To conclude, clearly the decline in international bank lending has a temporary element that is largely linked to the memory of recent crises and reinforced by the subsequent slowdown in the world economy and its negative effects on developing countries' prospects. If crises stop occurring, the memory of them fades and the world economy recovers, this element could be reversed. However more structural, and therefore more permanent, factors seem to be playing a fairly large part in the decline of international bank lending to developing countries. The main factor seems to be the increased ownership by international banks of subsidiaries in developing countries, which allows them to lend in the local currency. Although this local currency lending could be complemented by international lending, there may be a strong incentive for banks not to do so on a significant scale, especially given the increase in risk sensitivity and the relatively high degree of exchange rate risk in international lending to developing countries.

Portfolio flows

Equity flows

Portfolio equity flows to developing countries, which had grown significantly in 1990–97, fell after the East Asian crisis, although the decline was far less dramatic than that of bank lending. Furthermore equity flows became increasingly concentrated in a handful of developing countries. According to the World Bank (2001), in 2000 just four countries – Brazil, China, Mexico and Turkey – accounted for around 85 per cent of all equity flows to developing countries. An equally important issue is the volatility of equity flows. As the World Bank (ibid.) points out, in three of the recent crises – those in Mexico, East Asia and Russia – mutual funds (which constitute some of the most significant equity investors in emerging markets) withdrew large sums of money.[4] The recent trends in portfolio equity flows to developing countries are in sharp contrast to global cross-border equity portfolio flows, which have increased dramatically; indeed according to Kumar and Persaud (2001), between 1995 and 2000 they rose fivefold from US$268 billion to an estimated US$1.100 billion. Thus developing countries now receive a far lower percentage of global equity flows than they did in the mid 1990s.

The process of allocating investors' funds to equity – both globally and in developing countries – is quite complex, particularly as it involves a range of actors. We shall briefly outline it here before examining recent changes. Institutional investors (such as pension funds and insurance companies),

retail investors (wealthy individuals) and charities are major global investment actors. In the case of pension funds, the ultimate responsibility for allocating funds falls on the trustees. However, particularly in the United States and United Kingdom, trustees rely on consultants' advice on how – given the structure of their liabilities – they should broadly allocate their assets (typically including the percentage to be allocated to emerging markets). This is done via specialized asset liability models (ALMs). Once the broad allocative decisions have been taken, one or several fund managers are chosen. These fund managers may have a global, regional or country mandate, and they may specialize in bonds and/or equities. In the case of developing countries, they may be a small part of a global fund, there may be specialized funds for all emerging markets, there may be regional ones (for example for Latin America, the Far East, Sub-Saharan Africa or Eastern Europe), or there may even be country funds.

One of the more important new trends is that since the mid 1990s there has been a sharp reduction of so-called dedicated investors: emerging-market country funds (which have practically disappeared) and regional emerging-market funds.[5] This is particularly the case for Sub-Saharan African funds. A far higher proportion of equity flows to emerging markets go via so-called 'cross-over investors', that is, those originating from global funds, where only a very small proportion of their portfolios goes to emerging markets. This is problematic because dedicated investors reportedly tend to have a more long-term commitment than cross-over investors, and therefore lower rotation and volatility.[6] The problem of reversibility and volatility is therefore made more acute.

With regard to the evolution of equity flows to developing countries, the 1990s can be split into two halves. In the first half there was great optimism about the prospect for emerging markets, with the expectation that higher returns would compensate for higher risks, and with the perception that emerging markets offered an interesting opportunity for portfolio diversification due to their low correlation with developed economies. As a result equity flows to emerging markets grew systematically. The optimism even extended to Sub-Saharan Africa, which was described as 'the last frontier of emerging markets'.[7]

However since the East Asian and other crises this optimism has declined, as have equity flows. The main reasons for this were that, in the second half of the 1990s, volatility in emerging markets was very high and the returns were not only very low (and on occasion negative) but also lower than in the developed markets – especially the United States. Moreover, as the stock markets became more integrated into the global financial market, the correlation between emerging and developed markets increased, though it remained lower than between developed economies; thus the gains from diversification declined. As a result the promise that emerging markets would offer higher economic growth and therefore high returns, as well as

a lower correlation to compensate for higher risk, was fulfilled only partially; and the risks were certainly seen as high, as one crisis in emerging markets followed another with alarming speed. There seemed to be particularly little interest in investing in low-income countries in Sub-Saharan Africa, as the overall disappointment with emerging markets was particularly focused on these countries, even though they themselves did not have currency crises.

There is an additional, more structural, factor that has inhibited equity flows: from the point of view of portfolio investors there are no longer enough large companies in which to invest. Many of the most attractive, large and profitable companies (for example in telecommunication, energy and so on) have been sold to foreign direct investors; this is particularly the case in Latin America. As a result there is no room for portfolio investors. The remaining companies are seen as too small or not attractive enough. Smaller and poorer economies are perceived to have very few or no large and attractive companies for equity investors to put their money into.

An important new trend that has emerged in recent years is that an increasing proportion of the issuing and trading of developing-country stocks is taking place in New York and London, via the issuance of American and Global Drawing Rights (ADRs and GDRs). Consequently, a smaller proportion of these activities is taking place in developing countries' stock markets. It could even be said that, to some extent, developing countries are exporting their stock markets! There is a contrast here, between international banking, where the analysis of and decision making on loans by international banks to developing countries is increasingly taking place in the latter countries (in local currency), and international equity investment in emerging markets, which is increasingly taking place in the major international financial centres.

The increasing issuance and trading of developing-country stocks in the big financial centres is not unique; indeed a similar trend can be detected for the smaller European countries. Factors such as the deregulation of capital flows, falling information costs and a growing preference for liquidity are driving this trend. The main factor seems to be investors' increased preference for liquidity.

The increased preference for liquidity has some temporary elements in that investors responded strongly to the collapse of LTCM and the terrorist attacks on New York and Washington on 11 September 2001. However, besides the temporary after-effects of recent crises and problems, there are also important structural factors that suggest that investors will continue to be biased towards more liquid – and therefore larger – markets. A key factor is that the crowd of international investors has grown; there is a great concentration of huge institutional investors, who argue they are 'too large' for small market's liquidity. As a result, if they switch a significant part of their funds they will have a large effect on prices. A second factor is that investors, particularly cross-border investors, are herding more. According to Persaud

in Chapter 3, the increased tendency to herd is due to greater uncertainty about valuation (as the new economy is based on ideas and knowledge, which are more difficult to value than bricks and mortar), and to the encouragement given by the regulators of short-term, market-sensitive risk management systems to investors with different mandates to act in a similar way.

Given that the latter factors are part of a more long-term trend, this implies that liquid markets will become more liquid while illiquid markets will become even less liquid. This has been the subject of growing complaints in developing countries such as Chile and South Africa, where large local companies are either issuing ADRs or switching their primary listings to New York or London. This is further undermining liquidity in these developing-country markets, as overseas investors no longer need to invest there. A particular problem from a development perspective is that while very large companies will have access to international liquidity, relatively smaller companies will not; they will be restricted to small stock markets with declining liquidity. Because medium-sized companies are not only often more dynamic but also an important source of employment, this could have negative development implications. One policy implication that we shall discuss below is that stock markets in developing countries may need to concentrate on improving their efficiency in raising capital for small companies.

Bond flows

Bond markets continued to fund emerging economies in the post-Asian crisis period, although at a significantly lower level. For those countries which continued to have access to bond finance, four problems have emerged since the East Asian crisis. First, the cost of borrowing and cost volatility have risen well above the precrisis levels. Second, there have been frequent market closures when issuance has dried up. The IMF (2001b) defines market closures as weeks during which bond issuance falls below 20 per cent of the previous year's weekly average issuance. Under this definition, US dollar emerging bond markets were closed for 16 weeks in 2000–1. One of the main reasons for the on–off nature of recent market access is the increasing dominance of emerging-market investment by 'cross-over investors', who can easily reduce or eliminate their emerging-market holdings if their outlook deteriorates, if there are better opportunities elsewhere or if their risk aversion increases. The third problem is the reduction of average maturities, and the fourth is the high concentration of bond lending to sovereigns, which is also a reflection of increased risk aversion and is problematic for developing-country corporates. Reportedly, for corporates to be able to issue bonds internationally they not only have to be very creditworthy but must also have international partnership or ownership, as well as foreign exchange earnings.[8]

On balance there is a greater preference, particularly among institutional investors, for fixed-income instruments, which are seen as less risky. However in the case of emerging-market bonds there is a reduced appetite for this type of paper because of the increased perception of risk. As a result of recent crises, and especially since the Russian default, the market for bonds has become far more prone to panic in individual countries. If panic sets in among investors, this can even undermine countries with relatively good fundamentals. Because of the Russian default, investors learned that having the wrong bond, at the wrong time, with the wrong counterparty could lead to complete destruction. Reportedly, the lesson drawn by many fund managers is that if problems emerge in a country they should abandon it entirely, and they explain to their clients that the country abandoned could be a repeat of Russia. This clearly has very negative implications for developing countries.

Another important point to stress is that some US investors mark their performance against benchmarks on a daily basis. Large falls in bond values can quickly affect their careers, so they are unwilling to stay in bonds that may fall sharply. Since the Russian default it seems that there has been a tendency among analysts towards a negative bias in their country analysis, as there was strong criticism of analysts who wrote positive reviews on Russia. Besides the problems emanating from the Russian and Argentinean defaults, bond holders – and their associations – tend deeply to resent discussions on orderly debt work-out procedures within the framework of a new international bankruptcy legal procedure, which reportedly would further discourage new bond lending to emerging markets. On the other hand the inclusion of collective action clauses is not seen as a major problem, especially as the British and Canadian Treasuries have issued paper with such clauses. This is true even in the New York market, where there has been little tradition of using such clauses but investors have become more relaxed about their inclusion. Recently a number of major developing countries have issued bonds with collection action clauses, which is very positive.

Financial markets have traditionally been inherently short-termist and volatile (see for example Keynes, 1936; Kindleberger, 1978; Minsky, 1982). However the evidence gathered in this book seems to indicate that these markets have become more volatile and that this volatility has the potential to be transmitted in harmful ways to macroeconomic trends in developing countries.

Indeed, although the conventional view is that developing-country fundamentals determine the behaviour of international financial markets, there is increasing evidence that in many cases it is the endogenous behaviour of international financial markets that conditions or strongly

influences fundamentals in developing countries (see Chapter 11). Thus the demand and supply curves for emerging market assets are not independent; a supply-led, large capital inflow affects the domestic economic situation (for example by generating an asset price bubble or an overvalued exchange rate) in a way that can increase the demand for assets. This can lead to costly macroeconomic crises, which makes regulation and other state intervention in international financial markets essential. The ever-increasing complexity of the international financial markets complicates effective regulation, but we hope that this book will contribute to the understanding of different markets and provide useful policy suggestions, including for the design of appropriate international regulation.

An important element in the increased volatility of international bank lending is the use of modern risk management models (such as VaR or the related 'daily earnings at risk'). As Persaud points out in Chapter 3, the intrinsic problem with market-sensitive risk management systems is that they incorrectly assume that banks act independently when in fact their decisions are interconnected. When many banks try to sell the same asset at the same time, and there are few or no buyers, prices fall and volatility increases. As prices collapse, for liquidity reasons banks try to sell another asset, which may have been previously uncorrelated with the first. This not only increases the volatility of the second asset, but also correlation. This prompts repeated rounds of selling among agents who use similar models, and generalized herding takes place. The adoption of banks' own risk management models to determine their required levels of capital in the internal ratings approach, as proposed in the new Basel Capital Accord, could seriously increase banks' tendency for procyclicality in lending, exacerbating both booms and crashes (see Chapter 10).

An additional source of concern with regard to the procyclicality of flows is the evidence that the VaR models first developed by banks are being extensively adopted by fund managers and pension funds, leading to similar herding patterns and to procyclicality in their investment (see Chapter 3). Therefore herding is not restricted to one class of actor (banks), but is spreading among many actors.

The problem is not just one of procyclical flows, but also of increasingly frequent boom–bust cycles. As Williamson points out in Chapter 8, this is linked to the fact that financial markets are currently dominated by investment managers with a short-termist approach who are willing – and able – to move in and out of different markets in a relentless quest for short-term returns. This is strongly influenced by the fact that fund managers are evaluated at very short intervals (Griffith-Jones, 1998). Not only is it doubtful that this behaviour maximizes long-term returns, it is also clear that it does not maximize the usefulness of financial markets to the developing countries that raise funds from them.

The problem of procyclicality is further exacerbated, especially in relation to bond flows to developing countries, by the increased influence and impact of rating agencies on the terms (and magnitude) on which developing countries can tap world bond markets. As Reisen shows in Chapter 7, sovereign ratings still lag behind rather than lead markets, and they have an important procyclical effect, especially on the bond market. Improved ratings reinforce euphoric expectations and cause excessive capital inflows during booms, whilst during crises the downgrading of ratings causes panic among investors, resulting in capital outflows and increased spreads. Unfortunately, and despite criticisms after the East Asian crisis, procyclical indicators still play a very large part in determining ratings, rather than the use of indicators that can 'see through the cycle' (see Chapter 7). The impact on flows is increased by the practice of certain institutions (for example pension funds) to sell once ratings fall below a certain level; this is particularly marked in the fall from investment grade to non-investment grade ratings. Implementation of the proposed Basel Capital Accord could similarly increase the procyclicality of bank lending, both domestically and, to a lesser degree, internationally (see Chapter 10).

The large growth of derivatives in recent years may have positive effects on hedging or managing the risks associated with capital flows for individual investors and lenders. During normal times the unbundling of risk, and the increased liquidity offered by derivatives, is positive. However derivatives – even if used by foreign and domestic companies to hedge their investment – can put downward pressure on emerging-market currencies, and can even precipitate or seriously deepen a devaluation, as investors rush to hedge their currency exposure in anticipation of a possible currency crisis or to meet collateral requirements once the currency and asset prices fall. We have already discussed the use of foreign exchange forwards and swaps (for example by foreign direct investors), and their possible negative impact on capital flows and/or the exchange rate in the lead-up to a crisis. Perhaps more damaging – as Dodd explains in Chapter 6 – is the use of total return swaps (TRS). A TRS is a contract where one leg is based on the total rate of return of some underlying asset, security or security index, and the other leg is based on an interest rate, usually LIBOR. As the swap replicates positions, and thus does not involve ownership or debt, the only capital it involves is the posting of collateral. It is not subject to regulatory restrictions on foreign exchange exposure. TRS can be more problematic than short-term loans if the sudden value of the swap drops (for example because the exchange rate falls), at which point the local swap holder must immediately post additional collateral with its counterpart. Typically this necessitates the sale of other assets, which can result in large and immediate currency outflows. As Dodd points out, if short-term bank loans are considered hot money, then payments to meet margin and collateral are microwave money – they get hot far more quickly.

Policy implications

We have seen from our analysis that capital flows to developing countries pose two clearly separate though related problems. One is that there may be a structural decline in capital flows to both emerging and low-income countries (especially to the former) for a considerable period. The second is the strong tendency – reinforced in recent years – for capital flows to developing countries to be procyclical and short-termist. We shall therefore divide our policy suggestions into two sections, the first focusing on encouraging the recovery of private flows to developing countries, especially long-term ones, and the second on measures to diminish the procyclicality and short-termism of such flows.

A clear conclusion from our analysis is that private capital flows to different categories of developing countries have fallen significantly since the East Asian crisis. The decline in private flows seems to have been caused to a significant extent by the structural factors outlined above, and therefore may be more permanent. An important and high-priority task therefore is to design measures that will encourage a sufficient return of private flows to developing countries, especially more stable flows, and particularly to low-income countries.

It is also important to reduce existing or prevent future international measures that will serve to discourage private flows to developing countries. For example it will be necessary to ensure that the new Basel Capital Accord will not discourage bank lending to developing countries, or increase its cost and procyclicality.[9]

With regard to policy measures to encourage lending to and investment in developing countries, we can distinguish between those to be taken by (1) recipient countries and (2) developed countries. We shall concentrate on the latter here.

Encouraging lending to and investment in developing countries

An important issue in respect of bank lending and bond issuance, is how to develop and expand public guarantees or the collateralization of loans, especially during periods when the perception of country risk increases. Mechanisms such as guarantees only on interest payments could be explored, as these could provide additional leverage. A particularly important role that improved public guarantees could play would be to encourage private investment in infrastructure, especially (but not only) in low-income countries.

The possibility of using tax incentives also needs to be evaluated carefully, in both source and recipient countries. In developed countries, for example, could tax relief on contributions to personal pension plans be made somewhat higher if pension funds invested a somewhat higher proportion of their capital in long-term investments in developing countries for a minimum holding period? Could tax incentives also be used to encourage other

investment/lending to developing countries? And could other mechanisms, such as ethical investment, which is an increasingly important part of pension fund activities, be modified so that one criterion for eligibility would be long-term investment in developing countries? In the case of taxation, how in practice would such a mechanism work?

With regard to bonds, market participants have made some specific policy suggestions whose net benefits for developing countries as well as their feasibility may need to be explored further. A specific proposal is that developing-country governments should emulate developed-country governments and have preannounced a schedule of borrowing; this, it is suggested, would lead to a more efficient and liquid market for their paper, but it could have – especially in the short term – unfavourable effects on their cost. A more ambitious suggestion relates to the possibility of establishing a regional mechanism – for example a Latin American borrower authority – that would pool the risks of the various countries in the region and would be capitalized up front; possibly with the capitalization being funded or cofunded by developed economies. Such a mechanism could lower the cost of bond borrowing for developing countries. The positive experience of the Andean Development Corporation (Corporación Andina de Fomento), which is able to issue paper at a significantly lower cost than its member countries and whose capital is funded only by member governments, provides an important precedent.

There is also the difficult policy issue of how radical and how formalized should be the *ex ante* rules for orderly debt work-outs and standstills in times of distress. This issue has been amply debated, but it seems worthwhile stressing here that there may be a significant trade-off between (1) the positive effects from the greater flexibility in and speed of debt resolution in times of crisis (including the existence of an international legal mechanism to reduce debt in cases of insolvency via international bankruptcy procedures, which may be very helpful for avoiding declines in output or growth during crises) and (2) the possible negative effect on the ability to raise future new money, at increased cost. The inclusion of collective action clauses and the use of exit consent mechanisms offer an intermediate solution that may be effective in rescheduling and reducing debt, as well as in allowing access to new money. This intermediate solution may also have the advantage of greater speed of implementation.

Turning now to portfolio equity flows and equity markets, policy actions seem desirable not only to attract more equity flows (though care must be taken to ensure that foreign equity inflows deepen the liquidity of domestic stock markets and do not increase their volatility) but also to ensure that a higher share is traded in developing countries' own stock markets. One measure to consider is the creation of regional or subregional stock markets. In this regard important lessons can be learned from Europe, where the smaller stock markets are uniting to pool their liquidity. Another important

point is that, given the possibility that large companies may leave, smaller exchanges may need to focus on helping to raise foreign capital for somewhat smaller but potentially dynamic companies.

Further study is required in all these areas, but above all urgent action is needed, given the sharp fall in private flows.

Reducing procyclicality and the short-termism of flows

A major challenge is to create countervailing forces in both source and recipient countries that will dampen the natural tendency of financial markets for procyclicality and short-termism, a tendency that has been accentuated by the changes outlined above. In this section we shall focus on issues relating to procyclicality in source countries.

There are two complementary means of creating countervailing forces: action taken by the financial industry itself; and measures taken by public authorities, especially regulatory ones. An innovative way to counteract the market's tendency for volatility would be to create market stabilizers, via for example, the greater use of insurance instruments. Similarly, to deal with liquidity holes in emerging markets there is a need to create market makers.

Other measures that market actors could take include those already taken by final investors, especially institutional investors with long-term liabilities, such as pension funds. As the *Myners Review* (2001) argues, to overcome the problems that arise from the overly frequent (quarterly or monthly) evaluation of fund managers it is crucial for pension fund trustees to reconsider the length of the evaluation period and to make it more relevant to their particular liabilities. For example in the case of emerging-market assets the yields over longer periods are likely to be higher than in other markets. More broadly, pension fund trustees – and other institutional investors – should link their investment objectives to what is necessary to meet their future liabilities, and to set targets for their fund managers that accord with these objectives.

In turn fund managers should use different risk management systems and models for different clients, making them a better match for the diversity of investment objectives. Furthermore, particularly if the ultimate investor has long-term liabilities, it is crucial to use risk models that 'see through the cycle'. The latter and the greater diversity of risk-management models would encourage stability and discourage the herding and short-termism that are engendered by the current practice of using the same models, and by their problematic nature (see also Chapter 3).

A key question is whether market actors will, by themselves, take such actions, or whether encouragement – or indeed formal regulation – by regulators may be required. At the very least regulators should encourage a diversity of risk-management systems and models that better match the diversity of investment objectives, as well as the characteristics of different

investors and lenders. Equally, as Persaud points out in Chapter 3, regulators could research structural, non-market-sensitive measures of risk (such as degree of duration or currency mismatch), and encourage fund managers to use them. As stated above, the use of more appropriate and diverse models would discourage herding. Furthermore regulators could encourage a longer assessment period for fund managers' performance (well beyond the traditional one to three months). Mere encouragement may not be sufficient, and mandatory regulatory action may need to be taken. Because there may be institutional gaps in these areas and/or the regulators do not normally attend to them, a special effort will be needed by those regulatory authorities which do not pay sufficient attention to issues such as cyclicality, herding and short-termism.

Another factor that requires attention is the stipulation that investors – like insurance companies – cannot hold bonds that are less than investment grade. The problem is that this requirement is specified in terms of what paper they may hold, and not what they can acquire. As a result, in crises investors mechanically sell (thus deepening the crisis), even if the long-term prospect of the country is good (see Chapter 8). The requirement should be modified to limit what investors can buy rather than what they can hold; this would not only make bond lending more stable, but would also reduce the premium on short-term assessment of whether and when ratings may change.

In one area where regulators do have the power to act – bank regulation – it is important that: (1) they are careful not to cause greater procyclicality when they introduce market-risk-sensitive models or the use of ratings by rating agencies to determine capital to asset ratios; and (2) that they introduce explicit countercyclical elements into bank regulation, such as forward-looking general provisions in boom times or even higher capital adequacy ratios in good times, which would discourage excessive expansion of bank lending in good times and provide a cushion to facilitate sustained bank lending in bad times. The Spanish provisioning system is a concrete practical example of the implementation, at least partially, of such principles of countercyclical regulation. More generally, regulators could require prudential provisions (or capital) when the growth of loans – and/or key asset prices, such as stocks – either accelerates sharply or exceeds some long-term average measured over at least one cycle. Similarly, charges could be imposed if loan growth fell below this average, decelerated sharply or became negative (see Chapter 12).

With regard to rating agencies, in Chapter 7 Reisen shows that their methodology is still procyclical. Hence these seems to be a strong case for regulating rating agencies, and especially their methodology, to ensure that the sovereign ratings they produce focus on objective indicators, particularly variables that 'see through the cycle'. Given the influence and power of rating agencies, and the problem with the quality and procyclicality of their

assessment of sovereigns, there is an obvious need for transparency in the criteria they use to determine ratings.

Finally, derivatives have recently enjoyed considerable growth, but regulation of them has lagged somewhat. As Dodd points out in Chapter 6, it is necessary to improve the reporting and registration requirements; improved transparency will contribute to greater market efficiency and is a *sine qua non* for appropriate regulation. Second, it is necessary to prevent or discourage market practices that are procyclical and could act as a crisis accelerator. This means imposing appropriate capital requirements on all financial institutions, including derivative dealers, particularly in developing countries, where such requirements often do not exist. Of equal or greater importance, is the necessity to post and maintain adequate and appropriate collateral or margin on all derivatives transactions at all times. This would replace the current, rather dangerous, method of managing collateral. The initial collateral requirement would be small, but firms should be required to become 'super-margined' if their credit ratings drop substantially, especially below investment grade. This will require a derivatives counterparty to post substantial amounts of additional collateral, although in the case of developing countries this could force capital outflows if a crisis approached or exploded.

In summary, regulators need to focus on generating countervailing or countercyclical measures and actors in order to compensate for the natural tendency of financial markets for procyclicality, accentuated by modern trends. This they have not yet done, or only to a very limited extent. Procyclical and herding behaviour can lead to complex and problematic interactions between different actors and flows. For example a downgrade by a rating agency of a particular sovereign (especially from investment to non-investment grade) can cause investors immediately to sell the bonds of the country in question; simultaneously domestic derivative counterparties may be called on to meet margin calls, leading to capital outflows, and banks may stop lending following their own risk evaluation, which may be reinforced by the proposed Basel Accord. This implies that regulators need to look not just at the risks of particular actors but also at the interaction between the risks of different actors, as they may affect the same borrower or capital recipient, as well as at the possibility of risk increases spreading among borrowers. This will be a complex task, so there is a strong argument for increased coordination – or even better, integration, where feasible – between regulators in different financial sectors.

Besides regulatory measures, tax incentives could be used to encourage more stable, longer-term investment, as well as investment in developing countries. Such incentives could be tapered so as to increase with the term of the investment.[10] There are legislative precedents for this in the United Kingdom and France in respect of domestic investment. What we propose is that a similar tapering of tax incentives be applied to investment in developing countries.

Notes

* I thank Ricardo Gottschalk for useful inputs. I am also very grateful to José Antonio Ocampo, Ricardo Ffrench-Davis and John Hawkins for their valuable comments.

1. Interview material.
2. Neumann and Turner (2001); interview material.
3. I thank Ricardo Ffrench-Davis for this point.
4. For the East Asian crisis, see Griffith-Jones *et al.* (2002).
5. Interview material.
6. Interview material; IMF (2001b).
7. For a more detailed discussion see Bhinda *et al.* (1999).
8. Interview material.
9. See Griffith-Jones and Spratt (2001); Reisen (2001); Goodhart (2001).
10. I thank Jenny Kimmis for this point.

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2

Financial Crises and National Policy Issues: An Overview

Ricardo Ffrench-Davis

Introduction

In recent years a new type of crisis has developed in Asia and Latin America, with four features that differentiate it from the old type. First, international capital markets have been the major source of shocks, both positive and negative, to emerging economies. Second, capital flows have largely taken place between private suppliers and demanders; fiscal deficits have played only a secondary role, and indeed in most cases public finance has been in balance or surplus (Korea and Thailand before 1997; Argentina and Mexico before the Tequila crisis in late 1994). Third, this type of financial crisis has been suffered by emerging economies that were deemed to be highly successful by international financial institutes, risk evaluation agencies and the financial press. Fourth, flows have been characterized by a lack of regulation and supervision on both the supply and the demand sides. Domestic financial systems in recipient markets have often been liberalized without the parallel development of a significant degree of prudential regulation and supervision, while the new sources of supply have grown, usually unregulated.

This chapter discusses the interplay of supply and demand, especially procyclical interrelations. These involve processes rather than one-off changes, with short-termist agents being the more active dealers, and the natural, long-lasting, differences between relative prices in emerging economies and developed economies are crucial in explaining flows and their macroeconomic effects. The discussion then moves onto capital flows, fiscal, monetary and exchange rate policies and bank regulations, and their implications for the sustainability of macroeconomic balances. The chapter concludes with selected policy implications.

The interplay between the supply and demand of funds

Since the 1970s international financial flows have increased dramatically and become more diversified (see Chapter 1). But the outcome is potentially

unstable, in that there has been a shift from long-term bank credit, which was the predominant source of financing in the 1970s, to portfolio flows, medium- and short-term bank financing, time deposits and non-greenfield FDI (acquisitions). In fact a very high proportion of the newer supply of financing is of a liquid nature. Thus, paradoxically, there has been a diversification towards volatile sources of financing in the 1990s. The relative improvement after the Tequila crisis, with a rising share of FDI,[1] still included a significant proportion of volatile flows.[2] The foundations of the broad liquid market for portfolio investment that were laid down with the Brady bonds in the late 1980s developed vigorously in the 1990s, with Latin America as a major destination for both bond and stock financing; this market offered the expectation of high rates of return during the upswings of the two cycles in the 1990s (see Ffrench-Davis and Ocampo, 2001).

Meanwhile East and South-East Asian countries were just starting to enter 'vulnerability zones' during the first half of the 1990s (Akyüz, 1998; Furman and Stiglitz, 1998; Radelet and Sachs, 1998; Jomo, 1998; Agosin, 2001), with mismatches in the maturity structure of the balance sheets of domestic financial intermediaries proving to be even more severe than the worsening net debt position (Krugman, 1999).

As a consequence, in contrast to the 1980s debt and 1995 Tequila crises, both regions moved into vulnerability zones (a combination of large external liabilities with a high short-term or liquid share, a significant external deficit, an appreciated exchange rate and high price–earnings ratios in the stock market, plus low domestic investment ratios in Latin American countries). The outcome, then, was economies that were increasingly sensitive to adverse political or economic news (Calvo, 1998; Rodrik, 1998). The longer and deeper an economy's penetration into these zones, frequently encouraged by capital surges, the more severe the 'financierist trap'[3] in which the authorities could be caught, and the lower the probability of leaving it without undergoing a crisis and incurring long-lasting economic and social costs.

By the end of the second upswing in 1997, several economies in Asia and Latin America had penetrated deep into the vulnerability zone, which was reflected in severe crises in both regions when the mood of the external financial market changed, first with respect to East Asia and then to Latin America.

One of the strong features of capital flows in the last quarter of the century was the overshooting of supply on both sides of the cycle. There was contagion of both optimism and pessimism. Today the latter feeds the view that the market dryness in emerging economies is permanent, but it is suggested here that the present drought, even though it has lasted quite a long time, is temporary and that the financial setting will tend to generate a new boom and subsequent crisis unless policies and institutions are reformed domestically and internationally (see Ocampo, 2002a; ECLAC, 2002a, 2002b; United Nations, 2002).

The literature emphasizes, as sources of financial instability, the asymmetries of information between creditors and debtors and inadequate internalization of the negative externalities that each agent generates (through growing vulnerability) and that underlie the cycles of abundance and shortage of external financing (Rodrik, 1998; Krugman, 2000; Stiglitz, 2000).[4] Beyond these issues, as stressed by Ocampo (2002c), finance deals with the future, and concrete information about the future is unavailable. As he states, the tendency to equate opinions and expectations with information is confusing. All the above contribute to herd behaviour, transborder contagion and multiple equilibria.

Over and above these facts there are two additional features of the creditor side that are crucially important. One is the particular nature of the agents on the supply side. There are asymmetries between the behaviour and objectives of different economic agents. The agents that predominate in the financial markets specialize in short-term liquid investment and are highly sensitive to changes in variables that affect returns in the short term.[5] In fact short time horizons are a significant part of the story of the 1990s, as reflected in the volatility of flows that characterized the boom–bust cycles. The second feature is the gradual spread of information on investment opportunities. Agents from different segments of the financial market are gradually drawn into international markets as they take note of the profitable opportunities offered by emerging economies. This explains, from the supply-side, why the surges of flows to emerging economies in 1977–81, 1991–94 and 1995–97 were processes that went on for several years rather than one-off changes in supply (Ffrench-Davis and Ocampo, 2001).

On the domestic side, high rates of return were potentially to be gained from capital surges directed to Latin American economies that were experiencing recession, depressed stock and real estate markets, high real interest rates and initially undervalued exchange rates. Indeed in the early 1990s the prices of equity stocks and real estate were extremely depressed in Latin America, which allowed for a 300 per cent average capital gain (in current US dollars) in the stock markets of Latin America between late 1990 and September 1994 (Table 2.1), with rapidly rising price–earnings ratios. After a sharp drop in prices – over 40 per cent – around the time of the Tequila crisis, with the contagion spreading to all Latin American stock markets, average prices nearly doubled between March 1995 and July 1997, pushed up by portfolio inflows (see IMF, 1998).

The case of East Asia was different from that of Latin America in one respect – unlike the Latin American countries, the East Asian economies were growing vigorously and had a high ratio of capital formation, financed by domestic savings – but otherwise several similarities were shared by the two regions. When many countries opened their capital accounts in the early 1990s the international supply of funds was booming, equity stock was cheaper than in capital-rich countries (low price–earnings ratios) and external

Table 2.1 Latin America and East Asia: stock exchange prices, 1990–2002 (indexes, July 1997 = 100)*

	1990 (Dec.)	*1992 (Sept.)*	*1994 (Sept.)*	*1995 (March)*	*1997 (July)*	*1998 (Aug.)*	*2000 (March)*	*2001 (Sept.)*	*2002 (March)*	*2002 (June)*
Latin America	21.7	44.6	92.5	52.3	100.0	47.2	88.3	54.8	71.8	60.8
Argentina	13.4	46.9	78.2	53.5	100.0	53.4	90.3	37.8	23.5	13.5
Brazil	8.0	22.1	71.8	42.8	100.0	44.4	76.9	39.0	54.6	44.6
Chile	24.5	51.4	93.1	89.4	100.0	48.0	78.4	54.2	61.8	56.4
Colombia	16.6	65.0	113.1	96.3	100.0	49.9	41.2	29.0	31.2	33.3
Mexico	38.6	72.7	132.1	45.9	100.0	49.7	118.5	83.3	116.2	98.7
Peru	n.a.	n.a.	72.9	56.4	100.0	57.3	67.7	54.1	60.2	57.6
Venezuela	84.9	82.2	50.8	37.9	100.0	26.2	36.2	46.3	31.7	27.3
East Asia	n.a.	49.9	110.0	97.9	100.0	37.0	107.9	45.1	77.0	73.9
Indonesia	n.a.	53.7	84.2	71.6	100.0	11.1	27.6	13.7	17.3	22.0
Korea	n.a.	87.6	187.2	161.9	100.0	30.2	120.1	54.9	109.6	111.9
Malaysia	n.a.	63.7	119.0	103.5	100.0	16.8	61.3	35.6	46.1	47.3
Philippines	n.a.	67.1	134.6	108.6	100.0	30.4	47.9	25.5	30.9	27.7
Taiwan	n.a.	37.1	80.9	73.5	100.0	47.6	99.1	31.6	55.5	48.8
Thailand	n.a.	133.9	279.8	236.3	100.0	19.0	48.0	25.2	36.1	42.2

* The averages are weighted by amount of transactions. The values at the end of each period are expressed in current US dollars, excluding distributed earnings. The selected dates correspond to peaks and minimum levels for the average of Latin America (except for September 1992).
Source: Based on IFC/Standard & Poor's, *Emerging Stock Market Review*, several issues.

liabilities were low. The expected outcome in any emerging economy that moves from a closed to an open capital account should be similar to that recorded in the Latin American countries. Naturally, the rate of return tends to be higher in the productive sectors of capital-scarce emerging economies than in mature, capital-rich markets, so there is scope for very profitable capital flows from the latter to the former. This outcome did in fact occur in East Asia, whose stock prices doubled between 1992 and 1994 and the deficit on the current account and real exchange rates rose.

Domestic interest rates, particularly in Latin American countries, tended to be high at the start of surge episodes, reflecting the binding external constraint faced by most countries during periods of low capital inflows, their restrictive monetary policies and the short-termist bias of the financial reforms (see Ffrench-Davis, 2000: ch. 2). Finally, the increased supply of external financing in the 1990s generated an exchange-rate appreciation in most Latin American countries, and more moderately in East Asia. The expectation of continued appreciation encouraged additional inflows from dealers operating with maturity horizons located within the expected appreciation of the domestic currency.

The increased supply of external funding in three episodes (1977–81, 1991–94 and 1995–97) generated a greater demand for such financing. This was associated with procyclical domestic policies. Recipient countries that formally adopted such policies or took a passive stance experienced real exchange-rate revaluation, a boom in domestic credit and large deficits in the current account, which were often financed by short-term and liquid capital flows. As a consequence they tended to become increasingly vulnerable to changes of mood among creditors; the outstanding cases were Mexico in 1991–94 (Ros, 2001) and Argentina after the Asian crisis. Given the high exposure of financial assets placed in the region, creditors became more sensitive to bad news. This sensitivity rose steeply with the size of net short-term liabilities (Rodrik and Velasco, 2000; Stiglitz, 2000).

In summary, the interaction between two factors – the nature of agents and a process of adjustment – explains the dynamics of capital flows over time. When creditors discover an emerging market their initial exposure is negligible or non-existent. But as their stock of financial assets in the emerging market increases their sensitivity to negative news grows. Given their degree of dependence on additional flows, which are associated with the magnitude of the current account deficit, the refinancing of maturing liabilities and the volume of liquid liabilities that is likely to flow out of the country in the event of a crisis it is not surprising that, after a significant increase in asset prices and exchange rates, accompanied by rising stocks of external liabilities, their expectation of the future trend reverses sharply.

The accumulation of stocks and the subsequent reversal of flows can both be considered as rational responses by individual suppliers, given the short time horizon of the main agents on the supply side. This is because investors

with short horizons are not concerned about whether (long-term) fundamentals are being improved or worsened with capital surges as long as they continue to bring inflows. What is important to these investors is that the crucial indicators from their point of view – real estate, bond and stock prices, and exchange rates – continue providing them with profits in the short term, and that the liquid markets will allow them, if necessary, to reverse their decisions in a timely fashion. Hence they will continue to pour in money until expectations of an imminent reversal start to grow. Indeed for the most influential financial operators, the more relevant variables are not related to long-term fundamentals but to short-term profitability. This explains why they may suddenly display a radical change of mind about the economic situation of a country whose fundamentals, other than liquidity in foreign currency, remain more or less unchanged. The opposite process tends to take place when the debtor markets have adjusted sufficiently downward. This inverse process may be sustained, as in 1991–94 and 1995–97, or short-lived, as in 1999–2000.[6]

It is no coincidence that in all three significant surges of the last quarter century loan spreads underwent a sustained fall while the stock of liabilities rose sharply: for five to six years in the 1970s, four years before the Tequila crisis, and for a couple of years after that crisis (Figure 2.1). This implies that during the expansion side of the cycle there will be a downward-sloping, medium-term supply curve, a highly destabilizing feature indeed. In this regard it is interesting to note the evident parallel between spreads in Mexico

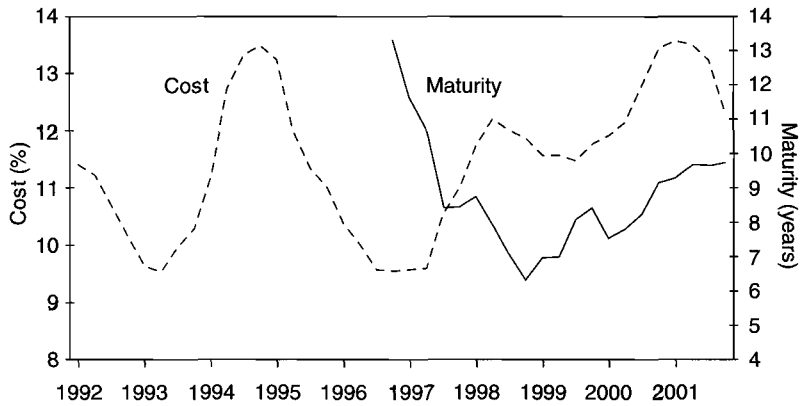

Figure 2.1 Latin America: cost and maturity of issues of bonds, 1992–2002 (percentages and years)*

* The cost is equal to the average spread on issues of bonds plus the rate of return of US Treasury 10-year bonds.

Sources: ECLAC; World Bank; IMF. Annual moving averages.

(praised as a well-behaved reformer in the 1990s) and Argentina (which today is classified, incorrectly, as being a non-reformer in the 1990s) (Figure 2.2). Apparently creditors did not perceive any significant difference between these two economies until 1999.

One particularly relevant issue is that, as stressed by Ffrench-Davis (2000), economic agents who specialize in the allocation of financial funding (we shall call this microfinance, as opposed to macrofinance) and may be highly efficient in their field but operate with short horizons 'by training and by reward', have come to play the leading role in determining macroeconomic conditions and policy design in emerging economies. This leads to unsustainable macroeconomic imbalances, with 'wrong' or outlier macro prices and ratios. Figure 2.3 shows the notoriously unstable GDP growth in Latin America as a whole in 1990–2001; obviously, that of the individual countries tended to be even more unstable. The changes in GDP were led by rises and falls in aggregate demand. The changes in demand were stronger in private expenditure and were associated with the evolution of net capital inflows.

The resulting real macroeconomic instability undermined the environment for productive investment and was a strong force behind the poor achievement of investment ratios in the 1990s, when they latter surpassed the 1980s average (19 per cent) by less than one percentage point of GDP and were more than five points below that in the 1970s (Figure 2.4). This significant variable partly explains why GDP growth was 5.6 per cent in the 1970s and a mere 2.4 per cent in 1990–2002 (Table 2.2).

What is irrational, and evidently inefficient from the perspective of resource allocation and total factor productivity, is for the decisions of the authorities, which should obviously have a long time horizon, to become

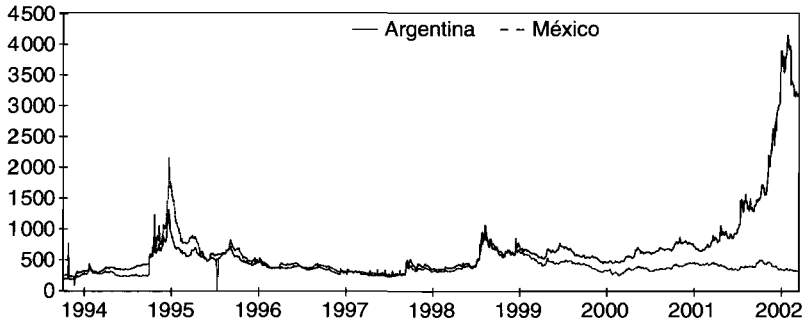

Figure 2.2 Argentina and Mexico: country risks, 1994–2002 (base points)

Source: JP Morgan. Country risk measured by the sovereign spread over the US zero coupon curve.

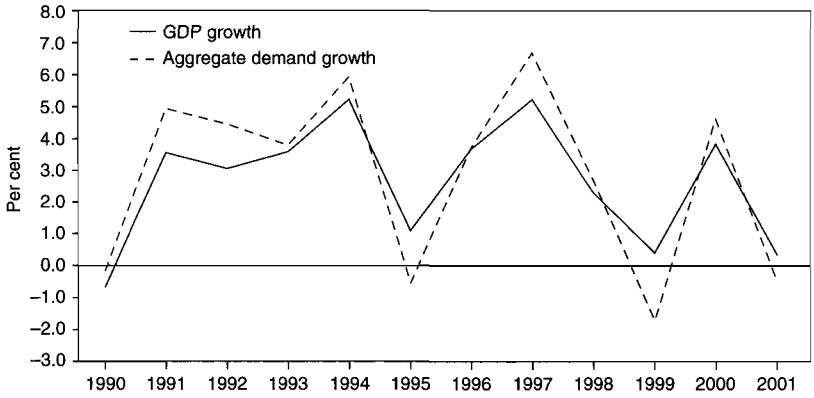

Figure 2.3 Latin America: GDP and aggregate demand, 1990–2001 (average annual growth rates, per cent)

Source: ECLAC, based on official figures for 20 countries in constant 1995 dollars.

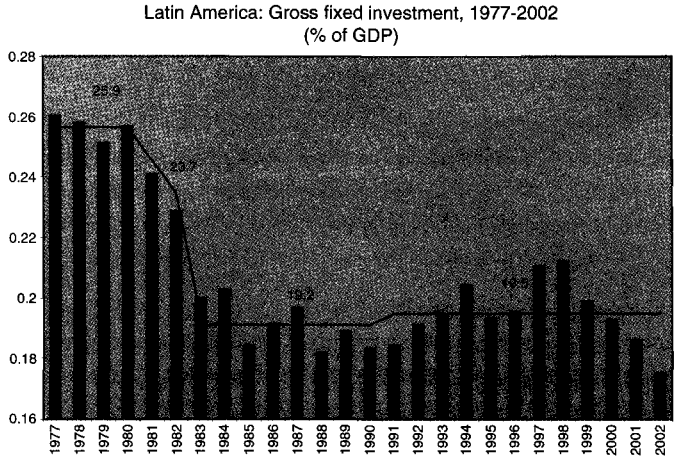

Figure 2.4 Latin America: gross fixed investment, 1977–2002 (percentage of GDP)*

* Preliminary data for 2002.

Source: Based on ECLAC figures for 19 countries, scaled to 1995 prices.

entrapped with the lobbying and policy recipes of microfinance, leading to 'irrational exuberance' (to use Alan Greenspan's expression). Thus in the next cycle the macroeconomic authorities should ensure that fundamentals (sustainable external deficit, moderate stock of external liabilities with a low liquid share, the crowding in of domestic savings, limited real exchange rate appreciation) prevail in order to achieve macroeconomic balances that are both sustainable and functional for long-term growth. This

Table 2.2 Latin America and East Asia: GDP, 1971–2002 (annual growth rates, percent)

	1971–80	*1981–89*	*1990*	*1991–94*	*1995*	*1996–97*	*1998–2002*[1]	*1990–2002*[1]
Latin America[2]	5.6	1.3	−0.6	4.1	1.1	4.5	1.2	2.4
Argentina	2.8	−0.7	−2.0	8.0	−2.9	6.7	−3.3	1.7
Brazil	8.6	2.3	−4.6	2.8	4.2	2.8	1.7	1.9
Chile	2.5	3.0	3.3	7.5	9.0	6.8	2.3	5.2
Colombia	5.4	3.7	3.2	3.9	4.9	2.6	0.4	2.4
Mexico	6.7	1.5	5.1	3.5	−6.2	6.1	3.2	3.1
Peru	3.9	−0.7	−5.4	5.1	8.6	4.6	1.6	3.0
Venezuela	1.8	−1.5	5.5	3.2	5.9	3.4	−1.2	1.9
	1971–80	*1981–90*	*1991–92*	*1993–96*	*1997*	*1998*	*1999–2002*[1]	*1990–2002*[1]
East Asia[3]	8.1	7.0	7.3	7.3	4.6	−5.4	4.7	5.3
Indonesia	7.7	5.5	8.1	7.7	4.7	−13.1	3.1	4.4
Korea	9.0	8.8	7.3	7.3	5.0	−6.7	7.1	6.1
Malaysia	7.8	5.2	9.2	9.7	7.3	−7.4	4.8	6.5
Philippines	5.9	1.7	−0.1	4.2	5.2	−0.6	3.6	3.0
Taiwan	9.3	8.5	7.5	6.7	6.7	4.6	3.0	5.4
Thailand	7.9	7.9	8.3	8.0	−1.4	−10.8	3.5	4.6

Notes:
1 Provisional figures.
2 Average of 19 countries.
3 In each period, each country's GDP was weighted by its share in regional output, expressed in current US dollars.
Sources: For Latin America: ECLAC (expressed in US dollars at 1980 prices for 1971–80, at 1990 prices for 1980–89 and at 1995 prices for 1989–2002). For East Asia: IMF, *International Financial Statistics*; Asian Development Bank; JP Morgan.

requires them to avoid entering vulnerability zones during economic booms *cum* capital surges. Once inside these zones, much-needed countercyclical policies become impossible during a period of dryness, as discussed in next section.

Domestic policies and a macroeconomics for growth

As discussed in Chapter 12, the association between capital flows and domestic economic activity has been an outstanding feature of emerging market economies during the past 25 years or so. This highlights the central role played by the mechanism by which externally generated boom–bust cycles in capital markets are transmitted to the developing world, and the vulnerabilities they generate. The high costs generated by business cycles in emerging economies are thus related to the strong connections between domestic and international capital markets. This implies that an essential objective of macroeconomic policies is to reap the benefits from external savings while reducing the intensity of capital account cycles and their negative effects on domestic economic and social variables. In Chapter 12 Ocampo discusses two complementary policy instruments to achieve this objective: capital account regulations and countercyclical prudential regulation of domestic financial intermediation.[7]

Capital account cycles are associated with the twin phenomena of volatility and contagion. Significant shifts in expectations, usually reinforced by subsequent risk-rating changes, lead to sharp procyclical changes in the availability of financing, maturities and spreads (Figure 2.1).[8] The most damaging, as already argued, are medium-term fluctuations rather than very short-term volatility, as shown by the several years of abundant financing (1991–94 and mid 1995–97) followed by several years of dryness (1998–2002, with a brief upsurge around 2000).

Capital account regulations can serve as a prudential macroeconomic tool, working at the direct source of boom–bust cycles: unstable capital flows. If effective, they provide the ability to 'lean against the wind' during periods of financial euphoria through the adoption of a contractionary monetary policy and reduced appreciation pressures. They should be accompanied by measures to encourage flows in periods of drought, both internationally (see Chapter 1) and nationally. If effective, they will also reduce or eliminate the quasifiscal costs of sterilized foreign exchange accumulation. What is extremely important is that, during the subsequent period of binding external constraints, the domestic economy is left with scope for expansionary monetary and fiscal policies.

Capital account regulations also serve as a liability policy. The market rewards sound external debt structures, because during times of uncertainty it responds to gross financing requirements, which means that the rollover of short-term liabilities is not financially neutral. This indicates that economic

policy management during booms should aim to improve the maturity structures of both private and public sector liabilities.

Chapter 12 also discusses recent innovations in capital account regulations. Overall the results of the innovative practice in the 1990s of across-the-board price restrictions on liquid and short-term financial inflows indicate that these can be useful instruments, in terms of both improving debt profiles and facilitating the adoption of countercyclical macroeconomic policies. The basic advantages of a price-based instrument applied to inflows, as pioneered by Chile and Colombia, are its simplicity and its applicability during boom periods. The more quantitative-type Malaysian system, which is geared to outflows, has proved to have stronger short-term macroeconomic effects. Traditional exchange controls, such as those in China and India (for example prohibition on short-term financial borrowing) may be superior if the objective of macroeconomic policy is to reduce significantly domestic macroeconomic sensitivity to international capital flows.[9]

These direct, price-based or quantitative, regulations on capital flows can be partly substituted by prudential regulation and supervision of domestic financial institutions. The main problem with this option is that it does not attend to the external borrowing of non-financial agents, and may actually encourage them to borrow abroad (that was a severe problem, for instance, in the crises in Korea and Thailand). Accordingly it needs to be supplemented with other disincentives to external borrowing by these agents, deterrents that may become cumbersome and extremely difficult to implement. They may include restrictions on the class of firms that can borrow abroad, restrictions on the terms of corporate debts that can be contracted, and tax arrangements that raise the cost of direct borrowing in foreign markets. Price-based capital account regulations may thus be a superior alternative and much simpler to administer.

Prudential regulation and supervision should take into account not only microeconomic risks but also the macroeconomic risks associated with boom–bust cycles. In particular, countercyclical devices should be introduced into prudential regulation and supervision, involving a mixture of the following:

- Forward-looking provisions for latent risks, made when the credit is granted on the basis of the credit risks that are expected throughout the full business cycle (an approach adopted by the Spanish authorities).
- More discrete countercyclical prudential provisions decreed by the authorities on the basis of objective criteria (for example the rate of growth of credit).
- Countercyclical regulation of the prices used for assets given in guarantee.
- Capital adequacy requirements that focus on long-term solvency criteria rather than cyclical performance.

Aside from the macroeconomic implications, prudential regulation and supervision of domestic financial systems are needed for the sake of transparency, honesty and microeconomic efficiency. The record was bad in many countries where the liberalization of domestic finance took place without the reform and strengthening of regulation and supervision. Interestingly the severe banking crisis in Chile in 1983, which had cost the Treasury one third of GDP, was forgotten by the financial reformers of the 1990s in Latin America and most of the errors were replicated.

The financial crises of 1994–95 and 1997–98 sounded a wake-up call to Latin America and East Asia, respectively, that regulation and supervision needed to be strengthened substantially. As reported in Chapter 15, since then important steps have been taken to improve the rules and ensure their implementation, but financial regulation and supervision do not take place in a vacuum. Financial policies need a consistently supportive macroeconomic environment in which to operate, as the Argentinean crisis of 2001–2 showed only too well.

Problems in individual banks can set off chain reactions because of the direct links between banks, and because of the effects that bank collapses can have on borrowers' capacity to honour their commitments. Moving from systems where the authorities had set interest rates, directed credit and held a large share of bank deposits as required reserves, governments freed commercial banks to make their own decisions on borrowers, loan volumes and prices. At approximately the same time, in both Latin America and East Asia, capital account liberalization enabled local banks to engage in transactions in foreign currencies and allowed foreign institutions to enter local markets. The lack of an adequate regulatory and supervisory system compounded the problems of bankers who lacked sufficient experience in conducting credit analyses of local borrowers and had an inadequate understanding of financial mismatches and the complexities of international financial markets.

The typical results were credit booms, maturity and currency mismatches, and eventually banking crises. As seen in the paradigmatic Chilean case (but also later in Mexico, East Asia and Argentina), errors by domestic actors provided the basis for such crises, and if this was combined with external shocks the situation became far more severe (Ffrench-Davis, 2002: ch. 6). Government rescues tended to follow a standard procedure. The first steps were to take over non-performing loans, recapitalize banks and conduct liquidations and mergers, usually involving foreign institutions.[10] Later, in an attempt to prevent future crises, regulation and supervision were stepped up; moreover greater information and transparency were required. In Chapter 15 Stallings and Studart, on the basis of World Bank data (see Barth *et al.*, 2001), review the recent situation in Latin America, particularly in Argentina, Brazil, Chile and Mexico.

According to the authors, these countries have made considerable progress with restructuring their financial system and putting in place prudential

regulation and supervision since the initial phase of more naïve financial liberalization. Supposedly, with the reform to the previous reform, these countries are now better able to withstand external shocks, with their financial systems showing greater resilience than before. It was a common belief among international financial institutions that Argentina had progressed enormously in terms of improving its financial system. This is confirmation that Argentina, as evaluated by financial markets, was classified as a well-behaved and dedicated reformer.

Argentina's regulations appeared to be the strictest in the region. However very strong macroeconomic shocks can undermine even the strictest regulations and lead to banking crises, as Argentina's experience in 2001–2 showed. In this case a particularly crucial domestic variable was an outlier macro price – the exchange rate – in a highly but far from fully dollarized economy. The sharp rise in spreads faced by Argentina severely complicated its fiscal stance.

The exchange-rate regime has become a much more influential variable in emerging economies in terms of trade and finance. It is subject to two conflicting demands, which reflect the more limited degree of freedom that authorities face in a world of reduced policy effectiveness (see ECLAC, 2000; Ocampo, 2002b). The first demand comes from trade: with the dismantling of traditional trade policies the real exchange rate has become a key determinant of international competitiveness and a crucial variable in the efficient allocation of resources into tradables. The second demand comes from the capital account. Boom–bust cycles in international financial markets generate a demand for flexible macroeconomic variables to absorb, in the short term, the positive and negative shocks generated during the cycle. Given the reduced effectiveness of traditional policy instruments, particularly monetary policy, the exchange rate plays an essential role in helping to absorb shocks. This objective cannot be easily reconciled with the trade-related goals of exchange rate policy.

The relevance of this dual demand is ignored in the call to limit alternatives to the two extreme exchange rate regimes: a totally flexible exchange rate or a currency board (or outright dollarization). Intermediate regimes of managed exchange rate flexibility – such as crawling pegs and bands, and dirty floating – attempt to reconcile these conflicting demands (see Frankel, 1999; Williamson, 2000; Ffrench-Davis and Ocampo, 2001; Ocampo, 2002b).

As argued by Ffrench-Davis and Larraín in Chapter 13, completely rigid exchange rate systems tend to amplify external shocks because they put heavy and unrealistic demands on domestic flexibility, particularly on wage and price flexibility in the face of negative shocks. Currency boards certainly introduce built-in institutional arrangements that provide for fiscal and monetary discipline, but they radically reduce the ability to stabilize monetary, credit and fiscal policies, which is necessary to prevent crises or facilitate recovery in a post-crisis environment. Currency boards therefore allow the domestic transmission of external shocks, generating strong

swings in economic activity and asset prices, with corresponding domestic financial vulnerability. There is an amplification effect when agents consider that the external shock is strong enough to induce the authorities to modify the exchange rate policy. This is particularly grave when the rate appears to be an outlier price, too appreciated.

Notwithstanding the pitfalls of nominal pegs, there are cases in which they can work efficiently. The currency board in Argentina, assisted by the capital surge to Latin America since the early 1990s, was quite effective in stopping hyperinflation, which was the more harmful problem in that economy in 1991. The worst mistake was not to use the opportunities provided in 1992 and 1993 to make the rate more flexible when inflation and the budget were evidently under control, capital inflows were vigorous and spreads to emerging economies, including Argentina, were falling.

On the other hand the volatility characteristic of freely floating exchange rate regimes is not a problem when market fluctuations are short-lived; they are easily dealt with by derivatives (see Chapter 6). But fluctuations become a major concern when there are longer waves, as has been typical of the access of emerging economies to capital markets in recent decades. In this case exchange rate volatility tends to have perverse effects on resource allocation in irreversible capital formation. Moreover under freely floating regimes with open capital accounts, anticyclical monetary policy exacerbates cyclical exchange rate fluctuations, with their associated allocative and income effects.

The ability of a flexible exchange rate regime to smooth out the effects of externally induced boom–bust cycles thus depends on the authorities' capacity to manage countercyclical monetary and credit policy without enhancing procyclical exchange rate patterns. The effectiveness of this is strengthened under intermediate exchange rate regimes *cum* capital account regulations, as in the case of Chile in the first half of the 1990s (Le Fort and Lehmann, 2000; Ffrench-Davis, 2002: ch. 10).

However, as discussed by Ffrench-Davis and Larraín in Chapter 13, bands did not behave well during the Asian crisis. In many cases this was partly the result of mismanagement of the band. The huge increase in capital inflows to emerging economies in 1990–97 put severe upward pressure on exchange rates. The response, in terms of expanding the size of the band or appreciating it, resulted in a credibility loss. Subsequently bands that already had an overly appreciated rate had trouble adapting to the sharp shift brought by the Asian crisis, when capital inflows suddenly stopped. This added to the mismanagement of bands, thereby causing a further credibility loss.

The main benefit of managed flexibility, including bands, emerges in times when there are no strong shocks. In such cases, bands induce real exchange rate stability and maintain the ability to absorb, at least partly, the effects of moderate shocks. Consequently the exchange rate more efficiently fulfils its allocative role between tradables and non-tradables.

Obviously, intermediate regimes also have shortcomings and can generate costs (Ocampo, 2002b). First, all intermediate regimes are subject to speculative pressure if they do not enjoy credibility in the markets, and the cost of defending the exchange rate from such pressure is very high. Second, sterilized reserve accumulation during long booms can be financially costly. Finally, the capital account regulations needed to manage intermediate regimes efficiently are only partially effective. But all things considered, intermediate regimes offer a sound alternative to costly volatility.

The review in Chapter 13 of the Argentinean, Chilean and Mexican experiences shows that a policy that is suitable for one macroeconomic environment may not be so for another. In this sense, a crucial point to bear in mind when adopting a policy is how costly it would be to switch to an alternative one.

Credible pegged systems can be useful when a crisis with hyperinflation has bottomed out and there is a plentiful supply of external funding. Floating systems are useful in times of financial distress when the authorities have doubts about the level of the real exchange rate or the nature of the shock they face; flotation allows them not to put their reputation in jeopardy by defending the wrong real exchange rate.

Finally, bands help to stabilize the real exchange rate, which in turn has a positive effect on the quality of exports and on growth (see ECLAC, 1998a: ch. 4). But bands are subject to weakness if a big shock appears and the authorities have failed to avoid vulnerability zones during the previous boom. In such cases they open the way to speculation, inducing significant financial instability. The latter can be tackled more efficiently by temporarily moving to a fully flexible rate.

Chapter 13 summarizes why corner solutions do not have symmetric consequences. With a capital surge, the current account deteriorates, asset prices increase and the real exchange rate appreciates. Each exchange rate policy will deliver different combinations of these three elements. With pegged systems a capital surge creates a demand boom, forcing up asset prices and probably crowding out domestic savings and worsening the external balance. With floating regimes a nominal appreciation will take place, thus making the process of real appreciation faster (and potentially more disruptive) than with the peg. Pegs tend to work better in the upward phase of the cycle, but after the inflection point the float does it better in terms of the necessary expenditure switching. But in this type of cycle there is the possibility of multiple equilibria based on self-fulfilling prophesies: expectations of more inflows (outflows) may further appreciate (depreciate) an already appreciated (depreciated) currency.

Large deviations from equilibrium by the real exchange rate are costly. Central banks should be concerned with both the level and the stability of the exchange rate. In this sense, and despite what has happened since the Asian crisis, managed flexibility – with or without bands – is still a policy to

be considered. Policy makers need to be wary about across-the-board liberalization of the capital account as the behaviour of capital flows may be inconsistent with macroeconomic stability, particularly in terms of the stability of the exchange rate and economic activity. In this sense the authorities need to have a flexible policy package rather than a single, rigid policy tool.

Fiscal policy should be part of the flexible policy package. As discussed by Budnevich in Chapter 14, fiscal policy has two macroeconomic objectives: sustainable public accounts and the regulation of aggregate demand. It is obvious that policy efforts have tended to concentrate on the first objective, leaving the stabilizing role to monetary policy.

Given the vulnerability of emerging economies to global economic downturns, overreliance on monetary policy may bring poorer macro results than a more balanced framework of countercyclical fiscal, exchange rate and monetary policy, as well as prudential regulation of capital flows. The use of countercyclical fiscal policy requires solvent and sustainable fiscal accounts as a precondition.

A more active role for countercyclical fiscal policy may emerge when transmission channels of monetary policy to the output gap are weak or show significant lags. Moreover spreading the adjustment burden between fiscal and monetary policy may bring better macroeconomic results, with macro prices staying closer to sustainable equilibria.

Fiscal policy has been at the heart of the debate on adjustment programmes in emerging economies (see ECLAC, 1998b; Ocampo, 2002b). In both East Asia and Latin America the more conventional recipes recommended achieving current or annual fiscal balances, when in recessionary conjunctures that depressed tax proceeds. This is typically procyclical behaviour. In Latin America fiscal policy has not played a proper countercyclical role. During recessions it has typically been directed at keeping financial solvency under control, while during booms expenditure has tended to expand with the cycle.

In countercyclical policy packages, structural balance is the most important fiscal component. There are different definitions, but the essential component is the measurement of the balance across the business cycle, estimating at each point of time what would be the public expenditure and income in a framework of sustainable full employment of human and physical capital. If terms of trade fluctuations are of relevance to tax proceeds – via the profits of public or private exporters – the purchasing power of potential GDP should be estimated at the trend terms of trade as well as public income. Chile has advanced significantly in achieving a structural fiscal balance (see Tapia, 2003).

Developing countries typically concentrate their international trade on a few commodity exports that are subject to highly volatile market prices. When a significant export – such as copper in Chile and oil in Mexico and

Venezuela – is public property the establishment of a stabilization fund can contribute to macroeconomic sustainability. For a long time the Coffee Fund has played an important macroeconomic stabilizing role in Colombia. Above trend or normal public receipts from coffee are saved in the fund in order to finance public expenditure when the receipts are below normal.

As argued by Budnevich in Chapter 14, most commodity prices tend eventually to revert to their trend – a requirement for a stabilization fund to be viable – but only very slowly, the average reversal time being measured in years. Thus a commodity stabilization fund has to be very large to be effective in the long term. Furthermore in the case of an export stabilization fund it is wise to initiate it when prices are high in comparison with the trend prices, so that the fund can finance subsequent negative price scenarios.

The stabilization fund principle can also be used for deviations in tax proceeds from their structural level, and flexible tax rates have been proposed as a countercyclical device. The suggestions tend to concentrate on VAT and contributions to pension funds. For instance when the external deficit is above a sustainable level because of excess domestic absorption, then the proceeds of VAT will exceed the structural level. That excess could be automatically put into a fund, which would help to push aggregate demand downward towards equilibrium. The disadvantage of using VAT (an inflationary impulse in the short term, when the rate is increased) must be weighed against the advantages (a broad tax base and effects on consumption rather than investment). A VAT adjustment will not bring about a significant misallocation of resources and the taxes are collected regularly. However it is likely to involve some transaction costs. Another policy tool to consider is some short-term variation in compulsory pension fund or unemployment insurance contributions. An effective unemployment insurance scheme is not only socially desirable, but it can also serve as an important countercyclical stabilizer. Of course the most direct tool is the regulation of flows when they are the source of disequilibria.

Some policy lessons and pending issues

Dominant features of the 'new generation' of business cycles in emerging economies are the sharp fluctuations in private spending and balance sheets associated with boom–bust cycles in external financing. Of course external shocks, both positive and negative, will be amplified domestically if the exchange rate, fiscal and monetary policy stances are also procyclical, as is expected to be the case by financial market agents and even multilateral agencies (particularly the IMF).

Changes in expectations and the credibility of domestic macroeconomic authorities and domestic financial intermediaries play a key role throughout the process. We have observed that emerging economies have moved into vulnerability zones that include high external liabilities with a large liquid

share, high external deficits, high exchange rates and high prices of domestic financial assets and real estate.

Policy lessons

Ffrench-Davis and Ocampo (2001) summarize what they consider to be robust policy actions, grouped into five areas:

- Maintain a sustainable volume and composition of external liabilities and capital flows; sustainability is closely related to the use made of inflows.
- Avoid outlier exchange rates and price–earnings ratios of equity stock.
- Ensure that there is flexible, comprehensive, prudential macroeconomic regulation, including of the financial system, fiscal accounts and capital flows.
- Press for a reform of the international financial architecture in the interest of a more efficient and balanced globalization process.
- Implement a crisis-prevention policy, based on the prudential management of booms.

If these lessons have not been learned and a country or region is in a critical conjuncture, as is the case today in Latin America, what policy recommendations can be made to address pending issues?

Pending issues

In the domestic realm there are three issues to consider: the quality of recovery; capital account opening and the sustainability of real macroeconomic equilibria; and the constituencies served by the authorities.

With regard to the quality of recovery, here again the approach taken during the precrisis stage is crucial. Countries that have undergone severe crises – including Korea, where recovery was very strong – are usually pushed onto a lower GDP path. There are three particularly important medium-term effects on GDP:

- A sharp reduction of productive investment during the crisis naturally damages the path of potential GDP.
- The deterioration of balance sheets (Krugman, 1999), as illustrated by the experience of emerging economies, shows that restoring a viable financial system can take several years, generating adverse effects throughout the period in which it is being restored.
- There is a growing body of evidence that boom–bust cycles have ratchet effects on social variables (Rodrik, 2001). The deterioration of the labour market (through unemployment, a decline in the quality of jobs or in real wages) is generally very rapid, whereas the recovery is painfully slow and incomplete. This was reflected in the long-lasting deterioration of real wages in Mexico after the Tequila crisis (Ros, 2001).

These three problems point to the policy priorities that should be established during a crisis: sustaining public investment and encouraging private investment; helping to reschedule liabilities and solve currency and maturity mismatches; and reinforcing the social network by using the opportunity to improve the productivity of temporarily underutilized factors.

With regard to the second issue, it is commonly argued that fully opening the capital account discourages domestic macroeconomic mismanagement. This is partly true for domestic sources of instability – large fiscal deficits, permissive monetary policy and arbitrary exchange-rate overvaluation – but volatile market perceptions make this type of control highly unreliable in emerging economies with responsible authorities: lax demand policies or exchange rate appreciation tends to be encouraged by financial markets during booms, whereas excessive punishment during crises may force the authorities to adopt overly contractionary policies ('irrational overkill'). As we have argued, this is associated with the nature of agents and the nature of cycles. Indeed market actors such as credit rating agencies and investment banks usually operate in a procyclical fashion (for a related discussion on rating agencies see Chapter 7).

In reality, opening the capital account can lead to a deterioration of economic fundamentals. Thus although market discipline can serve as a check to domestic sources of macroeconomic instability, it can also be a source of externally generated instability. The market may actually induce the deviation of fundamental variables from their sustainable levels, thus entering into a vulnerability zone. Financial operators, perhaps unwittingly, have come to play a role with significant macroeconomic implications. With their herd-like expectations they have helped to intensify financial flows to successful countries during capital surges, thus causing rapid increases in the price of financial assets and real estate, as well as a sharp exchange rate appreciation. When added to the substandard prudential regulation and supervision in these markets, these macroeconomic signals serve to prolong a process that wrongly appears to be efficient and sustainable (with good profits and loan guarantees, supported by high stock prices and the low value in domestic currency of dollar-denominated debt). But in fact bubbles are being generated, with outlier macro prices that sooner or later will burst. Excessive indebtedness and massive outflows ensue, often prompting admonishment by the very agents who praised the economic performance of these countries during the boom.

There is a broad consensus that fundamentals are the most relevant variables. However there is disagreement about what constitute sound fundamentals and how to achieve and sustain them. A comprehensive definition of sound fundamentals should include (alongside low inflation, a sound fiscal balance and dynamic exports) sustainable external deficits and net debts, low net liquid liabilities, a non-outlier real exchange rate, a crowding in of domestic savings, high investment in human and physical

capital, strong prudential regulation and supervision, and a transparent financial system. In recessive periods this requires the achievement of a structural fiscal balance (recognizing that during recessions tax proceeds are abnormally low and that public expenditure should not follow suit) and strong encouragement of demand, with a switch of policies when domestic activity is clearly below productive capacity (see Ffrench-Davis, 2000: ch. 6).

Finally, there is a growing duality, worrisome for democracy, in the constituencies served by the authorities. The increasing complexity of and course taken by economic globalization are increasing the distance between decision makers, financial agents and the agents (workers and firms) who bear the consequences. One consequence of the path being taken by globalization is that experts in financial intermediation – which requires only microeconomic training – have become a determining factor in the evolution of countries' macroeconomy; instead a good economic system needs to reward productivity improvements rather than speculation and rent seeking.

The integration of capital markets has strong implications for the governance of domestic policies and the constituencies of national governments. In fact most leaders of emerging countries have a dual constituency: on the one hand they seek reelection by their countries' voters, and on the other they seek the support of those who 'vote' for their financial investments (Pietrobelli and Zamagni, 2000). Recent cycles in financial markets have revealed a significant contradiction between the two in a negative sum game. A positive outcome requires institutions and policies that can achieve consistency between the level and composition of financial flows, and real macroeconomic sustainability.

Notes

* I am grateful for the comments made by the participants in the UNU/WIDER project, particularly José Antonio Ocampo and Stephany Griffith-Jones; by the participants in a seminar at the DESA/UN headquarters; and by the Macroeconomic Group of the Initiative for Policy Dialogue, directed by Joseph Stiglitz. I also appreciate the valuable assistance of and suggestions by Ricardo Gottschalk (IDS) and Heriberto Tapia (ECLAC). The responsibility for all interpretations is solely mine.

1. The direct positive link between FDI and productive investment (Ffrench-Davis and Reisen, 1998: ch. 1) was weakened by the fact that a significant share of FDI corresponded to mergers and acquisitions instead of creating new capacity. It is estimated that mergers and acquisitions accounted for 49 per cent of FDI to Latin America in 1995–2000 (UNCTAD, 2001).
2. The accelerated growth of derivatives markets helped to soften micro instability, but tended to increase macro instability and to reduce transparency. For an analysis of the channels by which stability and instability are transmitted, see Chapter 6.
3. By 'financierist' we mean a macroeconomic policy approach that leads to an extreme predominance of or dependency on agents who specialize in microeconomic aspects of finance, placed in the short-term or liquid segments of capital markets.

4. There is a different issue, but also relevant, associated with the gap between average (private) and marginal (social) costs of borrowing by emerging economies. See Harberger (1985).
5. In Chapter 3 Persaud argues that modern risk management by investing institutions (such as funds and banks), based on value-at-risk measured daily and with limits set for daily earnings at risk, works procyclically in booms and busts. Procyclicality is reinforced by a trend towards the homogenization of creditor agents.
6. Vulnerabilities were still significant in emerging economies when negative signals reappeared in the world economy, including the downward adjustment in the United States.
7. Neither of these is a substitute for the risks that procyclical or 'irresponsible' macroeconomic policies generate.
8. The markets have made some progress towards stability by introducing countercyclical adjustment clauses for loans: for instance tied to export prices (see Chapter 14) and collective action clauses (see Chapter 8). On the other hand risk-rating agencies continue to behave procyclically and to follow rather than lead the financial markets (see Chapter 7).
9. See for instance Le Fort and Lehmann (2000) and Agosin and Ffrench-Davis (2001) on Chile, and Kaplan and Rodrik (2001) on Malaysia.
10. There have been sizable acquisitions of banks in emerging economies, particularly in Central Europe and Latin America. For instance in 2000 half of Argentina's bank assets belonged to foreign controlled banks. Interestingly, foreign ownership implies that offshore lending by these banks has been converted to onshore lending (see Chapters 4 and 5). The conventional argument that the local presence of foreign banks would help emerging economies to confront financial shocks has apparently not been supported in Argentina.

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Part I
The Supply of Capital

3

Liquidity Black Holes: Why Modern Financial Regulation in Developed Countries is Making Short-Term Capital Flows to Developing Countries Even More Volatile

Avinash Persaud

Since the early 1990s financial regulation has been about the spread of market-sensitive risk-management systems for banks, the spillover of this approach to other financial institutions and, in general, the retreat of regulatory ambition. There is growing evidence that these trends are leading to a more fragile financial system that is prone to concentration, crisis and 'liquidity black holes'. This problem has not been sufficiently addressed because, although it is born of the regulation of financial institutions in developed countries, its most glaring effects are the procyclicality and volatility of capital flows to emerging markets (Griffith-Jones, 1998; Ffrench-Davis and Reisen, 1998).

The root of the problem is that the liquidity of financial markets requires diversity, but all these trends are serving to reduce the diversity of behaviour among market participants. Regulators should have a more global perspective on the implications of their local regulation. In order to encourage, and perhaps impose, greater diversity in the financial system as a whole, regulators need to place less reliance on internal ratings-based approaches to bank risk management; they must encourage the adoption of alternative, countercyclical risk management systems by long-term investors and, within limits, should temper their discouragement of offshore, leveraged institutions.

What is liquidity?

Confusingly, liquidity has many different though often related meanings. As an instrument of monetary policy, central banks influence the amount of liquidity in the money markets through the sale and repurchase of Treasury

bills. In popular commentaries on the equity market, liquidity conditions often refer to new demand for equities coming from the flow of savings from investors. In this chapter we are not concerned with the grand subjects of monetary policy or the flow of private savings, but with liquidity conditions for trading in capital markets. This liquidity is about the speed and cost of buying or selling loans, bonds or equities (Bank of Japan, 1999). If I were selling an instrument in a liquid market, I would not expect my selling in itself to lower the price I was paid. In an illiquid market, on the other hand, I might have to push the market price down in order to find a buyer. Investors try to avoid illiquid markets. Pushing the price up when you are buying and pushing it down when you are selling will erode your returns. Moreover these trading costs are often variable, hard to measure and introduce uncertainty. As well as being a major obstacle to encouraging overseas capital, illiquid financial markets are bad at converting local savings into local investment. Liquidity matters more than the sparse literature on the subject would suggest.

Liquidity is under-researched because it is hard to measure the price impact of trading without detailed information on who sold what, when and at what price. Consequently most measures of liquidity in the securities markets focus on the size of the bid–ask spreads quoted by market makers on electronic brokerage systems, and in the loan markets on the amount of new loans that are issued. Comprehensive loan issuance and turnover data are not very timely – they are often available only quarterly – and so when trying to understand the behaviour of liquidity most analysts study the time series of bid–ask spreads in the foreign exchange, equity or government bond markets (Engle and Lange, 1997; Borio, 2000). In a competitive market this spread should represent the estimated cost to the market maker of getting out of a position, which in turn should relate to the market's liquidity.

If market makers begin by not having a position in a stock and they expect their buying of that stock to push its price up and/or to take time, they will try to pass on that future price – and the risks of being short on the stock as they try to buy it – to clients who wish to buy the stock from them. They will do this through the bid price they quote for the stock. Similarly if they believe that selling the stock will push the price down, they will want to pass on that new price and the risk of being long on the stock to clients who wish to sell the stock to them, and they will do this through the ask price they quote. Often the market makers will already have a position and this will influence their preference for buying or selling more, but on average, across market makers, the spread between the bid and ask price should reflect their forecasts of the price of getting out of a position in the stock, which in turn reflects the underlying liquidity conditions (O'Hara, 1995; Fleming and Remolona, 1999). The problem with using reported bid–ask spreads, however, is that they are only quoted on small trades, and the larger the size of trade and the more market conditions are under stress, the wider the

spreads. Bid–ask spreads are a good measure of liquidity during good liquidity conditions, but not during poor conditions – which of course is exactly when a measure is needed.

One solution to this data problem is to use custodial databases that record both quantity and price information on purchases and sales by investors. State Street is one of the world's largest custodians, with approximately US$6 trillion of assets under custody or 10 per cent of the world's tradable securities. Using this database at an aggregate level, Ken Froot and Paul O'Connell of Harvard University and State Street Associates (State Street Bank and FDO Partners, 2000) have developed an index of the price impact faced by overseas investors when buying and selling equities in 42 markets.

Figure 3.1 shows the average percentage price impact faced by an overseas investor when buying or selling one basis point of the capitalization of an emerging equity market. This graph suggests that liquidity is returning. The bad news is that it has taken an extraordinarily long time to do so – 30 months, following a series of liquidity draining events in 1998: the unwinding of the US$/yen carry trade in July, the Russian default in August and the collapse of Long Term Capital Management (LTCM), an overly leveraged hedge fund, in September. In 1999 liquidity was probably held down by two other factors. First, there was concern about the millennium bug, which was potentially of greatest threat to emerging markets. Second, investment banks, hurt by the events of 1998, removed their trading infrastructure from many emerging markets. It was said that one large US

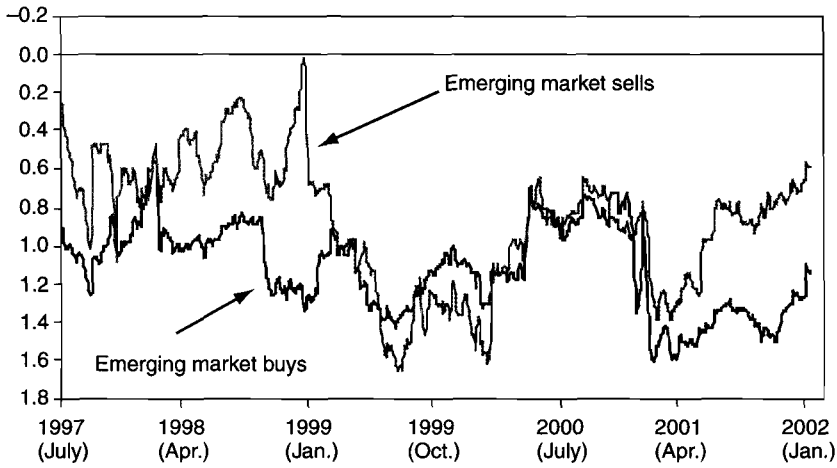

Figure 3.1 Liquidity index for emerging equity markets, 1997–2002 (percentage return per basis point of market cap)

Source: State Street Bank.

investment bank had 400 employees in its Moscow office trading Russian debt and stocks in August 1998, just before the Russian default, but just four in August 1999.

Figure 3.1 shows a striking variability in liquidity. The Froot–O'Connell methodology moderates this to some extent by measuring price impact over a period of 100 days, but it is clear that sharp declines in liquidity were not just a feature of 1998. Over the past five years there have been two occasions each year when the average price impact of selling emerging equity markets has risen sharply. This is an average: some markets suffer more than others. This variability is particularly troubling for investors. Indeed there is evidence that the rude awakening to liquidity issues in 1998 led to an increased preference by investors for markets with high and stable liquidity. This has kept overseas investors out of emerging markets for an extended period, even though many of these markets have offered, on a historical basis, attractive investment yields (Figure 3.2).

Liquidity black holes

If a market is consistently and measurably illiquid, investors will demand a liquidity premium but will probably not avoid the market altogether. If a market appears liquid, especially when one buys into it, but becomes illiquid just when one wants to sell, this generates a degree of uncertainty

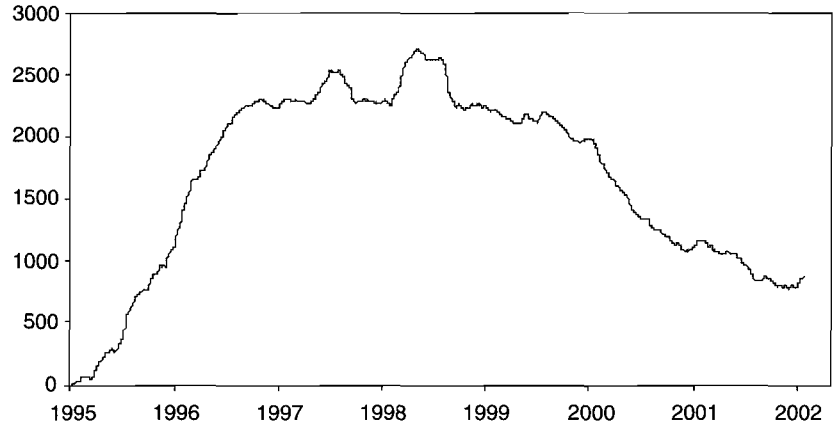

Figure 3.2 Cross-border portfolio flows to emerging equity markets (excluding Hong Kong, Korea, Taiwan and Singapore) as a proportion of market capitalization, 1995–2002 (cumulative basis points of market capitalization, January figures)

Source: State Street Bank.

that investors and creditors strongly dislike, especially with the current emphasis on quantitative risk controls. Measurements of liquidity that are meaningful to market participants should include not just the average level of liquidity but also the volatility of liquidity. Of course liquidity, especially when defined in terms of how much the price moves for a given flow, is a measure of the volatility of price (and so in measuring the volatility of liquidity we are measuring the volatility of volatility – the third derivative of price). In this chapter, episodes where liquidity suddenly disappears will be called 'liquidity black holes', partly because liquidity appears to be sucked out of markets that are in the vicinity of the one at the centre of a liquidity event. Investors are concerned that while, in general, the level of liquidity has finally returned to levels last seen in 1996–97, the number of liquidity black holes may have increased.

One simple measure of the frequency of liquidity black holes is to count the number of times there is a spike in volatility. Figure 3.3 tracks the number of days in a quarter that the broad market indices for US, UK and Japanese stocks (S&P 500, FTSE and Topix, respectively) moved by two standard deviations more than the average daily market move. To capture the trend better we have plotted a five-year moving average of this quarterly tally, and replaced the outliers – the three largest and three smallest readings – with the average reading. There appears to be a regular cycle to this measure of volatility, but both the quarterly bars and the smoothed average suggest that the number of extreme events or liquidity black holes have risen significantly since the mid 1990s. It is reasonable to question how much this is

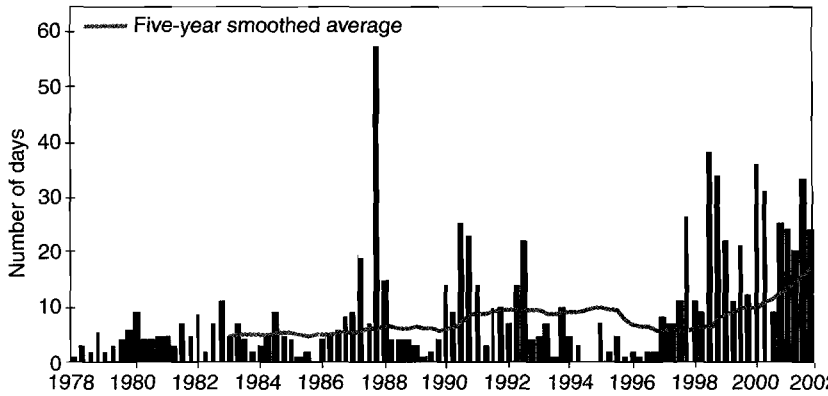

Figure 3.3 Liquidity black holes: number of days per first quarter that the US, Japanese and British broad stock indices moved by two standard deviations more than the average daily price move, 1978–2002

Source: State Street Bank.

a trend and how much it is related to the great rise and subsequent fall in equity prices between 1998 and 2001. It is hard to be sure, but it is equally reasonable to ask whether liquidity factors helped to produce this surge and collapse. It is also interesting to observe that the upward trend in black holes continued beyond the peak and bottom in equity prices in March and September 2000, respectively. Moreover a similar trend in black holes can be seen outside the equity markets in the US$/yen foreign exchange market (Figure 3.4).

We have focused on evidence of liquidity black holes in the major markets because their presence in large, growing markets is most striking, however there is certainly evidence of liquidity black holes in emerging markets too (Persaud, 2001b). The question is, why are liquidity black holes becoming more frequent in general?

Liquidity is about diversity, not size, and the two are not synonymous

The assumption that the bigger a market the more liquid it is, is so prevalent that turnover and liquidity are often seen as synonymous. In fact the two are only indirectly related. Imagine a market place with two assets (government bonds and cash) and just two players (Anish and Ishan), and imagine that whenever Anish wanted to buy bonds with his cash, Ishan wanted cash for his bonds, and *vice versa*. This would be a very liquid market with the price impact of trading being nil for both Anish and Ishan. Now imagine that Anish, bored with such provincial bliss, moves to a bigger market place

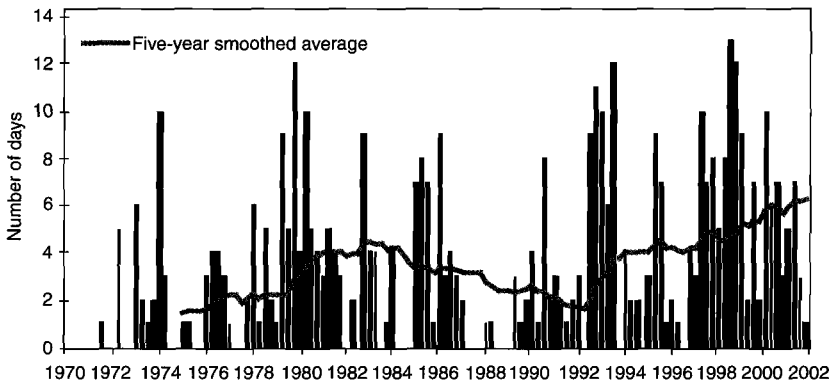

Figure 3.4 Liquidity black holes: number of days per first quarter that US$/yen moved two standard deviations more than the average daily price more, 1970–2002

Source: State Street Bank.

with 10 000 players, and that whenever he wanted to buy bonds for cash so did the other 9 999, and whenever he wanted to sell so did the other 9 999. When buying, Anish would have to bid up the price of bonds a long way to turn one of the other buyers into a seller. The same would be true when he tried to sell. The price impact of buying or selling would be high. The market may have been bigger in terms of the number of players and the amount of bonds and cash being managed, and even in terms of the turnover, but it would have been less liquid in terms of the price impact of trading. Markets can be bigger and yet thinner: liquidity requires diversity.

Of course this is an extreme example and it is sensible to assume that the more market players there are, the greater the diversity of opinions and desired trades. The link between liquidity and size may be indirect, but it certainly exists. The problem is that although markets are generally getting bigger, a number of separate forces have conspired to reduce diversity. These forces have grown strongly since the mid 1990s, a period in which, according to the data we have just considered, many markets appeared to be growing larger and yet thinner, or at least more volatile. The three main forces reducing diversity are the collapse of information costs, the consolidation of market players and modern risk-management and regulatory practices. The following discussion will touch on the first two forces and dwell longer on the last.

Forces reducing the diversity of behaviour in financial markets

The collapse of information costs

In the past, one source of diversity of views was the cost of information: the higher the cost of obtaining information the greater the diversity of views, especially between market insiders and outsiders. A number of factors, such as the exponential rise in the computing power of computer chips, mass access to the Internet and deregulation of the airwaves and telecommunications networks, have led to the collapse of information costs, which in turn has dramatically reduced the diversity of information. Armed with the new technology, regulators have accelerated this process through initiatives such as the US SEC's Fair Disclosure Regulation, which requires companies to broadcast price-sensitive information to everyone at the same time (in practice, via the Internet) and no longer give preferential treatment to a small community of professional analysts.

The encouragement of developing countries to meet specific codes and standards is also causing investors to possess and use similar information sets (see Archarya, 2001). Thanks to such regulations and popular financial news broadcasters such as Bloomberg and CNN, the outsiders have, to a large extent, stepped inside. If there is a favourable piece of information about a company's stock or a country's fundamentals and this is made

available to everyone at the same time, everyone will want to buy at the same time and the price of the stock has to rise a long way to convince some buyers to be sellers (Wermers, 1998). In the bad old days the insiders would have bought the stock cheaply from the blissfully ignorant outsiders. The markets are more equitable and transparent today – and less liquid because of it.

Market consolidation

Even before the 1999 Gramm–Leach–Biley Act, which repealed the 1933 Glass–Steagall Act, the attempt by US Senator Carter Glass and Representative Henry Steagall to separate different financial activities into separate firms had been watered down. Consolidating different but related financial activities, often with the same clients, led to substantial savings and positive synergies (which is why an Act had been required to enforce the earlier separation), and served as a strong incentive for consolidation. Diversity has been reduced by there being fewer, more vertically integrated players in the market.

This consolidation can be seen clearly in the foreign exchange market. In the 1995 BIS survey of foreign exchange activity, some 2 417 banks from 26 countries participated. By 2001 this number had dropped by 20 per cent to 1 945. In the United States in 1995, 20 of these banks accounted for 75 per cent of forex transactions. By 2001 just 13 banks accounted for 75 per cent of forex transactions. The foreign exchange market remains the 'largest', with a daily turnover of US$1.5 trillion, but in 2001 only 20 banks around the world quoted two-way prices on a wide range of currency pairs (BIS, 2001).

Market-sensitive risk management systems

There is an interesting discrepancy between the large degree to which financial crises are external and systemic and relate to the herd behaviour of creditors in developed countries, and the focus of policy makers on the need for domestic reforms (Eatwell, 1997). It is argued by many developed-country policy makers, and is currently perhaps most strongly espoused by the United Kingdom, that if banks and countries were to adopt tighter prudential, supervisory and risk-management controls, liquidity or solvency crises would not happen, and if there was no initial crisis, there would be no subsequent contagion – whatever the flaws in the current financial architecture. This may be true, but the real problem has come with the attempt to improve these controls by stepping away from the previous system of a few regulatory risk buckets outlined in the original Basel Capital Adequacy Accord (1988) and the stride towards market-sensitive risk management systems.

This has been motivated by a number of factors. First, there is concern that using a few broad categories of risk when regulating the activities of participants in financial markets, is prone to regulatory arbitrage through

the innovation of financial instruments that appear to sit in a low-risk category but have the characteristics of a high-risk instrument. Second, the previous broad risk-bucket approach failed to capture the growing complexity and range of new financial instruments, even when regulatory arbitrage was not a motive for their innovation. Third, there is a belief that has spilled over from other walks of life that public officials cannot presume to know more than the market when assessing risk. While this may indeed be true in general, it is least applicable to the work of the regulators of financial markets. After all, financial crises occur because markets fail, and this is why the increasing use of market-sensitive risk management systems has not led to a more robust and efficient financial system, but to one that is more prone to financial crisis and induces more concentration of financial risks (Persaud, 2000).

Modern risk management theory: value at risk and daily earnings at risk

In essence value-at-risk (VaR) systems estimate the amount of a bank's daily earnings that are at risk, at a given probability, using the distribution of the volatility and correlation of the portfolio of assets and liabilities with which the bank has exposure. The more volatile an asset the greater the likelihood of a loss, unless it is inversely correlated with another asset in the portfolio. Lower volatility of assets, and correlation between assets, reduce daily earnings at risk (DEAR). A rise in volatility and correlation does the opposite. Most often the bank's risk management process is to set a limit for DEAR, and if the limit is reached, to take action to reduce DEAR by selling the most volatile or most highly correlated assets.

The intrinsic problem with market-sensitive risk management systems – a problem that cannot be solved by increasingly sophisticated statistical models and the use of stress tests – is that they assume that banks and market participants act independently and that the positions of one bank are independent of those of another. In a world of independent market players there is a strong probability that the selling of securities by one bank could be met by the purchases of another. The reality, of course, is different. Market participants and banks behave in strategic relation with one another. Often they herd into one or a similar set of markets or instruments. There are a number of individually rational reasons for herding behaviour, not least because there is safety in numbers, both financially and in terms of reputation (Shiller, 1990). If one bank makes an investment mistake the regulators may let it go under, as in the case of Barings in the United Kingdom. If all banks make the same mistake, the regulators will bail them out in order to preserve the financial system. Moreover in a world of uncertainty the cheapest strategy for catching up with those you think are better informed is to follow them.

When volatility rises in one market, increasing DEAR and prompting a bank to sell its risky assets, it is likely that the DEAR limits will be reached by many banks. The dynamics then go from bad to worse. As many banks try to sell the same asset at the same time, there are few or no buyers and so the price gaps narrow and volatility rises further, which increases DEAR again and triggers further sales. Faced with a gaping market, some banks will try to reduce DEAR by selling another asset that is held by the herd partly because it is uncorrelated with the first. However this not only increases volatility in the second asset, but also increases correlation. Higher volatility, and now correlation too, not only raise DEAR at the first set of banks, but also at a second set of banks that may not have had the first asset, and so more banks and more markets are sucked into the process. The resulting contagion of selling mystifies most analysts because the markets that are hit are fundamentally unrelated. The stepping-stone path of the Asian financial crisis from Thailand to Indonesia and Malaysia, then to Korea and on to Russia, and finally to Brazil, was not related to the path of trade flows, but to the path of shared creditors and bankers (Persaud, 2001a).

A perplexing paradigm

In the context of uncertainty and investor behaviour, the VaR approach not only leads to contagion when it combines with herd behaviour, but also contributes to herding in the first place. VaR systems highlight those sets of markets which currently offer low volatility and low correlation, and thus 'safe' returns, which prompts many players to switch into these markets over time, until at some point there is a large consolidation of positions – a herd. The opposite also occurs. VaR systems highlight the current set of markets that offer high volatility and correlation and as a consequence investors stay clear of these markets, making them less correlated and less volatile over time and less prone to contagion. Here is a perplexing paradigm: the observation of safety creates risk (as the herd chases after what was safe and investors become overly concentrated) and the observation of risk creates safety (as the herd avoids what was risky). In this way market-sensitive risk management systems dangerously add to the procyclicality of capital flows (Persaud, 2000; Turner, 2000).

We are in the latter environment today. Looking through a five-year window of returns, volatilities and corrections, emerging markets still appear to be the last places on earth an investor would want to be, with their low to negative returns, high risks and volatility, and high correlation. Consequently investors have abandoned this space and so when 'accidents' happen, such as in Turkey in December 2000 and February 2001, and Argentina in December 2001, there is no contagion. The regulators think that this is a sign of a more robust system, but they are mistaken. The five-year

window will soon show that emerging markets are safer, less correlated and more profitable, and the herd will return. Already in 2001 the advance party, comprising emerging-market hedge funds, posted the best investment performance out of a broad range of investment sectors and styles. Far from being robust, the international financial system appears to deliver either too much capital to emerging markets or too little (Gurría, 1995; Griffith-Jones, 1998). This supports neither economic development nor the necessary reform process in many emerging financial markets (Williamson, 1993).

The creeping influence of bank regulation

Throughout this chapter we have lumped the behaviour of banks with that of other creditors and investors in general. However the Basel Capital Adequacy Accord is designed for the regulation of banks, not all investors. Why is the herding of banks not offset by longer-term investors looking to pick up a bargain in the wake of the forced selling triggered by VaR models? The problem is that the vast majority of investors and creditors now use the VaR approach. This is not entirely out of free choice. To begin with there is regulatory creep. Regulators are cajoling other financial institutions, especially insurance companies and fund managers, to adopt the VaR approach in the mistaken belief that common standards are good. Where herding is prevalent, high standards are good; common standards are bad.

However even where regulators are not breathing down the necks of investors, many choose to follow the VaR approach. Why? In a world of uncertainty with a long history of financial crises and rogue traders, it is hard for investors to tell their trustees that they are using a risk management system that nobody else uses. Investors generally approve of experimentation, but only with other peoples' money. The irony, of course, is that a diversity of risk management systems, with long-term investors and creditors following a risk management approach that is more suitable for their objectives, would not only reduce the number of liquidity black holes but would also enable long-term investors to profit. The following example illustrates this point. Imagine a long-term investor called Felicity Foresight. Each year Felicity knows which are the ten best currency trades for the year. She puts them on at the beginning of the year and uses a state-of-the-art, daily mark-to-market, value-at-risk, risk management system. Over the past ten years she would have lost money in almost every year, stopped-out by her risk system when the trades had gone against her. Whatever you think your investment style is, in reality it is largely determined by your risk management system. Investors proudly proclaim a raft of different styles, models and approaches, but the vast majority adopt the same risk management approach and so they behave like everybody else, leading to little diversity and many black holes.

What are the solutions?

Having analyzed the problems, three solutions come to mind. First, regulators need to highlight as a risk the duration mismatch between long-term investment objectives and short-term risk management systems. They can facilitate a narrowing of this gap and in so doing encourage a greater diversity of behaviour by giving their considered stamp of approval to a few and varied risk management approaches. For example in the attempt to be the first to get out of assets being dragged down in a crisis, risk management systems are increasingly focusing on very short-term correlations and volatilities, and when these rise risk limits are hit, triggering further sales. However a bank that manages short-term liabilities may be more interested in a rise in the short-run correlation of assets during a crisis than a long-term investor, who may be content to assume that the current correlations will fall back to their long-term average. A risk management system for the long-term investor may therefore be less sensitive to short-term changes in volatility and correlation and more sensitive to the underlying, perhaps fundamental, correlation. There is the potential here for a virtuous cycle. The more that short-term and long-term investors behave differently, the shorter the market disruptions will be and the more this different behaviour will be profitable for long-term investors. Giving a stamp of approval to a variety of risk management systems designed for different types of investor would solve a coordination problem: it would become easier for fund managers to go to their trustees and say that they are not following a short-term, market-sensitive risk management system, but another, along the lines proposed by the regulators specifically for long-term investors.

Second, there needs to be less reliance on market-sensitive measures of risk. Regulators should pursue research into countercyclical or structural measures of risk, such as the degree of diversity or fragmentation in a financial market as well as the degree of duration and currency mismatch of assets and liabilities. Markets that are not volatile or highly correlated with others but where there is a high concentration of positions by one type of player in one instrument should be viewed as risky and require more regulatory capital than historical volatilities and correlations might suggest. The large concentration of foreign currency lending to the property and banking system in Asian markets is a case in point (Perry and Lederman, 1998).

Third, although much regulation is about limiting losses, liquidity needs losers. If a market is to be liquid there needs to be a buyer when everyone else is selling and the price is falling. Initially the buyer will lose, but she or he will hope to profit when the market turns around and will be more inclined to take this gamble if she or he is not worried that her or his risk management system will take her or him out of the trade just as it is going to make money. Regulators need to address this problem by regulating who the unregulated investor can be. They will want to limit the losses of retail

investors for fear that they will be abused for their relative lack of information, and to encourage them to save for their future. Financial instruments used by retail investors should be strictly regulated – as they are – and their losses limited through short-term risk systems. Financial instruments used by professional investors, however, should be lightly regulated and their ability to buck the trend should be facilitated.

This framework provides a different perspective on hedge funds – investment vehicles designed for investment professionals with wealth to lose. Hedge funds sometimes lose money, sometimes blow up and sometimes are part of the herd, but they are also best suited to the role of unregulated investors who can buy when everyone else is selling, and in the process make the financial market liquid. The cost of making it hard for them to do this – by regulating their leverage and credit – is a reduction in market liquidity. The regulation of hedge funds and their requirements of disclosure to their counterparties should therefore be governed by tough questions such as: would a fund with this amount of leverage endanger the financial system? This would catch any future LTCM without causing the others to withdraw from providing the necessary liquidity.

Note

1. Thanks are due to James Curtis and Natalia Alvarez-Grijalba for their statistical work.

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4

International Bank Lending: Water Flowing Uphill?*

John Hawkins

Bank lending and other capital flows

International bank lending is a very important component of capital flows to emerging economies. Moreover bank lending has been the most variable type of capital flow. Table 4.1 shows how foreign direct investment, and even portfolio investment, held fairly steady throughout the Asian crisis. However the international banks went from lending large amounts before the crisis to withdrawing large amounts after it.

The Bank for International Settlements (BIS) compiles and publishes the most comprehensive data on international bank lending,[1] which were used when putting together the Institute of International Finance (IIF) estimates used in Table 4.1 and the statistics on external debt published jointly with the World Bank, IMF and OECD. The great advantage of these data is that they are compiled from the creditor side in a consistent way. The disadvantage is that they cover only part of capital flows, albeit perhaps the volatile part. IMF data on capital flows are based on the balance of payments reports by the recipient countries and are more comprehensive. However it is known that the reporting of capital flows is inevitably rather inaccurate (although

Table 4.1 Emerging market economies' net external financing, 1996–2002 (US$ billion)

	1996	*1997*	*1998*	*1999*	*2000*	*2001*	*2002[e]*
Direct equity investment	93	116	121	149	135	135	113
Portfolio equity investment	35	25	14	19	14	11	11
Bank lending	118	44	−55	−52	−0	−26	−11
Non-bank private lenders	89	84	64	36	38	7	10
Official flows	5	47	52	13	−4	14	17
Total external financing	340	316	195	166	184	140	140

Source: Institute of International Finance (2001, 2002).

major progress has been made in recent years as a result of the efforts of the IMF Committee on Balance of Payments Statistics).

The BIS data (which are described in more detail in Appendix 4.1) are compiled on two bases. The *locational* statistics report on the activities of banks in the reporting economy, regardless of their ownership, but not including their foreign subsidiaries. The *consolidated* statistics report on the global activities (including foreign subsidiaries) of banks whose head office is located in the reporting economy.

When appropriately scaled, the BIS data can be helpful in identifying economies where the accumulation of borrowing from international banks is leaving them vulnerable to a loss of confidence (see Hawkins and Klau, 2000). It has often been the case that excessive capital inflows have funded domestic speculative booms. The central bank governors of the G10 countries have been regularly briefed over the years on signs of impending trouble. A recently published account by an eminent insider, Alexandre Lamfalussy (2000), who was economic adviser at the BIS from 1976 and then general manager, points out that in the 1970s the governors agreed to publish country-by-country data on external bank debt accumulation only after some hesitation because naming countries could in itself precipitate crises. Yet even though these data were publicly available before the Asian crisis, at the time they attracted relatively little attention despite efforts by the BIS to draw attention to the warnings it was giving. Hawkins (1999) points out that in early 1997 the BIS data revealed the large, rapidly growing and increasingly short-term debt incurred by the five Asian emerging economies which soon after suffered massive depreciations.

The pattern of international bank lending

Specialization by lending countries

The BIS's consolidated statistics are published by nationality of reporting bank, so, for example, it is possible to see the exposure of German-owned banks to Russia, or Spanish-owned banks to Brazil. The distribution of lending to emerging economies is summarized in Table 4.2. As can be seen, European-owned banks are the largest lenders to all regions,[2] but there is also a degree of specialization. Japanese-owned banks mainly lend to the Asia-Pacific region while US-owned banks concentrate on Latin America. Within Europe, German-owned banks are the main lenders to Central and Eastern Europe, while French-owned banks are the main lenders to Africa and Spanish banks are large lenders to Latin America.

Two recent trends are of particular significance. The first is the withdrawal of Japanese banks from Asia (both from the developing countries and from Hong Kong): from its peak in June 1995, by mid 2001 this had fallen by around two thirds, a decline of almost US$200 billion, although some of this was booking Japanese lending business within Japan rather than offshore.

Table 4.2 Consolidated international claims of BIS reporting banks for developing countries, June 2002 (US$ billion)

	Asia-Pacific	*Europe*	*Latin America*	*Middle-East and Africa*	*Total*
Europe, of which	194	244	302	109	849
Germany	47	88	34	22	191
France	29	21	21	36	107
United Kingdom	64	11	27	27	129
Spain	1	1	157	2	161
United States	76	21	131	15	243
Japan	52	4	10	5	71
Other	73	28	49	25	175
Total	395	297	492	154	1 338

Source: BIS (2002).

The second is the rapid growth of Spanish banks' exposure in Latin America. In the five years to mid 2001, this almost quadrupled, an increase of almost US$40 billion.

Maturity of bank lending

Around a third of international bank lending to emerging economies is short term, that is, with a remaining maturity of less than one year (see Table A4.1). The proportion rose in the first half of the 1990s – Jeanneau and Micu (2002) attribute this to 'the growth of trade financing, the liberalisation of financial sectors, the establishment of offshore financial centres and the advantages offered by short-term loans in the monitoring and management of international exposures'. Short-term borrowing is usually cheaper but exposes the borrower to refinancing risks. As borrowers found that short-term credit was sometimes cut off during the Asian and other crises, they have increasingly felt that the higher interest rates are worth paying and so maturities have lengthened again. Some borrowing countries have adopted specific guidelines to lengthen debt maturities.

Concentration of bank lending

It is often claimed that international bank finance to emerging economies is unduly concentrated. At first sight this appears to be the case, as over half of international bank loans to emerging economies go to just ten economies. In order, these are Brazil, Korea, Mexico, China, Turkey, Argentina, Indonesia, Russia, Saudi Arabia and Taiwan. However it is less concentrated than population, GDP or other forms of capital inflow (Table 4.3). The list of the top ten recipients of bank lending is very similar to the ten largest emerging economies, with the exception that India receives much less lending than the size of its economy would suggest. The OECD members receive more

Table 4.3 Concentration ratios (percentage shares of emerging economies)[1]

	Share of top 5	*Share of top 10*
International bank lending (end 2000)[2]	40	62
International bond issuance (end 2000)	65	83
Stock of inward foreign direct investment (2000)	53	68
Population (1999)	55	66
GDP (PPP basis) (1999)	53	67

Notes:
1 Data cover 126 emerging economies with a population over one million and per capita GDP of below around US$15000 (that is, about the level of South Korea).
2 Consolidated basis (for an explanation see Appendix 4.1).
Sources: World Bank Atlas (2001); UNCTAD (2001); BIS (2001).

(perhaps partly because of their favoured treatment under the Basel Capital Accord – see below).

At the other end of the distribution, the 25 poorest economies (mostly African countries with per capita incomes below US$1 000) receive only about 1 per cent of international bank lending. While these economies account for 10 per cent of the population of emerging economies, they only account for 2 per cent of GDP. Moreover lending to many of the poorest countries is almost entirely short term, creating additional vulnerabilities. These characteristics suggest that international bank lending may not be the ideal vehicle for providing finance to the smallest and poorest countries.

Currency denomination of borrowing by emerging economies

Most emerging economies, particularly those with a history of high inflation and depreciation, face a significant lacuna in financial markets. As a result of what Eichengreen and Hausmann (1999) call 'original sin', they have great difficulty marketing long-term securities denominated in the domestic currency. In addition foreign lenders will not lend in the domestic currency (Table 4.4) and tend to be unwilling to stand on the other side of a hedge contract.[3] In these circumstances firms can only choose between a currency mismatch and a maturity mismatch.

Recent trends in net bank finance to emerging economies

Bank lending

The cutbacks in international bank loans to emerging economies after the Asian crisis moderated during 2000 and 2001 (Table 4.5 and Figure 4.1). There were continuing, albeit much more modest, declines in loans to emerging Asian economies[4] but some increase in loans to Latin America, although this was partly a reflection of the purchase by Spanish banks of

Table 4.4 Borrowing by domestic non-banks from international banks: percentage denominated in domestic currency,* June 2002

Asian emerging economies		*Latin American emerging economies*		*Other emerging economies*		*Advanced economies*	
China	4	Argentina	0	Czech Rep.	14	Australia	27
India	2	Brazil	1	Hungary	5	Germany	18
Indonesia	6	Chile	0	Israel	1	Hong Kong	17
Korea	4	Colombia	0	Poland	6	Japan	57
Malaysia	4	Mexico	1	Russia	1	Singapore	11
Philippines	3	Peru	1	South Africa	13	UK	23
Thailand	4	Venezuela	0	Turkey	1	USA	84

* For some emerging economies the figures may be overestimates as it is assumed that all loans and bonds not denominated in a major currency are denominated in the domestic currency.
Source: BIS (2002).

Table 4.5 International financing of developing economies, 1990–2000 (US$ billions, annual rate)

	International bank lending[1]			*International debt securities*[2]		
	1990–97	*1998–99*	*2000*	*1990–97*	*1998–99*	*2000*
All developing economies[3]	48	−74	−13	54	37	40
Asia-Pacific,[3] of which	39	−79	−29	21	−1	2
China	8	−14	−5	2	−1	0
crisis-hit Asia[4]	27	−59	−17	17	0	3
Latin America and Carribean	8	−12	14	26	24	28

Notes:
1 Exchange rate adjusted change in claims of BIS reporting banks.
2 Net issuance.
3 Excludes Hong Kong and Singapore.
4 Indonesia, Korea, Malaysia, the Philippines and Thailand.

privatized Brazilian banks. For most of 2000 Turkey received significant amounts of new lending, but this was sharply reduced in early 2001.

It is striking that even five years after the Asian crisis, bank lending to emerging economies has not recovered. Several possible reasons have been suggested.[5] There was an unusual period in recent years when Latin America and much of Asia grew more slowly than the global average (Table 4.6). Many emerging market borrowers in Asia ran current account surpluses, as after the 1997–98 crises imports were held down by weak domestic consumption

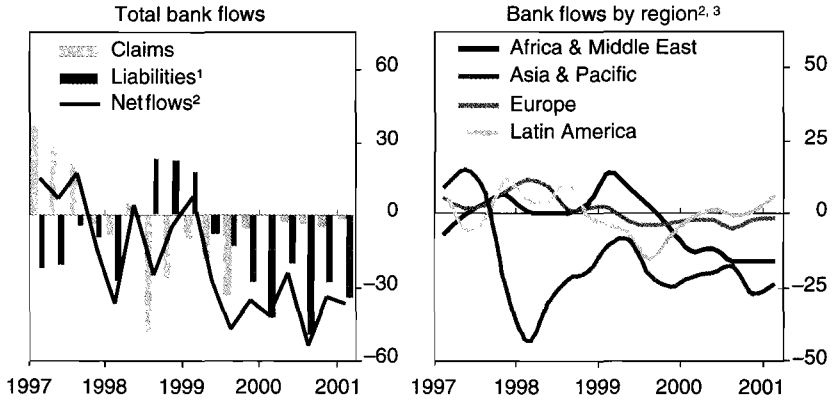

Figure 4.1 Banks' external positions *vis-à-vis* emerging economies, 1997–2001 (exchange rate adjusted changes in amounts outstanding, US$ billion)

Notes:
1 A negative (positive) value indicates an increase (decrease) in BIS reporting banks' liabilities *vis-à-vis* emerging economies.
2 Changes in claims minus changes in liabilities.
3 Two-quarter moving average.
Source: BIS (2002).

Table 4.6 Real GDP, actual and forecast, 1950–2010 (average annual percentage change)

	1950–96	*1996–2001*	*2001–10*[5]
Western Europe[1]	3.7	2.6	2.2
United States	3.4	3.4	3.1
Emerging Asia,[2] of which	6.7	5.3	6.2
crisis-hit	6.2	1.5	4.8
Latin America[3]	4.8	2.5	3.3
World[4]	4.8	3.3	3.6

Notes:
1 Weighted average of 15 Western European economies.
2 Weighted average of China, Hong Kong, India, *Indonesia, Korea, Malaysia, Philippines*, Taiwan and *Thailand*, of which the countries in italics are classified as crisis-hit.
3 Weighted average of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezeula.
4 Weighted average of 45 economies with over 85 per cent of global GDP.
5 Consensus forecasts.

and investment while exports benefited from improved competitiveness following the large devaluations. More recently the slowdown in the US economy has induced further wariness on the part of lenders. The Asian economies in particular are suffering from the weakness in US technology

industries. Furthermore, as discussed below, banks in the industrial countries have increasingly sought credit exposure in emerging economies by purchasing local banks, rather than through cross-border lending. Recent problems in Argentina and Turkey are likely to be dampening banks' enthusiasm for lending to emerging economies, although the extremes of contagion seen in earlier crises have not been observed.

Deposits from emerging economies

Deposits from emerging economies have been growing strongly. In 2000, deposits were equivalent to 2 per cent of emerging economies' GDP, the largest proportion since 1979–80, when oil-exporting countries placed windfall revenues with international banks. The main sources of these deposits were Taiwan, mainland China and the oil-exporting countries (notably Saudi Arabia, Iran, Mexico and Russia). In the case of China, a weak demand for foreign currency loans and interest rate differentials were important reasons. More generally, a sharp rise in residents' deposits in overseas banks is often regarded as symptomatic of capital flight, while a more gradual rise in these deposits may just reflect portfolio reallocations. Many countries discouraged or prohibited fund managers (unit trusts, pension and mutual funds and so on) from investing abroad so as to retain scarce capital for domestic development. This rule has been gradually eased in a number of countries. For example in Chile the allowable proportion of assets invested abroad was raised from 2 per cent in 1992 to 16 per cent in 2000 as the authorities wished to reduce their concentration of risk. In many cases fund managers have taken advantage of this greater freedom to place funds with international banks.[6]

Net bank funding

With lending at best flat and deposits rising, funds flowed from emerging economies to the banks (Figure 4.1). The IIF estimates in Table 4.1 show that banks withdrew more money from the emerging economies in 2001 and 2002. International bank loans outstanding to Asia are expected to continue falling. While this partly reflects less demand for credit, or more of it being met domestically, it also reflects continuing caution by lenders about political uncertainties and the slow pace of restructuring in some countries.

Cyclical aspects of international bank lending

International bank lending to emerging economies is subject both to push factors (in the source countries) and to pull factors (in the user countries). A simple comparison of three of these forces – the strength of the advanced and emerging economies, which might be associated with their respective expected returns, and interest rates in the advanced economies – are shown in Figures 4.2, 4.3 and 4.4. In terms of the activity

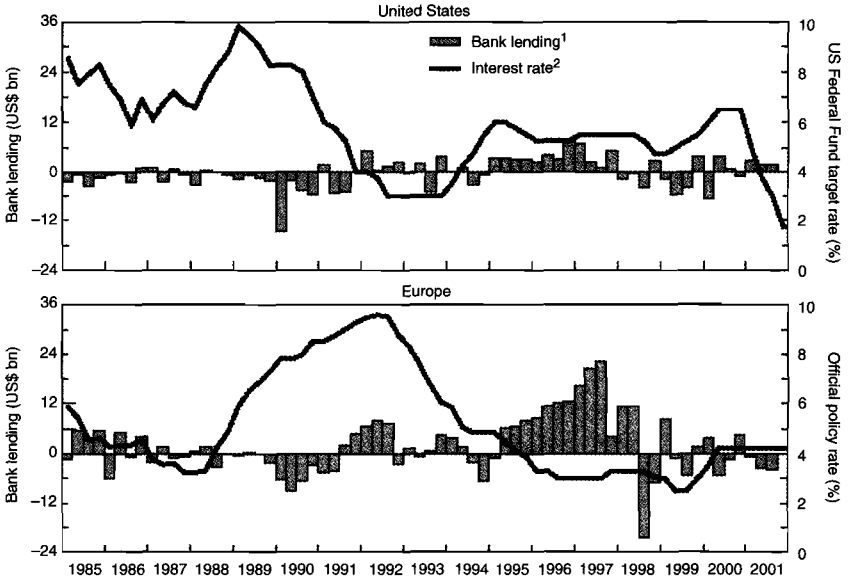

Figure 4.2 Bank lending to emerging market economies and policy interest rates, 1985–2001

Notes:
1 Left-hand scale.
2 Right-hand scale.
Sources: National data; BIS.

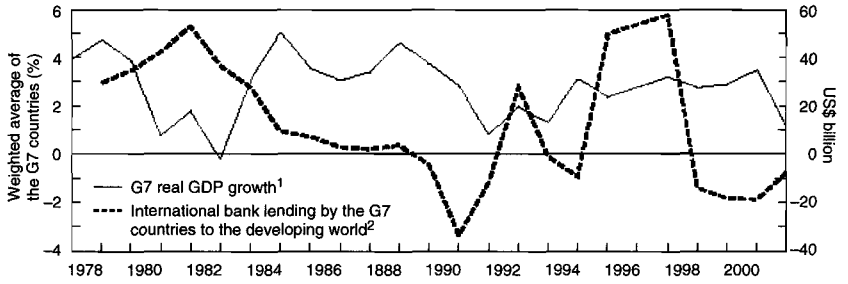

Figure 4.3 'Push' influences on international bank lending, 1978–2001

Notes:
1 Left-hand scale.
2 Right-hand scale.
Sources: National data: BIS.

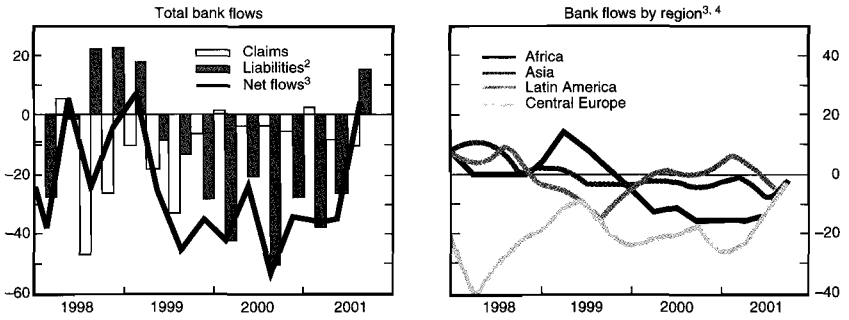

Figure 4.4 Banks' external positions *vis-à-vis* emerging economies,[1] 1998–2001

Notes:
1 Exchange rate adjusted changes in amounts outstanding, in billions of US dollars.
2 A negative (positive) value indicates an increase (decrease) in BIS reporting banks' liabilities *vis-à-vis* emerging economies.
3 Changes in claims minus changes in liabilities.
4 Two-quarter moving average.
Source: BIS.

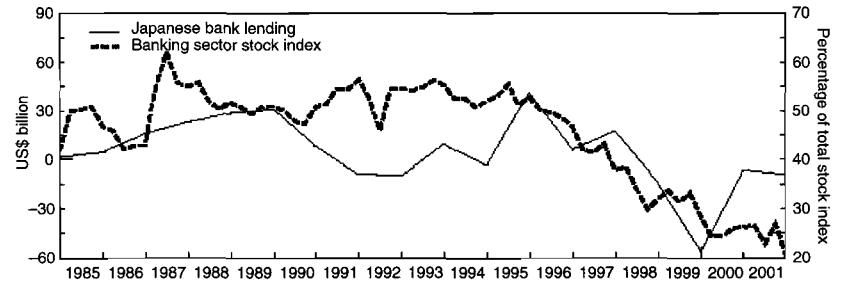

Figure 4.5 Japanese international bank lending to Asian economies, 1985–2001

Sources: National data; BIS.

measures, the graphs suggest that the pull factor is generally stronger than the push, that is, banks' lending is more responsive to conditions in the borrowing economies than in the lending economies, but there are some exceptions. The starkest recent example of this has been the sharp cut-back in lending to Asian economies by Japanese banks because of their domestic difficulties (Figure 4.5). It has been suggested that the push factor dominates in Latin America and the pull factor in Asia. In their survey of the literature, Jeanneau and Micu (2002) comment that 'some of the more recent studies have tended to emphasise the complementarity of

push and pull factors, with the first set of factors determining the timing and magnitude of flows and the second set determining their geographic distribution'.

Jeanneau and Micu present empirical evidence, using BIS banking data, that one push factor – real short-term interest rates in industrial countries – is the dominant influence (but real GDP in the lending countries does not have a significant influence). Of the pull factors, they find a role for economic growth in borrowing countries, their exchange rate variance and changes in foreign reserves and the current account. The results are broadly similar for Asia and Latin America. Tests using a crisis dummy suggest that the Asian crisis had the effect of redirecting lending from Asia to Latin America. These factors explain more of short-term than long-term lending. It is noteworthy that the previously observed tendency for capital flows to emerging economies to rise when activity in the industrial world weakened is not happening in the current slowdown; all the signs are that flows are declining.

Interest rates in most advanced economies were low in the early 1990s (in the United States, partly due to the weakness of the banking sector at that time). This encouraged banks to seek higher returns from lending to emerging economies. Interest rates stayed very low in Japan in the 1990s, giving rise to 'yen carry' trade: borrowing in yen (at perhaps 0.5 per cent) and lending elsewhere in Asia (perhaps at 20 per cent in Indonesia). The sheer size of the interest rate differential and confidence in the Asian economic miracle tempted lenders to ignore the exchange rate and credit risks involved. Another example where interest rates played an important role was the rise in US rates in early 1994, which acted as an important trigger for Mexico's subsequent problems. However this also provides a counterexample as the interest rate increase seemed to do nothing to curb lending to the Asian economies.

Just looking at interest rates in advanced economies is, of course, very simplistic. A more relevant measure would be the risk-adjusted expected return, which should be compared with expected returns in emerging market economies. Furthermore lending may also respond to the degree of variation and uncertainty about the return or the extent to which returns are correlated across countries and regions. Addressing these issues empirically is well beyond the scope of this chapter.

The relative importance of push and pull factors will also depend on the extent to which banks are informed about individual emerging economies and discriminate between them. To test for this, the percentage change in the outstanding claims of banks owned by the five main lending countries on the ten main emerging economies was calculated over six-monthly periods from June 1990 to June 2000. The correlations are shown in Table 4.7. There are quite a few negative correlations, suggesting that the lending flows were not uniform but had many idiosyncratic features. It can also be observed

Table 4.7 Correlations between changes in claims of BIS-reporting banks on developing economies, June 1990–June 2000*

	Lenders					
	France	*Germany*	*Japan*	*UK*	*US*	*Standard deviations*
Borrowers						
China	0.08	0.01	0.11	0.12	0.01	0.1
Indonesia	−0.06	0.02	−0.04	−0.17	−0.03	0.1
India	−0.00	−0.10	0.33	−0.07	−0.08	0.2
Malaysia	−0.12	0.14	−0.32	0.09	−0.18	0.2
Korea	0.03	−0.20	−0.28	−0.10	−0.15	0.1
Thailand	−0.20	−0.37	−0.14	−0.33	−0.39	0.1
Argentina	0.51	0.25	0.10	0.90	0.12	0.3
Brazil	0.45	0.46	0.12	−0.03	0.11	0.2
Chile	0.42	0.19	−0.02	0.41	0.39	0.2
Mexico	0.03	0.06	0.14	−0.15	−0.30	0.2
Standard deviations	0.3	0.2	0.2	0.4	0.2	

* Correlation between percentage change in lending over six-monthly periods by banks owned by lending country *i* to borrower *j* with all loans to all developing economy borrowers.

that the correlations tend to be more similar across the rows (borrowers) than down the columns (lenders), again suggesting that pull factors were generally more important.

In a similar study that focuses on periods of currency crisis, Van Rijckeghem and Weder (2000, 2001) use BIS consolidated banking statistics to examine the role of bank lending in contagion. Noting the specialization illustrated in Table 4.2, they test for a 'common lender effect'. The hypothesis is that banks that make losses due to their exposure to a crisis country respond by cutting back lending to other emerging economies. As a result, emerging economies that have the same lenders as a crisis economy suffer from contagion. They find evidence for such an effect after the Mexican and Asian crises but not after the Brazilian crisis. Given the pattern of common lenders shown in Table 4.2, this form of contagion is most likely to affect other economies in the same region. From a policy point of view, these findings imply that emerging economies could reduce their contagion risk by diversifying the sources of their funding and carefully monitoring their vulnerability through shared bank creditors. Notwithstanding the fact that private banks' choice of creditors is the decision of individual banks, the authorities can still play a role by providing information on aggregate positions and by adjusting the composition of their own creditors.

Some recent studies on determinants of the destination of bank lending are summarized by Buch (2000). For German banks, lending is highly correlated

with trade links, although this does not appear to be 'follow the customer' behaviour as much of the lending studied was to banks, rather than companies, in the recipient countries. A study of OECD banks found that market growth and diversification prospects were most important. In the United States, small banks tend to follow the lead of large banks in their overseas lending. Based on BIS data, Buch finds that international bank loans are greater to countries that have trade links with the lender, strong growth in industrial production, membership of the OECD (assumed to reflect the corresponding lower capital requirements under the Basel Accord) and are geographically close to the lender. Capital controls deter lending. In addition, Spanish banks lend far more than these variables alone would predict to Spanish-speaking countries (the only case where common language appears to be important). Interest rate differentials are not significant.

The international lending behaviour of individual US banks is studied by Goldberg (2001). Much of this lending is concentrated in Latin America, and Goldberg shows that this is especially true of smaller banks. She concludes that US banks' foreign lending to Latin America expands more when the US economy is growing strongly, but this is not the case for lending to Asia. However international lending by US banks is not sensitive either to real interest rates or to demand conditions in the recipient emerging economies.

Structural aspects of international bank lending

Changes in bank operations

Global banks have reduced their lending to emerging economies in favour of fee-based activities and lending via subsidiaries (Table 4.8). The move towards fee-based activities may be due to banks trying to meet their aspiration for high returns on equity without adding assets to their balance sheet, which would require more equity to be raised. It also may reflect a more conservative attitude towards taking risks onto their own balance sheets (possibly due to a greater appreciation of the extent of these risks) and a desire for more stable income sources.

Lending through subsidiaries may allow better quality control by lending officers located in specific emerging economies. It more readily allows international banks to lend in domestic currency, as a subsidiary can raise deposits in the domestic currency to avoid a currency mismatch. In some countries (for example China and Malaysia) direct lending in domestic currency from the head office is prohibited by capital controls.

In some cases, host bank supervisors prefer international banks to lend through such subsidiaries. Many emerging market economies are now encouraging the entry of foreign banks to make up for deficiencies in their domestic banking system, such as lack of capital, lack of commercial banking skills and an inefficient banking structure. Foreign banks usually

Table 4.8 International banks' involvement in developing countries, June 1998–December 2000

	June 1998 (US$ bn)	*Dec 2000 (US$ bn)*	*% change (at annual rate)*
All developing countries			
Loans outstanding	924	739	−8.8
Other assets[1]	110	155	14.7
Loans by subsidiaries[2]	248	435	25.2
Developing Asia			
Loans outstanding	358	243	−14.4
Other assets[1]	36	41	5.3
Loans by subsidiaries[2]	72	118	21.8
Latin America			
Loans outstanding	278	213	−10.1
Other assets[1]	43	74	24.3
Loans by subsidiaries[2]	134	231	24.3
International debt securities on issue	345	417	7.9

Notes:
1 Includes holdings of debt securities, some derivative positions and equities. See BIS (2000), part I.C.
2 Local currency claims of BIS reporting banks' foreign affiliates with local residents.
Source: BIS (2000), part I.C.

bring state-of-the-art technology and training for domestic bankers. Moreover they are familiar with sophisticated financial instruments and techniques, and have faster and cheaper access to international capital markets and liquid funds. Their presence may also encourage other foreign firms to invest in the domestic economy. Empirical studies have found that foreign bank entry improves the functioning of national banking markets by increasing the degree of competition, and by introducing a variety of new financial products and better risk management techniques.[7] A liberal approach to foreign bank entry has been laid down by international trade agreements (WTO, NAFTA), is a condition of membership of the OECD and the EU, or is part of reciprocity requirements for domestic banks to expand into foreign markets.

As a result, foreign banks now have a large presence in most emerging economies. Indeed for a small economy it may make sense not to have any domestically owned banks at all, as they may not be able to diversify their risks sufficiently. Nonetheless in practice there are only a few economies with fully foreign-owned banking systems, with the degree of foreign ownership more normally lying somewhere between 20 per cent and 50 per cent.[8] When announcing a major liberalization programme, the authorities in Singapore stated explicitly that they wanted local banks to retain at least

half the market. Another example is the Philippines, where a law restricts foreign banks' share of assets to 30 per cent or less.

Foreign banks often enter by taking over a troubled domestic bank. However there may be public resistance to this, especially if taxpayers' money has been used to clean up the bank's balance sheet ahead of privatization. Governments also face domestic pressure to limit the role of foreign banks because of fears that foreign banks will quickly dominate the local market and neglect small businesses or rural customers, or cause a lowering of credit standards by increasing competition, especially if they use their deep pockets to subsidize early losses. Evidence on whether the business focus of foreign and domestic banks diverges is rather mixed. In most emerging market economies, however, foreign banks appear to be very cautious about lending to smaller firms because of their limited knowledge of local industry.

An important issue has been foreign banks' behaviour during recessions in host countries and the foreign banks' home base. One opinion is that domestic banks are more committed to the domestic economy, in the sense of having both longer-term business relations with customers and a patriotic affinity with the national interest. Foreign banks, by contrast, are said to look at lending opportunities around the world and may neglect the host country economy if its prospects deteriorate or if prospects improve in other countries. Foreign banks may also be less likely than domestically owned banks to heed exhortations by the domestic authorities to maintain lending during recessions. In some cases foreign banks have been less cooperative in rescheduling loans in times of crisis. It is difficult to assess the truth of these criticisms. They may well apply more to foreign banks with only a small and recent presence in the domestic banking system. However, larger, longer-established foreign banks may be less inclined to risk their reputation and behave more like the domestic banks. There is also evidence that local managements are usually strongly committed to the local operations, and that they identify more with domestic interests over time.

The contrary opinion is that foreign banks are better placed to ride out domestic recessions because they can more readily access international financial markets or draw on credit lines from their parents. Furthermore they have more diversified balance sheets. The empirical evidence from Latin America suggests that foreign banks have generally had lower volatility of lending than domestic banks and notable credit growth during crisis periods, and that only offshore lending tends to contract in bad times. Foreign bank operations may also keep international markets better informed about domestic conditions and so help dampen panic withdrawals of international funding (as in Saudi Arabia during the Gulf War in 1991), or can help reduce resident capital outflows during crises because they are usually perceived as safer.

Governments may also be reluctant to have their domestic banking systems dominated by banks from a single country lest they suddenly cut

their activities when faced with problems at home (for example Japanese banks in Asia) or exert political pressure for favourable treatment. For this reason emerging economies may seek to 'diversify' foreign owners. For example the Saudi authorities have been selective and licensed foreign banks from different parts of the world, with different management cultures, systems and technologies. Similarly the authorities in China have been concerned about the impact of foreign banks on the competitiveness of domestic banks, and have sought to limit their market share by licensing banks from different countries, restricting their activities to business in foreign currencies only, or restricting their business in local currency to two cities. They have also ensured that banks are familiar with the local market by requiring them to have a representative office for two years before commencing banking operations.

Policy towards international bank lending

Since the Asian crisis there has been greater awareness among policy makers of the risks involved in excessive external borrowing. Supervisors may therefore discourage banks from borrowing offshore and restrict their foreign exchange exposure.[9] Sometimes, however, banks try to restrict their own foreign exchange exposure by lending in foreign currency to domestic customers whose cash flows are in the domestic currency. However they then face a large credit risk if there is a sharp depreciation. This was a major problem during the Mexican and Asian crises in the 1990s.

In some countries restrictions have been placed on international bank financing, such as the recent tightening of limits on non-residents' ability to borrow domestic currency in Indonesia, the Philippines and Thailand. Often these have been directed at such activities as non-residents short-selling the currency as part of a speculative attack, but the restrictions may reduce lending for other, more innocent, purposes as well.

International bank lending and the Basel Capital Accord

The Basel Committee on Banking Supervision is currently in the process of adapting the Basel Capital Accord to new market realities (it issued consultation drafts in June 1999 and January 2001). This could have implications for the quantity or distribution of bank lending to emerging economies. Some argue that banks are already reacting to the proposals.

A primary goal of the proposals is to align more closely the capital required to support a loan and the risk of the loan. In particular it replaces the OECD/non-OECD distinction with an approach based on banks' internal credit ratings or those set by credit assessment agencies. This means that loans to lower-rated OECD economies such as Korea, Mexico, Poland and Turkey would require more capital while loans to higher-rated non-OECD economies such as Chile, Hong Kong and Singapore would require less.

Risk weights for banks and corporates would also be dependent on their credit ratings. This should reduce the funding costs of some of the soundest banks and companies in emerging economies. The lower risk weights assigned to corporations rated A minus or above could lead to more lending to them at the expense of weaker credits. As weaker credits tend to be more prevalent in emerging economies, this could reduce the overall flow of bank lending to emerging economies. It might well be in emerging economies' interests if the riskiest borrowers were to find credit more expensive, but concern has been expressed – for example by Griffith-Jones and Spratt (Chapter 10) – that the mapping between credit assessments and capital required may be so steep that the lowest-rated borrowers would find loans from banks prohibitively expensive. A particular problem for corporate borrowers in many emerging economies is that few of them have a credit rating; for example Powell (2001) reports that in Argentina only 150 of 80 000 corporate borrowers are rated.

The new Accord envisages that the more sophisticated banks will use an advanced internal ratings-based approach. This may reduce the extent of herding if it causes banks to base their loans on individual assessments of countries.[10] However the proposed role for external credit assessment agencies (not just ratings agencies but also national export credit agencies) has led to some concern. Sovereign ratings have tended to lag behind economic developments as rating agencies have been slow to downgrade countries in the run-up to crises, when underlying imbalances are building up and warnings would be useful both to borrowers and to lenders, and then put the countries through several downgrades once the crises have broken out. This may make them a procyclical element (as they were during the Asian crisis), encouraging banks to withdraw even further from emerging economies just when their support is most needed. However it is not clear what would be a better alternative. Sovereign credit spreads tend to be even more volatile than ratings. One approach would be to adjust regulatory risk weights only gradually in response to changes in credit ratings. Financial markets are likely to be procyclical regardless of how regulations are structured. It is to be hoped that a greater focus on measuring risk by banks and their supervisors will mean a more careful and less short-term focus.

Under the present accord, international interbank lending of up to one year to non-OECD economies has a 20 per cent risk weight while longer-term lending carries a 100 per cent risk weight. One possible consequence of this distinction is that bank lending to emerging markets is 'too' short term, and thus more subject to cyclical forces.[11] While a lower risk weight for short-term lending than for long-term lending may make sense for the lending of an individual bank (which is the focus of the supervisors), it makes less sense if all banks lend short term so that the borrower is vulnerable to a sudden loss in liquidity. In other words the systemic (or macro) considerations may to some extent run counter to supervisory (or micro) considerations.

The consultative document issued by the Basel Committee (2001) recognized the potential for 'unintended consequences on lending markets' from setting lower capital requirements for short-maturity loans and sought comments on this question. It suggested lowering the threshold for preferable treatment of short-term debt to three months, the upper maturity band in the interbank money market. While the proposed risk weights for short-term lending to banks rated between A plus and B minus are lower than those applied to long-term loans to those banks, the difference is 30–50 percentage points rather than the current 80 percentage points.

Conclusions

Since the Asian crisis funds have consistently flowed to international banks from emerging economies. Previously this would have seemed as likely as water flowing uphill. A number of factors are responsible for this surprising event, both cyclical and structural:

- The Asian crisis came as a shock to complacent banks that had assumed the good times in Asia would go on indefinitely and therefore ignored the mounting debt in the region. Subsequently the Russian crisis weakened the conviction that lenders to important countries would always be bailed out. This has led to reduced lending.
- Some complacency was also removed from borrowers in emerging economies. Many borrowers became keen to repay debt. In Asia, currency devaluations and strong demand (until recently) for their electronic exports allowed them to repay excessive debt.
- Cyclical factors played some role; until recently growth prospects in the United States were seen as exceptionally strong. Growth prospects looked poorer in damaged Asian economies, as well as in Argentina, Brazil and Turkey. Many Asian economies have a legacy of overinvestment so are not keen to borrow.
- Deposits in international banks by emerging market economies have been growing, reflecting the deregulation of fast-growing fund managers, capital flight and the savings from high oil revenues.
- A structural change exaggerating the phenomenon is that banks, encouraged by policy makers, are increasingly doing their lending in emerging economies through subsidiaries there, using deposits raised there, rather than from head office.

It is hard to apportion the turnaround in international bank lending between these factors. But there is a risk that instead of excessive capital inflows the emerging economies will face inadequate inflows. The water flowing uphill will move them from flood to drought.

Appendix 4.1

BIS international banking statistics

Data are gathered quarterly from national authorities, usually central banks, in 32 economies, including the world's main banking centres.[12] There are two main quarterly collections, known as the locational and consolidated collections.

The locational data, which commenced in 1964, are consistent with balance of payments principles and cover banks, both domestic and foreign-owned, located in the 32 economies (but not their overseas subsidiaries). The data relate to banks' international banking business, defined as gross financial claims or liabilities *vis-à-vis* non-residents as well as foreign currency positions *vis-à-vis* residents. To minimize reporting burdens the collection is built on existing national data collections. Although the data usually cover well over 90 per cent of international lending, there is some variation in the coverage of institutions and some definitional inconsistencies.[13]

The assets and liabilities (and a narrower concept of loans and deposits) are broken down by:

- currency, into domestic currency, US dollar, euro, yen, sterling, Swiss franc and 'other'. One reason for this is to measure the extent to which changes in stock expressed in US dollars are attributable to valuation effects arising from exchange rate fluctuations rather than being due to transactions;
- sector, into banks and non-banks;
- economy (international organizations such as the IMF, OPEC and so on are included as 'special countries' rather than being allocated to the country in which they are headquartered).

A snapshot summary of these data, which are published for over 160 individual emerging economies, as of mid 2002 is provided in the upper part of Table A4.1. For some countries there are significant discrepancies between the data published by the BIS (based on information from lenders) and the external debt statistics published by national statistical agencies (based on information from borrowers). In some cases this is known to be due to definitional differences rather than misreporting.[14]

The consolidated collection, launched in 1977 but reported only semi-annually until 2000, focuses on banks' worldwide credit and country risk exposure. It gives information on banks' international lending activities broken down by maturity, sector and borrowing country on a world-wide consolidated basis. Banks with head offices in the reporting country provide information on all their offices at home and abroad (including any operations in which they own more than 50 per cent of the capital), with the positions between different offices of the same bank netted out. Examples of

Table A4.1 BIS reporting banks' exposure to developing countries (US$ billion, June 2002)

	Asia-Pacific	*Europe*	*Latin America*	*Middle East and Africa*	*Total*
Assets	277	173	281	156	887
of which					
loans	231	135	215	147	728
to non-bank sector	112	79	147	78	416
Liabilities	371	150	233	343	1 097
of which					
deposits	370	150	229	339	1 088
to non-bank sector	140	41	131	144	456
Consolidated claims	395	296	492	154	1 337
of which					
short-term	128	80	112	62	382
on public sector	40	33	40	20	133
on non-bank private sector	121	108	164	58	451
Unused lines	54	50	32	44	180
Affiliates' local currency claims on local residents	141	104	247	34	526

Source: BIS (2002).

these data are provided in the lower part of Table A4.1. The collections also include separate reporting of foreign banks' local business in local currency, a growing item due to international banks' purchase of domestic banks in emerging economies.

Improvements

The BIS data collections are continuously being improved in terms of accuracy, coverage and timeliness. Likely improvements within the next two years include adding more developing countries and offshore centres to the international banking statistics, a country breakdown for the derivatives business of banks and more detailed data on an ultimate risk basis. The improvements are overseen by the Committee on the Global Financial System and an expert group of central bank statisticians (see Fender and Frankel, 2001).

Notes

* Any opinions expressed in this chapter are those of the author and are not necessarily shared by the BIS. Helpful comments have been received from Palle Andersen, Charles Freeland, Stephany Griffith-Jones, Marc Klau, Elmar Koch, Christina Luna, Marian Micu, Philip Turner, Agustin Villar, Karsten von Kleist, Beatrice Weder, Rainer Widera and participants at seminars in Santiago and Helsinki. Bruno Allemann, Melissa Fiorelli, Marc Klau and Denis Pêtre assisted with the data.

1. For further details see BIS, 2000; BIS, 2002; Fiorelli, 2000.
2. It has been suggested that the more ready granting of guarantees and support by export agencies is encouraging international lending by European banks.
3. Hedging between domestic agents is like playing 'pass the parcel' and does not reduce the national exposure.
4. For a more detailed analysis of flows to Asia, including an analysis based on individual bank data, see Cailloux and Griffith-Jones (2000).
5. See Wooldridge (2001) and Cohen and Remolona (2001).
6. According to US balance of payments data, net inflows to the United States from emerging economies averaged around US$70 billion during 1999 and 2000 compared with a net average outflow of around US$40 billion during the three preceding years. While much of this went into the purchase of government bonds or portfolio investment, some would have been deposited in banks. Private pension funds in Latin America are now estimated to have around US$170 billion in funds under management.
7. See for example Claessens and Klingebiel (1999). Claessens *et al.* (2001) show that significant foreign bank entry is associated with a reduction in operating expenses and the profitability of domestic banks.
8. Very high rates of foreign bank penetration occur, for example, in New Zealand (91 per cent), Botswana (94 per cent), Jordan (95 per cent) and Bahrain (97 per cent). A rare case of this issue being addressed from scratch was in the world's newest nation – East Timor. Reportedly the economics minister preferred not to have any domestic banks, but another senior politician found it hard to imagine a nation without at least one domestic bank (*The Economist*, 2 September 2000). For data on shares of foreign banks in banking assets, see Hawkins and Mihaljek (2001, table 9).
9. The Financial Stability Forum's (2000) report on capital flows suggests that in emerging economies where supervisory resources are scarce, simple restrictions on banks' foreign exchange exposures might be used until a more sophisticated risk management approach is feasible. These restrictions could include limits on long or short positions relative to capital, minimum holdings of liquid assets, and reserve requirements. Foreign currency loans could be restricted to a fixed percentage of capital or banks could be required to hold more capital against these loans.
10. Such independence becomes less likely if banks use the same credit risk models and rely on the same database to quantify credit losses.
11. While it is reasonable for borrowers to pay more for longer-term loans, the premium may be driven too high if the capital requirements are inappropriate.
12. The economies are Australia, Austria, Bahamas, Bahrain, Belgium, Canada, Cayman Islands, Denmark, Finland, France, Germany, Guernsey, Hong Kong, India, Ireland, Isle of Man, Italy, Japan, Jersey, Luxembourg, Netherlands, Netherlands Antilles, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Taiwan, Turkey, the United Kingdom and the United States.
13. Some countries include the banking operations of their central bank and some only provide data on banks operating in their offshore banking centres. Some countries only provide a restricted foreign currency breakdown. Differences exist between countries in the definition of a bank. Accounting differences may affect the basis on which the value of securities are reported and the treatment of interest arrears.
14. The treatment of trade credits is one such area. See von Kleist (2002) and Financial Stability Forum (2000) for a further discussion of the differences between creditor and debtor data.

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5

Bank Lending to Emerging Markets: Crossing the Border

David Lubin

Reflections on the collapse of short-term lending

Without question the world's banks have been the largest net taker of funds from emerging markets since the 1997 Asian crisis. From Table 5.1 it is clear that between the end of 1997 – when banks' exposure peaked – to the end of 2000, banks' net claims on developing countries fell by a massive US$292.8 billion. Moreover it is clear from the same table that banks actually became net debtors to the developing world during the same period. Whereas in 1997 the banks had a net credit position of US$147 billion, by December 2000 this had turned into a net debtor position of US$145 billion. It is

Table 5.1 Banks' net cross-border exposure to developing countries, 1997 and 2001 (US$ billion)

	1997	*2001 (Q3)*	*Change*
Banks' international assets	1 051 206	874 512	−176 694
Africa and Middle East	141 026	141 151	125
Asia and Pacific	449 913	273 308	−176 605
Europe	156 237	165 985	9 748
Latin America	304 030	294 068	−9 962
Banks' international liabilities	903 934	1 090 001	186 067
Africa and Middle East	267 088	329 932	62 844
Asia and Pacific	285 476	369 104	83 628
Europe	106 053	131 551	25 498
Latin America	245 317	259 414	14 097
Banks' net exposure	147 272	−215 489	−362 761
Africa and Middle East	−126 062	−188 781	−62 719
Asia and Pacific	164 437	−95 796	−260 233
Europe	50 184	34 434	−15 750
Latin America	58 713	34 654	−24 059

Source: BIS.

common enough for the world's banks to be net debtors to the Middle East and African regions, primarily due to the assets owned by oil-exporting countries. Yet for developing countries overall it is quite unusual for the world's banks to be net debtors to the developing world. On the face of it, these data make a mockery of the idea that banks ought to be used as a way of channelling foreign savings to developing countries.

Three points are worth making in order to help us understand why the banks' net exposure to developing countries collapsed so thoroughly between these years. First, the fall in net claims on developing countries is half explained by a rise in developing countries' foreign exchange reserves. Table 5.1 shows that there was a US$147 billion increase in banks' liabilities to developing countries between 1997 and 2000, and this accounts for roughly half of the US$292 billion fall in net claims. The reason why this is interesting is that it casts a slightly different light on the reason why net exposure fell. If banks were reducing their gross exposure to emerging markets – which of course they were doing – this suggests an increase in risk aversion on the part of the banks. Yet at the same time, if developing countries themselves were increasing their holdings of foreign exchange reserves, this suggests that there was an increase in risk aversion in the developing world. In other words, it was not just banks that were more risk-averse, but also countries.

In many ways this is ironic, given the widespread switch that has taken place in emerging markets from fixed exchange rate regimes to floating regimes. In principle one would expect a country that adopts a floating rate regime to want to hold fewer foreign exchange reserves, not more, since shocks can be absorbed by changes in the exchange rate rather than changes in the quantity of reserves. The fact that reserve holdings have risen so sharply seems on the face of it to suggest that developing countries are not entirely happy with the comfort of having flexible exchange rates as a means of absorbing international shocks. This could mean one of two things: either countries have a 'fear of floating',[1] in other words, they want to minimize exchange rate volatility in order, for example, to improve control over inflationary expectations; or they are concerned about the potential reversibility of capital flows, which requires them to hold a greater cushion of reserves on the realistic assumption that the exchange rate cannot be expected to absorb the entire shock of a sustained net capital outflow.

Second, the fall in exposure was massively concentrated in Asia. Table 5.1 shows that the fall in net claims to developing countries between 1997 and October 2001 was some US$363 billion, but that over 70 per cent of this fall was explained by a fall in net claims to Asia. Indeed gross claims to non-Asian developing countries were rather stable during the 1997–2001 period, remaining close to US$600 billion throughout.

Third, the fall in banks' exposure is largely explained by a fall in short-term exposure. Table 5.2 shows that gross cross-border bank exposure to

Table 5.2 Accounting for the fall in banks' gross cross-border exposure to developing countries, 1997–2001 (Q3)

	US$ bn
Total change in banks' exposure	−146.4
Africa and Middle East	5.0
Asia and Pacific	−167.4
Europe	6.9
Latin America	9.1
Change in short-term exposure	−127.9
Africa and Middle East	−0.9
Asia and Pacific	−110.1
Europe	−1.6
Latin America	−152.5

Source: BIS.

developing countries fell by US$146 billion between 1997 and the third quarter of 2001; yet the fall in short-term exposure was US$128 billion. In other words the collapse in cross-border lending by banks to developing countries was very largely a fall in short-term exposure.

So in many ways this is a story about a sharp fall in short-term loans to Asian borrowers. Yet this too should be put into context, since the unwinding of these positions in 1997–2000 was simply the counterpart to the very sharp increase in short-term lending to Asia that took place during the late 1980s and early 1990s. For example short-term loans as a share of total lending to the Asian region rose from 47 per cent in the late 1980s to 63 per cent in 1997. The repayments that banks have received since the Asian crisis is best described as a process of balance sheet consolidation that has reduced the banks' short-term loans to a more acceptable level. What has happened since the Asian crisis, in effect, is that banks have reduced their short-term claims towards the 'normal' level of 47 per cent of total loans. In other words the banks' reduction of their gross short-term exposure since 1997 looks like the 'revulsion' that often characterizes creditor behaviour in the aftermath of a debt crisis. Revulsion, of course, is the flip side of 'exuberance' – the period of excessive optimism that precedes a crisis. In this context it is worth bearing in mind that the gross repayments that were made to banks over the four years in question were in many ways simply the unwinding of an increase in exposure that took place in the run-up to the crisis.

Gross cross-border bank exposure to Asia reached US$423 billion in December 1997, but had fallen to US$270 billion by March 2001. Yet even this level of exposure was massively higher than it had been in the early 1990s: in December 1993 banks' exposure to Asia had been US$190 billion.

One of the main consequences of this revulsion is that the problem of short-term debt – which has been a principal theme in each of the emerging market crises in the past decade – is largely no longer a problem for developing countries as a whole. There has been such a huge repayment of short-term debt to the world's banks that these days short-term debt poses little threat to the health of developing countries' balance sheets. A useful indicator of this is the ratio of short-term debt to foreign exchange reserves, which has collapsed during recent years as both debtors and creditors have moved to consolidate their balance sheets. According to data from the Institute of International Finance, in 1996 there were 14 large developing countries whose stocks of short-term external debt were greater than their foreign exchange reserves: Argentina, Brazil, Bulgaria, Indonesia, Israel, Korea, Mexico, Pakistan, Philippines, Romania, Russia, South Africa, Thailand and Turkey. By the end of 2000 that number had fallen to just six: Argentina, Brazil, Mexico, Pakistan, South Africa and Turkey. Table 5.3 shows the big improvement in developing countries' balance sheets on a regional basis: the ratio of short-term debt to foreign exchange reserves collapsed between 1996 and 2000 both in Latin America – where it fell from 83 per cent to 54 per cent – and, more spectacularly, in Asia, where it fell from 83 per cent to 33 per cent.

The process of unwinding the short-term debt overhang of the mid 1990s has been reinforced by the switch from fixed to floating exchange rate regimes in many countries over the past few years. The point is that the accumulation of short-term debt in the 1990s was at least partly a by-product of the pervasiveness of fixed exchange rates. This encouraged both borrowers and lenders to imagine that currency risk had disappeared. This in turn made room for the accumulation of large stocks of short-term external debt in order to finance local currency assets to take advantage of what was perceived to be a 'risk-free' interest arbitrage. Now that many large emerging economies have abandoned fixed exchange rates for floating ones there are fewer incentives for institutions to create short-term liabilities in foreign exchange. In other words the switch to floating exchange rate regimes has gone hand in hand with the collapse in overall levels of short-term debt.

Table 5.3 Yesterday's problem: ratio of short-term debt to foreign exchange reserves, 1996 and 2000 (per cent)

	1996	*2000e*
Asia	83	33
Latin America	83	54

Source: Derived from Institute of International Finance databases.

In view of all this, one question that might be worth asking is whether there are any ways in which the world's financial regulators might try to avoid the excessive build-up of short-term lending in the future. Should there be a prudential limit on the amount of bank lending for less than one year? Prudential limits on short-term debt are normally expressed in relation to a country's level of foreign exchange reserves. The best known expression of this is the 'Guidotti rule', which suggests that a prudently managed economy will have a short-term external debt that is no greater than its stock of foreign exchange reserves. In other words the Guidotti rule focuses on the maturity structure of a developing country's balance sheet. This is all very sensible. Yet at the same time it might also be worthwhile focusing on the maturity structure of the banks' collective balance sheet.

The reason for this is that it makes sense to think that the incentive for herd-like behaviour on the part of banks will become greater as the ratio of short-term loans to total loans becomes larger. The intuition here is simple. If creditor A is the only short-term lender to country 1, while the rest are longer-term lenders, then the incentive for that creditor to roll over its short-term loan will be relatively high since there will not be so many banks scrambling for access to country 1's reserves in the event of a deterioration in country risk. This will remain true regardless of the country's Guidotti rule ratio. All other things being equal, it is better to have a low ratio of short-term debt to total debt than a high one. This situation is summarized in Figure 5.1, which shows combinations of two ratios: the short-term debt to reserves ratio (which is essentially a measure of the quality of a country's liquidity in foreign currencies), and the short-term debt to total debt ratio. The important aspect of the latter ratio is that it helps us to see things from the point of view of the creditors' balance sheet as opposed to the debtors'

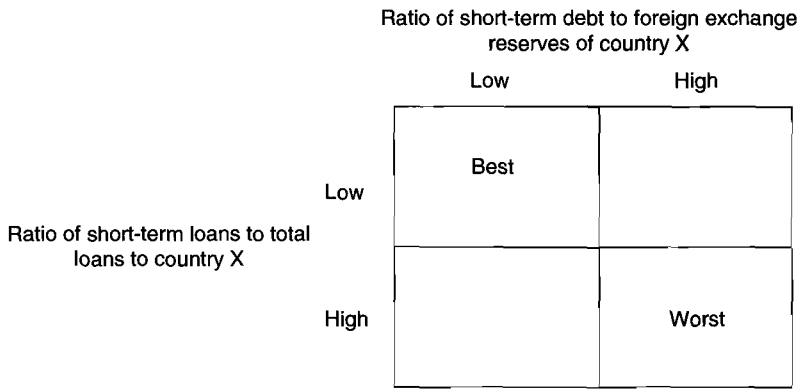

Figure 5.1 Combinations of short-term debt to reserves ratio and short-term debt to total debt ratio

balance sheet. Because of the possibility of herd behaviour by commercial creditors, a country should not only try to minimize its short-term debt to reserves ratio, but should also try to minimize its short-term debt to total debt ratio for any given level of reserves.

It may even make sense to set a prudential limit on short-term debt as a share of total debt. At what level should it be set? One way of thinking about this is to look at the experience of Asian countries during the 1990s. At the start of the 1990s the ratio of short-term debt to total external debt for the region was 50 per cent. This grew during the course of the early 1990s to peak at 65 per cent in 1995. Since the crisis, lenders' revulsion has pushed the ratio down to levels well below 50 per cent (it is currently at 47 per cent). Arguably, therefore, a convenient prudential measure for the ratio might be set at 50 per cent. This would be no more than a rule of thumb to coexist with the Guidotti rule on the ratio of short-term debt to foreign exchange reserves.

If short-term debt is a central indicator of risk in emerging markets, it is worth pointing out that it is far from being an infallible indicator, particularly if a country's stock of short-term debt fulfils certain qualitative criteria. Put flippantly, 'there is short-term debt and there is short-term debt'. Consider South Africa, which has consistently been the economy with the highest ratio of short-term debt to foreign exchange reserves. The important question is how South Africa managed to survive the 1990s without a debt crisis when the existence of large stocks of short-term debt appears to have been such a reliable indicator of the crises in Mexico, Asia, Russia, Brazil and, more recently, Turkey.

Two features of the South African experience help explain why the country managed to avoid a crisis. The first is the existence of a floating exchange rate regime, which helped to minimize the accumulation of a big stock of short-term liabilities to finance a cross-border interest arbitrage, or 'carry trade'. The second (related) feature is that South Africa's short-term debt stock is widely regarded to be related to trade finance. This type of lending, of course, bears no currency risk (for lender or borrower), and is related to an underlying transaction of real economic resources. All in all, then, South Africa's experience suggests that early warning indicators of crisis in emerging economies are likely to be more useful if they capture qualitative aspects of short-term debt stocks rather than simply assessing the size of those stocks. Trade-related debt stocks are likely to be more stable than stocks of debt, which are being used to finance cross-border interest arbitrage. Arguably Mexico's stock of short-term external debt is of a similar nature these days.

Banks 'crossing the border'

While it is clear that banks have been net takers of cross-border funds from emerging markets in recent years, it is not true to say that this behaviour necessarily shows that banks have withdrawn from emerging markets.

While cross-border exposure has fallen, in-country exposure has risen. In other words, what we have seen is better described as a redistribution of banks' overall emerging-market portfolios, in which banks have substituted onshore for offshore lending. The question that arises from this is whether this portfolio shift has brought any benefits to developing countries, and in particular whether it will end up reducing their vulnerability to crisis.

What is beyond doubt is that foreign banks have massively increased their ownership of developing countries' banking sectors, and that this happened precisely during the crisis period of the late 1990s. The increase in foreign penetration of emerging markets' financial systems is clear from Table 5.4, which shows the percentage of banking sector assets owned by

Table 5.4 Foreign ownership of banking sector assets in selected emerging markets, 1994 and 1999 (per cent)

	1994		*1999*	
	Total banking sector assets	*Share owned by foreign-controlled banks*	*Total banking sector assets*	*Share owned by foreign-controlled banks*
Central Europe				
Czech Republic	46.6	8.3	63.4	49.3
Hungary	26.8	23.8	32.6	56.6
Poland	39.4	2.3	91.1	52.8
Total Central Europe	112.8	9.9	187.1	52.3
Latin America				
Argentina	73.2	16.5	157.0	48.6
Brazil	486.9	12.2	732.3	16.8
Chile	41.4	17.6	112.3	53.6
Colombia	28.3	5.4	45.3	17.8
Mexico	210.2	0.9	204.5	18.8
Peru	12.3	2.9	26.3	33.4
Venezuela	16.4	10.4	24.7	41.9
Total Latin America	868.7	9.7	1 302.4	25.0
Total excluding Mexico and Brazil	171.5	13.3	365.6	44.8
Asia				
Korea	601.1	0.8	642.4	4.3
Malaysia	148.1	6.8	220.6	11.5
Thailand	192.8	0.5	198.8	5.6
Total Asia	942.0	1.7	1 061.8	6.0

Source: Mathieson and Roldos (2001).

foreign-controlled banks (defined here as banks that are at least 50 per cent foreign-owned). Since 1999 there have been further large increases in foreign ownership, for example in Mexico. The most dramatic increase in foreign penetration has been in Central Europe, where the share of banking assets controlled by foreign-owned institutions rose from 9.9 per cent in 1994 to 52.3 per cent in 1999. During the same period the foreign penetration of the Latin American banking system rose from 9 per cent to 25 per cent. Foreign entry to Asia was more limited, with external ownership rising from only 1 per cent of assets in 1994 to 6 per cent in 1999.

The relatively small increase in foreign ownership of the Asian banking system suggests that it would be dangerous to overemphasize the idea that banks have simply substituted local exposure for cross-border exposure. Clearly, banks taking repayments of short-term loans to Asian borrowers have not simply channelled those payments into the purchase of Asian banks, so the idea that banks have been engaging in some redistribution of their portfolios must be understood in an aggregate sense.

Foreign ownership of developing countries' banking systems is evident not just from the perspective of the share of assets owned by foreign institutions but also from the perspective of the lenders themselves. Table 5.5 looks at the change in banks' cross-border lending between 1995 and September 2001 and compares this with the change in foreign banks' onshore lending in local currency during the same period. It shows that BIS-reporting banks' onshore local currency lending rose from a total of US$123.9 billion in 1995 to US$490.7 billion in September 2001. Not only did banks' local lending increase in absolute terms, but it also increased substantially as a share of banks' overall emerging-market portfolios. In total, foreign banks' local

Table 5.5 Banks' in-country lending versus cross-border lending, 1995 and 2001 (US$ billion)

	Cross-border exposure	*Local exposure in local currencies*	*Total exposure*	*Local exposure as a share of the total (%)*
Total emerging markets				
December 1995	868.7	123.9	992.6	12
September 2001	874.5	490.7	1 365.2	36
Asia				
December 1995	373.3	56.5	429.8	13
September 2001	273.3	118.9	392.2	30
Latin America				
December 1995	247.1	33.9	281.0	12
September 2001	294.0	269.0	563.1	48

Source: BIS.

lending in local currencies in developing countries rose from 12 per cent of their total exposure in 1995 to 36 per cent in September 2001. This phenomenon confirms a point made by Peek and Rosengreen (2000: 57): 'As foreign banks get established with brick and mortar operations, an increasing share of the lending moves from offshore to onshore.'

Of course one must bear in mind that when an international bank takes ownership of a stock of onshore loans in a developing country, this is not equivalent to a flow through the balance of payments. In other words the increase in a bank's consolidated balance sheet that results from an acquisition of a loan book may or may not result in a capital inflow. This depends entirely on the cost to the bank of acquiring the equity in the local institution. This point is crucial to any discussion of the benefits that a foreign bank brings to a developing country's financial system, since banks' FDI flows into developing countries clearly are not replacing their cross-border flows of lending. The best way to think about the idea of 'replacement' is as a stock of onshore loans replacing a stock of cross-border loans.

It is also worth bearing in mind that there is some connection between banks' withdrawal from short-term cross-border lending in the late 1990s and their increasing penetration of developing countries' financial systems. The connection arises, of course, because the crises associated with the failure to roll over short-term cross-border loans – those in Mexico, Asia, Russia, Brazil and Turkey – have had the effect of substantially reducing the entry cost for foreign banks. This reduction has been achieved not only through the effects of currency devaluation, but also because the crises have led to an erosion of the net worth of developing countries' financial systems. The reduction in entry cost may partially explain the reason for the 'redistribution' of banks' emerging-market portfolios towards local currency lending and away from cross-border short-term lending.

Another incentive for 'crossing the border' is that the capital required to support a given stock of onshore lending in a developing country may be smaller than that required to support cross-border lending. The reason for this is the provisioning regime that banks face in their cross-border lending (or their in-country lending in foreign currencies). If cross-border lending to a particular country requires provisions to compensate for the risk of exchange controls, this 'tax' on cross-border lending is avoidable if banks book assets in local currencies onshore.

The question that arises from all this is whether the process of balance sheet redistribution that seems to have taken place over the past few years has had any identifiable impact on (1) developing countries' vulnerability to financial crisis, or (2) the severity of financial crises in developing countries when they do occur. This question is important since both the probability of a crisis and the severity of a crisis in a particular developing country are universally thought to be positively correlated with the fragility of the domestic banking system in that country. Indeed while an overhang of

short-term debt might have been the best single predictor of currency crisis in developing countries over the past few years, financial system weakness is usually high on the list of indicators of vulnerability to crisis. This is true to the extent that a poorly regulated and poorly managed financial system will have relatively few ways of exercising discipline over the structure of banks' balance sheets, which can in turn leave them burdened by the two balance sheet mismatches that have proved so painful in recent crises, namely a currency mismatch (foreign currency liabilities used to finance local currency assets) and a maturity mismatch (short-term liabilities used to finance longer-term assets). The latter mismatch was particularly evident in the recent Turkish crisis, and certainly contributed to the unsustainability of the exchange rate regime.

In addition to this, fragile banking systems are also thought to bear responsibility for perpetuating crises since (1) the weaker the financial system the greater the public sector resources needed to recapitalize the system in the aftermath of the crisis, and (2) the weaker the financial system the less able it will be to help the post-crisis recovery, since capital flight will be maximized and intermediation minimized.

So if it can be shown that foreign ownership helps to make financial crises either less probable or less severe, the process of 'crossing the border' ought to bring long-term benefits to developing countries. How, then, can we show that foreign ownership can help?

First consider the case that foreign ownership makes crises less severe.[2] Foreign ownership can help to diversify the capital base of a country's banking system, improve the pricing of risk, and improve regulation, accounting, information technology and the level of transparency. The value of these benefits in making a crisis less severe is that they can help to create a situation in which foreign-owned banks continue to lend in an economic downturn, primarily because foreign-owned institutions have a more diversified funding base. As Goldberg *et al.* (2000: 6) put it: 'If domestically-owned banks rely more heavily on local demand deposits and cyclically-sensitive sources of funds, basic aggregate demand shocks should generally lead to more volatile lending by private domestic banks than from their foreign-owned counterparts.' Indeed Goldberg *et al.* show that in the mid 1990s foreign-owned banks in Argentina and Mexico had higher rates of loan growth with lower volatility than domestically owned banks, both private and state-owned. At the least this suggests that the presence of foreign-owned banks can make developing countries' financial crises less severe than they would otherwise be.

Could foreign ownership of a developing country's banking system make a crisis less probable? There are two ways in which this might happen. The first is that a better capitalized and better regarded banking system could lead to an increase in the amount of a country's savings held in the financial system, rather than under the mattress. If foreign ownership of a banking

system reduces the proportion of savings held as 'mattress cash', then foreign ownership could be thought of as reducing the probability of crisis since the economy's reliance on foreign savings will have been reduced. A second way in which foreign ownership might reduce the probability of crisis is by providing a mechanism for depositors to engage in what might be called 'internal capital flight'. In a financial system where there is no foreign ownership, depositors who fear both currency risk and country risk have no choice but to liquidate their deposits and remit dollars offshore: pure capital flight. By contrast in a financial system where foreign ownership exists, a foreign-owned bank is likely to support its depositors even during a 'country risk event'. This is a version of the 'deep pocket' argument, which suggests that subsidiaries are capable of being recapitalized even at a time of serious deterioration in country risk, on the grounds that a foreign-owned institution risks its reputation if it lets a foreign subsidiary fail. What this means is that the liabilities of a foreign-owned bank in a developing country can be thought to bear less country risk than the country itself. If this is the case, capital flight will be minimized in an economy with foreign-owned banks. This in turn ought to reduce the probability of crises in emerging markets.

Yet all this clearly fails to describe what happened in Argentina, where a persistent flight of depositors from the substantially foreign-owned banking system ultimately forced the government to devalue the exchange rate, default on its public debt and impose draconian restrictions on the public's access to deposits in an effort to preserve what remained of the central bank's foreign exchange reserves. On the face of it the failure of the Argentinean financial system to prevent the crisis suggests that developing countries may gain little from encouraging a foreign presence in their domestic financial systems. It may also mean that the attractiveness of 'crossing the border' will diminish for banks, since Argentina has shown that there may be little to gain from substituting cross-border exposure for onshore exposure. It is still far too early to draw conclusions from the Argentinean experience. The two critical but unanswerable questions are (1) would Argentina's financial crisis have happened more quickly if the financial system had not been substantially foreign-owned, and (2) would the crisis have been more severe?

Conclusion

Although banks have without question been the largest net taker of cross-border funds from developing countries since 1997, this has primarily been due to the net repayment of short-term loans by Asian borrowers, who have also substantially increased their asset positions in BIS-reporting banks. Yet the fall in banks' net cross-border exposure has to be explained alongside another phenomenon: the very large increase in foreign penetration of emerging markets' banking systems. This chapter has argued that these two

phenomena – cross-border 'revulsion' and the large growth in onshore exposure – are connected to each other. In effect the process of 'crossing the border' constitutes a redistribution of banks' emerging-market portfolios. Moreover the very process of crossing the border may be thought of as reducing the risk of financial crises in developing countries, although the case of Argentina strongly suggests that having a foreign-owned banking system provides no guarantees against crisis.

Notes

1. See Calvo and Reinhart (2000).
2. Probably the best statement on the pros and cons of foreign ownership in a developing country banking system is that in the paper by Golderg *et al.* (2000).

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6

Derivatives, the Shape of International Capital Flows and the Virtues of Prudential Regulation

Randall Dodd

Introduction

As matter of policy, capital markets in many parts of the developing world were 'liberalized' during the 1990s in order to open up the markets to greater flows and a wider array of capital vehicles.[1] This policy succeeded, and private capital flows to developing countries both increased and increasingly took the form of securities such as stocks and bonds (Tables 6.1 and 6.2). Even part of the growth in direct foreign investment took the form of purchases of equity securities.

This transformation in developing country capital markets had the effect of broadening the class of global investors. Whereas investors in the prior period were primarily banks (through syndicated loans) and multinational corporations (direct investment), the securitization brought in individual investors and professionally managed funds by institutional investors, pension funds, insurance companies, university endowments and foundations. This contributed to the increase in the overall flow of capital to developing countries.

The increased flows of securitized capital brought forth the new threat of their rapid reversal; they also introduced or increased the exposure of developing countries' financial markets to greater volatility of securities prices in other developing countries as well as those in advanced capital market countries.

Along with this transformation of capital flows to developing countries and the associated new market risks came a new set of parallel financial transactions. These financial transactions, though less well understood, are integral to modern financial markets and are just as important in their potential to contribute to financial sector instability. These 'shadow' transactions include derivatives,[2] repurchase agreements and securities lending. The term 'shadow' should not necessarily be interpreted as nefarious or

devious. Rather it reflects the fact that these transactions are often built upon, or are cast like a shadow, by capital flows. Moreover such transactions are far less transparent.

Shadow transactions often function to hedge or manage the risks associated with capital flows. However in some cases they also serve to facilitate unproductive activities, including tax avoidance, the manipulation of accounting and reporting rules and the outflanking of prudential regulations. When used to dodge financial market regulations designed to add safety and soundness to the markets and assure their transparency, then these unproductive activities are a source of market instability and reduce the efficiency of market pricing. In addition the use of derivatives, even when they are used by foreign and domestic enterprises for hedging, can contribute to downward pressure on emerging market currencies as investors rush to hedge their currency exposure in anticipation of a financial crisis or to meet collateral requirements once currency and asset prices begin to fall. Although there are no precise figures on the magnitude of these transactions, this does not mean that the subject is not important, and it should be explored in order to understand how such transactions can contribute to a financial crisis.

The new developments in financial transactions in developing countries require new regulatory and supervisory efforts to ensure that they will contribute to the improvement of living standards and will not result in less stable financial systems and greater economic vulnerability. This chapter focuses on derivatives and leaves repurchase agreements and securities lending transactions for another time.[3] It analyzes how derivatives are related to capital flows and how they introduce additional concerns for market stability. This includes an analysis of policies designed to stabilize developing countries financial markets, and of financial regulations in industrialized countries and how they might be adapted to the circumstances in developing countries and applied to reduce volatility and mitigate the impact of financial sector disruptions on the overall economy.

Transforming capital flows

The traditional status of banking as the fount for new capital was somewhat diminished by capital market liberalization, which resulted in the emergence of modern capital markets in developing countries.[4] Whereas new capital was once raised within the firm or from the banking sector, the new arrangement allowed capital to be raised through the issue of stocks and bonds.[5] This securitization of new capital proved to be more efficient in several important ways and soon surpassed bank lending as the predominant source for new capital formation and sovereign borrowing.[6]

In the traditional model of raising new capital from lending, banks mobilized savings and collected pools of idle liquidity in the payments and

settlements system and turned them into loanable funds for new investments. Banks traditionally held loans on their balance sheet as assets, and this formed the basis for ongoing relationships that promoted greater information sharing and trust. Another beneficial feature of bank lending was that banks could more easily restructure the debt of a borrower because the bank – or a number of banks in a syndicate – held all of the debt.

Traditionally, bank profits were earned through maturity conversion. Banks accepted short-term deposits, on which they paid short-term interest rates, and then transformed the funds into longer-term loans on which they earned higher, long-term interest rates. These earnings depended on the steepness of the yield curve and how far the bank was willing and able to move along the curve. Banks often avoided this interest rate risk by issuing loans of medium- to long-term maturity whose interest rate was frequently adjusted according to a short-term interest rate over the life of the loan. This enabled them to match the costs of their deposits to the earnings on their loans while avoiding the market risk of interest rate fluctuations.

Traditional banking had some significant shortcomings. The loans on the portfolio were illiquid, and all but the very largest banks found it difficult to introduce geographic and sectoral diversification into their loan portfolio. On a macroeconomic level, capital formation in the form of bank lending meant that investment decisions were controlled by a small number of bank executives and managers and not through the interaction of a large number of anonymous market participants, as in securities markets. Another shortcoming on the macroeconomic level was that bank loans did not generate market prices for the investment assets – that is, there was no price discovery process, as found in stock and bond markets.

Innovation and technological developments in advanced capital markets established a precedent and helped to promote capital market liberalization in developing countries. The modernization of the advanced financial markets had a profound effect on the shape of capital flows to the developing world during the 1990s. During the 1970s and 1980s these flows were primarily in the form of syndicated, variable rate, foreign bank loans. Large money-centre banks recycled petrodollars by underwriting syndicated bank loans to developing countries that were struggling to pay for oil imports and were eager for new net capital inflows. The loans were mostly adjustable rate and denominated in US dollars or some other major currency.[7]

This created a distribution of risk that was not balanced between borrower and lender. The borrower carried both the exchange rate risk and the interest rate risk. The lender faced credit risk, but this was minimized by restricting credit to sovereign entities and through the use of cross-default clauses.[8] The lender also reduced credit risk through diversification and the loan syndication process. When interest rate and exchange rate movements went against the borrower its debt position deteriorated so badly that it was unable properly to service its foreign currency bank loans. This failure was

transformed into increased credit exposure to the lender. Painful debt negotiations followed and led to debt rescheduling combined with new lending. This approach was acknowledged to be a failure at the end of the 1980s and a new round of debt rescheduling commenced. This combined some debt forgiveness with new collateralized lending known as Brady bonds. In the end, both the international lenders and the developing country borrowers suffered; the 10 years of debt overhang in Latin America, beginning in 1982, has come to be called 'the lost decade'.

Capital flows began to change in the late 1980s and early 1990s. Table 6.1 shows the great transformation that occurred in capital flows to developing countries. As a percentage of total capital flows, bank lending fell from nearly 64 per cent in 1973–81 to almost 12 per cent in 1990–97, while capital flows in the form of stocks rose from 0.3 per cent to 16.4 percent. The use of bonds as a development finance vehicle rose from 3.5 percent to 15.2 per cent over the same period. This not only elevated the status of the East Asian bond market but also established East Asian equity markets as platforms on which to raise capital and destinations in which to locate the portfolio investments of high net wealth individuals as well as institutional investments (Dalla and Khatkate, 1996).

Two of the key indicators of financial market deepening and sophistication is the number of firms listed on the stock markets and the size of market capitalization. As can be seen in Table 6.2, these key indicators grew rapidly between 1990 and 1999. In Table 6.1 the percentages measure the proportion of total capital flows, and the sum of the percentages equals the share of private flows. Private capital flows accounted for 84.5 per cent of flows in the earlier period, while the capital market liberalization policies of the 1990s resulted in 93.6 per cent of capital flows being from private sources in the later period. Table 6.3 shows the flows to developing countries during the 1990s.

The result of the transformation was not just greater flows and greater volatility of flows and asset prices; it was also a redistribution of risk between

Table 6.1 Private capital flows to developing countries, 1973–81 and 1990–97 (percentage of total official and private flows)*

Type of flow	*1973–81*	*1990–97*
Bonds	3.5	15.2
Bank lending	63.9	11.7
Foreign direct investment	16.8	50.3
Portfolio equity	0.3	16.4

* Figures are calculated as percentage of total flows and therefore private flows do not add up to 100 per cent.
Source: World Bank (2000: 126).

Table 6.2 Maturation of East Asian stock markets, 1990–99

	Number of listed companies		*Capitalization (US$ million)*	
	1990	*1999*	*1990*	*1999*
Indonesia	125	277	8 081	64 067
Korea	669	725	110 594	308 534
Malaysia	282	757	48 611	145 445
Philippines	153	226	5 927	48 105
Singapore	150	355	34 308	198 407
Thailand	214	392	23 896	58 365
Total	1 593	2 732 (+72%)	231 417	822 923 (+256%)

Source: World Bank (2001).

investors in advanced capital markets and capital recipients in developing countries. This more diversified flow of foreign capital (diversified in the sense that various capital vehicles were used to channel the capital flows) generated a different distribution of market and credit risks. Compared with the bank loans of the 1970s and early 1980s, this more diversified flow of capital tended to distribute risk towards investors in the advanced capital market economies. Stocks or equity shares shifted price risk, exchange rate risk and credit risk to foreign investors. Local currency bonds shifted price, interest rate risk, exchange rate risk and credit risk to foreign investors. Even major-currency-denominated bonds issued by developing-country borrowers shifted interest rate risk, as well as credit risk, to foreign investors. Direct foreign investment in physical capital – whether equipment, plant or real estate – similarly shifted price and exchange rate risks and credit risk to foreign investors. The combined effect was potentially to reduce the developing economies' exposure to the market risk.[9]

Growth of shadow transactions

Overview

Derivative trading grew up alongside these new forms of capital flow as part of an effort to improve the management of the risks of global investing. Derivatives allowed risk to be shifted away from investors who did not want it and towards those who were more willing and able to bear it. At the same time, however, derivatives created new risks that were potentially destabilizing for developing economies. The following is an analysis of how derivatives played a constructive role in channelling capital from advanced capital markets to developing economies, and how at the same time they played a potentially destructive role in laying the foundations of the subsequent

Table 6.3 Net long-term flows to developing countries, 1990–98 (US$ billion)

	1990	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
Official	55.9	62.3	54.0	53.4	45.9	53.9	31.0	39.9	50.6	52.0
Private (total)	42.6	61.6	99.8	165.8	174.5	203.3	282.1	304.0	267.7	238.7
Bank loans	3.2	5.0	16.4	3.5	8.8	30.4	37.5	51.6	44.6	−11.4
Bond	1.2	10.9	11.1	36.6	38.2	30.8	62.4	48.9	39.7	25.0
Other debt	11.3	2.8	10.7	8.7	3.5	1.0	2.2	3.0	−3.1	5.5
Equity-portfolio	2.8	7.6	14.1	51.0	35.2	36.1	49.2	30.2	15.6	27.6
DFI	24.1	35.3	47.5	66.0	88.8	105.0	130.8	170.3	170.9	192.0
Total	98.5	123.9	153.8	219.2	220.4	257.2	313.1	343.9	318.3	290.7
Private (%)										
Bank loans	7.5	8.1	16.4	2.1	5.0	15.0	13.3	17.0	16.7	−4.8
Bond	2.8	17.7	11.1	22.1	21.9	15.2	22.1	16.1	14.8	10.5
Other debt	26.5	4.5	10.7	5.2	2.0	0.5	0.8	1.0	−1.2	2.3
Equity-portfolio	6.6	12.3	14.1	30.8	20.2	17.8	17.4	9.9	5.8	11.6
DFI	56.6	57.3	47.6	39.8	50.9	51.6	46.4	56.0	63.8	80.4

Source: World Bank (2001).

crisis. These capital instruments, their associated risks and the associated derivatives used to manage the risks are listed in Table 6.4.

Derivatives facilitate capital flows by unbundling risk into its component parts and then more efficiently redistributing the various sources of risk associated with each capital instrument, including bank loans, equities, bonds and direct foreign investment. Foreign currency loans expose the foreign investor to credit risk and the domestic borrower to exchange rate risk; a fixed interest rate loan exposes the foreign lender to interest rate risk and

Table 6.4 Capital instruments, their associated risks and the derivatives used to manage the risks

Capital instrument	*Risk exposure*	*Derivative, or risk management*
Bank loans[1]		
Investor	Creditworthiness	Credit derivatives, cross-default clause or diversification
Developing country	Interest rate	Interest rate swap
	Foreign exchange	Foreign exchange forward, swap or option
	Liquidity	Line of credit (embedded option)
Carry trade	Foreign exchange	TRS (total return swap)
Bonds[2]		
Major currency bond		
Investor	Interest rate	Interest rate swap or future
	Creditworthiness	Diversification
	Price	TRS
Developing country	Foreign exchange	Foreign exchange forward, swap or option
Local currency bond		
Investor	Foreign exchange	Foreign exchange forward or swap
	Interest rate	Interest rate swap
Developing country	n.a.	
Equity		
Portfolio/DFI		
Investor	Foreign exchange	Foreign exchange forward, swap or option
	Price	TRS, equity futures and options
Developing country	n.a.	
FDI (non-securitized)		
Investor	Foreign exchange	Foreign exchange forward, swap or option
Developing country	n.a.	

Notes:
1 Bank loans are presumed to be denominated in a major currency (for example US dollars), at variable (floating) interest rates and underwritten by a syndicate of banks.
2 Bond refers to conventional notes and bonds, floating rate notes and structured notes.
Source: Author's own analysis.

a variable rate loan exposes the domestic borrower to interest rate risk; and a long-term loan exposes the foreign lender to greater credit risk and a short-term loan exposes the domestic borrower to refunding risk (sometimes called liquidity risk). Equities expose the foreign investor to credit risk along with the market risk from changes in the exchange rate, market price of the stock and the uncertain dividend payments. Notes and bonds expose the foreign investor to credit risk and market interest rate risk, and hard currency bonds expose the domestic borrower to exchange rate risk. The financial innovation of introducing derivatives to capital markets allows these traditional arrangements of risk to be redesigned in order better to meet the desired risk profiles of the issuers and holders of these capital instruments.

While the risk-shifting function of derivatives serves the useful role of hedging and thereby facilitating capital flows, the increased use of derivatives raises concern about the stability of the economy as a whole. The use of derivatives can lead to less transparency between counterparties and between regulators and market participants. They can be used for unproductive activities such as avoiding prudential regulations, manipulating accounting rules and credit ratings, and evading tax. They can also be used to raise the level of market risk exposure relative to capital in the pursuit of higher yielding – and higher risk – investment strategies.

The greater the market exposure – possibly created by open positions in derivative contracts – the greater the impact of a change in the exchange rate or other market price on the financial sector and economy as a whole. In this context the use of derivatives to reduce the amount of capital relative to the amount of risk-taking activities reduces the ability of capital to serve as a buffer against market turbulence and to serve as a governor on total risk taking. This increases the likelihood of systemic failure and heightens doubts about the stability of the financial sector and the economy as a whole.

Analysis of transactions

The remainder of this section is organized as follows. The risk characteristics of each type of capital instrument is analyzed, together with the types of derivative that are likely to be used in conjunction with that instrument. Next, each of the relevant derivatives is briefly described before joining the two discussions to show how the capital instruments and derivatives are used together or as substitutes.

Foreign exchange forward

A foreign exchange forward is a contract in which counterparties agree to exchange specified amounts of foreign currencies at a specified exchange rate on a specified future date (Figure 6.1). The forward exchange rate is the price at which the counterparties will exchange currency on the future expiration date. The forward rate is negotiated so that the present value of the forward contract is zero at the time it is traded; this is referred to as trading at par or

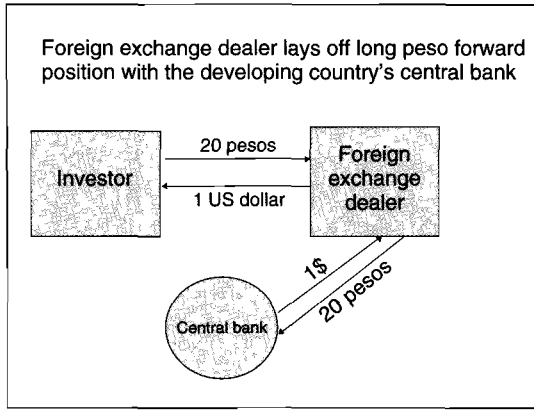

Figure 6.1 Foreign exchange forward

'at the market'. As a result no money need be paid at the commencement of the contract, although the counterparties may agree to post collateral in order to ensure each other's adherence to the contract.

Foreign exchange swap

A foreign exchange swap is simply the combining of a spot and a forward transaction (or possibly two forwards). The starting leg of the swap usually consists of a spot foreign exchange transaction at the current spot exchange rate, and the closing leg consists of a second foreign exchange transaction at the contracted forward rate. For example, a local investor enters a foreign exchange swap of pesos against dollars in which the investor buys US$100 000 today at an exchange rate of US$0.05 per peso (thus paying 2 000 000 pesos), and contracts to sell US$100 000 (that is, buy pesos) at US$0.0475 in 180 days. The local investor receives US$100 000 in the starting leg, and then upon the swap expiration date pays US$100 000 in exchange for receiving 2 105 263 pesos in the closing leg. This 10.8 per cent annual rate of return in pesos is due to the depreciation of the peso against the dollar (or appreciation of the dollar against the peso), and it reflects the presumed fact that the peso rate of return from investing in peso-denominated assets is higher than the US dollar rate of return.

Foreign exchange forwards and swaps are used by both foreign and domestic investors to hedge foreign exchange risk. Foreign investors from advanced capital markets who purchase securities denominated in local currencies use foreign exchange forwards and swaps to hedge their long local currency exposure. Similarly foreign direct investments in physical real estate, plant or equipment are exposed to the risk of local currency depreciation. Local developing-country investors who borrow in major currencies

in order to invest in local currency assets are also exposed to foreign exchange risk, and they too use foreign exchange forwards and swaps – as well as futures and options when available – to manage their risks.

Of course foreign exchange forwards and swaps are also used for speculation in these local currencies. Derivatives enable speculators to leverage their capital in order to take larger positions in the value of local currencies. This in turn means that developing-country central banks must watch the exchange rate in two markets, the spot and forward, in order to maintain their fixed exchange rates.

Forwards and foreign exchange swaps are not always highly collateralized (market exposure measured as a percentage of the principal). Collateral is less likely to be used for trading between the major market dealers, and collateral is usually lower for less volatile financial instruments such as foreign currency.[10] This enables foreign-exchange derivative users to obtain greater amounts of currency exposure relative to capital, and therefore it can leave foreign-exchange derivative counterparties exposed to greater credit risk. The largest credit losses in the derivatives markets in recent years were due to defaults on foreign currency forwards in East Asia and Russia.[11]

Foreign exchange forwards and swaps – capital outflow problems

In addition to the above dangers of using foreign exchange derivatives, there is an additional problem with reverse capital flows. This arises from the need of derivative dealers to create both long and short positions in developing-country currencies in order to make a market in derivatives.

Every derivative contract involves a short and a long position. The party buying pesos in exchange for US dollars in the forward market is long in pesos (and short in dollars), while the counterparty is short in pesos. In the market for peso forwards and swaps there is likely to be one or more dealers. A dealer makes a market by quoting bid and offer (ask)[12] prices and then standing behind them. Ideally the dealer faces a market that is full of participants who are willing to buy and sell in equal amounts. In this case the dealer reacts to investors hitting his bid (selling pesos for dollars forward to the dealer) by trying to lay off the long peso exposure by selling pesos to other participants in the market (those who are lifting the dealer's offer). However it is likely that a dealer in developing-country foreign-exchange derivatives will often face a one-sided or imbalanced market in which most participants want to be short in the local currency.[13] This means that it is often difficult or expensive for dealers to lay off their long positions by selling short to others in the forward or other derivatives markets. As a result, either the forward rate must rise (or fall) sufficiently to compensate the dealer and other risk takers for holding greater amounts of risk, or the dealer must find other, cheaper means to lay off the risk.

One alternative method used by dealers in the face of an imbalanced market is to create a synthetic forward or swap contract through the use of the local credit markets. In order to create a synthetic short forward peso

position against the dollar, the dealer borrows in the local peso credit market (thus creating a peso liability), uses the loan proceeds to buy dollars spot and then invests the dollars (thus obtaining a dollar asset). Ideally the maturity of the forward, peso loan and dollar investment will match. The product of these three transactions gives the dealer a specified amount of dollars in futures (the loan repayment) that can be sold for pesos at a specified exchange rate in settling the forward contract, the proceeds from which will repay the peso loan and leave the dealer with a profit. In this manner the dealer can continue to quote bid and offer prices without holding market risk.

Note that in the process of creating a synthetic short forward position to make a market in foreign exchange derivatives, the dealer has generated a capital outflow by borrowing at home and lending abroad in the dollar market. Thus in the context of imbalanced markets, where more participants are willing to hold short rather than long positions, hedging can generate capital outflows. If a foreign investor trades a foreign exchange forward or swap in order to hedge an investment in a local-currency security or direct investment, then the derivatives market will potentially generate a capital outflow equal to the size of the hedge. If the foreign investor wishes to hedge the full value of the invested principle, then the hedging process can potentially neutralize or net-out the capital inflow. Of course the flow is again reversed and returns to the developing country when the dealer's loan matures and he or she uses the dollar proceeds to unwind his or her synthetic forward position.[14]

There is an additional concern with foreign exchange swaps and their effect on capital flows. Note that the cash flows from such a swap resemble the cash flow from a short-term foreign currency loan (see example above). Dollars are received today and are repaid in the future, and the 'loan' cost is paid in pesos based on the dollar and peso interest rates. In recognition of this, Malaysia prohibited foreign exchange swaps as part of its effort to impede capital inflows prior to the 1997 financial crisis.

Interest rate swap

The basic interest rate swap, called the vanilla interest rate swap, is an agreement between two parties to exchange the net of two series of payments. One series of payments is based on a fixed interest rate applied to a notional principal, such as 6 per cent on US$1 million, and the other series of payments is based on a floating rate, such as a 3-month LIBOR (London interbank offered rate), applied to the same notional principal. In order to simplify payments and other clearing issues, most swap contracts allow the two parties to pay (or receive) only the net or the difference between these two series on each payment or 'drop' date. Borrowers with variable interest rate loans can hedge their interest rate risk with a swap in which they receive the floating rate and pay the fixed rate (that is, buy a swap), and thereby swap their floating rate payments for fixed rate payments.

Total return swap

A total return swap (TRS) is a contract in which at least one series of payments is based on the total rate of return (the change in market price plus interest or dividend payments) on some underlying asset, security or security index. The other leg of the swap is typically based on a variable interest rate such as the LIBOR, but may be a fixed rate or the total rate of return on some other financial instrument. Based on what is known about the precrisis situations in Mexico and East Asia, TRSs in those situations usually consisted of swapping the LIBOR against the total rate of return on a government security.

A TRS replicates the position of borrowing at the LIBOR in order to finance the holding of a security. The returns are the same, but unlike an actual cash market transaction, it does not involve ownership or debt. Instead the only capital involved in a TRS is the posting of collateral. In addition to the reduction in the need to commit capital to the transaction, a TRS also has no impact on a firm's balance sheet and is not likely to be subject to regulatory restrictions on foreign exchange exposure.[15] In short, TRSs allow financial institutions and investors to raise their risks and potential returns, relative to capital.

One of the troublesome uses of TRSs is to capture the gains from the carry trade or carry business. A profitable carry trade exists when exchange rates are fixed and interest rate differentials persist between two economies. Then it is possible to borrow in the low interest rate currency and lend in the high interest rate currency with no risk other than that of a failure in the fixed exchange rate regime.

The use of a TRS alters the form, but not necessarily the quantity, of capital flows to developing countries. Alternatively, when developing-country financial institutions engage in the carry business, the capital flows are in the form of major-currency (usually short-term) bank loans. When they pursue the same profit opportunities by using a TRS, this generates indirect capital flows as the TRS counterparties, usually dealers from advanced capital markets, buy the underlying asset as a hedge against their side of the TRS.

Consider the dealer's side of the transaction. The dealer contracts to receive the LIBOR plus a spread in exchange for paying the total return on a local currency security. The dealer does not intend to profit by investing in the expectation that the LIBOR will rise or that the total return on the security will fall. Instead the dealer lays off the risk by borrowing at the LIBOR and using the proceeds to buy the local currency security. The dealer then passes-through in the regular swap payment the proceeds from holding the local security, while the dealer's cost of borrowing to buy the security is covered by the receipt of LIBOR payments. The spread above the LIBOR paid to the dealer is the dealer's profit, and the dealer ends up holding no market risk.[16]

Note that in the process of hedging the dealer's position in the TRS there is a capital inflow to the developing country because the advanced capital market dealer has purchased local currency security. Normally a flow of capital in the form of local currency securities will shift the exchange rate risk to the advanced capital markets, but not in this case. Instead it functions in conjunction with the TRS to leave the local developing-country investor holding the foreign exchange risk (the short dollar position), much like a major currency bank loan.

On the one hand the use of a TRS results in a similar foreign exchange exposure to that described before. However in some ways it is far worse. In comparison with using foreign bank loans to capture profit from the carry trade, the use of a TRS causes an even greater surge in cross-border flows than do short-term bank loans. The surge originates from the collateral requirements for the swap. If the present value of the swap suddenly drops as a result of a rise in local interest rates or a drop in the value of the currency, or both, then the local swap holder is required to post additional collateral with the swap counterparty. Generally this means selling other assets, often other developing-country assets, in order to obtain dollars to meet the requirement to post additional collateral by the next day – if not later the same day. Thus TRSs can result in large and immediate major currency outflows. If short-term bank loans are considered hot money, then payments to meet margin and collateral requirements are microwave money – they become hot more quickly.

As an indication of the potential magnitude of these collateral outflows, Garber and Lall (1996) cite the IMF and 'industry sources', which reported that Mexican banks held US$16 billion in tesobonos total return swaps at the time of the devaluation of the Mexican peso. The authors calculated that the initial peso devaluation depressed the value of tesobonos by 15 per cent, and that this would have required the delivery of US$2.4 billion in collateral the next day. This would explain about half of the US$5 billion of foreign reserves lost by the Mexican central bank the day after devaluation. In this way, collateral or margin calls on derivatives can accelerate the pace of a financial crisis, and the greater leverage that derivatives provide can also multiply the size of the losses and thereby deepen the crisis.

The use of TRSs also increases the likelihood of contagion. They often involve cross-currency assets and payments and are therefore more likely to transfer disruptions from one market to another. Neftci (1998) claims that one reason why Korean banks engaged in so many Indonesian TRSs was that they were seeking higher rates of return in response to a rise in their funding costs. 'But, note that at the end of this process, Korean banks are being exposed to Indonesian credit. This, however, is not visible on their balance sheets. This situation not only creates the possibility for contagion, but may also make the contagion unpredictable and severe' (ibid.).

Structured notes

Structured notes, also known as hybrid instruments, are a combination of a credit market instrument, such as a bond or note, with a derivative, such as an option or futures-like contract. Hybrid instruments include such conventional securities as convertible stocks, convertible bonds and callable bonds. These have long been among the set of traditional securities regularly issued and traded in US financial markets.

Structured notes were part of the new wave of innovation in capital flows to developing countries in the 1990s. They offered issuers and investors either better yields than similarly rated securities, or better combinations or bundles of risk characteristics. In some cases structured notes were designed to circumvent accounting rules or government regulations and thus allow lower capital charges, greater foreign exchange exposure or greater overall risk to capital.

The notes used in developing countries were usually structured so that their yield was linked to the value of one or more of the currencies or stock indices in the developing economies in question. The issuers of these structured notes were financial institutions from advanced capital market economies, and the investors were often developing-country financial institutions and investors who were more willing to hold their own exchange rate risk or that of their neighbouring developing countries.

Putable debt

The largest threat to financial market stability that did not directly involve foreign exchange exposure was the use of embedded derivatives, called 'put options', in loan and bond debt contracts. These put options on the debt principal enabled lenders to recall their principal in the event of economic trouble. The effect was to drain the developing country financial markets of liquidity at just the time it was most urgently needed.

It is not unusual for credit instruments to have attached options. Callable bonds are familiar financial instruments in advanced capital markets. They are a combination of a conventional bond and a call option that allows the issuer (that is, the borrower) to recall the principal on the bond at a specified value (usually par) after some future date. Callable bonds are used by borrowers to reduce the risk of being locked into higher than market rates of interest on their outstanding debt.

In the case of developing country debt, the attached options were usually puts rather than calls. This granted the lenders, not the borrowers, the right to reclaim their principal. Lenders in advanced capital markets attached put provisions to loans and bonds in order to reduce the risk that adverse macroeconomic conditions or other circumstances would reduce the ability of their borrowers to repay their debts. It also reduced their exposure to increases in dollar or other hard currency interest rates. Yet another motivation

involved outflanking tax and regulatory requirements because the putable loans could be treated like long-term debts even though they functioned like short-term ones.

These put options were in the form of 'hard' and 'soft' puts. Hard puts, usually attached to a note or bond, gave the lender the right to demand principal repayment after a certain date, for example a five-year note might be putable after one year. Soft puts, usually attached to loans, gave lenders the right to reschedule the terms of their credit if certain adverse events occurred. Table 6.5 shows the breakdown between loans and bonds in East Asia. Most of the 'hard' put options were closer to the European- than to the American-style option. In these cases option holders had the right to exercise the option only on specific days, or perhaps semiannually; in very few cases were the options exercisable on a continuous basis, as with American options.

Attached put options facilitated lending by lowering the costs to borrowers and ensuring that lenders would have lending alternatives in the event of adverse market disruptions. This putable debt instrument was used widely in the rapidly growing developing-country bond market. The IMF estimated in 1999, using public databases, that there were US$32 billion in debts putable through the end of 2000 for all emerging countries. Of the total, US$23 billion was from East Asian issuers and US$8 billion was from Brazil.

The presence of putable debt in lending to developing economies raises several policy concerns. First, the attached put lowers the borrowing costs and this in turn encourages more borrowing and lending. Second, the tax and regulatory treatment of putable debt often incorrectly treats it as long-term debt even though it functions like short-term debt. Third, it creates liquidity shortages in the event of a financial disruption, and it does so just at the time when liquidity is crucial for the successful functioning of the financial sector. In sum, putable debt tends to increase indebtedness and does so in a manner that exacerbates financial disruptions.

Table 6.5 Putable debt issued from East Asia (US$ million, due in 1999 or 2000)

	Loans	*Bonds*
Hong Kong	1 549	2 642
Indonesia	2 876	963
Korea	3 263	3 986
Malaysia	547	1 730
Philippines	75	–
Singapore	532	–
Thailand	1 680	1 313
Total	10 522	10 634

Source: IMF (1999).

Threats to currency stability: derivatives and fixed exchange rate regimes

The presence of derivatives markets poses a special set of challenges for governments with a fixed exchange rate regime. This is true whether it is a soft peg, a crawling peg or a hard peg. Developing-country governments pursue a fixed exchange rate policy in order to encourage trade and investment by lowering exchange rate risk. A fixed exchange rate can promote growth through the expansion of trade and foreign investment by making those economic decisions less uncertain and more dependable. This reduces the costs of the foreign exchange risk involved in importing capital and raw material, exporting goods and repaying foreign debts. Another way is to stop the acceleration of inflation by anchoring to external price levels.

Against this backdrop, the presence of exchange-rate-related derivatives raises several important problems that are expressed in the following questions:

- Of what use are foreign exchange forwards or swaps when the fixed exchange rate regime eliminates normal market price volatility? In other words, how and why can they be used if there is no market volatility to hedge?
- What purpose is served by the price discovery of the forward rate (discount or premium) and what signals does it send?
- How does it affect the ability of the central bank to maintain the fixed exchange rate?

The first problem is that in the absence of normal market price fluctuations, exchange rate derivatives function as a speculative or hedging instrument against the success of the government's policy. In a fixed exchange rate context, the only exchange rate movement that investors need to hedge against is a failure of the fixed rate regime that results in either a devaluation of the pegged exchange rate or complete abandonment of the regime. There is a much smaller risk that a developing country's currency will appreciate, and so the more relevant risk is a decline in its value. Using a forward, swap or option to take a potentially profitable position on a possible fall in the currency's value is practically a one-way bet. The future exchange rate determined in a forward or swap derivative market is not an expression of economic value but reflects the likelihood of government failure, or is a measure of the lack of confidence in the government's ability to maintain a fixed exchange rate. In short it is a political price or the price of a policy event.[17]

Derivative markets also provide leverage to speculators and 'players' who might mount an attack on the fixed exchange rate. This leverage in taking a position on the currency's value, whether using foreign exchange forwards,

swaps or options, lowers the cost of and therefore raises the potential gain from such an undertaking. Derivatives provide lower cost price exposure because of their higher leverage (which saves on the cost of capital), higher levels of liquidity (sometimes) and lower transaction costs. Thus the presence of derivative markets empowers those who are betting or plotting against the success of the government's macroeconomic policy.

Moreover, because it is a political price and practically a one-way bet, there are likely to be far more investors who want to be short – rather than long – in the local currency. In order to complete the market, foreign exchange derivatives dealers will have to create synthetic short positions (described above) in order to lay off their long-side risk. The result of this is a capital outflow, and as the short interest grows in the derivatives market the capital outflow will increase and thus contribute to self-fulfilling speculation against the currency.

The second problem is that in the presence of a fixed-rate system, the forward and swap market will create a market price (a process known as price discovery) that will reflect the lack of confidence in the government's exchange rate policy. That price will almost certainly indicate that the future value of the currency will be below the present pegged spot rate. If that price is misunderstood, then it will regularly send signals that the currency is going to move off of the peg.

The third problem concerns how the presence of forward and swap markets affects the central bank's ability to maintain a fixed exchange rate regime against downward pressure caused by a short-term imbalance or a large speculative attack. If there is only a spot market for foreign currency, then the central bank can defend its exchange rate peg by intervening directly in the spot market to buy its currency with foreign reserves, and by tightening the domestic credit conditions. Direct intervention can be effective, even though the foreign currency market is large, because the central bank's intervention is both a large net purchase within that market and because it sends a signal. Tightening credit consists of either raising interest rates – which will attract foreign capital inflows, discourage outflows and increase the cost of carrying synthetic short positions – or restricting the supply of credit (that is, imposing capital controls) to certain borrowers, such as foreigners or non-commercial firms.

The presence of one or more foreign-exchange derivative markets adds policy targets for the central bank. Moreover the derivative markets are in some ways more problematic as targets than the spot market. While the spot market is large, the potential size of the forward and swap market is infinite. If the central bank raises local interest rates, then the interest rate differential increases and serves as a larger basis for discounting the forward and swap rates. If the central bank intervenes directly, perhaps in an effort to avoid the forward market signalling a lack of confidence in the regime, then there is potentially no end to the effort. If the central bank's intervention

succeeds in supporting the forward or swap rate, this offers attackers a better price at which to sell the local currency in the future. If the central bank does not intervene, then the forward can continue to signal a devaluation and further growth in interest in the forward or swap market will spur capital outflows as derivative dealers construct synthetic short positions.

This is not to say that the situation becomes hopeless. In the face of a currency attack, the central bank can take the extra step of imposing capital controls that prohibit banks from delivering the local currency to foreign entities. This prevents foreign speculators from delivering on their forward contracts. This measure, taken together with an increase in interest rates, amounts to a bear squeeze. This strategy, as used in the case of Thailand in the spring of 1997, is described in Lall (1997) and Garber and Lall (1996).

Policy solutions

The following policy proposals consist of a set of financial market regulations that are designed to make financial markets more efficient and less susceptible to disruptions and distortions.[18] They should encourage the use of derivatives for risk management purposes while discouraging their use in unproductive pursuits that might create dangerous levels of exposure to market risk, as well as credit risk, or lead to reverse capital flows.

These prudential regulatory proposals are fundamentally of two types. The first relates to reporting and registration requirements and is designed to improve the transparency – and thus the pricing efficiency – of the markets. Reporting requirements also makes the government, and other market surveillance authorities, better able to detect and deter fraud and manipulation. Registration requirements are especially useful in preventing fraud.

The second type of prudential regulatory measures consists of capital and collateral (also known as margin) requirements. Capital requirements function to provide both a buffer against the vicissitudes of the market and a governor on the tendency of market competition to drive participants to seek high returns and thus higher risks.[19] Collateral requirements have basically the same effect, although they apply to transactions and not institutions. Hence non-financial institutions that would not otherwise be subject to capital requirements would be subject to collateral requirements on their derivative transactions.

Moreover the current market practice for managing collateral, insofar as there is one, is dangerous. It requires a firm to become 'super-margined' if its credit rating drops substantially (especially if it drops below investment grade). This requires a derivative counterparty to post a substantial amount of additional collateral, and amounts to a large demand for fresh capital at just the time when the firm is experiencing problems with inadequate capital. This market practice creates a 'crisis accelerator'.

The proposals offered here are divided into two groups. The first apply to financial institutions and markets in industrialized or developed countries. Developing countries' financial markets are not isolated from their counterparts in the advanced capital markets of developed countries, and this interconnectedness – especially through derivative markets – is very important. As one senior IMF official once remarked to the author in private, 'I have never seen one sin in developing-country financial markets that did not have as its counterparty someone from New York or London'.

The second set includes all the elements of the first plus some additional provisions for financial institutions and markets in developed countries. One merit of identifying useful regulatory improvements is that each developing country can adopt these prudential regulations on its own initiative. Another merit is that most of these regulations are the same or similar to ones used in industrialized countries and therefore should not be considered objectionable by the IMF or other actors in the international capital markets.

Developed countries: registration, reporting, transparency and liquidity

Reporting and registration requirements

- Require participants (counterparties) in derivative contracts to report their transactions to the designated regulatory authority.

All exchange-traded derivatives are currently reported to the exchange and its clearing house. The exchange house collects this information and either reports it to the regulator or keeps the records so that they can be called for in the future. Most over-the-counter (OTC) derivative transactions are traded through the ISDA Master Trading Agreement ('Master Agreement'), which requires the counterparties to derivatives trade to exchange confirmation messages to ensure that all the key terms are understood. The reporting requirement would entail them sending a copy of the email message or fax to the regulatory authority.

- Require derivative dealers to report their derivative transactions to the designated regulatory authority. The data should include price, volume, open interest, put–call volume and ratios, maturity, instrument, underlying item, amounts traded between other dealers and with end-users, and collateral arrangements.

This information would be compiled, and the non-proprietary data would be made available to the overall market in order to improve transparency. Once aggregated, this data would reveal the character of the market while protecting the details of dealers' market positions (assuming there are several dealers). Data of a proprietary nature would be retained by the regulator in order to detect and deter fraud, manipulation and potential systemic breaks in the markets.

- Require publicly traded corporations to make an explicit statement of their derivative activities. Amend the financial reporting rules to require that all regular financial reporting statements include the actual, underlying economic properties and business purposes of minority interests, special purpose entities and derivative transactions.

In order to bring off-balance sheet activities into the same light as balance sheets, derivatives would be reported by notional value (long and short), maturity, instrument and collateral arrangements. This would enable investors to determine whether a firm was under- or overhedged, and whether it was primarily acting as a producer or a wholesaler.

- Register all derivative dealers and brokers.

In the United States, banks, thrift and other depository institutions, securities brokers, securities dealers, futures and options brokers and insurance salespersons are required to register with their relevant regulatory authority. This establishes a minimum competence level for the individuals, background checks to detect fraud and theft convictions for salespeople and proper business organization for the institutions. Even though over-the-counter derivative markets are generally dealer markets, the regulations should also apply to brokers. Some electronic derivative trading platforms function like brokers, and unforeseeable changes in the markets may again elevate the role of brokers.

- Modernize accounting rules and other financial market regulations in order properly to account for embedded derivatives.

A large and growing amount of securities and loans have derivatives attached to or embedded in them. This has fundamentally altered the effectiveness of the existing rules for making capital charges against the risks associated with holding or issuing these securities, for financial reports on investments in these securities and even for regulations that might otherwise prohibit certain financial institutions, such as pension funds or insurance companies, from investing in these securities. Up-dated rules should reflect the market risk associated with the attached or embedded derivative and not merely the credit risk of the principal of the security.

Liquidity requirements

- In order to assure market liquidity, require OTC derivative dealers to act as market makers and maintain bid/ask quotes throughout the trading day.

Dealers benefit from their privileged role in the market. In addition to earning their bid/ask spread, dealers are also privy to the most recent changes in the market. Along with this privilege should come the responsibility of helping to maintain liquidity and an orderly market. US stock exchanges, such as the NYSE and NASDAQ, already require 'specialists' to act as dealers

or market makers throughout the trading day. Likewise in the OTC cash market for US Treasury securities, primary dealers are required to act as market makers throughout the trading day. Those markets have proven to be some of the most efficient and most liquid in the world, and so this supporting market rule has already proven its merit.

Antifraud and antimanipulation authority

- Strictly prohibit fraud on the market and the manipulation of market prices and make transgressions subject to civil and criminal penalties.

In order to protect the integrity of market prices so that they will encourage the widest possible market participation and will not send distorting signals throughout the economy, fraud and manipulation should be strictly prohibited and made punishable by civil and criminal law.

- Require reports of large traders' positions.

Derivative dealers and exchanges would have to report each entity that reaches a certain positional size in the market. This information would be compiled across markets in order to detect and deter market manipulation. Such large trader reporting data has proven very useful to the US Commodity Futures Trading Commission in terms of market surveillance.

- Extend the 'know thy customer' rule to all financial institutions that engage in lending, underwriting, repurchase agreement transactions and securities lending transactions, and to all derivative transactions with entities in developing countries.

This provision would discourage financial sharpsters from 'blowing up' their customers. For example, certain structured securities (for instance principal exchange-rate-linked notes, or PERLs) served no positive purpose for East Asian investors and were primarily a stealth vehicle for financial institutions in developed countries to acquire long-dated short positions in developing countries currencies.[20] This provision already exists in US securities markets and a comparable measure exists for US banking markets. It should be extended to derivative markets, where there is even greater concern with the large differences between market participants in respect of degree of financial sophistication.

Developed countries: capital and collateral requirements

Capital requirements

- Update the capital requirements for all financial institutions, including derivative dealers that might not otherwise be registered as financial institutions, so that the capital is held in an amount that is commensurate not only with the exposure to credit loss, but also with potential future exposure and the value at risk.

This provision is beginning to be applied in some financial spheres in developed countries, for example the US Securities and Exchange Commission has adopted it for derivative dealers registered under rules known as 'Broker-Dealer Lite'.

Capital serves two functions: it acts as a buffer when a firm suffers from an adverse event; and it limits the extent of a firm's risk-taking in that the capital requirement is structured to be proportional to risk exposure. Capital requirements are essential in preventing problems at one firm from becoming problems at other firms. This is especially important for dealers in financial markets because their failure can lead to market problems such as illiquidity (market freeze-up) or meltdown.

Collateral requirements

- Require adequate and appropriate collateral or margin to be posted and maintained on all derivative transactions.[21]

Collateral (margin) on transactions functions in the same way as capital does for financial institutions. It helps to prevent problems at one firm or with one transaction from causing performance problems for other transactions and other firms. In doing so it reduces the likelihood of default or other credit-related losses, and it reduces the market's vulnerability to a freeze-up or meltdown.

The current market practices in respect of collateral are far from adequate. One particularly dangerous practice is to require a small initial collateral level, but then to require a firm to become 'super-margined' if its credit rating drops. This causes a large increase in the need for collateral precisely when the firm is experiencing problems with inadequate capital. In effect it acts as a 'crisis accelerator'.

Developing countries: registration, reporting, transparency and liquidity

Additional registration and reporting requirements

- Reporting and registration requirements for derivative dealers and derivative participants in developing countries should be the same as those in developed countries.

Preventing fraud and maintaining a transparent market environment are no less important in developing economies than in developed ones. The need to maintain reporting and registration requirements is therefore just as great. The cost of administering and enforcing these requirements is not substantial.

The ability to enforce reporting requirements could be enhanced by stipulating that any derivative transaction that was not reported could not be put before the court for legal enforceability or a bankruptcy claim.

This provision would encourage derivative counterparties to comply with reporting requirements in order to protect their contractual interests. Otherwise it would amount to giving a counterparty an option legally to abrogate the obligations of the contract.

Developing countries: capital and collateral requirements

Capital requirements in addition to those for developed countries listed above

- Limit exposure to foreign exchange rates, interest rates and other market price fluctuations to a percentage of capital.

These limitations could be figured as percentage of capital and be augmented by an absolute limit. The limitation should apply to a consolidated balance sheet and off-balance sheet measure of exposure. The limits could be made tighter for higher degrees of exchange rate management.

Examples of position or exposure limits already exist on US derivative exchanges. These restrictions amount to explicit limitations on risk taking, but not hedging. This measure can be very effective in limiting the amount of carry trade or 'hot money' related transactions because they result in exchange rate exposure and sometimes interest rate exposure. Hence the measure disencourages leveraged exposure to devaluation or depreciation, and encourages long-term or more diversified investment.

- Limit the mismatching of maturity on assets and liabilities.

Another source of financial vulnerability that can plague developing countries more than their wealthier developed neighbours is the risk associated with mismatching the maturity of assets and liabilities. Not only is there an interest rate risk from changes in the level and slope of the yield curve, but there is also a liquidity or refunding risk inherent in not being able to roll-over or renew loans.

Collateral requirements

- The collateral requirements for derivative dealers and other derivative participants in developing countries should be the same as those in developed countries.

Collateral requirements are no less important for financial markets in developing economies than for those in developed economies. The appropriate level of collateral should be sufficiently high to provide a safe and sound foundation for market transactions, but not so high that the use of risk management tools would be discouraged by their lack of affordability.

Developing countries have additional reasons to maintain even stronger collateral requirements. They need to establish a reputation for market safety and soundness. Because they tend to suffer more than wealthy countries when financial sector disruptions occur, they require a greater buffer against

such disruptions. In addition, by raising the cost of risk taking, relatively higher collateral requirements will serve to discourage excessive risk taking.

The above prudential regulations should apply to developed and developing countries alike and the responsibility of making the change should be shared. Burden sharing would apply not just to debt forgiveness or debt work-outs, but also to the sharing of risks. This follows from the basic insight that developed countries have had more years of experience in regulating their financial markets, and the beneficial wisdom of this experience should be shared. It would not be a one-way process because a mirror could be held up to developed countries if they pushed for changes in developing countries that were inconsistent with what was actually practised at home. After all the US financial markets – with the exception of OTC derivative markets – are closely regulated and so the 'Washington Consensus' for a liberalized, free-market approach to developing countries financial markets amounts to advocating 'do as we say, not as we do'. The advocated regulations would hold both sides accountable in their own way.

Notes

1. The term 'vehicle' refers to the form in which capital is raised and traded: bank loans, bonds (including local currency, major currency and structured notes), equities and foreign direct investment.
2. The term 'derivative' is used in the most generic sense to mean a contract that is used to create price exposure by having its price derived from that of an underlying commodity, security, rate, index or event. It also creates leverage and does not generally require the transfer of title or principal. Examples of derivatives are futures, options, forwards, swaps and the derivative component of hybrid instruments such as structured notes.
3. A repurchase is similar to a foreign exchange swap in that it includes an obligation first to purchase (sell) and then to sell (purchase) a security at agreed-upon prices. A securities loan is comparable but is treated as a loan on which collateral is posted and rent is paid instead of a matching set of transactions.
4. An excellent discussion of the traditional role of the banking sector can be found in Ron Chernow (1997).
5. The term 'bond' will be used here for the broad class of credit instruments that are also known as notes, debentures and 'paper'.
6. A discussion of how securities markets surpassed the traditional banking business can be found in Lowell and Farrell (1996).
7. 'Major currency' refers to the US dollar, the euro, the yen or the pound sterling, which are the currencies most likely to be used to denominate loans and securities issued by developing countries.
8. A cross-default clause in a loan contract means that a default by a borrower against any one lender is considered a default against all lenders.
9. The term 'market risk' refers to a set of all investment risks except credit risk and settlement risk. Market risk includes price risk, interest rate risk and exchange rate risk.

10. Volatility is less in comparison with local currency securities, whose risk is the product of both foreign exchange risk and security price risk.
11. Data from *Swaps Monitor* (Spraus, 1999) and the US Treasury's Controller of the Currency.
12. A bid is the price at which the dealer is willing to buy, and the ask or offer is the price at which the dealer is willing to sell.
13. If investors seek to acquire mostly long local currency positions, then the derivative dealer will do the opposite and this will create a capital inflow.
14. Similarly the purchase of dollars in the spot market by the dealer is ultimately reversed when the dealer purchases pesos in settlement of the forward contract.
15. It would incur a capital charge only if it were to move into the money.
16. The dealer's credit risk – the risk of the counterparty failing to act on the contract – is mitigated by the use of collateral. In addition there may be some basis risk between the TRS and the returns on the actual security.
17. This is not to say that there is no economic value to a political or policy event.
18. These proposals were prepared as part of a presentation by the author to the North–South Institute in Ottawa, October 2001.
19. John Eatwell has expressed serious concern about whether the capital held to meet capital requirements can successfully function as a buffer against such changes (Eatwell, 2001).
20. For descriptions of these structured securities and how they are transacted, see Partnoy (1999) and Dodd (2002).
21. For good background reading on collateral provision in OTC derivative markets in the United States, see Johnson (2002).

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7

Ratings since the Asian Crisis*

Helmut Reisen

Introduction

In terms of foreign finance, the single most important visitor to a developing country in the 1960s was a representative from a Western aid agency; in the 1970s it was a commercial banker eager to recycle OPEC surpluses; and in the 1980s it was an IMF official. Since then it has been a sovereign analyst from one of the leading rating agencies: Moody's Investor Services, Standard & Poor or Fitch.

The rise in private capital flows and the stagnation of concessional financial assistance has significantly increased the influence of credit ratings on the terms (and magnitude) on which developing countries can tap world bond markets. Since bond markets are effectively unregulated, credit rating agencies have become the markets' *de facto* regulators. Indeed, unlike in industrial countries, where capital market access is usually taken for granted, sovereign ratings are vital to developing countries as their access to capital markets is precarious and variable. The recent proposal by the Committee on Banking Supervision for a new Basel Capital Accord may mean even greater importance for credit ratings in the future (Reisen, 2000, 2001).

The increased importance of rating agencies for emerging-market finance has brought their work to the attention of a wider group of observers – and subjected them to criticism. The Mexican crisis of 1994–95 revealed that credit rating agencies, like almost everybody else, were reacting to events rather than anticipating them, an observation reinforced by rating performances before and during the Asian crisis (Reisen and von Maltzan, 1999). Rating agencies were accused (for example by the IMF in 1999) of being guided by outdated rating models and of ignoring liquidity risks and currency crisis vulnerabilities. They even acknowledged this themselves (Huhne, 1998).

This chapter assesses whether the importance of ratings for developing-country finance has changed and whether rating agencies have changed the determinants of their rating decisions. It also provides an analysis of recent suggestions by the Basel Committee on Banking Supervision, as these are

very important for gauging the future role of sovereign ratings for foreign debt finance in developing countries. It then looks at rating determinants before and after the Asian crisis to see what has changed and whether rating models have moved towards identification of the factors stressed in the literature on crisis vulnerability, before considering the market impact of rating events, looking again at changes after the outbreak of the Asian crisis. It then evaluates whether recent regulatory endeavours to strengthen the role of sovereign ratings in setting banks' capital requirements can be justified in light of their role in boom–bust cycles in developing-country lending. The chapter ends with some policy proposals.

Sovereign rating determinants: what has changed?

One of the striking features of the Asian crisis was the so-called rating crisis (Jüttner and McCarthy, 2000), in which the ratings of the affected countries were substantially downgraded. Korea's rating, for example, fell on average by three letter grades and nine rating notches; sovereign rating changes of that magnitude had never been observed before, and they had rarely been observed in the long history of rating transitions for US corporate bonds (Bonte *et al.*, 1999). The rating instability reflected more than changes in a country's underlying fundamentals; it also reflected instability of the determinants underlying sovereign ratings for emerging markets.

Sovereign risk reflects the ability and willingness of a government issuer to meet its future debt obligations. In the absence of binding international bankruptcy legislation, creditors have only limited legal redress against sovereign borrowers, who may also default for political reasons. Both qualitative and quantitative factors are examined to form a view of overall creditworthiness. Measures of economic and financial performance are used in the quantitative assessment while political developments, especially those which bear on fiscal flexibility, form the core of the qualitative evaluation. While rating agencies periodically update the list of the numerous economic, social and political factors that underlie their sovereign credit ratings, some of them are not quantifiable and there is little guidance about their relative weights.

The *locus classicus* for quantitative evidence on sovereign rating determinants is Cantor and Packer (1996). Using cross-sectional data for 49 countries (September 1995), the authors estimated which quantitative indicators weighed most heavily in the determination of sovereign risk ratings by Moody's and Standard & Poor's, and their average ratings. Per capita income (+), GDP growth (+), consumer price inflation (−), foreign debt as a percentage of exports (−), a dummy for level of economic development (+) and a dummy for default history (−) were generally significant and had the expected sign, while fiscal balance (+) and external balance (+) were not significant in the authors' multiple regression estimates. The adjusted R^2 was

above 0.90 for average ratings as well as Moody's and Standard & Poor's ratings. The results confirm that to a large extent sovereign ratings were explained by a limited number of key macroeconomic variables before the Asian crisis.

Some of the rating determinants identified above, such as GDP growth and fiscal balances, are to a certain degree endogenous to capital inflows. To ignore the endogeneity of such rating determinants risks introducing a procyclical element into the rating process and intensifying boom–bust cycles in emerging-market lending by underpinning the build-up of unsustainable inflows with improved sovereign ratings. Furthermore there seems little concern for the allocation of flows: the debt cycle hypothesis requires inflows to be invested in trade-related areas and marginal savings rates to exceed the average savings rate upon receipt of capital inflows (Ffrench-Davis and Reisen, 1998).

During the 1990s the precrisis rating determinants identified by Cantor and Packer had little in common with the domestic roots of the financial crises (banking, currency and debt) in developing countries (see for example Reisen, 1998; Goldstein, 1999): weak national banking and financial systems, premature and poorly supervised financial liberalization, poor public and private debt management, with inadequate liquidity defences against shocks, and vulnerable exchange rate regimes. In other words it seems that sovereign ratings in the period leading up to the Asian crisis were driven by an outdated rating model.

Table 7.1 shows that the explanatory power of the Cantor–Packer model deteriorated in this period, particularly in 1998 (one year after the Asian crisis broke out), with the adjusted R^2 dropping from over 0.90 to 0.86 for Moody's and 0.83 for Standard & Poor. The model deteriorated during 1997 due to a structural break (Jüttner and McCarthy, 2000), but the addition of new rating determinants has helped to improve the explanatory power. In addition to the eight determinants used in the Cantor–Packer model, Jüttner and McCarthy have added five rating determinants from the literature on crisis vulnerability:

Table 7.1 Explanatory power of the conventional determinants of sovereign ratings, 1995–98 (adjusted R^2 of Cantor–Packer model)

	Average rating	*Moody's rating*	*Standard & Poor's rating*
1995	0.924	0.905	0.926
1996	0.902	0.884	0.902
1997	0.913	0.909	0.893
1998	0.856	0.863	0.834

Sources: Cantor and Packer (1996); Jüttner and McCarthy (2000).

- Short-term interest rate differentials *vis-à-vis* the US as a proxy of currency risk.
- A range (1–5) of problematic assets as a percentage of GDP (Standard & Poor's assessment of banks).
- The estimated contingent liability of the financial sector as a percentage of GDP.
- The rolling, four-year growth rate of credit to the private sector as a percentage of GDP.
- The percentage deviation of the real exchange rate from the 1990s averages.

For emerging markets, Jüttner and McCarthy use a variable-selection process to identify which of the twelve variables have the highest explanatory power for sovereign ratings. For mid 1998, consumer price inflation (−), external debt as a percentage of exports (−), a dummy default history (−), and two of the new variables – the interest rate differential and the real exchange rate – enter significantly into the regression as rating determinants, with an adjusted R^2 of 91.2 per cent. Neither the interest rate differential nor the exchange rate variable were significant determinants of the ratings in mid 1997, indicating that these variables were overlooked by the agencies before the crisis. Moreover the financial-sector variables were not reflected in the rating differentials in 1997 or 1998. This indicates that differences between the strength/fragility of the financial sectors in emerging markets were still not emphasized in rating decisions a year after the Thai baht plunged. Jüttner and McCarthy (ibid.: 22) conclude that there is 'no set model or framework for judgement which is capable of explaining the variations in the assignment of sovereign ratings over time'.

The impression that – despite the lessons from the Asian crisis – variables relating to financial-sector strength do not seem to figure largely in the determinants of sovereign ratings is supported by more recent rating developments in Latin America. While Mexico, which is generally considered to suffer from a weak domestic banking sector, moved up to the investment-grade rating level (Moody's), Argentina, which is often praised for the strength of its domestic financial sector, has suffered several downgrades in recent years. The agencies justified these divergent rating trends by emphasizing rather conventional indicators such as fiscal flexibility and external solvency (Grandes, 2001).

The first edition of *Moody's Country Credit Statistical Handbook* (2001a) lists the quantitative measures included in its sovereign rating decisions. The agency acknowledges that

> The relevance of specific economic and financial variables can vary according to the broad level of development of countries.... For example, more detail on fiscal policy indicators is provided for the more advanced countries, while a larger range of indicators in the external debt and

balance-of-payments areas is provided for the developing [emerging-market] countries (ibid.: 3).

The quantitative indicators fall into four broad categories:

- Economic structure and performance: includes various measures of GDP (growth), inflation, unemployment and trade. Moody's emphasizes among these GDP growth (+) and export growth (+) in the handbook.
- Fiscal indicators: general government revenue, expenditure, financial balance, primary balance and debt as a percentage of GDP. According to Moody's, 'The fiscal balances and debt stocks of the various levels of government are among the most important indicators examined by sovereign risk analysts. The ability of government to extract revenues from the population of taxpayers and users of services, the elasticity of revenue with respect to the growth or decline of national income, and the rigidity of the composition of government expenditures are key factors that determine whether central and local governments will be able to make full and timely payments of interest and principal on outstanding debt' (ibid.: 6).
- External payments and debt: measures for the real effective exchange rate (percentage change), relative unit labour costs (percentage change), current account balance (US dollars and percentage of GDP), foreign currency debt (US dollars, percentage of GDP and percentage of exports), and the debt service ratio (percentage of exports). Noteworthy here is Moody's statement that 'Historically, foreign currency debt has been the central indicator of sovereign risk analysis...but that...is not a meaningful category in developed countries with low inflation, high monetary credibility, and deep capital markets and/or universal banks that allow governments and corporations to borrow long term at fixed rates in domestic currencies...an additional factor is "dollarization" or "euroization". In countries that are effectively operating without a domestic currency, the borderline between "domestic" and "foreign" debt becomes quite fuzzy' (ibid.: 8).
- Monetary and liquidity indicators: include short-term interest rates (per cent), domestic credit (percentage change), domestic credit/GDP, M2/foreign exchange reserves, foreign exchange reserves (US dollars), short-term external debt and currently maturing long-term external debt/foreign exchange reserves, and a liquidity ratio (external liabilities of banks/external assets of banks'. Moody's still seems to be rather lukewarm about the importance of these indicators as it presents them as 'of use in evaluating a country's vulnerability to a currency or banking crisis' (ibid.: 9). It refers to econometric models as 'only partially successful, with the best of the models being able to account for only some of the actual crises that occurred and predicting too many that did not' (ibid.: 10).

It is fair to argue that the set of indicators emphasized by Moody's better prepares it to give advance warning of first-generation currency crises (where domestic macro fundamentals trigger a financial crisis) than of second-generation (where inconsistencies between external and internal imbalances matter) or third-generation crises, in which illiquidity and financial-sector weaknesses play a central role. Standard & Poor (for example S&P, 2001) seems to put more weight on liquidity and financial-sector variables in its assessments; it explicitly lists the importance of banks as contingent liabilities in sovereign ratings in its ratings-methodology profile. The difference in emphasis observed here – which can only be casual – suggests that Moody's has a comparative advantage in detecting crisis vulnerability in Argentina, while Standard & Poor is better prepared to warn about Turkey's problems. This is supported by the recent crises in Turkey and Argentina (Figures 7.1 and 7.2).

In February 2001 another exchange-rate-based stabilization scheme failed in Turkey when the lira plunged by more than 30 per cent. A weak banking system, in acute crisis since late November 2000, and an overreliance on hot money inflows had made the country vulnerable to financial crisis (OECD, 2001). The crisis was a variety of the now-classic 'tablita' failure experienced in the Southern Cone of Latin America twenty years earlier.

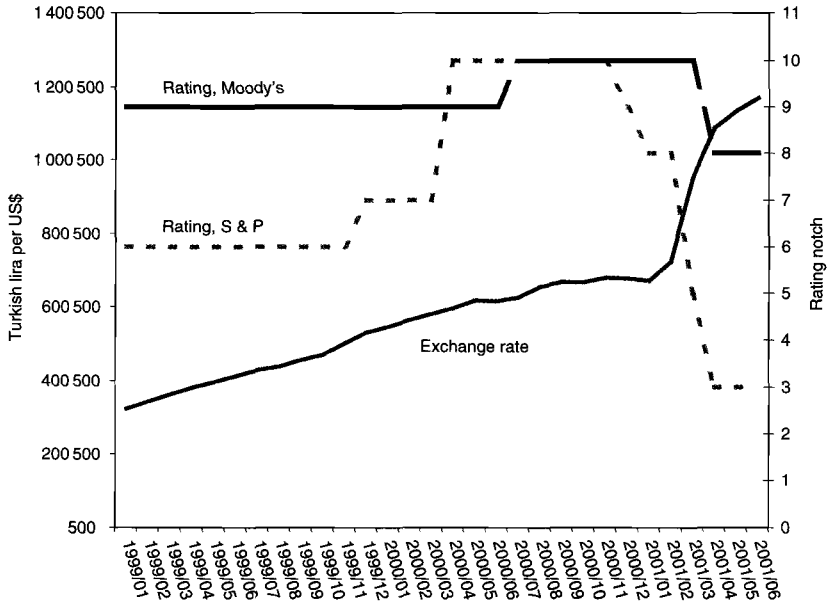

Figure 7.1 Turkey's exchange rate and sovereign ratings, 1990–2001

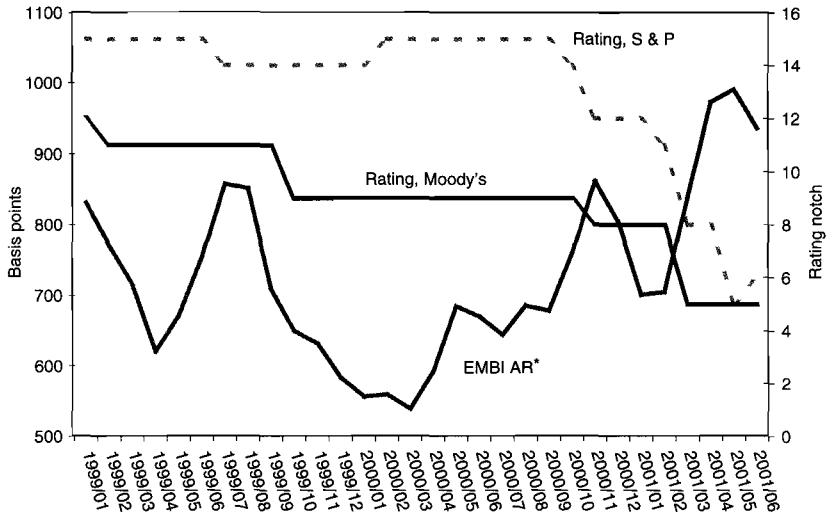

Figure 7.2 Argentina's sovereign spreads and ratings, 1990–2001

* Emerging Markets Bond Index (Argentina)

As seen in Figure 7.1, Moody's downgrade once again came only after the crash while Standard & Poor's came slightly earlier.

With regard to Argentina, from at least early 2000 Argentina's currency board failed to deliver a sustained reduction in devaluation and sovereign risk. There were three major causes of this (Braga *et al.*, 2001). First, the currency board had ceased to confer sufficient fiscal discipline from 1995 onwards. This had set in motion a vicious circle of rising country risk and depressed growth, which in turn had worsened the public deficit through lower tax receipts and higher debt service costs. Second, initial inflation inertia, wage rigidity and an inappropriate anchor currency implied effective overvaluation of the peso. Business cycles in the United States (to which just 8 per cent of Argentina's exports were directed) and Argentina had been asynchronous for much of the 1990s, while Brazil's devaluation in early 1999 had strongly weakened Argentina's competitiveness. Third, high liquidity requirements had been imposed on the country's financial system (to make up for the lack of the lender-of-last resort function in a currency board). Just like any reserve requirement, high liquidity needs had driven a significant wedge between lending rates and saving rates, discouraging both savings and investment. This again, by constraining growth and fuelling the need for foreign savings, had led to a gradual deterioration of Argentina's debt dynamics. Again, rating agencies were fairly late to give warning of deteriorating fundamentals, but they arguably performed better than they did in

the case of Turkey as they downgraded Argentina before the bond crash (the peso remained fixed) in 2001 (Figure 7.2).

The market impact of sovereign ratings

In the context of the global financial architecture, it is important to explore the market impact of sovereign rating events because ratings may have an impact on boom–bust cycles in lending to developing countries. In principle, sovereign ratings could help to attenuate boom–bust cycles in emerging-market lending. During the boom, early rating downgrades would help dampen euphoric expectations and reduce private short-term capital flows, which have repeatedly fuelled credit booms and financial vulnerability in capital-importing countries. If sovereign ratings had no market impact they would be unable to smooth boom–bust cycles. Worse, if they lagged behind rather than led financial markets and had a market impact, improved ratings would reinforce euphoric expectations and stimulate excessive capital inflows during the boom. During the bust, downgrading might add to panic among investors, driving money out of the country and forcing up sovereign yield spreads. For example the downgrading of Asian sovereign ratings to 'junk status' reinforced the region's crisis in many ways: commercial banks could no longer issue international letters of credit for local exporters and importers; institutional investors had to offload Asian assets as they were required to maintain portfolios only in investment-grade securities; and foreign creditors were entitled to call in loans upon the downgrades.

If guided by outdated crisis models, sovereign ratings would fail to provide early warning signals of a likely currency crisis, which again might cause herd behaviour by investors. However, as far as sovereign ratings are concerned there are several reasons why a significant market impact cannot be easily established. First, sovereign risk ratings are primarily based on publicly available information (Larraín *et al.*, 1997), such as levels of foreign debt and foreign exchange reserves, or political and fiscal constraints. Consequently any sovereign rating announcement will be 'contaminated' with other publicly available news. Rating announcements may be largely anticipated by the market. This does not exclude, however, the fact that the interpretation of such news by the rating agencies may be considered an important signal of creditworthiness. Second, in the absence of a credible supranational mechanism to sanction sovereign default, the default risk premium – unlike in national lending relationships – is determined by the borrower's willingness rather than ability to pay (Eaton *et al.*, 1986). Again, it is not easy for rating agencies to acquire privileged information in this area that could be conveyed to the market through ratings.

By examining the links between sovereign credit ratings and dollar bond yield spreads, Reisen and von Maltzan (1999) aimed to determine whether the three leading rating agencies – Moody's, Standard & Poor and Fitch

IBCA – could intensify or attenuate boom–bust cycles in emerging-market lending. The observation period was from 1989 – when emerging-market ratings started to gain momentum – to 1997, the year when the Asian crisis erupted. The authors produced an event study exploring the market response (changes in dollar bond yield spreads) for 30 trading days before and after the rating announcements. Three of the results that emerged from the event study deserve special emphasis:

- While in general the rating 'events' by each of the three leading agencies did not produce a statistically significant response in sovereign yield spreads, their aggregated rating announcements produced significant effects on yield spreads in the expected direction, notably on emerging-market bonds.
- Rating downgrades widenened the yield spreads on emerging-market bonds. While the rise in yield spreads preceded the downgrades, it was sustained for another 20 trading days after the rating event.
- Imminent rating upgrades of emerging-market bonds were preceded by significant yield convergence. Subsequent to the rating event, however, there was no significant market response.

However, both the rating events and the yield spreads may have been determined by exogenous shocks; this called for an analysis that would correct the yield determinants for fundamental factors.

Reisen and von Maltzan (1999) therefore ran a Granger causality test – correcting for the joint determinants of ratings and yield spreads – and found that changes in sovereign ratings were interdependent with changes in bond yields. The Granger test suggested that the sovereign ratings by the three leading agencies did not independently lead the market, but that they were interdependent with bond yield spreads once the ratings and the spreads were corrected for fundamental determinants. While the results suggest that rating announcements are seen as a significant signal of credit-worthiness, their impact may be due to the prudential regulation and internal guidelines to which institutional investors are subject and which debar them from holding securities below certain rating categories.[1]

The two-way causality between ratings and spreads observed over the past decade may also suggest that the criticism advanced against the agencies in the wake of the Mexican and Asian currency crises still holds true when it is based on more observations than just those surrounding these prominent crisis episodes. While the event study suggests that rating agencies do seem to have the potential to moderate the booms that precede currency crises, the Granger tests may justify the concern that this potential has not yet been productively exploited by the agencies by independently leading the markets with timely rating changes. As seen in the latest crises in Argentina and Turkey, and as confirmed by more recent studies that stretch the observation

period beyond 1997 to 2000 (Kaminsky and Schmukler, 2001), rating agencies can still be seen as late rather than early warning systems.

But are they 'guilty beyond reasonable doubt'? According to Mora (2001), the answer is no. Her findings confirm that ratings move in a procyclical way, but that the causal effect of sovereign ratings on both the higher cost of borrowing and capital-flow reversals remain ambiguous after controlling for macroeconomic variables and lagged spreads (a variable that stands for the passive response of sovereign ratings to changes in market sentiment). Mora (2001) has another puzzling finding: higher rating levels mean a higher probability of currency crashes once other factors are controlled for. This finding is explained by the amount of capital flows that countries with better ratings can obtain and that make them more vulnerable to capital flow reversals.

What about the future market impact of sovereign ratings? In a recent revision to its country ceiling policy, Moody's (2001b) announced that it would allow certain borrowers to 'pierce' the country ceiling, that is, to obtain better ratings than the foreign currency bonds of the government in their respective domiciles. The traditional rationale for country ceilings has been that governments confronted by an external payments crisis have the power and motivation to limit foreign currency outflows, including debt payments. As sovereign ratings serve as a ceiling for the private sector ratings of any given country, their influence stretches far beyond government securities. Several months earlier S&P (2000) had announced enhanced ratings for private sector issuers from subinvestment grade countries if transfer and convertibility insurance was utilized.

Pointing to recent examples of default on government debt – notably Ecuador, Pakistan, Russia and Ukraine – Moody's (2001b: 1) considered that 'large, internationally recognized entities that have relied significantly on access to international capital markets and whose default would inflict substantial damage on the economy' were being allowed to service foreign currency debt. Consequently in June 2001 the agency placed 38 energy companies, financial institutions and telecommunications companies in emerging markets, many in Brazil and Mexico, on review for upgrade. The change in the country ceiling approach should not only allow the ratings of private sector debtors to exceed their country ceilings, but should also diminish the market impact of sovereign rating events as fewer borrowers will be immediately concerned by them.

Indicators of credit rating pressure as instruments for trading emerging-market bonds, such as those developed by Deutsche Bank (2000), may increase anticipation and hence reduce the measured market impact of rating events. Rating actions are delivered in a discrete and, as documented above, late fashion while credit fundamentals move continuously. Yet rating events have an impact on spreads and this can be exploited by bond traders. Referring to Larraín *et al.* (1997) and Reisen and von Maltzan (1999),

Deutsche Bank has built a regression model to explain credit ratings and calibrated twelve-month forecasts to arrive at a current fitted rating. Rating pressure is defined as the difference between the fitted and the actual rating for a given country. Long and short positions can then be engaged according to whether the rating pressure indicator is positive or negative. When the rating action finally hits the market, these investment bets can be dissolved ('sell the news'), which can trigger perverse, measured market responses to rating changes. As Deutsche Bank (2000) claims to have profitably used indicators of rating pressure for its trading strategies, other investors may have started to play rating events in the same way.

Revisions to the Basel Accord and sovereign ratings

The Basel Committee on Banking Supervision has released two consultative papers on a New Basel Capital Accord (Basel Committee, 1999, 2001), which aims to set a standard for regulatory bank capital provision. It is intended to grant rating agencies an explicit role in the determination of the risk weights applied to minimum capital charges against different categories of borrower. Risk weights determine banks' loan supply and funding costs, as they have to acquire a corresponding amount of capital relative to their risk-weighted assets.

It is widely agreed that cross-border lending has faced regulatory distortions under the 1988 Basel Accord. Most importantly, short-term bank lending to emerging markets has been encouraged by a relatively low 20 per cent risk weight, while bank credit to non-OECD banks with a residual maturity of over one year has been discouraged by a 100 per cent risk weight. This has stimulated cross-border interbank lending, which has been described as the 'Achilles heel' of the international financial system. OECD-based banks and governments have received more lenient treatment, even if their sovereign risks are equivalent to or worse than those of non-OECD emerging markets. Hence a reform of the Basel Accord should be welcome.

While the proposed revisions of the Basel Accord on capital adequacy will maintain the 8 per cent risk-weighted capital requirement, the Basel Committee initially proposed a revision of the calculation of risk weightings that would substitute credit ratings for a split between the OECD and non-OECD as the main determinant (Reisen, 2000). The committee is now proposing two main approaches to the calculation of risk weights: a 'standardized' and an 'internal ratings-based' (IRB) approach (Griffith-Jones and Spratt, 2001; Reisen, 2001). One of the main changes from the committee's 1999 consultative paper (Basel Committee, 1999) is the clear indication that leading banks will be able to use the IRB approach to set risk weights. The major change compared with the 1988 Basel Accord is that in the case of sovereign exposure, membership of the OECD will no longer provide the benchmark for risk weights.

Table 7.2 summarizes the proposals for risk weights under the standardized approach. The proposed risk weights will substitute credit ratings by 'eligible external credit assessment institutions' (not just rating agencies, as under the 1999 proposal, but also export credit agencies, ECAs)[2] for a split between the OECD and non-OECD as the main determinant. Risk weights will continue to be determined by category of borrower – sovereign, bank or corporate – but changes have been made within each of these categories. Under the proposal a sovereign with an AAA rating (or 1 ECA risk score under the OECD 1999 methodology) will receive a 0 per cent risk weight; lower ratings translate into a jump in risk weights via 20, 50, 100 and 150 per cent for sovereigns weighted below B minus (or ECA risk score 7). There are two options for the treatment of claims on banks. The first is for banks to be assigned a risk weight that is one category less favourable than that assigned to the sovereign of incorporation. National supervisors in low-rated developing countries may opt for the second option, which bases the risk weight on an external assessment of the bank. For claims on corporates, a more risk-sensitive framework is proposed that moves away from the uniform 100 per cent risk weight for all corporate credits under the 1988 Accord.

Both theory and evidence suggest that the Basel II Accord will destabilize private capital flows to the developing countries if the current proposal to link regulatory bank capital to sovereign ratings is adapted. This hypothesis contains two elements. First, theory suggests that linking bank lending to regulatory capital through a rigid minimum capital ratio serves to amplify macroeconomic fluctuations. Second, the evidence summarized in the

Table 7.2 The new Basel Capital Accord (risk weight under the standardized approach, per cent)

Agency rating	*AAA to AA–*	*A+ to A–*	*BBB+ to BBB–*	*BB+ to BB–*	*B+ to B–*	*Below B–*
Sovereign ECA risk score	1	2	3	4–6	4–6	7
Sovereigns	0	20	50	100	100	150
Banks – option 1[1]	20	50	100	100	100	150
Banks – option 2[2]	20	50[3]	50[3]	100[3]	100	150
Corporates	20	50	100	100	150	150

Notes:
1 Risk weighting based on risk weighting of sovereign in which the bank is incorporated. The rating shown thus refers to the sovereign rating.
2 Risk weighting based on the rating of the individual bank.
3 Claims on banks with an original maturity of less than three months would receive a weighting one category more favourable than the risk weighting shown above, subject to a floor of 20 per cent.
Source: Basel committee on banking supervision, 'The New Basel Capital Accord: an explanatory note', second consultative paper, Basel, January 2001 (www.bis.org).

preceding section suggests that sovereign ratings lag behind rather than lead the markets, and it seems that there is little scope for improving that performance. Thus assigning fixed minimum capital to bank assets whose risk weights are in turn determined by market-lagging ratings will reinforce the tendency of the capital ratio to work in a procyclical way. The Basel II proposals will reinforce that tendency as a strong discontinuity in treating A and below-rated assets will make banks' loan portfolios more liquidity-hungry, thus increasing the vulnerability of the financial system to liquidity risk.

With regard to the theory, assuming a non-Modigliani–Miller world where investment demand depends on the ability of firms to retain earnings or obtain bank loans, Blum and Hellwig (1995) show how capital adequacy regulation for banks may reinforce macroeconomic fluctuations. If negative shocks to aggregate demand reduce the ability of debtors to service their debts to banks, the reduction in debt service will lower bank equity, which will in turn reduce bank lending and investment because of capital adequacy requirements. Linking bank lending to bank equity thus acts as an automatic amplifier for macroeconomic fluctuations: banks lend more when times are good and less when times are bad. Moreover the minimum capital ratio can also be shown to raise the sensitivity of investment demand to changes in output and prices.

An important assumption underlying the Blum–Hellwig model is that the capital adequacy requirement is binding. With a binding requirement, c, an additional dollar of bank profits induces $1/c$ additional units of bank lending. As banks' minimum ratios have continued to hover around the required 8 per cent in the major advanced countries, they can generally be considered as binding; hence the logic of the Blum–Hellwig model is of more than purely academic interest.

It may be argued that a specific proposal in the Basel II Accord risks reinforcing the procyclical impact of minimum capital requirements. A large discontinuity is suggested in Basel II between the risk weights on borrowers rated A and below. To the extent that a high share of banks' loan portfolios is invested in A-rated borrowers, the financial system may become vulnerable to a liquidity crisis in a downturn in which borrowers are downgraded. Banks would confront higher capital requirements for this class of borrowers. One response would be to cut back on lending to lower rated creditors.

Linking regulatory bank capital to agency ratings might move banks' loan-portfolio behaviour closer to their short-term trading behaviour. Governed by the mark-to-market rules of the value at risk (VaR) approach, it has been shown that banks first encouraged excessive bank lending and then intensified the global contagion of the 1998 financial crisis (Reisen, 1999). Under VaR crisis contagion is intensified as a volatile event in one country automatically generates an upward re-estimate of credit and market risk in a correlated country. The Basel II proposals will reinforce the procyclical

tendency as a strong discontinuity between risk weights on differently rated assets will make banks' loan portfolios more liquidity-hungry, thus increasing the vulnerability of the financial system to liquidity risk. To the extent that a large proportion of banks' loan portfolios is invested in triple-B-rated sovereigns and corporates (with a 50 per cent risk weight, Table 7.2), the downgrading of such assets (implying a 100 per cent risk weight according to the 'standardized' approach) will force banks to reserve more liquidity or to cut back lending to the downgraded borrowers. Hence the financial system would become more vulnerable to a liquidity crisis.

With regard to the evidence, the determinants and nature of sovereign ratings risk intensifying the procyclical impact of the capital adequacy requirements under the Basel II proposals. First, the real rate of (annual) GDP growth has repeatedly been found to be an important determinant of ratings, with a positive sign. This implies that sovereign ratings will improve during boom periods and decline during bust periods, thus reinforcing boom–bust cycles. Second, as it is hard for rating agencies to acquire an edge on information on sovereign risk, they tend to lag behind rather than lead financial markets (Reisen and von Maltzan, 1999). Moreover their ratings on low-rated borrowers are at times characterized by a low degree of durability (IMF, 1999), indicating a weak prediction value. The Basel II Accord would strengthen the market impact of sovereign ratings, but as long as sovereign ratings fail to convey privileged information to the markets, improving ratings will reinforce euphoric expectations and stimulate excessive capital inflows to emerging markets; during a bust, downgrading might cause creditors and investors to panic, driving money out of the affected countries and forcing up sovereign yield spreads.

Moreover the New Basel Accord discourages long-term interbank lending to emerging and developing countries. For speculative-grade developing countries the regulatory incentives for short-term interbank lending will therefore tilt the structure of their capital imports towards short-term debt. Short-term foreign debt, in relation to official foreign exchange reserves, has been identified as the single most important precursor of financial crises triggered by capital flow reversals.

Table 7.3 shows the potential impact of risk weights for short-term (less than three months) bank-to-bank lending. Let us first look at how the (1988) Basel Accord has discouraged long-term interbank lending to banks from developing countries, as opposed to the neutral incentives provided for lending to OECD-based banks. The risk-adjusted return for lending to triple-B-rated non-OECD banks is calculated as 12.5 per cent for long maturities and 62.5 per cent for short maturities; the respective numbers are 50 per cent and 250 per cent for double-B-rated banks, and 87.5 per cent and 437 per cent for single-B-rated banks. The standardized approach suggested in Basel II would attenuate the bias towards short-term lending to triple-B-rated and double-B-rated borrowers, but would not entirely

Table 7.3 Regulatory incentives for short-term interbank lending

	Long-term, option 2					*Short-term, option 2*				
	Assumed LIBOR spread	*Risk[1] weight*	*Capital required per $100*	*Risk-adj. return, (%)[2]*	*Break-even spread change (bp)[3]*	*Assumed LIBOR spread*	*Risk weight[1]*	*Capital required per $100*	*Risk-adj. return (%)[2]*	*Break-even spread change (bp)[3]*
Double-A (OECD-based)										
Current	10	20	1.6	6.3	–	10	20	1.6	6.3	–
Standardized	–	20	1.6	6.3	–	–	20	1.6	6.3	–
IRB approach	–	7	0.6	16.7	−6	–	0	0.0	n.a.	n.a.
Triple-B (non-OECD)										
Current	100	100	8.0	12.5	–	100	20	1.6	62.5	–
Standardized	–	50	4.0	25.0	−50	–	20	1.6	62.5	–
IRB approach	–	40	3.2	31.3	−60	–	10	0.8	125.0	−50
Double-B (non-OECD)										
Current	400	100	8.0	50.0	–	400	20	1.6	250.0	
Standardized	–	100	8.0	50.0	–	–	50	4.0	100.0	+600
IRB approach	–	379	30.3	13.2	+1 115	–	60	4.8	83.3	+800

Table 7.3 (Continued)

	Long-term, option 2					*Short-term, option 2*				
	Assumed LIBOR spread	*Risk[1] weight*	*Capital required per $100*	*Risk-adj. return, (%)[2]*	*Break-even spread change (bp)[3]*	*Assumed LIBOR spread*	*Risk weight[1]*	*Capital required per $100*	*Risk-adj. return (%)[2]*	*Break-even spread change (bp)[3]*
Single-B (non-OECD)										
Current	700	100	8.0	87.5	–	700	20	1.6	437.5	
Standardized	–	100	8.0	87.5	–	–	100	8.0	87.5	+2 800
IRB approach	–	630	50.4	13.9	+3 709	–	400	32.0	21.9	+13 300

Notes:

1 For the IRB approach, long-term (three-year) risk weights are obtained from the cubic regression estimate in Figure 7.1. The underlying default rates for short-term exposures have been obtained from Moody's – they are 0 per cent for double-A borrowers, 0.1 per cent for triple-B, 0.6 per cent for double-B and 6.8 per cent for single-B (Moody's, 2001: exhibit 16). For the standardized approach, claims on banks rated between A+ and BB– with an original maturity of less than three months would receive a rating that was one category more favourable than the risk weight on longer maturities.

2 Assumes LIBOR flat funding. The risk-adjusted return on capital is 100 divided by the regulatory capital required per $100 multiplied by the spread over LIBOR; quoted as return in excess over LIBOR.

3 Indicates the amount of spread movement needed (in basis points) to produce the risk-adjusted return achieved under the current Basel I environment. Break-even spread change is the difference in risk-adjusted return between 'current' and 'standardized'; 'IRB approach' multiplied by capital required per $100 in 'standardized' respective 'IRB approach'.

Source: Author's calculation based on the procedure developed by Deutsche Bank (2001).

remove it. By contrast, bank-to-bank lending to single-B-rated borrowers would no longer be distorted by higher risk-adjusted returns on short-term lending under the 'standardized' approach.

Strong incentives would continue to be provided under the internal-ratings-based approach for short-term bank lending, particularly to triple-B banks. The required break-even spread change would be minus 50 basis points on short-term lending under the IRB approach compared with the current Basel requirements, as the corresponding risk weight would drop to 10 per cent (assuming a 0.1 per cent probability of default on short-term exposure), according to evidence provided by Moody's (2001a). Therefore, while for exposures with a residual maturity of three years the corresponding probability of default (0.41 per cent) would translate into a risk weight of 40 per cent and a risk-adjusted return of 31.3 per cent (for an assumed spread over LIBOR of 100 basis points), the equivalent risk-adjusted return would be much higher – 125 per cent – for short-term exposures to triple-B-rated banks.

Some policy conclusions

Unlike in industrialized countries, where capital market access is usually taken for granted, sovereign ratings play a vital role in developing countries as their access to capital markets is precarious and variable. The recent proposal by the Committee on Banking Supervision for a new Basel Capital Accord implies that credit ratings will be of even greater regulatory importance in future decades.

Rating behaviour in the recent emerging-market crises in Argentina and Turkey suggests that rating determinants have not been sufficiently modified to put the agencies ahead of market events, and that conventional rating determinants have lost some of their explanatory power. Financial-sector weaknesses and illiquidity have not yet been given the weighting they deserve. Procyclical rating determinants remain an important ingredient in agencies' notes, and it has been suggested that agencies should correct them for the endogenous effects of (short-term) capital inflows.

But even with such improvements, sovereign ratings are bound to lag behind the markets. First, credit ratings and rating actions are delivered in a discrete fashion, with action being taken when sufficient upward or downward pressure has been put on the credit fundamentals, which themselves move in a continuous fashion. Second, sovereign risk ratings are primarily based on publicly available information. Consequently any sovereign rating announcement will be 'contaminated' by other publicly available news. Third, rating announcements may be largely anticipated by the market (although the interpretation of such news by the rating agencies may be seen as an important signal of creditworthiness).

While sovereign ratings often lag behind the markets, joint downgrades of emerging-market debt by the leading agencies can have a lasting market

impact; upgrades, in contrast, are largely anticipated. The impact of downgrades may be due to the prudential regulation and internal industry guidelines to which institutional investors are subject and which debar them from holding securities below certain rating categories, and to debt contracts that allow creditors to withdraw loans when borrower ratings drop below a certain threshold. But unless prudential regulation, that is, the Basel Accord, reinforces the market impact of sovereign ratings, their impact might diminish somewhat in the future. The rating agencies have started to loosen their country ceiling policy, allowing certain private sector borrowers better ratings than their sovereigns. And emerging-market bond trading strategies seem to have increasingly exploited the late nature of rating actions by anticipating them.

Finally, this chapter has addressed the concern that the Basel II Accord will destabilize private capital flows to developing countries if the current proposal to link regulatory bank capital to sovereign ratings is adopted. Assigning fixed minimum capital to bank assets whose risk weights are determined by market-lagging ratings will reinforce the tendency of the capital ratio to work in a procyclical way. Credit spreads will more closely reflect credit ratings as a proxy of default probability. While this is exactly what supervisors are aiming at, the calculations provided here indicate that the chasm between investment-grade borrowers – based mostly in the OECD countries and in some of the more successful emerging markets – and speculative-grade borrowers, mostly from the developing world, will deepen. This would clearly run against the endeavour of the global development community to broaden the range of developing countries that benefit from private capital inflows. The Basel II proposals not only risk raising the capital costs for speculative-grade developing countries, they may also serve to increase the volatility of bank credit supply to this group of countries.

Notes

* The author alone is responsible for the content of this chapter, which should not be attributed to the OECD or the OECD Development Centre.

1. In particular, upgrades to investment grade open up a much wider investor base to emerging and developing countries. As they become eligible for inclusion in benchmark investment-grade indices, portfolio managers will have consciously to justify a country's exclusion rather than start from the presumption that the country will not be included in investment-grade portfolios. Such portfolios are particularly held by long-term contractual institutions, such as pension funds and insurance companies. An upgrade to investment grade will therefore result in a higher and more stable demand for a developing country's bonds, as the demand for the country's bonds will not be limited to unconstrained investors, such as high-yield managers and hedge funds, that are able to trade opportunistically in and out of speculative-grade bonds.
2. See Griffith-Jones and Spratt (2001) for a discussion of the use of export credit agencies in regulating bank capital and the potential impact of this on developing countries.

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8

Proposals for Curbing the Boom–Bust Cycle in the Supply of Capital to Emerging Markets*

John Williamson

Introduction

The problem of boom–bust cycles in capital flows to emerging markets is well recognized. This chapter examines which forms of capital flow are particularly problematic in this respect and which are more stable, and then considers what might be done to stabilize the overall flow of private capital. The possibilities here involve altering either the volume or the behaviour of the various types of flow. There is not much that can be done from the supply side to alter the relative volume of different forms of capital flow; such policies as are available in this respect concern the capital controls that can be exercised by capital-importing countries, a subject that is dealt with in Chapter 12. Hence this chapter focuses on the ways in which supply-side reforms might be able to alter the behaviour of certain types of capital flow.

Diagnosis of where the problems lie

Conventional wisdom has long held that some forms of capital flow are much more prone to rapid reversal than others. This view was challenged by Claessens *et al.* (1994), who failed to find statistically significant differences in the time series properties of different forms of capital flow (FDI, portfolio equity, long-term, short-term, banks, government and private). But in his discussion of this paper, Calvo (1998) presciently points out that the authors' estimates of volatility (which essentially focus on the second moment of the time series) might fail to give due weight to what is of most importance: the possibility of occasional major disruptions (which are measured by higher moments in the time series).[1] To judge by what happened in East Asia during its recent crisis, when FDI was largely maintained while bank capital reversed on a grand scale, it is indeed proper to worry much more about the volatility of some forms of capital flow than of others. A more recent study

by Lipsey (2001) confirmed the conventional wisdom about the relative stability of FDI flows. This is not to say that multinationals will refrain from shifting working balances among currencies depending on their view of the macroeconomic prospects, but just that such shifts are unlikely to be large relative to the total sum sunk in capital investment. Large-scale reversal is in most cases physically impossible.

Bank lending, which was the principal component of the capital flow reversal in East Asia, was at the other extreme to FDI. The same was true in the debt crisis. Common sense (and received wisdom) suggests that short-term bank loans are more prone to instability than long-term loans, an expectation that again seems to have been verified by the evaporation of interbank credit lines experienced by Korea in late 1997. One reason why Claessens *et al.* (1994) failed to find any distinction in volatility based on maturity may be that they lumped trade credits with other short-term credits extended by banks. The usual belief is that trade credits are one of the less volatile sources of finance – despite the fact that each individual credit is short term – because they are constantly renewed as new trade transactions need to be financed. It is the residual item – bank claims that have a short term to maturity and are not trade-related – that conventional wisdom holds to be particularly volatile.

It has been argued by Persaud (2000) that the recent moves to strengthen bank risk management, strengthen prudential standards and increase transparency may even intensify the problem of procyclical behaviour by banks. He points to the increasing use of DEAR (daily earnings at risk) limits as a tool of risk management that seems perfectly rational when viewed from the standpoint of the individual bank, but which can serve to increase volatility. The DEAR sets a limit on how much the bank is prepared to risk losing during the following day with, say, 1 per cent probability:

> It is calculated by taking the bank's portfolio...and estimating the future distribution of daily returns based on past measures of market correlation and volatility. Both rising volatility and rising correlation will increase the potential loss of the portfolio, increasing DEAR....When DEAR exceeds the limit, the bank reduces exposure, often by switching into less volatile and less correlated assets.

The daily publication of statistics can accelerate and intensify the spread of any bad news that may break, with declining asset values and increasing volatility serving as sophisticated positive feedback mechanisms.

So much for the easy cases. The interesting question concerns the volatility of other claims that can be sold quickly, notably portfolio equity and long-term bonds. There was indeed a reduction in the flow of portfolio investment to East Asia in 1997–98, although nothing like the reversal seen in the case of bank lending. There is an important reason why one should

expect less volatility in the case of portfolio equity than in the case of short-term loans: the price of the relevant asset (shares) can adjust, rather than all the adjustment taking place in the volume. Indeed if a shock has the same impact on the future expectations of domestic and foreign investors in shares, then one would expect that all the resulting adjustment would show up in a change in share prices, with no consequences for capital flows or exchange rates. (Large and abrupt declines in share prices can also create problems, especially when expectations are endogenous and extrapolative rather than exogenous and regressive. I would nonetheless argue that the stock market is a rather good place to absorb the impact of changes in expectations, because the links from the stock market to the real economy tend to be weak in the short term.) It is only when foreign investors lose their nerve about the prospects for a country or region in a way that domestic investors do not, as in East Asia in 1997, that one should expect an impact on capital flows.

The empirical evidence is not as reassuring as theoretical considerations might have led one to expect. Froot *et al.* (1998) have found evidence that equity flows are persistent over time and that investors often buy (sell) in response to a price rise (decline). Kaminsky *et al.* (1999) conclude that mutual funds have a destabilizing impact and have helped spread contagion in Latin America. It also seems that Chilean pension funds made almost no use of their new rights to invest abroad during Chile's capital inflow surge, but then began placing funds abroad on a large scale when capital flow reversal occurred after the East Asian crisis (Ffrench-Davis and Tapia, 2001). Bekaert *et al.* (1999) have found that when equity capital leaves it does so faster than the speed at which it entered, suggesting that it is not so difficult to find domestic purchasers. Only Barth and Zhang (1999) can find no evidence that foreign investors have played a destabilizing role: indeed they claim that it was only in one month (December 1997) that mutual funds were net sellers in the four main crisis countries of East Asia (ibid.: 201). And while they refer to some investors as having been attracted 'into the Asian markets with a short-term horizon seeking high returns' (ibid.: 199), they also argue that the figures show that foreign institutional investors were slow to exit after the crisis started, as a result of which they lost a lot of money (ibid.: 202–5).

Korea has a particularly rich data set (although there are doubts about its reliability), and this has enabled researchers to trace the strategy of individual investors in a way that is not possible elsewhere. The first study to exploit this source, that by Choe *et al.* (1999), suggests that while the trade by foreign investors was destabilizing before the crisis, foreign investors acted as a stabilizing force during the crisis. However their data extended only briefly into the crisis period, and the subsequent study by Kim and Wei (1999a) concludes that foreign institutional and (even more) individual investors were positive-feedback traders (that is, bought in response to

a price rise and sold in response to a price fall) both before and during the crisis. The only exception to this procyclical behaviour was prior to the crisis by foreign institutions with a Korean office: these were contrarian traders (that is, tended to buy recent losers and sell recent winners). Kim and Wei also calculate that a contrarian strategy would have been more profitable than a positive-feedback strategy, which suggests that Koreans who had been following such a strategy (as the counterpart of the foreign positive-feedback strategies) must have made money, or at least lost less money than foreigners. Kim and Wei (1999b) also found evidence that mutual funds based in the United States and United Kingdom engaged in positive-feedback trading, and to some extent in herding behaviour, in Korea in 1997–98.[2]

Note that all these studies focus on portfolio equity investment in the stock markets of emerging countries. As Barth and Zhang (1999) point out, portfolio equity is invested in emerging markets through two additional channels, one of which is private (that is, non-traded) equity. Barth and Zhang's figure 6.2 suggests that in East Asia this is a small but rather stable flow. In the other channel, emerging-market companies list their shares on international markets such as New York (of dominant importance for Latin American companies) or London (ditto for South African companies). Barth and Zhang's tables 6–12 show that international placements rose to major importance in the mid 1990s and peaked in 1997, before falling substantially in 1998. The decline in international placements was nevertheless modest compared with that in foreign investment in local stock markets: it moved from US$6 billion in 1996 to US$11 billion in 1997 and US$4 billion in 1998, while investment in local markets fell from US$9 billion in 1996 to minus US$3 billion in 1997 and plus US$1 billion in 1998.

Authoritative sources assert that the sharp reduction in the inflow of portfolio equity to East Asia during the 1997 crisis reflected quite different behaviour on the part of two different groups of investors (an account that is consistent with the report by Barth and Zhang, 1999: 197). The withdrawals were made by global funds that had been searching for high-yielding investments and had been attracted by the high yields in East Asian share markets prior to the crisis, but which had not advertised their investments in emerging markets. They were embarrassed to be holding assets whose value had collapsed, and got out as fast as they could before their holdings became widely known and criticized. But according to this account the holdings by funds that had advertised they were investing in emerging markets remained steady, and they may even have picked up some of the shares being sold by the former group, perhaps to sustain their target asset allocations. These investors were in emerging markets for the long haul, were aware that these were inherently risky markets that would have downs as well as ups, and neither the managers of the funds nor their investors panicked. Worryingly, Griffith-Jones (2001) suggests that in recent years

the importance of global funds has increased relative to that of dedicated emerging market funds.

Does Milton Friedman's famous 1953 theorem – which says that destabilizing speculators must lose money (because to destabilize a market one must buy near the peak and sell near the trough, whereas making money requires the opposite) – provide reassurance that funds that amplify the boom–bust cycle will lose money and so at least enrich domestic investors? Not necessarily. One possibility, alluded to earlier, is that that the counterpart to sales by foreigners will be purchases by other foreigners. But even if foreign portfolio investors do indeed tend to follow the herd, buying when the market is rising and selling when it is falling, so that, in total, domestic investors are selling when the market is rising and buying when it is falling, it does not necessarily follow that the foreigners will lose money. Buying on a rising market and buying near the peak are not the same thing; speculators who are alert to changes in trend may be able to quit buying, and sell out soon after the peak is past and make money. The empirical studies reported above offer contradictory verdicts on whether many foreign investors in fact got out of East Asia sufficiently quickly to save their skins. What is quite clear is that foreign investors as a whole lost an enormous sum of money in East Asia, or at least on paper: some US$166 billion during 1997, according to the calculations by Barth and Zhang (1999: 204).

Much the same analysis applies to long-term bonds, whose prices also fluctuate in response to changes in expectations in such a way as to ensure that the total stock of bonds continues to be willingly held. However, nominally long-term bonds sometimes include put options, giving the holder the right to demand early repayment at his or her discretion on certain dates. If such dates coincide with a crisis, then the loan tends to disappear just when it is most needed, as happened in Korea in late 1997.

While the holdings of those who buy emerging-market assets with the intention of holding on to them may not be as stable as one might wish, a largely separate and perhaps more acute problem is posed by overtly speculative activities. Hedge funds – institutions whose managers quite consciously range the world looking for market anomalies or good speculative bets that are expected to yield high returns and are totally unregulated on the grounds that only rich people who do not need protection invest in them – are the archetype. The proprietary trading desks of investment banks and other financial companies (commercial banks, securities firms and even a few insurance companies) behave similarly. Hedge funds were the butt of Prime Minister Mahathir's criticisms in 1997, but Kaufman (2000) asserts that virtually all investment institutions have now adopted this investment style for at least an important part of their activities.

The actions of these investors in 1998 come under official scrutiny in the report by the Market Dynamics Study Group of the Financial Stability Forum's Working Group on Highly Leveraged Institutions (HLIs)

(Financial Stability Forum, 2000). The group examined the 'possible destabilizing impact of large and concentrated HLI positions [in 1998] and the implications for market integrity of various aggressive practices' (ibid.: 97). The economies with which they were concerned were Australia, Hong Kong, Malaysia, New Zealand, Singapore and South Africa, although New Zealand and Singapore expressed less concern than the other four. These countries experienced strong pressure on their foreign exchange and domestic financial markets in the middle of 1998. By then it was pretty clear that all the currencies (except the Hong Kong dollar, which was fixed by a currency board) were undervalued, yet the speculative pressures were all for further depreciation. This was the time when the Hong Kong monetary authority upset the free market fundamentalists by buying a big chunk of the equity market to defend itself against the double play. The pressures were relieved in September and gave way to a sharp rebound in early October when the HLIs were forced to deliver following the collapse of LTCM.

The report documents the fact that a handful of HLIs established such large short positions in these currencies that they stretched the capacity of natural counterparties (such as exporters) to offset their positions. The question that an economist instinctively asks is how they expected to make money out of such operations. It is one thing to have the market power to force a price below its fundamental value, but it is quite another to make money out of forcing it there. To do that, one needs to be able to get others to sell the currency at even more undervalued levels in order to close out one's short sales at a profit. In the case of Hong Kong, the HLIs sought to profit by 'double play', which involved selling equities short and then selling the Hong Kong dollar short, relying on the automatic interest rate rise generated by the currency board rules in order to force down equity prices. This would have yielded them a profit even if the Hong Kong dollar was not devalued as long as the Hong Kong monetary authority played by the rules of the game (which it did not, because it intervened to buy the equity index). But in other cases the HLIs could have expected to profit only if they panicked the market.

The evidence is that this is exactly what they tried to do. The report discusses aggressive practices in the form of 'talking the book', which means disseminating rumours designed to influence prices so as to benefit the positions already taken. A manager of an HLI large enough to have significant market power might make negative comments on a currency that would discourage other market participants from taking contrary positions. Some financial institutions are reported to have published 'research conclusions' that were designed to influence the market ('positions led research rather than vice versa', ibid.: 106). They exploited momentum trading by other participants by trading heavily at illiquid hours, apparently attempting to move rates rather than to get transactions executed at the best possible price. HLIs at times took correlated positions within and across markets, presumably by

design though no one could prove that it was not by coincidence. These tactics at times succeeded in driving many regular traders out of the market for fear that they would be overwhelmed by HLIs that were not playing by the normal rules of a competitive market. At other times other market participants were 'emboldened to add to momentum' (ibid.: 107), or at least not to stand in the way of positioning by large HLIs. And some HLIs were able to take advantage of their knowledge of the impact of price changes, for example proprietary trading desks were able to take advantage of their knowledge about when declining bond prices would require bond sales by swap desks, or they might have pushed rates to levels that they knew would trigger stop-loss orders or knock-out options.

The study group did not reach a consensus on the role and importance of the aggressive trading practices that it documented, but it is pretty clear that most members of the group concluded that such practices threatened market integrity. After making a host of careful qualifications, the report concluded:

> The group is concerned about the possible impact on market dynamics of some of the aggressive practices cited in the case-study economies during 1998; it is not, however, able to reach a conclusion on the scale of these practices, whether manipulation was involved and their impact on market integrity. Some group members believe that the threshold for assessing manipulation can be set too high and that some of the aggressive practices raise important issues for market integrity. They are of the view that there is sufficient evidence to suggest that attempted manipulation can and does occur in foreign exchange markets and should be a serious concern for policymakers (ibid.)

It is difficult to imagine a much more damning indictment coming from a group of officials.

Strategic issues

The focus here will be on how to make individual types of capital flow less unstable, rather than on trying to influence the mix of different forms of capital flows. A good place to start considering what might be done in this connection is to consider why portfolio equity seems to have disappointed the expectations of those who argued that it was unlikely to pose problems of instability. It can be conjectured that the reason lies in the way that financial markets operate. Consider the words of Kaufman (2000: 61):

> As markets and assets have changed dramatically with the emergence of a new global financial system, so has the composition of financial institutions themselves. The power and influence of traditional commercial

> banks, savings and loans, and insurance companies have diminished, while a new breed of institutional participants has come to the fore. These institutions are distinguished by their emphasis on short-term investment performance, their heavy use of leverage, and their willingness to move in and out of markets – whether equities, bonds, currencies, or commodities – in a relentless quest to maximize returns. The new breed includes the often-reviled hedge funds, although they are neither the sole nor the leading contestants. In fact, most prominent banks, securities firms, and even a few insurance companies possess departments that emulate the trading and investment approach of the hedge funds. Even the corporate treasuries of a number of non-financial corporations are engaged in this activity. Once arcane and exotic, the hedge fund approach to investment has been mainstreamed.

In other words the financial markets are currently dominated by investment managers with a short-termist philosophy, based on the truism that to maximize returns in each and every short run necessarily maximizes returns over the long run as well. What it clearly does not maximize is the usefulness of financial markets to those who raise funds from them.

A key question is whether short-termist management is really in the interest of the ultimate investors: the individuals who buy mutual funds and the institutions whose endowments and working assets are under management. The contrary argument has been developed by Swensen (2000), who is the chief investment officer of Yale University and *inter alia* manages its endowment. The basic argument is that short-termist management risks whiplash (selling an asset just before it rises or buying it just before its peak) and undermines the likelihood of systematic contrarian investment (buying what is currently out of fashion and selling what is currently in fashion). Such actions often seem unthinkable in the short term, but the evidence is that on average they are more often right than wrong.

The basic characteristics of a long-term investment strategy, as laid out by Swensen, involve a strategic decision to divide the portfolio among asset classes in target proportions based on long-term risk-return characteristics. Within each asset class, assets are managed by individual managers who are selected according to their performance relative to the rest of the asset class, as in the conventional short-termist approach. But the strategic element in this strategy leads to results that are exactly contrary to those yielded by the DEAR approach described above. For example a market run on emerging market assets leads to the purchase of more of such assets, in order to restore the proportion of the portfolio in that asset class to its target share, rather than to the sale of similar assets, as under DEAR. This tends to stabilize markets rather than destabilize them.

Which strategy produces better results for the ultimate investor? The Yale endowment managed by Swensen has indeed achieved superior returns. But

so have most of the hedge funds, the example *par excellence* of the short-termist approach. What both have in common is superior management. One would need a much more systematic comparison to be able to draw any strong conclusion about the superiority of one approach over the other from the standpoint of its ability to generate results to the ultimate investor. What one can surely say is that there is no reason to accept as axiomatic the self-serving claim of the short-termists that any approach other than theirs is self-evidently at the cost of the investor.

Perhaps the biggest difficulty with the long-term approach is the difficulty of monitoring the performance of investment managers in real time. If one abandons the discipline of regular comparisons with the behaviour of a peer group, poorly performing managers have too much opportunity to plead that they are currently investing in what is unfashionable and that patience is needed to give the market time to realize the error of its ways. But the best antidote to the lack of that discipline is to demand an alternative type of discipline in the form of a coherent long-term strategy such as that described above. It is trustees who should ensure that this alternative discipline is in place, although they can be as prone to panic (the great enemy of contrarian investing) as anyone else.

Even though it cannot be proved at this stage, the presumption is that ultimate investors and borrowers share a common interest in securing a shift from the currently dominant mode of short-termist investment management to the long-term strategy described above. They share a common enemy in the form of the portfolio management industry, as it is currently organized. This has an interest in maintaining remuneration based largely on frequent short-term comparisons with the performance of peers, which generates high remuneration and lots of portfolio churning to generate commission income to pay the high salaries. The question is whether anything can be done by means of public policy to tilt the balance of advantage towards those investment managers who employ a long-term strategy. The remainder of this chapter consists of brief explorations of several ideas that might help push things that way.

An amended UDROP

Perhaps the most promising possibility in this connection is an idea that has surfaced as a result of the repeated financial crises and the costs they have imposed on their victims: that it should be possible to declare a moratorium on debt service payments. Many observers have come to feel that, with private capital flows as large and volatile as they are now, the only response to the outbreak of a currency crisis is to interrupt a run by *force majeure*. This conclusion is reinforced by the fact that the countries that came out of recent financial crises relatively quickly and least badly scarred

were those (notably Korea and Brazil in 1999) in which the authorities quickly negotiated a lengthening of debt maturities with an important class of creditors. The thinking is that in many such crises the problem is one of illiquidity rather than insolvency; the country would be capable of honouring its obligations without a cut in their present value ('debt relief') if only the repayment obligations were spread over a longer time period, but the incentive of any individual creditor is to cut and run. In this situation one needs to solve the creditors' coordination problem by giving them an incentive to come to the table and quickly negotiate a debt restructuring. A moratorium or standstill could provide that incentive by eliminating the need to cut and run. The problem is how to offer that possibility without destroying the sanctity of the debt contracts principle that underlies any capital market. Note also that a successfully designed standstill mechanism might have the attractive feature of sabotaging the investment strategy of short-termists while leaving long-term strategies relatively unscathed.

To consider the possibilities we shall start with the most concrete proposal for a standstill that has yet been tabled, the UDROP proposal by Buiter and Sibert (1999). UDROP is the acronym for 'universal debt rollover option with a penalty'. In Buiter and Sibert's words:

> All foreign-currency IOUs must have a rollover option attached to them. This includes private and sovereign, long-term and short-term, marketable and non-marketable, negotiable and non-negotiable debt, including overdrafts, credit lines, and contingent claims.... All borrowers, public and private, must be given [an] option... [that] would entitle the borrower, at his sole discretion, to extend maturing debt for a specified period (say three or six months) *at a penalty rate*. The borrower would be entitled to the rollover only if the debt in question had been serviced in full, barring the final repayment...
>
> We expect the penalty spread and other features of the rollover contract to be negotiated between debtors and creditors, rather than decreed by a government or international body (ibid.: 231–2).

Buiter and Sibert emphasize that their scheme is intended only to help otherwise solvent borrowers who are unable to roll over their foreign currency debt because of a liquidity crisis. However most crises are not pure panics that are resolved simply by the passage of time. They arise when creditors develop doubts about the ability of debtors to service their debts on the contractually agreed terms, and they end when those doubts are resolved. One has to ask why a six-month delay without any restructuring of debt beyond that point should allay such fears: surely the presumption is

that the debtor's condition will be essentially the same as it was when the UDROP was exercised, which suggests a danger that all it would accomplish would be to delay the crisis.

Nevertheless an amended version of the UDROP proposal would be a natural complement to the ideas for an international bankruptcy mechanism that were recently floated by Anne Krueger (2001). Enforcing the standstill she envisages would be much easier if all international loans included a clause that could be invoked to extend the maturity of the loan in the event of the borrowing country facing a crisis. To transform this into a proposal that could serve the function of a standstill, however, one would need to alter the term for which the rollover would apply.

The above diagnosis of what is needed to end a debt crisis suggests that an extension of much more than six months is likely to be needed. The three-year extension of maturities that was negotiated between Korea and its bank creditors at the end of 1997 seems much more likely to be typical. In fact this is a dimension that probably should not be prespecified, but instead negotiated between the debtor and a creditor committee *ad hoc* as and when the rollover option is invoked. The creditors will presumably seek the shortest rollover period that will allow the debtor to restore its liquidity and escape from the crisis. But if they are recalcitrant about agreeing to a realistic time frame, the debtor would be relieved of the obligation of paying amortization *pro tem*. The incentive for the debtor to agree to the shortest realistic period for the rollover is to preserve its standing in the capital markets.

Creditors have reacted adversely to the UDROP idea. If it turns out they are so strongly averse to it as to bring lending to a halt, one solution might be to exempt long-term loans above a certain maturity. Trade credits might be allowed to satisfy the requirement by means of a provision for a given volume of credits to revolve over time, on the model of the banks' 1998 agreement with Brazil. But loans that should not be exempted, no matter how severe the impact on volume, are short-term loans. It is true that UDROP would add to the risk of short-term lending to a debtor whose medium-term position looked doubtful, but that is the point. Short-termist lenders find it more difficult to persuade themselves that they can buy short-term assets and then win the race to exit if things go wrong. The game where investment bankers advise their clients that it is safe to buy short-term assets from country X because it looks safe enough for the next n months would be undercut. Only investors who were willing to make a relatively long-term commitment would invest in emerging market loans, and those are the only investors worth having.

UDROP would not, of course, resolve the problem posed by short-termist investors in the equity markets. Perhaps that is a problem we are going to have to live with.

Trading guidelines for foreign exchange markets

In reaction to the criticisms by the Sub-Group on Market Dynamics of the Study Group on Highly Leveraged Institutions of the Financial Stability Forum referred to above, in February 2001 a group of 16 leading banks announced a voluntary code of conduct. The idea was that if all the leading banks were to subscribe to these principles, and deny liquidity to parties whom they believed to be violating them, then there would be no further incidents like those of August–September 1998. The principles they announced were as follows:

- Banks should be sensitive to market risk and credit management and pay special attention to the financing of trades in a currency experiencing high volatility.
- Foreign exchange managers should pay particular care when executing orders in times of volatility and market makers should have the right to refuse customer transactions that they felt might further disrupt or intend to disrupt markets.
- Stop/loss orders: foreign exchange managers should communicate frequently with customers on market developments, especially with regard to individual trigger levels.
- Care should be taken that customers' interests were not exploited when financial intermediaries traded for their own account.
- Institutions should be attentive at all times to ensure the independence and integrity of any market-related research they published.
- Financial intermediaries should implement rigorous guidelines on the handling of rumours. Dealers should not relay information that they knew to be false or suspected might be inaccurate.
- Manipulative practices by banks with each other or with clients constituted unacceptable trading behaviour.
- Foreign exchange trading management should prohibit the deliberate exploitation of electronic dealing systems to generate artificial price behaviour.

It is rather sad that it was necessary for leading financial institutions to announce that in future they would consider it bad form to manipulate their clients or to publish research that lacked integrity, but perhaps we should be thankful for small mercies. At present there appears to be no intention to investigate whether banks are living up to their voluntary code. It would be worth adding this to the tasks imposed on supervisors.

Limitations on investment-grade bonds

Investors with fiduciary responsibilities, such as insurance companies, are forbidden (at least in the United States) to hold bonds that are less than

investment grade. At first glance is may seem sensible, since it precludes these institutions abusing their position of trust by using investors' money to buy risky assets. What does not make sense, however, is that this requirement is specified in terms of what they may hold rather than what they may acquire. The difference can be crucial. In late 1997 insurance companies holding Korean bonds were forced by this requirement to sell them in the midst of the market implosion, when the credit rating agencies had panicked and suddenly cut Korea's rating to below investment grade. The holders were not allowed to exercise their judgement of whether Korean bonds remained a good investment (which they certainly were after their price had collapsed) but were forced to sell and thereby add to the pressures on Korea, at the cost of their clients. Any such requirement should be redrafted to limit what fiduciary investors can buy rather than what they can hold. That would prevent their being forced to sell in response to a credit downgrading, as happened in Korea in late 1997. As well as making bond lending somewhat more stable, this change would reduce the premium on short-termist assessment of whether and when credit ratings may change.

Put options in bond contracts

A five-year loan with a put option exercisable in six-months' time is not really a five-year bond; from an economic standpoint it is a short-term, six-month loan with a rollover provision if the lender consents and it should be counted as such in the statistics. Correct reporting would force both borrowers and their national authorities to recognize the risks being taken. One would expect that this would diminish the attractiveness of agreeing to the inclusion of put options in bond contracts, and hence lengthen the effective maturity of bonds.

Collective action clauses

One of the reasons for the switch from bank lending in the 1970s to bond lending in the 1990s was without much doubt the lesser vulnerability of bonds to restructuring when a country ran into debt servicing problems. This was based in particular on provisions that were introduced into New York law in 1939 to restrain abusive debt buybacks that had the effect of arbitrarily expropriating some creditors (Buchheit and Gulati, 2000: 66–7). The provisions in question required unanimous consent by bondholders to any change in the terms of the payment clauses, which were those clauses that specified the sums to be paid in debt service and the dates when payments were due. This gave a single recalcitrant bondholder – or a vulture fund that bought up distressed debt – the ability either to prevent a debt reconstruction when that was necessary or to insist on full repayment even when other holders had agreed to accept less. Indeed such a bondholder could normally expect to demand, and win from the courts, accelerated

repayment when normal debt service was interrupted before the debt reconstruction. Naturally the prospect that some creditors would not make sacrifices when others did, and that the debtor would indeed be able to service the claims of the holdouts precisely because the others had agreed to accept a write-down of their claims, meant that the majority were reluctant to endorse bond restructurings. It could even be that the debtor would be unable to honour the revised debt terms because of the payment it was forced to make to the holdout bondholders.

As long as bonds were a small part of the total claims outstanding, it was simpler to allow them to remain intact when bank claims were restructured. It was clear that this could not continue if debtors ran into trouble when bonds had become a large part of the total debt, and indeed in later years the official sector started to call for private sector involvement in debt workouts (the G10 in 1996). Led by Eichengreen and Portes (1995), a number of economists had already started to advocate the inclusion of collective action clauses in all bond contracts in order to facilitate the restructuring of bonds when necessary.[3] When this proposal was first mooted there were dire predictions by some New York-based lenders, echoed by some of their clients, that any attempt to include such clauses would bring lending to a halt, or at the least lead to drastic increases in interest rates. Then it was realized that about one third of such bonds, namely most of those signed in London, already included such clauses. Eichengreen and Mody (2000a, 2000b) therefore examined whether the clauses had resulted in higher interest rates for borrowers, as per the prediction. It turned out that the impact was modest and, interestingly, that the direction of the impact depended on the borrower's creditworthiness. Countries with poor credit ratings did indeed have to pay somewhat more to borrow when they had the added security of collective action clauses, presumably reflecting lenders' concern that unwillingness to pay might cause borrowers to abuse the clauses, even if they were able to pay. But countries with good credit ratings actually paid somewhat less, presumably reflecting lenders' recognition that the clauses would reduce the cost of restructuring debt (and the possible interruption in debt service payments while this happened) in the remote possibility that the countries found themselves unable to pay.

Lawyers have now found a way of reconstructing bonds issued under New York law, even without collective action clauses (Buchheit and Gulati, 2000). The key is to accompany the offer to swap old bonds for new ones that contain the revised payment terms by amending the non-payment clauses of the old bonds in such a way as to make these bonds much less attractive and impede holdout bondholders from successfully litigating for continued or accelerated payment. For example the old bonds may be delisted, the waiver of sovereign immunity may be withdrawn and negative pledge protection may be removed, all without the need for the unanimity that prevents revision of the payments clauses. Since these disfiguring amendments

to the terms of the old bonds are adopted simultaneously with bondholders exchanging their old bonds for the new debt instruments, they are known as 'exit consents'. Exit consents were used when restructuring junk bonds in the 1980s, and in 1999 Ecuador was the first country to use the technique to restructure sovereign bonds.

Exit consents have one great advantage over collective action clauses: they can be used to deal with the stock of old bonds, rather than simply allowing today's new issues to be restructured in the future. They also have one great disadvantage: they do not give total protection against the threat of litigation by holdouts. An optimal strategy for an emerging market (or at least for one with a reputation as a good creditor) would be to ensure that all new bonds contained collective action clauses, while being ready to use exit consents on old bonds should the need arise. It would be very easy to ensure that its new bonds contained such clauses: all it would need to do would be to shift its borrowing to London until New York law was amended so that the terms of its standard bond contract included collective action clauses.

Might the inclusion of collective action clauses in bond contracts actually make bonds more attractive for creditors to hold as well as making life easier for debtors if the worst happens? That would depend on the net outcome of two opposing considerations. On the one hand, collective action clauses would reduce the cost and disruption of debt restructuring should the debtor become unable to pay on the originally contracted terms. On the other hand, the greater ease of renegotiating terms might encourage a debtor to succumb to the temptation to avoid paying when it could do so. Eichengreen and Mody's evidence on bond pricing implies that investors are able to discriminate between the countries in which each effect dominates, which suggests that they are unlikely to suffer if collective action clauses become routine. By making more explicit the possibility that bonds will have to be restructured, one would expect collective action clauses to make potential buyers weigh up the chances of their being invoked, which will help to curb short-termism. Those who still buy them are therefore more likely to prove patient holders.

Currency of denomination

One reason why currency crises tend to be so disruptive is that foreign lending to an emerging market country is almost always denominated in either dollars or (if different) the currency of the lender. This means that any devaluation increases the borrowing country's foreign liabilities in terms of its domestic currency, which, in extreme cases can threaten widespread bankruptcy in the financial and/or corporate sectors (as happened in East Asia in 1997). In contrast many industrial countries borrow predominantly in their own currencies, which makes an exchange-rate change far less threatening.

Therefore one change that seems highly desirable would be to use the borrower's currency to denominate international loans. Eichengreen and Hausmann (1999) imply that this is inconceivable by describing emerging-market countries as suffering from 'original sin'. No evidence is presented to justify the innuendo that the practice of denominating loans in foreign currencies is unalterable. In fact there are occasional instances of emerging countries borrowing in their own currencies, of which the major example is South Africa. Instead of dismissing the possibility of achieving such a desirable reform, it makes more sense to try to understand why it happens so rarely, and therefore what conditions might be necessary to make it the norm.

Why might lenders seek to avoid currency exposure? The strongest reason is a desire to avoid holding assets in a currency whose authorities have a record of irresponsible macroeconomic management that could lead to unpredictable losses through devaluation. But most emerging markets have got beyond the stage of thinking that cheating their creditors is a clever strategy. Since most emerging markets' domestic interest rates are higher than dollar interest rates at most times, it can be expected that a lender will earn more from loans denominated in the borrowers' currency in normal times. Indeed there is a presumption that in the long run the currency risk premium will tend to make domestic currency borrowing more expensive to the borrower and more remunerative to the lender. What it will accomplish is to move the obligation to pay away from a time when payment is particularly onerous to a time when it is less problematic. Agreement to denominate loans in the local currency would essentially redistribute earnings over time in such a way as to reduce the pressure on borrowers at particularly difficult times, without reducing – indeed, probably increasing – the present value of expected earnings. A lender that was particularly concerned to avoid showing a balance-sheet loss could cover its position in the forward market (whether the borrowing country would still reduce its risks in the event of a devaluation would depend on whether the cover was provided by a domestic or a foreign party). This suggests that it is pretty difficult to justify lenders' obsession with avoiding foreign currency exposure.

The greater security of own-currency borrowing was recognized in the 1988 Basel Accord, which allowed the preferential 20 per cent risk weight to apply to long-term bank lending in non-OECD countries when it was denominated in, and financed in, the local currency. The policy question is whether the industrial countries should not go further and drop the requirement that lending be financed by local currency deposits or borrowing, and thus give an incentive for foreign lending to be denominated in the local currency.

Remuneration practices

Most managers in the asset management business face a remuneration structure that is intended to align their personal incentives with the welfare of their principals. This takes the form of a base salary augmented

by a substantial bonus if a superior performance is achieved. The base salary is intended to secure a reasonable standard of living for managers even if their performance is average, while the bonus pays them part of the benefit that would accrue to their principals if their returns are exceptional, thus providing them with an incentive to strive to achieve exceptional returns. The bonus is normally based on the extent to which the portfolios they manage achieve a higher return than the norm for the asset class in which they are investing, as measured by the index for that asset class.

The problem with this practice is that the time frame over which bonuses are defined may not be long enough for a contrarian investment policy to bear fruit. If bonuses are paid annually and a fad lasts only a few months, then the bonus system will give managers the right incentive. But if bonuses are paid on an annual basis (or worse, as is normal in mutual funds, quarterly), and a fad lasts for years, then responsible investment managers who make long-term contrarian investments can find themselves foregoing bonuses for long periods. Worse, they may risk being fired for falling behind the index for a period shorter than a fad can last. The bonus system is an attempt to respond to the real problem of making sure that managers act in the interest of their principals, but it can provide an incentive for managers to compete to beat the index in the short term and make sure they do not depart too far from it in the longer term, a practice that can amplify and prolong fads.

The importance attached to managers' performance relative to their chosen benchmark has the unfortunate effect of inducing herd behaviour on the part of managers. No matter how strongly they believe a security to be misvalued by the market, they simply cannot afford to follow their convictions if they believe that the crowd is going to perpetuate its error for any length of time. That way they risk not merely their bonuses, but perhaps even their jobs. Professional prudence dictates not straying too far from the benchmark, that is, not defying the herd.

Since the problem is that the bonus design provides an incentive to follow the herd in the short term without paying proper attention to the likely long-term consequences of where the herd is heading, it seems natural to explore the possibility of introducing longer-term performance into the design. Suppose, for example, that managers were paid their bonus only after a delay, and then only if subsequent events had not established that their investment strategies were flawed. This would provide a very concrete incentive to assess the longer-term sustainability of the strategies they were choosing to pursue. And it would not be difficult to use tax policy to encourage all asset management organizations to revise their remuneration practices in this way: a provision could be introduced that bonuses paid promptly or without appropriate conditionality would not count as an expense that employers were entitled to deduct from revenue when calculating taxable profit.

Such an approach would be relatively easy if asset managers stayed in the same job throughout their career, but difficulties would arise when a manager quitted. One would not want to give an artificial incentive to accelerate turnover by paying out the bonus unconditionally to any manager who quit his or her job. Could one notionally freeze the portfolio as it was on the leaving date and apply the agreed test to that hypothetical portfolio? Since managers change their portfolios quite frequently, that would hardly seem just. Would one look at the performance achieved by his or her successor and assume that the departing manager's policy would have been the same? If that were a good assumption, one would have to doubt whether it was worth changing the manager. Would one require the departing manager to continue managing a hypothetical portfolio for the next five years to establish whether she or he could have achieved the hurdle level of performance? This is a problem for which more research is needed.

An alternative approach would involve a more radical change in the way the industry functions, with trustees taking on a bigger part of the burden. Instead of hiring managers to make the critical decisions and seeking to blame those managers when things went wrong, trustees could themselves decide to buy and hold for the long term. Or they could decide to invest a certain proportion of their portfolio in, say, emerging-market bonds and then hire a manager to look after it for five or ten years, with the bonus to be determined only at the end of that period on the basis of cumulative performance over the whole period. They might even experiment with assigning a portfolio to a manager for a ten-year period and relying on his or her sense of professional responsibility to motivate him or her to act in the best long-term interest of the principals. This assumes that there are competent people who find a professional challenge sufficient motivation for exceptional effort, without the need for monetary incentives, which is taken for granted in many other professional areas.

Concluding remarks

The boom–bust cycle in lending to emerging markets is exaggerated by the short-termist nature of modern financial markets and the incentives to which individual participants in those markets are subject. While some measures, such as persuading banks to abide by their voluntary code of conduct, may be relatively easy to achieve, most of the other easy ones (such as requiring proper accounting of bonds with put options) seem unlikely to achieve a great deal. Changing remuneration practices might be important, although it will be difficult to find a formula that will work satisfactorily for people who change jobs. Perhaps the most promising measure would be to allow standstills to be invoked in a crisis, in which context an amended UDROP clause in loan contracts might prove helpful.

Notes

* The author acknowledges the helpful discussion of other participants at the UNU/WIDER workshop in Santiago in March 2001.

1. Calvo described this more clearly in his oral version than in his written version.
2. They set out to test the hypothesis that mutual funds based offshore are more prone to heavy trading, positive (procyclical) feedback trading, and herding behaviour than are onshore funds. To their surprise they found that funds based in the United States and United Kingdom were more prone to positive feedback trading and herding behaviour, although the offshore funds did tend to trade more heavily.
3. Collective action clauses would allow a bondholders' meeting to be convened to consider a debt reconstruction, rules allowing interest and amortization terms to be modified by a qualified majority of bondholders, sharing clauses, and so on.

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9

Corporate Risk Management and Exchange Rate Volatility in Latin America*

Graciela Moguillansky

Introduction

After the Tequila and Asian crises there was an important debate on the impact of capital-flow volatility on investment and growth in developing countries. In policy circles – including among policy-oriented academics – the discussion centred on the need for fundamental reform of the international financial architecture.[1] The academic studies of the time focused on the impact of the various components of capital flows.

This chapter deals with the latter type of analysis, in particular the financial management of multinational companies with investments in Latin America. A distinction is made between the degree of reversibility of the physical investment from foreign direct investment and the flow of funds linked to it. The analysis centres on episodes of currency or financial shocks and the financial management of firms that expect a significant devaluation. This allows us to explore the interaction between the microeconomic behaviour of and the macroeconomic impact on the foreign exchange market, based on the following questions:

- Is currency risk management by non-financial corporations affected by foreign exchange volatility and financial contagion?
- Do the diverse exchange rate policies have different effects on multinational companies' cash flow management?
- Can we identify micro–macro transmission mechanisms between currency risk management and the foreign exchange market?

The study on which this chapter is based used the following methodology: interviews with the finance managers of multinational companies in various sectors but all with investments in Latin America and headquarters in the United Kingdom or Spain; a review of the literature on business and currency

risk management; and an analysis of surveys on financial risk management in developed countries.[2]

Sixteen finance managers were interviewed in 12 multinational companies. The industries represented were mining, oil and gas, energy, telecommunications, food and finance. Four of the companies ranked among the top ten firms in terms of sales in the region and all of them had invested heavily in Latin America during the previous five years. As a complement to the research the finance managers of the multinationals' subsidiaries were interviewed in Chile. There were four reasons for choosing Chile for the study: (1) the Chilean experience was considered paradigmatic after the economic reforms, (2) it had a very stable economic regime, (3) it had good country-risk qualifications and (4) the financial system was relatively well developed.

As the analysis and the conclusions are not based on statistical samples and there are no findings that can be scientifically tested, this study can only be considered as an essay on the subject, and perhaps as an incentive for further research.

Foreign direct investment and capital flow volatility

During the 1990s foreign direct investment (FDI) in Latin America and the Caribbean rose from an annual average of $6 billion at the beginning of the decade to $85 billion in 1999. Eighty per cent of that amount was concentrated in four countries: Argentina, Brazil, Chile and Mexico.

FDI and capital formation maintained a strong relationship during the 1980s and 1990s (Ffrench-Davis and Reisen, 1998), but an important percentage of FDI during 1999 and 2000 came from mergers, acquisitions and privatizations. ECLAC (2001) estimates an accumulated figure of $90 billion in two years, or half of the total FDI in that period. Most of that investment was in infrastructure, particularly in the telecommunication and energy sectors.

A comparison of the figures for the 1980s and the 1990s shows that FDI in Latin America was consistently less volatile than net capital transfers[3] (see the standard deviation/average of the series in Table 9.1). This is consistent with the finding by Sarno and Taylor (1999) that FDI has a very significant permanent component, suggesting that it is more sensitive to the long-term structural forces behind a country's economic performance than other forms of financing. Hausmann and Fernández Arias (2000a, 2000b) and Lipsey (2001) also conclude that FDI liabilities seem to be safer (in the sense of being less crisis prone) than debt or other forms of non-FDI obligation.[4]

However multinational companies have always been aware of currency volatility. During the 1960s, 1970s and 1980s the problem was caused by commodity price shocks, inconsistent macroeconomic policies and high inflation rates – in some cases hyperinflation. Multinationals addressed this problem by accelerating the remittance of dividends and depreciation

reserves. With the opening of the capital market and financial globalization, multinational companies increased their debt financing. This was stimulated by the revaluation of Latin American currencies during 1990–97 (Ffrench-Davis, 2001).

Foreign debt exposure depends on the financial strategy of the multinational company, the macroeconomic domestic and international environment and the business sector in which it is located, among other factors. In the case of Chile, statistics from the Foreign Investment Committee show that in the mining sector 70 per cent of total FDI comes from loans from headquarters or the international financial system, while in manufacturing the figure is only 22 per cent. In the case of the public service sector, at the beginning of the 1990s firms had a very low level of debt in foreign currency but the share increased rapidly during the rest of the decade. In some countries, including Chile, financing with foreign loans was encouraged by tax benefits.

Foreign exchange risk management by multinational firms

Financial and currency risk management has become a fundamental part of business administration during the past 10–15 years, but multinational firms in developing countries were managing their risk exposure long before that. It must be remembered that the Latin American countries were very unstable and had extremely high inflation rates, and currency crises were frequent. Matching assets and liabilities in the same currency so that payments and receipts in a particular currency could be offset, was the most common mechanism for dealing with foreign exchange risk.

Another mechanism still in use is the portfolio approach. This mechanism, in which the firm manages a great diversity of current flows, provides protection against currency risk. It implies geographical diversification of business, diversification of types of business and geographical diversification in operations and sources. This is the case for multinational companies with a large variety of goods and businesses in different regions and different countries, such as the chemical and pharmaceutical industries and manufacturers of food, beverages and other goods.

Thanks to the development of the international financial system, during the 1980s and especially during the 1990s most multinational companies adopted new risk management instruments – swaps, forward contracts and options, the so-called derivatives – to deal with currency risk exposure.[5] But is there an optimal means of currency risk management?

A typology of financial strategies in currency risk management

There is no single accepted framework that can be used to guide hedging strategies. As Froot *et al.* (1993) stated in the early 1990s, there are multiple solutions to optimal hedging by multinational firms. A firm's optimal hedging strategy – in terms of the amount of hedging and the instruments

used – depends on the nature of the investment, the financing opportunities, the nature of the product, the degree of market competition and the hedging strategies adopted by its competitors. Therefore determining whether a hedging strategy is appropriate is a very complex matter.

In the real world enterprises have neutral, averse or active management policies. Even if they are risk reluctant there may be circumstances in which matching currencies between incomes and liabilities is impossible or the instruments for hedging are so expensive that the firm prefers to have some exposure to risk. We shall therefore assume that enterprises always have some percentage of risk exposure. But hedging strategies differ among firms. For the purpose of our analysis, this chapter develops a typology of financial strategies, classifying firms by degree of risk exposure, which depends on market orientation and diversification.

Multinational companies in the export sector

In ascending order of risk exposure are multinational companies that deal with commodities, mineral oil and gas, wood pulp, fishmeal, and subsidiaries in export processing zones (assembly plants). In general their investments are financed with equity (FDI) and loans in foreign currency, and they match interest services and remittances of dividends with income in the same currency, so they are naturally hedged[6] (Box 9.1).

Box 9.1 Currency exposure in the mining sector

Investments in the mining sector (minerals, oil and gas) predominantly take the form of project financing. A main characteristic of this type of funding is that the guarantee is the quality of the project. The loan is paid under a long-term contract with the gross earnings of the project itself. In some cases the mining companies enter into payment arrangements with output instead of issuing ordinary debt. A bank provides up-front cash and the company undertakes to deliver the output to the bank and arranges for the output to be repurchased at a guaranteed price.

A second characteristic is that before investing mining corporations always obtain from the host country a full guarantee that there will be no variation in the investment conditions, freedom of capital and commercial management, especially with regard to loan repayments. They operate with an 'escrow account' abroad, in which the corporation has the right to deposit the export proceeds, and from that account, without inflow into the country, to pay the interest and mortgages on the loans.

Both characteristics are related to the long maturity of mining investment. The result is that entrepreneurs and bankers, at the moment of investing, build a protective umbrella against financial crises. If the project produces sufficient minerals, oil or gas they sell the output in the international market, receive the income abroad and pay off the foreign loans, and all of this is independent of economic changes in the host country.

Because of the risk aversion that prevails in developing countries, mining corporations manage a minimum of their liquid funds inside the host country. The head office of the corporation chooses an optimum of interest rate, risk and tax exposure to make its financial investment and it is always done outside the country in which the investment is located.

On the other hand some companies have chosen to hedge the value of expected costs by introducing derivatives into their currency risk management, but this is not a general practice. The devaluations that occurred after the Tequila and Asian crises brought benefits to these firms because the cost of salaries and other local inputs in terms of strong currencies (yen, mark, pound or euro) decreased.

(*Source*: Based on interviews at multinational companies in the mining sector.)

Multinational companies that are regionally and geographically diversified

Next in the order of degree of currency exposure come multinational companies whose production is oriented towards the local market but which invest in many countries and regions. Such companies can be found in every branch of the manufacturing sector. While the earnings are obtained in local currency, liabilities such as short-term and long-term loans are paid mainly in foreign currency. These firms face two principal types of currency risk exposure.

The first is economic risk. In the business literature, and also among managers, it is difficult to find a single definition of this. In general the concept relates to the impact of a devaluation of the present value of the future earnings of the firm. It is very difficult to measure this concept because it depends on the competitive context of the firm and the effect of the currency shock on competitors and customers. As can be seen in Table 9.1, managers rarely hedge this type of risk.

The second risk is transaction risk exposure, which is easier to measure and to hedge. Transaction exposure or cash flow exposure relates to the real cash flow involved in settling transactions denominated in foreign currency.

Table 9.1 Latin America: FDI and net capital transfer volatility, 1980–99 (coefficient of variation, per cent)

	1980–85	*1986–89*	*1990–95*	*1996–99*
FDI	0.22	0.35	0.50	0.23
Net capital transfers	1.51	0.24	1.45	1.31

Source: ECLAC; balance of payments of 19 Latin American countries.

Table 9.2 Most important subjects of hedging strategies (per cent)

	Accounting earnings	*Cash flows*	*Balance sheet accounts*	*Economic risk firm value*
United States	44	49	0.9	8
Germany	55	34	7.4	12

Source: Bodnar and Gebhardt (1998).

As Table 9.2 shows, 49 per cent of US firms and 34 per cent of German firms hedge against the risk involved in this.

In our study, multinational companies with business in many countries and regions always hedged against transaction exposure but very seldom against balance sheet account or translation exposure, that is, the impact of currency volatility on the value of assets and liabilities. There are two main reasons for such a policy: (1) devaluation in one country can be compensated with revaluation in another; and (2) in the very long term, assets and net worth will not be affected by currency volatility because exchange rate movements mainly depend on productivity.

Multinational companies with investments concentrated in one region

Unlike the above type of company, multinational companies that concentrate their investments in just a few countries or a single region and produce either for foreign or for domestic markets usually take balance sheet exposure into consideration. The exposure arises from the periodic need to report the consolidated world-wide operations of the group in one reporting currency. In this case they try to finance their investments in the domestic financial system as much as they can, or in a basket of currencies that are highly correlated with the local currency in the long term. They also hedge translation and transaction risk with derivative instruments: debt, expected dividends and cash flow movements, as described in a number of studies (for example Davis *et al.*, 1991; Guay, 1999; Prevost *et al.*, 2000; Bartram, 2000).

Multinational companies in public services

Many multinational companies entered Latin America following the privatization of public services (telecommunication, electricity, water and sanitation, roads and ports). These companies could be viewed as being most exposed to currency risk volatility because they obtain their income in the local market and make huge investments that the local financial systems cannot afford. So if they follow a risk averse policy they have to engage in financial hedging.

Some multinational companies – natural monopolies operating in regulated markets – have negotiated tariffs that are fully indexed to the domestic price of the dollar. In other cases there is partial indexation, for instance because inputs such as gas and oil are denominated in that currency, for reposition of the assets or the cost of expansion (machinery for electric power plants and water treatment plants, telecommunication equipment, computers and other information technology equipment are always imported from industrial countries).

Among this group there are various kinds of currency risk strategy. Some companies are very conservative and have a centralized risk policy. The subsidiary reports financing movements to its head office, which hedges the maximum of the level of exposure. Other strategies set a global limit of risk exposure, such as one year's total earnings. There are also cases of public service multinational corporations being highly indebted in foreign currency and having businesses concentrated in one region. For them, translation risk is the main factor in hedging. If a step devaluation occurred there could be a sharp rise in their indebtedness and a consequent fall in the value of the company.

In summary, it can be concluded that the degree of companies' risk exposure depends not only on the magnitude of their indebtedness but also on their market orientation and degree of diversification. Some companies, such as export firms, do not use hedging at all because the costs would be greater than the benefits. For other multinational companies, such as firms that are oriented towards the local market and have large foreign currency debts, the demand for derivatives is very high. In this case, instruments in the derivative market are a necessary component of financial management, being indispensable for smoothing fluctuations in the interest and foreign exchange rates.

Statistics in derivative markets

Comprehensive global statistics on derivative instruments are available from the Bank for International Settlements (BIS), which measures the trading volume (turnover in the number of contracts) and the notional amount

outstanding (in US dollars) of derivatives by type of instrument. The notional amount refers to cash flows under individual contracts and provides a rough indication of the potential transfer of the risk associated with them.

Press releases from the BIS[7] show that during the period 1995 to June 1998 the total amount of derivatives increased very rapidly at a global rate of 14 per cent per year. Then in the six-month period between June and December 1998 – in the midst of the Asian crisis – interest rate instruments underwent an explosive rise while foreign exchange contracts began to fall. This was also the case with non-financial customers. The dynamic of the market during the following years continued to be led by interest rate instruments while foreign exchange contracts maintained a moderate upward trend.

The international financial market offers a broad variety of derivative instruments for foreign exchange risk management (see Chapter 6), including 'plain vanilla' instruments such as forwards, swap options and futures, highly sophisticated combinations of structured derivative instruments (for example collars and swap options) and hybrid debt with embedded derivatives.

Although companies have been using derivatives for many years, little is known about the extent or pattern of their use because companies have not been required – or not until recently in the United States – to make public their derivative activities. Corporate annual reports (balance sheet and off-balance sheet reports), when available, can be confusing because the figures correspond to accounting periods rather than to the economic events in which we are interested, and because the financial exposure or hedging transactions of subsidiaries are not always reported by multinational companies. We shall deal with this problem by basing our analysis on interviews with the treasurers or finance managers of large companies with businesses in Latin America.[8]

Hedging tactics used in Latin American countries

One of the findings of our interviews is that the companies in question coincided with US and German companies in terms of their preference for simple foreign exchange instruments, that is, over-the-counter (OTC) instruments such as forwards, swaps and options (Table 9.3). They deal mainly with the main banks in the international financial market, such as Citibank and Chase Manhattan, Spanish banks such as Santander and BBVA, other European banks and investment banks such as Merrill Lynch and Morgan Stanley. They negotiate with local banks only in special cases when small liabilities need to be covered.

In the interviews the representatives of the multinational companies asserted that their currency risk policies were aimed at hedging their financial risk exposure and not at making speculative gains. They insisted that the

Table 9.3 Most used instruments in the derivative market (per cent)

	OTC forwards	*Futures*	*OTC swaps*	*OTC options*	*Exchange traded options*	*Structured derivatives*	*Hybrid debt*
United States	56.8	8.0	9.1	18.2	1.1	6.8	1.1
Germany	75.5	4.3	13.8	18.1	0.0	1.1	0.0

Source: Bodnar and Gebhardt (1998).

main purpose of the treasurer was to support the business of the company, that is, to make a profit from producing goods and services. They indicated that the best way to do this was to maintain a fairly stable financing or interest rate regime, and that was the reason for making contracts in the derivative markets. This assertion is confirmed by Stulz (1996) and Fite and Pfleiderer (1995), who conclude that corporate risk management results in a reduction of corporate cash flow volatility, and therefore in a lower variation in firm value.

The managers of non-financial corporations also indicated that during the past decade, in order to avoid being taken surprise by unexpected events in Latin American countries, their companies had set up teams to conduct country and regional macroeconomic analyses and manage foreign exchange rate economic models. They also studied information from international agencies and investment banks.

But the bank interviewees had another point of view. In the case of Chile they argued that finance managers engaged in active foreign exchange risk management (maintaining open positions), which they interpreted as speculative management. They deduced this from the short period for which firms took derivatives. In this case they were exposed to movements of the 'base risk' (the difference between the spot price of the asset to be hedged and the future price of the contract used) and the difference between the domestic and the international rate of interest.

The answer given by the finance managers of subsidiaries of non-financial corporations was that the concentration of the market among a few operators and the low development of the Latin American derivative markets did not allow them to engage in optimal management. This will be analyzed in the next section.

The Latin American derivative market

Multinational companies in Latin America try to negotiate derivative contracts in the local markets as the instruments can be obtained there at lower cost. However they face some restrictions in that the markets have only been recently developed – in the past two to five years in most cases. One of the incentives for their creation was the huge investments that were being

made by multinational companies since the privatization of public services. The process began with the arrival of multinational companies and their investments, followed by a demand for foreign currency loans and the consequent demand for derivatives to protect them from currency risk.

With the exception of Brazil, the institutional framework for derivatives in Latin America is still very weak. For example non-delivery forward contracts in the Chilean currency were not legalized in Chile until 2001. In the case of Argentina the legal framework is still being discussed in parliament, and in Mexico a reform to the legal framework has only just allowed local and international banks to act as market makers. Naturally the derivative market developed first in the United States, principally in New York and Chicago.

Brazil has the most sophisticated local derivative market with many types of instrument. Approximately 27 per cent of all derivatives correspond to US dollar futures. These accounted for only 7 per cent of the total in 1991, but in 1997 they peaked at 36 per cent. Many types of OTC instrument can also be found in Mexico, including foreign exchange rate options, securities and swaps. For the Chilean currency, the daily negotiated amount of non-deliverable forwards (NDFs) in the New York market is in the range of $250 million while in the local delivery forward market the sum is around $600 million. In the case of a thin market such as that in Peru, only NDF contracts are made, while in Bolivia there is no derivative market at all.

According to the multinational companies in our survey the best way to manage financial risk in emergent markets was to enter long-term contracts during a period of economic stability, when instruments could be found at a lower cost. Making long-term contracts was very important for the companies in question, especially if a step devaluation was expected during the next six to twelve months. The purpose was to make a bridge over the crisis period.

However the managers, of non-financial corporations said that this was not always possible because instruments were normally available for only a few months.[9] For example the forward contracts market was liquid for 42 or 90 days, and only a few enterprises could hedge for a year or more. One reason for this was the lack of a secondary market for long-term instruments. There were no market makers, and long-term instruments were negotiated in the stock market. The enterprises had to wait until someone wanted to negotiate a long-term instrument and set a price on it.

Statistics published by Central Bank of Chile are consistent with what was said by the multinational company managers. Between 1996 and 2000 in the forward market, more than 90 per cent of peso–dollar contracts were for periods of less than 42 days, and a similar situation prevailed for UF-dollar contracts (Table 9.4). In markets with a maturity of more than 42 days, the daily average volume negotiated was $22 million, which was a very small amount in terms of transactions by multinational companies.

Table 9.4 Forward contracts in Chile, 1996–2000

	Peso–dollar forwards	*Peso–dollar forwards maturity period*		*UF/dollar forwards*	*UF–dollar forwards maturity period*		
	Accumulated annual amount ($ million)	*Up to 42 days/ total (%)*	*More than 42 days/ total (%)*	*Accumulated annual amount ($ million)*	*Up to 90 days*	*91–360 days*	*More than 360 days*
1996	36 334	98.9	1.1	11 495	36.6	51.4	12.0
1997	96 166	96.3	3.7	15 885	33.4	50.9	15.7
1998	99 377	97.1	2.9	13 517	35.2	52.9	11.9
1999	101 623	96.5	3.5	23 889	38.4	46.7	14.9
2000	107 872	94.5	5.5	31 378	54.0	34.9	11.1

Source: Central Bank of Chile, *Informe Económico y Financiero* (www.bcentral.cl/).

Figures 9.1 and 9.2 show the amounts and prices of forward contracts in Chile. Figure 9.1 shows the average movement of all peso–dollar contracts, in which short-term instruments predominate. The instruments were first used in 1995–96 and showed an upward trend from the beginning. There was a dramatic increase during the Asian crisis and thereafter the total amount negotiated each month oscillated between $5 million and $7 million. This coincided with the period of high volatility in the exchange rate in Chile.

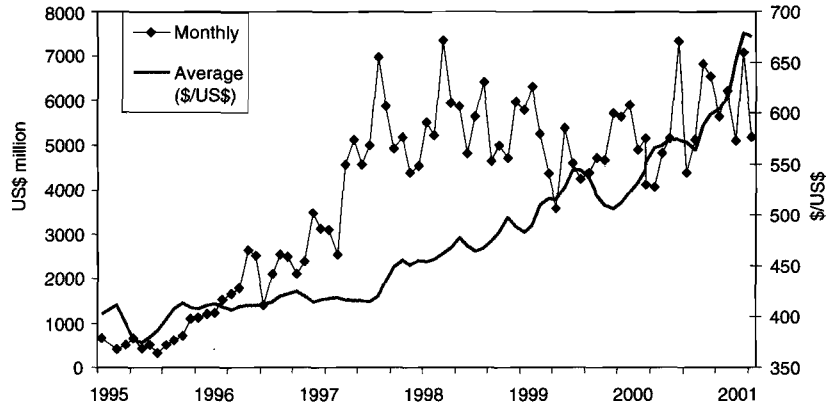

Figure 9.1 Chile: total forward contracts with non-financial corporations, 1995–2001
Source: Central Bank of Chile.

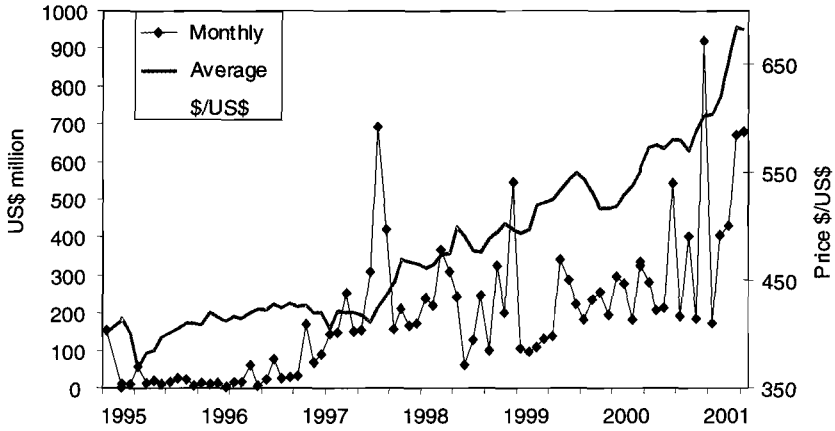

Figure 9.2 Chile: forward contracts for more than 42 days with non-financial corporations, 1995–2001
Source: Central Bank of Chile.

It is also interesting to observe that for contracts of more than 42 days, sizable demands occurred on only a few occasions. One explanation for this is that long-term forward contracts are more expensive than short-term ones. In 2001, in short-term operations the spread was 30 cents, but one-year instruments had a spread of 3 pesos. Chilean bankers argued that firms' finance managers were unwilling to bear that cost and preferred to be exposed to basic risk, using short-term contracts that could be rolled over. According to the bankers, this was speculative management.

To qualify the above statements, it should be said that during turbulent periods, or when a financial external shock occurred, the possibility of hedging via derivatives was more restricted and instruments were only available at very high prices.

The price of a forward contract, F, depends on the spot value of the exchange rate, S, the local interest rate, i_D, and the international interest rate, i_X:

$$F = S^* (1 + i_D) / (1 + i_X) \tag{9.1}$$

Although the international interest rate is more stable during a financial or currency crisis, the value of the dollar in the spot market, S, and the difference between the domestic rate and the international interest rate may rise substantially. Moreover foreign exchange policy and monetary policy can serve to increase the cost of the instrument. This was the case in Chile after the Asian and Russian crises. Between 1998 and 1999 there was not only a strong devaluation but also a huge increase in the local interest rate (Figure 9.3). This presented a serious problem for hedges. If the contract ended in the middle of a crisis it would have been impossible to make a rollover at a reasonable price. The cost of rollover might have been more than the cost of the devaluation and the sum of losses could not compensate the use of the instrument.

In Argentina, from 1999 the financial markets expected that the currency board would be abandoned. That year the differential cost for hedging was 21–25 per cent (compared with 18 per cent in Brazil and 7 per cent in Chile) because the expected volatility in the spot market increased the risk of hedging.

In Brazil, during 1998 the Brazilian real was quoted in the forward market at 3.0 reals per dollar. In the worst point in the crisis it rose no higher than 2.20 and after that it fell to 1.75. A hedging with a forward contract at 3.0 would imply a huge loss instead of protection against devaluation.

The lack of sophisticated derivative instruments, the short duration of hedging contracts and the shortage of liquidity are great disadvantages for national and multinational firms operating in Latin America. Moreover there is an absence of transparency and asymmetry of information. For example in Chile firms do not have access to the interbank and stock market prices of foreign currency. At the same time the demand for hedging by some firms

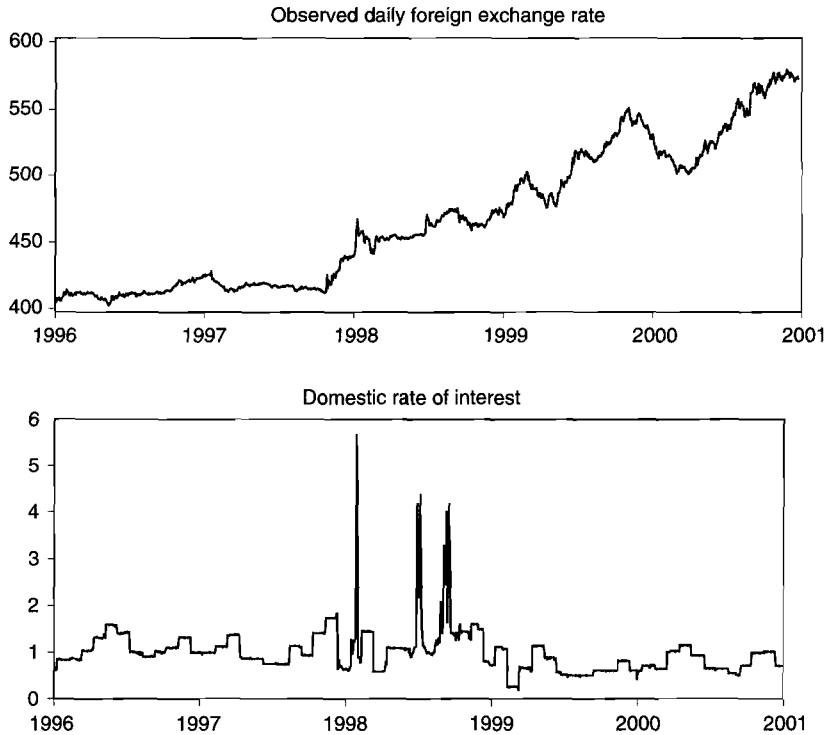

Figure 9.3 Chile: daily foreign exchange rate and interest rate, 1996–2001 (pesos per dollar)

Source: Based on Central Bank of Chile statistics.

is very large in relation to the supply of foreign currency, so they have to use intermediaries in the market in order to prevent banks from knowing where the demand is coming from and consequently pushing up the cost of derivatives.

One conclusion to be drawn from this analysis is that managers may wish to hedge their currency risk exposure but they are not prepared to pay a very high price for it. This is the reason why the development of local financial markets is very important for non-financial multinational corporations. Another conclusion is that due to the fragility of the Latin American derivative markets, instruments operate procyclically, become more expensive and are sometimes unobtainable in turbulent periods when they are most required.

Exchange rate policy and currency risk policy

In theory a currency board or a band regime present less risks than a flexible exchange rate policy. But the finance managers interviewed stated that

currency risk management depended more on the confidence of investors in a policy than on the type of policy in question. Therefore it is not the type of foreign exchange rate policy but the inconsistency between that policy and the evolution of macroeconomic fundamentals that matters. A good example here is the Argentinean case, where by law one peso is equivalent to one dollar. There is now a risk of a very sharp step devaluation, as in any country with a very overvalued currency, and multinational companies are trying to avoid that risk by maintaining a very short cash position.

The analysis is similar in the case of a band regime. If the exchange rate policy is not consistent with the macro fundamentals and the central bank makes continuous changes to the range or the centre of the band – thus changing the rules of the game – it is perceived that a floating rate exists, together with a high degree of currency volatility. In such cases currency risk management will be consistent with the perception of instability in the foreign exchange regime. For example in Chile between the Tequila and Asian crises, multinational companies in the telecommunication and electricity sectors hedged less than half of their total debt in foreign currency, due to the Central Bank's credible foreign exchange policy and persistent revaluation of the exchange rate (see Chapter 13). However after the Asian crisis and during a period of instability in the range of the band, they began to hedge between 70 per cent and 100 per cent of their debt; a strategy that has continued with the floating exchange rate regime.

In conclusion, currency risk management by multinational non-financial corporations does not depend solely on exchange rate policy – it is also related to the consistency of that policy and the evolution of the rest of the macroeconomic variables. Without consistency, companies will always have a perception of instability and changes to the rules of the game, causing a high degree of uncertainty and increasing the need for a more developed derivative market. A more developed derivative market could improve the financial conditions for FDI in Latin America.

Currency risk management and the impact of the foreign exchange rate

Fender (2000a, 2000b) shows that the use of financial derivatives to hedge against interest rate movements has a macroeconomic implication. If firms can stabilize their corporate cash flows with regard to interest rate changes, this will affect the impact of monetary impulses on investment spending as well as on economic activity.[10] As a result the financial accelerator effects of monetary policy are likely to be reduced and the monetary authorities will lose some of their power. But what happens with the foreign exchange transmission mechanism?

Negative external shocks, such as those which occurred during the Tequila, Asian and Russian crises, cause foreign exchange and financial market

distrust. The impact of this distrust is transmitted to firms' cash flows by the international interest rate, the domestic interest rate (if the firms also have loans in the domestic financial sector) and the foreign exchange rate. Expectation of a step devaluation obliges finance managers to react with a hedging strategy using the international or domestic derivative markets (Figure 9.4).

The Latin American subsidiaries of international banks need to cover their currency exposure, and they do this by selling the local currency to local banks. If the economic situation is stable the local banks can risk some degree of exposure, but when there is a crisis they have to cover themselves by buying significant amounts of dollars on the spot foreign exchange market, thus affecting the foreign exchange rate. Just who loses most depends on the macroeconomic context before the crisis and on the current monetary and foreign exchange policy. In the case of Chile, after the Asian crisis the Central Bank was the greatest loser, losing $4 billion of reserves between 1998 and 1999.

In Latin American countries, foreign exchange derivative markets tend to dry up in the middle of a turbulent period – short-term capital flows are rapidly remitted to the countries of origin and the local financial markets lose foreign currency liquidity – so instead of helping to smooth foreign exchange rate movements they induce greater volatility. This volatility is again transmitted to cash flow movements.

The magnitude of the effect of this on firms depends not only on external factors, such as the country's foreign exchange and monetary policy (Figure 9.5), which determines the eventual scale of the external shock, but also on internal factors, such as the activities of the firms (oriented

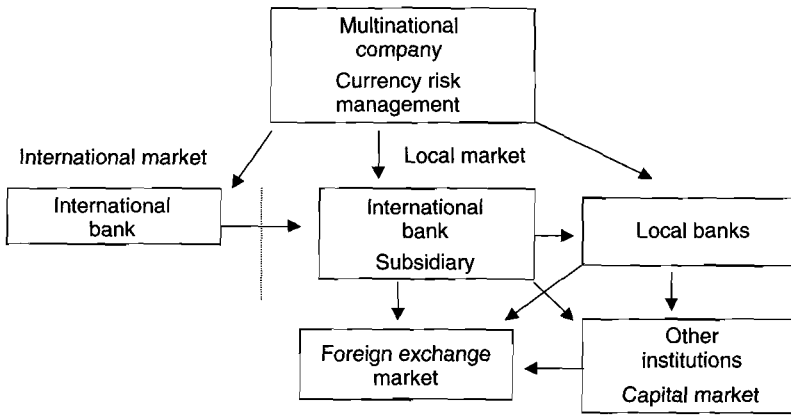

Figure 9.4 Actors in a foreign exchange derivative market

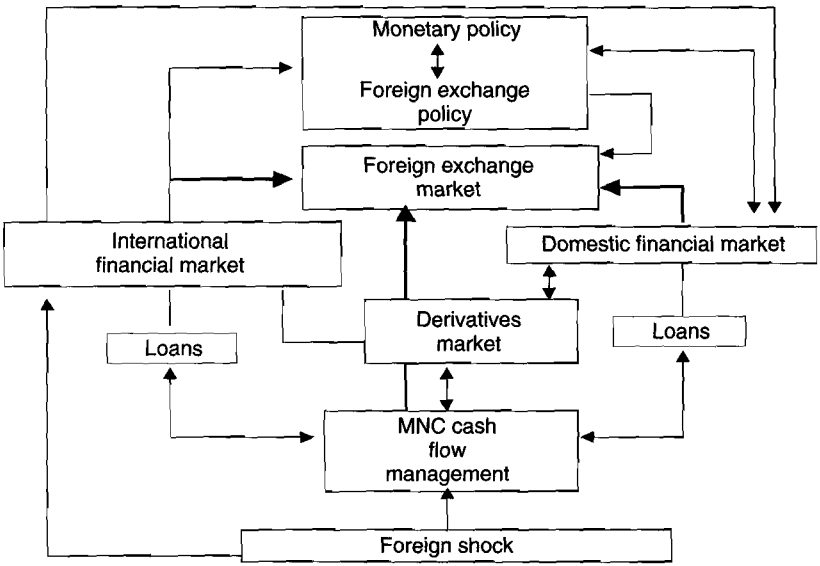

Figure 9.5 Multinational companies' currency risk management and the foreign exchange market

towards local or foreign markets), the diversity of their business (concentrated in only one region or distributed around the world), and their investment and financing policies and hedging strategy.

Assuming that multinational companies in Latin America hedge mainly with short-term instruments, a crisis will induce them to make a rollover or increase the hedged amount. As Figure 9.5 shows, in this case the transmission mechanism between the financial management of the firm and the exchange rate market goes through the financial system. The transmission mechanism goes directly from the firm to the exchange rate market (the bold arrow in Figure 9.5) if the financial strategy requires a reduction of exposure. The firm will change foreign exchange debt into local debt or accelerate the remittance of earnings, expected dividends and reserves. In this case the companies will put pressure on the foreign exchange market by buying dollars and reducing the degree of exposure.

While such a response by just one company will not have macroeconomic consequences, if all the companies make the same move over a short period, serious pressure will be put on the foreign exchange rate and on the local financial market. If they all do so at once, the whole edifice will come down.[11] During 2001 this happened in the Chilean foreign exchange market. Interestingly, it was caused not by an expected financial or currency crisis in that country but by the crisis in Argentina.

Because of the low cost of the instruments associated with the interest rate – 4 per cent in the Chilean market compared with 18 per cent in Brazil – national and multinational corporations went to the Chilean financial and derivative markets to hedge their currency exposure while waiting for the Argentinean economy to stabilize. This not only affected the foreign exchange market but also put pressure on the financial system. If banks are without liquidity – as is often the case when a regional financial or currency crisis is expected – or there is increased uncertainty among bank managers, loans tend to be concentrated among large firms and credit is restricted for small and medium-sized enterprises. In general, credit also tends to be concentrated in the export sector, which is less vulnerable in such circumstances.

Conclusions

Macroeconomic studies that compare of the volatility of FDI with short-term capital flows conclude that the first is less volatile. While the business and microeconomic literature deals with the financial management of corporations and the instruments and models used for optimization, there is a lack of studies on the interaction between microeconomic currency risk management by corporations involved in FDI, and its macroeconomic effects on the volatility of the foreign exchange rate.

In trying to explore this interaction this chapter has addressed three questions:

- Is currency risk management by non-financial corporations affected by foreign exchange volatility and financial contagion?
- Do the diverse exchange rate policies have different effects on multinational companies' cash flow management?
- Can we identify micro–macro transmission mechanisms between currency risk management and the foreign exchange market?

In order to assess the link between currency risk management and its impact on the foreign exchange market we built a typology of financial strategies, classifying firms by their degree of risk exposure, market orientation and degree of geographical diversification.

Multinational companies in the export sector have the lowest degree of exposure since their incomes, loans and earnings are denominated in the local currency and therefore they do not need to hedge their transaction or translation risk. In fact they are the most important providers of foreign currency, thereby contributing to the liquidity of the foreign exchange market. These firms did not stop investing, paying salaries and buying local inputs during the turbulent 1990s. Their stable cash flow management can be observed in their subsidiaries' balance sheets.

Multinational companies that are regionally and geographically diversified always hedge against transaction or cash flow exposure, but they very seldom hedge against translation (accounting or balance sheet) exposure. This is because devaluation in one country can be compensated by revaluation in another.

The companies that face the greatest problems with currency risk exposure are multinational companies that are oriented towards the local market, whose investments are concentrated in one region or in the public service sector and whose earnings are in the local currency. In theory they are supposed to hedge the whole of their transaction and translation exposure. However it is very costly to hedge a significant proportion of the risk involved because of the weakness of the institutional framework, liquidity in periods of turbulence and the lack of instruments in the derivative market for Latin American currencies. In fact the difficulty of hedging has led to significant losses in accounting exposure, that is, in the value of assets and liabilities.

In addition to the above, there is asymmetry of information between the financial sector and non-financial corporations, making it difficult for the latter to negotiate the value of the required instruments and increasing the cost of derivative instruments for long-term hedging. While the finance managers of subsidiaries justify their behaviour in those terms, bankers suggest that this is in fact speculative behaviour since finance managers of non-financial corporations prefer to have some risk exposure than to pay a high cost for derivatives. But the excessive cost of derivatives in turbulent periods support the arguments of the former.

With regard to the second question, in countries with a currency board or a band regime, managers do not need to hedge their currency risk since in theory foreign exchange security is provided by the central bank. But finance managers state that without consistency between a country's foreign exchange regime and its monetary and fiscal policy – that is, the macroeconomic fundamentals – companies will perceive that changes have been made to the rules of the game and will therefore increase their hedging activities, as the recent Argentinean crisis dramatically illustrated.

The answer to the third question depends on companies' market orientation and degree of geographic diversification. The largest impact is generated by multinational companies in the public service sector or whose operations focus on the local market or region. Unfortunately the lack of statistical information makes it difficult to measure the magnitude of the impact, and for that reason we have only provided a basic idea of the transmission mechanisms between currency risk management and the foreign exchange market.

Two transmission mechanism can be identified, both of which begin with the financial management of multinational non-financial corporations. One goes directly from the cash flow management of the firm to the foreign exchange market. This occurs when the multinational company decides to change its liabilities from foreign to local currency, or to increase the

remittance of dividends. In both cases managers go to the foreign exchange market to buy dollars at the spot price. When this happens in the middle of a crisis and is widespread among firms, it puts downward pressure on the foreign exchange value of the local currency.

The second transmission mechanism is an indirect one that goes from the financial management of the firm through the financial system. In this case it is banks that have to hedge their currency risk exposure, particularly if they are facing or expecting an international or regional financial crisis. This puts pressure on the local currency, the extent of which will depend on the capacity of the central bank to respond to the shock.

This transmission mechanism can affect not only the country facing the currency crises but also neighbouring countries, as illustrated by the impact of the recent Argentinean crisis on the Chilean exchange rate. In that case the combination of a flexible rate with a monetary policy aimed at reactivating the economy in Chile prompted Argentinean multinational firms to turn to the Chilean derivative market.

Notwithstanding the need to improve the regulation of derivative markets to enhance countercyclical behaviour, further development of these markets would permit longer terms and a greater variety of instruments. These could in turn allow the stabilization of cash flow management, the reduction of translation risk and the avoidance of pressure by non-financial multinational companies on the foreign exchange market in turbulent periods. But while this might be a good solution for short-term microeconomic behaviour, it would not resolve the macroeconomic problems of countries facing foreign shocks in the context of inconsistency between foreign exchange policy and macroeconomic imbalances.

Further studies of the macroeconomic impact of currency risk management by multinational corporations will require detailed national case studies, for which this chapter has provided a general framework and some guidelines on the factors to be examined. First, it will be necessary to conduct detailed studies of the functioning of the derivative markets and the institutional framework that governs their operations, including the volume and terms of transactions. Second, the foreign exchange and monetary policies of the country in question will have to be considered because of their impact on the financial and derivative markets. Finally, the impact on the foreign exchange rate of the strategies with which the different types of multinational and national corporation face those markets will have to be investigated.

Notes

* The idea of examining the macroeconomic impact of currency risk management by multinational companies was suggested by Stephany Griffith-Jones, and this chapter has benefited from stimulating conversations with her throughout its development.

1. See Ocampo (1999, 2000), Griffith-Jones and Ocampo (1999) and Goldstein (2000), among others.

2. Wharton School and CIBC Wood Gundy (1996); World of Banking (1995).
3. The exception was the second half of the 1980s, when short-term capital and loans did not enter the region.
4. All these studies contrast with Claessens, $D > ws$, but with observations coming from few countries (Claessens *et al.*, 1995).
5. See Davis *et al.* (1991), Stern and Chew (1998), Guay (1999), Prevost *et al.* (2000) and Bartram (2000) for analyses of currency risk management in non-financial corporations.
6. Because of the nature of their business, several multinational companies also hedge the commodity price risk, using commodity price derivatives for an important portion of their projected output. For example in the North American gold mining industry firms hedge over 26 per cent of their production, on average (Bartram, 2000).
7. See the BIS press releases for June 1998, 13 November 2000 and 16 May 2001.
8. Interviews were conducted with finance managers of companies with headquarters in Britain or Spain. We also draw on quarterly financial statements reported by multinational enterprises to the US SEC (Form 20-F).
9. In the derivative markets of developed countries, maturity was between three and six years before the financial crises of the 1990s, but this range was reduced to one to three years after the Asian crisis.
10. See also Getler and Gilchrist (1994), Bernanke *et al.* (1996), Oliner and Rudebusch (1996), Carpenter *et al.* (1998) and Fazzari *et al.* (2000).
11. See 'Patterns in financial markets: predicting the unpredictable', *The Economist*, 2 June 2001.

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10

The New Basel Capital Accord and Developing Countries: Issues, Implications and Policy Proposals

Stephany Griffith-Jones and Stephen Spratt

Introduction

After the Asian crisis of 1997–98 bank lending to developing countries fell sharply and has since become negative. In June 1998 loans outstanding to developing countries totalled US$924 billion; by December 2000 they had fallen to US$753 billion, an annual decline of 7.9 per cent.[1] It is in this context that the implications of the new Basel Capital Accord for developing countries should be assessed. A particular concern is that the new accord may further discourage lending.

It is clear that banks have become highly risk averse *vis-à-vis* developing (emerging) economies. However this increased awareness of the particular risks posed by this type of borrower mirrors a more general trend towards greater risk aversion and emphasis on the need for accurate risk assessment. This trend, with an increasing focus on efficiency in all parts of the banking business, is in part a response to competition from non-bank financial institutions. The latter are not subject to the same regulatory constraints as banks, a situation that has placed some banks at a competitive disadvantage. Consequently, given the fear that business will migrate from the regulated (bank) sector to the unregulated (non-bank) sector, banking regulators have come under pressure to act.

It is argued that the 1988 Basel Capital Accord has forced banks to hold levels of regulatory capital that do not correspond to actual risks, as measured by the banks' own internal models.[2] This situation has created perverse incentives that have led to distortions in lending practices. In particular the capital requirements for lending to highly rated borrowers are more than banks would choose to hold, putting them at a commercial disadvantage with respect to non-bank institutions. Recognizing these trends, the Basel Committee has proposed a new capital accord with a strong focus on aligning regulatory capital requirements with actual risks.

Whilst the effects on developing countries are clearly not central to the new proposals, it seems likely that, as with the 1988 accord, significant effects will be felt. This chapter outlines the areas with the highest potential impact – both positive and negative – before offering some policy recommendations aimed at maximizing the former, minimizing the latter and avoiding a net negative impact.

The new Basel Capital Accord

Although the proposed new Basel Capital Accord is to be built on 'three mutually reinforcing pillars', it is likely that the changes proposed to the measurement of credit risk (under Pillar 1) will have the most far-reaching implications for developed and developing countries alike. Consequently it is this aspect of the new accord that will be the focus in this chapter.

The proposals include three possible approaches to the measurement of credit risk, with increasing degrees of complexity: the standardized approach and the foundation and advanced internal-ratings-based (IRB) approaches. The new system proposed in the standardized approach addresses many of the concerns raised by developing countries about the 1988 accord. In particular the removal of the OECD/non-OECD distinction and the reduction of the incentive for short-term lending are positive proposals. Also, the removal of the sovereign ceiling would be of benefit to highly rated banks and corporates in less highly rated countries, regardless of OECD membership. Overall, therefore, the proposals should, as envisaged, more closely align capital requirements with actual risk.

The proposed use of external credit assessment institutions (ECAIs) has been criticized in some quarters. Whilst we too have some misgivings, these are primarily of a practical nature and need not prove insurmountable.[3] On balance, therefore, the proposals contained in the standardized approach are to be broadly welcomed. Unfortunately, however, the standardized approach cannot be viewed in isolation. In our judgement the IRB approach, if implemented in its current form, would have negative implications for developing countries. Consequently the net impact of the new accord on developing countries is likely to be determined by the extent to which the IRB approach comes to dominate the banking industry's relations with the developing world.

The IRB approach

Perhaps the most significant changes proposed under the new accord relate to the greater use of banks' internal risk management systems. The rationale behind these changes is that greater sensitivity to the measurement of actual risk would enable banks more accurately to price and provide for risk. This would enable the banking system to function more efficiently and reduce

the perverse incentives created by the existing accord. The result, it is hoped, would be a sounder, more efficient banking system that would function better for the benefit of all concerned. This argument is based on the benefits that would result from a more efficient allocation of resources at the micro-economic level. However, while this may be true at the level of individual banks, it fails to take account of the potentially negative macroeconomic, systemic implications of the proposals. From the perspective of developing countries there are two major areas of concern.

Cost and quantity of lending

It seems probable that one impact of the new accord will be an increase in the quantity of loans to borrowers rated above BBB and a fall in loans to borrowers rated below BBB. Given that the majority of the latter are in the developing world, they are likely to see a reduction in overall levels of lending from internationally active banks. What lending does occur will be concentrated in highly rated sovereigns, corporates and banks. Patricia Jackson, head of the Bank of England's Financial Industry and Regulation Division, puts it thus: 'For any bank, the effect of the internal ratings approach on required capital will depend on the risk profile of its particular book – high risk books will demand more capital than currently and low risk books less' (Bank of England, 2001). Consequently there will be a strong incentive for banks to refocus their portfolios in the direction of higher-quality (lower-risk) lenders – that is, to reduce the proportion of developing-country lending and increase the proportion of lending to developed-country borrowers.

A number of independent studies have attempted to assess the likely impact on the cost of borrowing for low-rated borrowers. Some have predicted alarming increases in the cost of borrowing, to the extent that developing countries will be effectively excluded from international bank lending (Reisen, 2001). Other research that also predicts a sharp rise in the cost of lending to lower-rated borrowers does not predict increases of the same magnitude (Powell, 2001). The various approaches, however, all point to a significant rise in the cost of lending to low-rated borrowers. Indeed this problem was also cited in submissions to Basel by a number of major international banks, some of which argued that the calibrations used by the Basel Committee were too conservative and therefore produced capital requirements, particularly for low-rated borrowers, in excess of those produced by their own internal models. For example Citigroup argued that 'under the new Accord, the calibration of capital causes regulatory minimum capital requirements to increase to inappropriately high levels when compared to existing rules or internal risk models'. Similarly the Credit Suisse Group contended that 'The calibration of high-risk grades in the IRB sanctions SMEs and emerging markets. Their access to capital from large institutions will be made significantly more difficult.'[4]

The Basel Committee appears to have largely accepted this point. Following the first consultation period, the committee initiated a quantitative impact study (QIS2) to assess the effect of the proposal on capital requirements. Overall the study found that, contrary to intentions, capital requirements would be higher under the proposals than under the existing accord for all groups in both the standardized and IRB foundation approaches. The results for the advanced IRB were more mixed, with most banks predicting a slight fall in requirements. In response to these findings the committee altered the calibration of the IRB curve, with the result that the regulatory capital curve was flattened quite significantly. A further impact study (QIS3) was announced for the autumn of 2002 to test the effects of these modifications, and as a consequence the release of the final consultative document was postponed from early 2002 to early 2003. One outcome of these modifications has been to reduce the capital requirements for lending to lower-rated borrowers from that implied in the original proposals. However, whilst this represents an improvement the capital requirements for lower-rated borrowers will still be substantially higher than under the existing accord. Hence the incentive for banks to refocus their portfolios towards higher-rated borrowers remains.

Some have argued that the concern about the impact of the new proposals on the cost of bank lending is misplaced. Whilst it is not disputed that the capital requirements for lending to lower-rated borrowers will rise under the IRB approach,[5] the suggestion is that banks price loans according to their own internal models, rather than on the basis of capital requirements. Consequently all the new accord will do is to bring the regulatory requirements into line with existing practice. However whilst this may be so for the most sophisticated international banks, it does not necessarily apply to all international banks that lend to emerging and developing economies: given the likely 'kudos' of adopting the IRB approach it seems likely that even these less sophisticated banks will wish to do so, if possible. Furthermore, even for the most sophisticated banks this argument is only valid if the regulatory capital required is below that which the banks would choose to hold. If the regulatory requirements are above those indicated by the banks' own models, they will be liable to 'bite' and force an increase in the cost (and/or reduction in quantity) of lending to lower-rated borrowers.

One factor that may well produce such an outcome is the failure of the proposals to take account of the benefits of international diversification. It has long been argued that one of the main benefits of investing in developing and emerging economies is their relatively low correlation with mature markets. If this is the case, then clear benefits – at the portfolio level – will accrue to banks with well-diversified international portfolios. That is, a bank with a loan portfolio that is distributed widely across a range of relatively uncorrelated markets is less likely to face simultaneous problems in all of those markets than a bank with loans concentrated in a smaller number of

relatively correlated markets. If this is so, then in order accurately to align regulatory capital with the actual risks a bank might face the accord should take account of this portfolio level effect: the capital requirements for a bank with a well-diversified international loan portfolio should reflect the lower total risk than that for a more concentrated portfolio. At present the proposals contain no such considerations, suggesting that, in this area at least, the capital requirements may not accurately reflect actual risk.

In order to resolve this issue we tested differential correlations between developed and developing markets, first with specific regard to international bank lending and profitability, and second in a more general macroeconomic sense (Griffith-Jones *et al.*, 2002). Tests using each of our financial sector and macro variables, over all periods covered, strongly suggested that a bank with a loan portfolio that is well diversified across the major developed and developing regions will enjoy diversification benefits at the portfolio level: the correlation between the risks associated with loans to each of these regions is lower than for a bank with a loan portfolio that focuses only on developed markets. All of our results offer significant support for the validity of this position, and all are statistically significant. All the tests we performed, using a variety of variables over a range of time periods, provide strong support for the diversification hypothesis.

Further evidence comes from a simulation exercise we undertook to assess the potential unexpected loss resulting from a portfolio that was diversified within developed countries, and one that was diversified across developed and developing regions. This exercise involved the construction of two simulated loan portfolios, the purpose being to assess the probable level of unexpected loss in each. Thus we could directly compare the simulated behaviour of the two portfolios. The results of our simulation show that the unexpected losses for the portfolio focused on developed-country borrowers would, on average, be almost 23 per cent higher than for the portfolio diversified across developed and developing countries.

Given that capital requirements are intended to deal with unexpected loss, the fact that the level of unexpected loss in our simulation is lower for a diversified than for an undiversified portfolio is highly significant. Taken together with the statistical work on correlations, this evidence suggests that, so as to not penalize emerging and developing economies by incorrectly measuring the risk associated with lending to such countries, the Basel Committee should closely examine the practicalities of incorporating the benefits of international diversification into its final consultative paper.

The argument that asset correlation is variable is self-evident. Furthermore the suggestion that this variability affects the level of risk in an overall portfolio and should therefore be reflected in the capital requirements, would also seem to have force. Indeed the committee has recognized this fact with the modifications already made with respect to SME lending. Following the release of the original consultative document there was widespread concern

that lending to SMEs would be adversely affected by a large increase in the capital requirements associated with such lending. After intensive lobbying the committee reconsidered the issue, and agreed that the treatment of SMEs should be separated from other corporate lending, with borrowers with less than 50 million euro in annual sales receiving an average reduction in capital requirements of about 10 per cent relative to larger corporates. The rationale for this modification is that the chance of a large number of SMEs defaulting simultaneously is less than for a smaller group of large borrowers – that is, the correlation between their probabilities of default is lower. Consequently a loan portfolio that is well diversified across a large number of SMEs will face lower overall risk at the portfolio level than one that focuses on a few larger borrowers. The results of our empirical work strongly suggest that a similar modification is justified with respect to international diversification. If such a modification is not made, then the risk and probability of default will not be accurately measured. This implies that the aim of the new accord – a more accurate pricing of risk to determine capital – will not be fully met.

A further question is that even if the IRB curve is brought into line with those produced by banks' internal models, is this a realistic assessment of the risk posed by developing-country borrowers? The absence of robust, long-term historical default data for all classes of borrower (certainly an issue in developing countries) produces great uncertainty about quantifiable risk. This uncertainty creates a strong incentive to herd, with developing countries periodically going in and out of fashion for reasons that are often only loosely associated with economic fundamentals. Thus it can be argued that market perception of the risk posed by developing countries is often overstated, sometimes understated, and only rarely objectively justified by economic fundamentals. Indeed these perceptions may well be, in some instances, the most significant 'fundamental' of all. Given the fact that developing countries face a very different lending environment from developed-country borrowers, there appears to be a case for formally recognizing this difference and developing a distinct approach to regulatory capital.

Procyclicality

One of the most significant charges levelled at the new proposals is that they will exacerbate procyclical tendencies in the banking system. The probability of default (PD) is inherently procyclical in that during an upturn the average PD will fall, and therefore the incentive to lend will increase. Conversely, during a downturn the average PD will increase (due to more difficult economic circumstances) and therefore a credit crunch may develop, with all but the most highly rated borrowers having difficulty attracting funds. In addition, deteriorating economic conditions will cause existing loans to 'migrate' to higher-risk categories, therefore raising the overall capital requirements and further deepening the downturn. The Basel Committee

acknowledges this concern in the second consultative package, although 'The Committee has also considered the argument that a more risk-sensitive framework has the potential to amplify business cycles. The Committee believes that the benefits of a risk-sensitive capital framework outweigh this concern' (Overview of the New Basel Capital Accord, p. 8, paragraph 40).

However, as is the case with much of the new accord, the trade-offs in terms of costs and benefits are viewed primarily in terms of their impact on the major banks. It is likely that developing countries will feel the costs disproportionately (reduced lending coupled with an increase in the frequency and scale of crises) while simultaneously receiving few of the benefits. If we assume that financial crises are connected with the business cycle, and accept that developing countries are disproportionately affected by such crises, it becomes clear that developing countries have more to fear from an amplified business cycle than countries in the developed world. Given that influential voices in the latter are expressing real concern about the impact of increased procyclical pressures, the developing countries' fears are certainly not misplaced.

The Basel Committee seems to have accepted the validity of this criticism. The flattening of the IRB curve will reduce the procyclical impact to some extent, and the next consultative document is likely to include a variety of measures to combat procyclicality. However the important question is whether the concrete measures proposed will be enough to offset the potentially negative effects of increased procyclicality. It is thought that the committee will propose the use of stress testing, but it is unlikely that this will be sufficient to eliminate the problems associated with procyclicality. These are of sufficient importance to warrant the incorporation of explicitly countercyclical mechanisms, and further research is clearly warranted in this area. It seems desirable to introduce forward looking provisions with an explicit countercyclical element at the time the new Basel Accord is implemented; this option needs to be urgently evaluated.

A more fundamental question concerns the extent to which any measure will be able to offset the inherent procyclicality of a market-sensitive framework while maintaining increased overall risk sensitivity, which is a central aim of the new accord.

The net impact on developing countries and policy proposals

Whilst the proposals contained in the standardized approach are broadly to be welcomed, in that they address many of the concerns expressed by developing countries about the existing accord, the introduction of IRB approaches – even after the modification of the original proposals – has very problematic implications. If the negative impact of the IRB approaches outweighs the positive effects of the standardized approach, from a

developing-country perspective, then the new accord will merely give with one hand only to take more with the other.

The expressed purpose of the new accord is to align regulatory capital more closely with actual risk. However the failure of the proposals to take account of the benefits of international diversification suggests that, in this instance at least, risk is not being accurately measured. That is, by excluding the possibility of banks' capital requirements taking account of diversification effects, the proposals effectively mean an inaccurate measure of risk at the portfolio level.

The danger that the implementation of the IRB approach will result in a reduction in the quantity and/or an increase in the cost of bank lending to developing countries is compounded by the likely increase in the cyclicality of such lending. The systemic implications of greater risk sensitivity in lending patterns are likely to impact on developed and developing countries alike, although more so on the latter given the smaller size of their economies *vis-à-vis* international capital flows. It is therefore crucial that the trade-off between microeconomic allocative efficiency and macroeconomic systemic stability is more clearly thought through. Specifically, it is not clear that what is good for individual banks is necessarily good for the stability of the banking system as a whole, or for the economic prospects of the developing world in particular.

Our policy proposals can therefore be summarized as follows.

First, early adoption of the IRB approach is likely to have significant, possibly unintended, consequences and we therefore recommend postponing its implementation to allow for further research, specifically with regard to procyclicality and the impact on lending to developing countries by the major international banks.

Second, if the IRB approach is to be implemented in something like its current form, it is essential that the regulatory requirements for low-rated borrowers are lowered at least to the levels suggested by the banks' own models. This is the minimum requirement to prevent the accord worsening the existing situation, even if one accepts the proposition that banks currently price their loans according to internal models rather than regulatory capital. To this end, the clear benefits of diversification linked to lending to developing countries that we have demonstrated should be explicitly incorporated to allow an accurate measurement of risk. Given the changes already made to the proposals with respect to corporates and SME lending, as well as the fact that the changes we propose seem to have a solid empirical basis, there are no theoretical, empirical or practical reasons why changes should not be made in order to incorporate the benefits of international diversification. The fact that developing countries have no representation on the Basel Committee should not be a bar to this important change. A modification would not only be technically correct, but also supportive of the stated aim of the G7 governments to increase the role of private capital flows as an engine of growth and development for developing and emerging economies.

Third, serious attention should be paid to the adoption of countercyclical mechanisms to mitigate the procyclical elements of the IRB approach, rather than the currently suggested use of stress testing. One measure that is gathering increased support is the Spanish provisioning approach: the practical workings of this mechanism should be empirically researched to ascertain the feasibility of extending such a system internationally.

Fourth, the improvements contained in the standardized approach should be developed to reduce, if not eliminate, the incentives for short-term lending, and the number of risk buckets should be increased to reduce regulatory biases towards lending to certain categories of borrower.

Finally, one aspect of the standardized approach that has attracted much attention is the proposal to use external credit rating institutions to assign ratings. Given that international financial stability can be viewed as a public good, there is a strong argument for having a public element in credit rating. Of the major international financial institutions, the Bank for International Settlements has the best track record in terms of spotting potential crises and has financial stability as its main objective, so it would be well placed to play a joint role with rating agencies.

Concluding remarks

The fact that the Basel Committee has decided to postpone the implementation of the new accord until a further consultative package has been assessed is to be welcomed. It is to be hoped that the concerns of developing countries are given sufficient weight in this process, which should be as transparent and open as possible. The 1988 accord, devised with the G10 banks in mind, rapidly became the industry standard. Similarly the new accord, whilst not primarily aimed at the needs of developing countries, will have serious and unavoidable consequences for many developing and emerging economies. Given the crucial importance of ensuring a stable and suitable level of financing to facilitate much needed economic development in the poorer parts of the world, it is vital that these issues are seriously addressed so that a net negative impact can be avoided. This can be done in ways that are consistent with a more precise measurement of risk and the strengthening of the international banking system, which are the main aims of the new Basel Capital Accord.

Notes

1. An alternative way of viewing this is to examine banks' net exposure to developing countries in terms of assets and liabilities. Banks' exposure peaked in 1997 with a net credit position of US$147 billion. However net claims on developing countries then fell by a staggering US$292.8 billion, and by 2000 banks had become net debtors to the tune of US$145 billion (see Chapter 5).
2. See Bank of England (2001).
3. For a more detailed discussion of these issues see the IDS finance website: www.ids.ac.uk/intfinance.

4. See 'Comments received on the Second Consultative Package', www.bis.org/bcbs/cacomments.htm.
5. The fact that capital requirements overstate the risk for high-rated borrowers is a major impetus behind the new proposals. However if these requirements are to be lowered and the overall level of capital in the banking system is to remain fixed at 8 per cent, then the requirements at the low-rated end must rise.

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11

The Instability of the Emerging-Market Assets Demand Schedule*

Valpy FitzGerald

Introduction

The expansion and contraction of portfolio capital flows and short-term bank lending from OECD countries in emerging markets during the past decade has generated a large and controversial body of literature. Most of the debate has focused on the effect of these flows on emerging markets themselves, and on the effect of host country policies on the attraction or retention of the flows. However the process by which credit providers and portfolio investors make their decisions is much more than simply deciding to supply a specific amount of capital to emerging markets at a given average risk and price, and then to allocate this between individual emerging markets according to local risk and return characteristics – the so-called 'fundamentals'.

In any market, changes in the level of transaction flows and the prices at which they take place must reflect shifts in either the demand schedule or the supply schedule (or both simultaneously), and both these schedules will be affected by agents' expectations about the future evolution of the market. Fortunately increasing attention is being paid to two dimensions of what this chapter logically terms 'the demand for emerging-market assets'.

The first strand in the recent literature relates to what are frequently but somewhat misleadingly called the 'push' and 'pull' factors that determine capital flows at the macroeconomic level. The aggregate level of capital flows to emerging markets is held to be determined by the push factors, which include market conditions in the source country and the return on emerging markets as a whole. The pull factors are the conditions in the destination countries, which determine the allocation of the aggregate flow across the emerging markets. The second strand relates to the determinants of investors' decisions to purchase (or sell) emerging-market assets at the microeconomic level. Portfolio choice models thus include source-country conditions as determining the opportunity cost of capital (that is, the risk-free portion of the portfolio) and the overall asset stock; while

destination-country conditions determine the yield and risk of emerging-market assets.

From the first strand it is apparent that shifts in aggregate asset demand (that is, changes in the push factors), such as OECD interest rate changes and G3 exchange rate fluctuations, account for at least half of the observed changes in capital flows, independently of the asset supply (that is, 'pull') conditions: the so-called 'fundamentals' in emerging markets themselves. From the second strand it is clear that what matters to individual investors' decisions is not only information about fundamentals but also the way in which the information is used, endogenous cycles in risk appetite and the effect of regulatory incentives – all of which are determined by conditions in the source country.

In effect the demand schedule for emerging-market assets is three-dimensional. As well as price (or yield) on one axis, so to speak, and the quantity of assets on another axis, there exists a third dimension that can be broadly termed 'quality' on another. This is no different in principle from the market for, say, cars – except that, as we shall see, quality is not a stable or exogenous factor. Nor, as we shall see, is it a 'market in lemons' where quality is unknown to the buyer alone. The supply schedule (that is, emission or resale by government, company or bank concerned) has the same three dimensions. Ideally, quality is the given risk of debt default, dividend collapse or major devaluation, as determined by the fundamentals of the country and its companies, so that the interaction between stable demand and supply schedules will determine the price and quantity at which the market in assets clears. The changes in this equilibrium over time are the observed capital flows. Variations in asset quality when fundamentals alter due to external shocks or domestic politics will be reflected in changing prices and flows as markets adjust to the changed circumstances. Then the objective of emerging-market governments (and their international advisors) is to improve asset quality by sound (or sounder) management so that either asset prices improve (that is, yield spreads fall) or more assets can be supplied (that is, capital inflows are attracted) at the going price.

Asset prices can be seen as information that is directly available to the market, but only in the form of past and current values and yields. However future prices (or indeed the appropriate long-term price trend) are an essential aspect of price and are a matter of investors' expectations rather than measurable data. Moreover the quantity dimension is ambiguous for two reasons. First, what is recorded (for example in balance of payments statistics) is the value of flows made up of innumerable transactions (price multiplied by quantity), and while the number of securities transactions could in principle be counted there is no clear definition of the volume index to be used to aggregate them. Second, changes in the stocks of financial assets (which are what is recorded at the firm level) reflect not only new flows but

also stock revaluations. Ideally, then, we need records of asset stock volumes and prices, with the changes decomposed into flows and revaluations.[1]

The third dimension of 'quality' is the most difficult to define. It should reflect risk, of course, but this cannot be ascertained merely from the volatility of returns in the past because it also contains market expectations of future yields and volatility (which may vary not only with the underlying fundamentals but also with market beliefs about that future) on the one hand, and the role of the asset in the investor's portfolio – including its covariance with other assets, their respective yields and her or his degree of risk aversion – on the other. If markets clear properly and price fully reflects quality, this will not present a practical measurement problem, although it could still present an obstacle to the design of policy to reduce volatility.

In terms of elementary algebra we have two equations (demand and supply) in three variables: price, quantity and quality (risk). This system cannot be solved without a third equation. If a single stable relationship between price and risk exists, as financial textbooks suppose, then this constitutes the third equation and the system can be solved – that is, there is market equilibrium. In practice, however, this stable relationship does not exist, so in effect there is market failure. The response of agents is to construct heuristic rules of thumb that reflect practical experience of the observed relationships between quality and quantity. This response is made explicit in management rules for credit rationing and portfolio benchmarking at the microeconomic level. It is also implicit in asset bubbles and regional contagion at the macroeconomic level.

Such quantity–quality linkages are a familiar characteristic of domestic financial markets. A backward-sloping credit supply curve occurs when lenders are increasingly unwilling to lend to borrowers as their debt mounts, and the offer of higher yields (that is, lower prices) does not stimulate more lending (that is, asset demand) because it reduces the capacity of the borrower to pay. By extension, further lending to a single client will increase the investor's risk exposure, thus affecting quality as well as price. Hence profit maximization by lenders leads to a situation in which the demand for loans is not fully met at the current price (that is, the return for a given risk class). As a consequence there are shifts in the asset demand schedule (credit supply) that determine the credit flow. At the aggregate level these credit shifts have substantial effects on output – further affecting asset quality and amplifying the cycle.

Finally, the way in which investors assess asset quality depends on the way in which the information is used, and not just on the asymmetry in its availability to buyer and seller that the textbooks assume. The path-dependent formation of expectations and the difficulty of assessing future contract compliance limit the ability of investors to adopt an optimal portfolio position, defined entirely by expected returns and measurable volatility. Indeed the widespread 'benchmark' approach – defining a range

and a central position for portfolio composition – implies that an objective definition of asset quality is not available to be priced. Limits on exposure to a particular country by a single bank across all its asset purchases have a similar effect. This is the aspect of the demand function that is most difficult to assess, particularly because the way in which investing institutions use information (public or private) to reach this conclusion can change as well as the circumstances themselves.

This chapter is structured as follows. The next section attempts to derive the main macroeconomic characteristics of the emerging-market asset demand schedule from the literature on push factors in capital flows, which emphasizes the asymmetric effect of changes in monetary conditions on OECD markets and 'pure contagion'. It then reviews recent portfolio composition decisions by fund managers in order to establish the key microeconomic characteristics, particularly the roots of herding and risk appetite in bounded rationality. Bringing these two perspectives together provides the basis for a critique of official market interventions and their limited effect on demand conditions. The chapter concludes by suggesting that more determined efforts to stabilize and lengthen demand schedules may be needed to restore an orderly market in emerging-market assets.

Push factors and credit cycles – the macroeconomic dimension of the asset demand schedule

Changing investor perceptions are clearly related to international capital market instability. For instance before the Asian crisis five factors were considered to determine market access, or rather re-entry after the debt crisis of the 1980s (IMF, 1992: 45 *et seq.*):

- Sound macroeconomic policies to reduce perceptions of country transfer risk.
- Structural reforms such as privatization and financial liberalization to provide attractive assets in the form of equities and treasury bills.
- The restructuring of existing commercial debt in order to reduce the disincentive effect of large debt burdens on private investment.
- A solid record of servicing claims after the 1982 crisis to enhance reputation among investors.
- The reduced transaction costs implied by modern technology and integrated markets.

All these factors were essentially related to the quality and supply of assets rather than the demand for them, despite the fact that the ERM crisis had recently demonstrated that private sector behaviour could be highly destabilizing, and that self-fulfilling speculative attacks could be encouraged by the availability of bank credit for this purpose (IMF, 1993, particularly the

section on private sector behaviour during crisis). In particular, highly leveraged institutions such as hedge funds and the proprietary trading desks of investment banks could create rapid changes in the demand for particular asset classes and thus destabilize particular markets (IMF, 1994). It also became clear that speculative activities across the interstices of the international financial system were not simple arbitrage but actually created systemic settlement and liquidity risks (IMF, 1994: 34–7, 120–38).

This somewhat belated recognition[2] of the destabilizing potential of endogenous investor behaviour (despite the fact that domestic financial regulation took this for granted) prompted urgent official attention to the need to regulate international banking on a cross-border basis (IMF, 1997), herding behaviour by portfolio investors – particularly fund managers – and contagion between emerging markets (IMF, 1998: 69–71), and highlighted the need for ratings agencies to take account of the exposure of private banks as well as macroeconomic data (IMF, 1999: 101–15, 180–203).

This overdue acceptance that demand schedule shifts are a major cause of instability in capital flows and beyond the control of emerging markets has not, however, been matched by an initiative to stabilize demand. As a consequence, formal analytical modelling of international capital markets in the aggregate (as opposed to the microeconomics of portfolio behaviour) has made little progress, in sharp contrast to the valuable contributions made by trade theory to the formulation of international trade policy. Sticky prices, market segmentation, heterogeneous investors, persistent currency misalignments despite arbitrage and the cost of scarce information all need to be accounted for if the model is even to approximate the real world in a useful way (Dumas, 1994). Indeed the divergence of asset prices from their fundamental values is a systemic characteristic of all capital markets, and while it is a zero sum game for those financial agents who are directly involved, the effects on the real economy are far from negligible and must be taken into account by regulators (Tobin, 1998: ch. 6).

As the demand for and supply of emerging-market assets does not come into equilibrium, an explicitly disequilibrium econometric framework is clearly required in practice (Agenor, 1998). Models of 'credit crunches' are a familiar approach to the analysis of domestic capital markets (Blinder, 1987) but are not generally used in international finance. Such models imply that a pecking order of FDI, debt and equity is required for such a framework, consistent with asymmetric information and finance theory (Razin *et al.*, 1998). Above all the effect of demand changes on asset prices and flows is likely to be asymmetric in the sense that an increase (or decrease) in demand will not affect all assets equally, but rather prices and quantities stabilize the safer the asset.

One of the few instances of this approach is the detailed examination of capital flows to four emerging markets – Brazil, Mexico, Thailand and Korea – by Mody and Taylor (2001). They have found that the 'short' side of

the market, which can vary over the cycle, determines the level of flows. It is therefore possible to determine instances of 'international capital crunch', when flows are curtailed because of lender rationing. In particular their results show that higher US yield spreads are associated with credit crunches for emerging markets. Their analysis also highlights the part played by asymmetric information (as distinct from default risk) in conditioning capital flows. There is also ample evidence that domestic investors are better informed about payoffs in their own market than are foreign investors in both Europe (Gehrig, 1993) and Japan (Kang and Stulz, 1994), leading to home bias. There is also evidence that domestic investors moved out of markets in crisis before foreigners did in the cases of Korea (Kim and Wei, 1999) and Mexico (Frankel and Schmukler, 1996). This has led Brennan and Cao (1997) to suggest that while foreign equity purchases may be an increasing function of returns, due to the cumulative information advantage, news will cause foreign investors to revise their positions more than domestic ones will.

The relative role of push and pull factors in separately determining fluctuations in capital flows has been researched empirically, particularly in respect of the outward surge of the early 1990s, although there is no general consensus on the relative roles played by these factors. Calvo *et al.* (1993) stress external factors because reforming and non-reforming countries were similarly affected and at same time. The key factor was the poor return on safe assets in the G3 countries (especially the United States), which provided an incentive to search for higher returns. In the mid 1990s Fernandez-Arias (1996) concluded that push factors predominated, especially the falling US interest rates. By extension, sustained US asset price growth in the late 1990s explains the decline in demand, as well as supply quality problems in emerging markets themselves. Montiel and Reinhart (2001) have thus concluded that the key push factors were those which reduced the attractiveness (risk-return characteristics) of industrial country debtors and therefore the demand for emerging-market assets. This was related to the business cycle: the collapse of Japanese asset prices and low US and European interest rates are cited for the early 1990s. Longer-term push (demand) factors included changes in the financial structure of industrial countries, such as the rise of mutual funds, where the small emerging-market share in their growing portfolios allowed for a longer-term upward trend. According to these authors, at least half of the observed variations in capital flows during the 1990s can be explained by these push factors.

More recently attention has turned to the downturn in the capital flow cycle in the late 1990s. The cumulative stock positions for emerging-market bonds, loans and equity seem to indicate that a stable position was approached in the second half of the decade after the rapid stock expansion in the first half (Figure 11.1). In addition it is clear that towards the end of the decade there was a shift towards higher-quality assets, such as syndicated

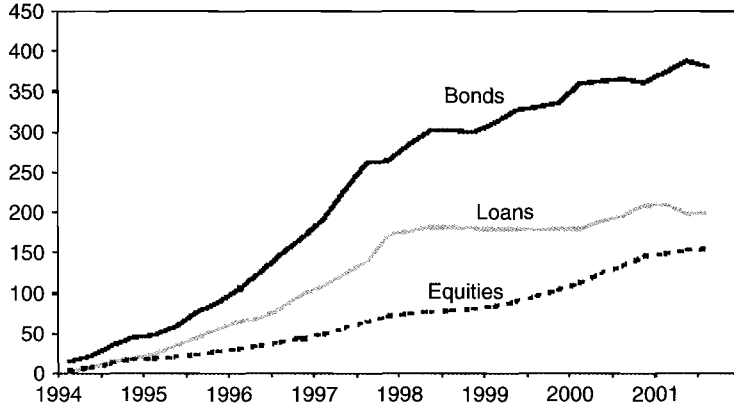

Figure 11.1 Aggregate trends in emerging-market asset stocks, 1994–2001 (US$ billion)
Source: IMF (2001).

loans to affiliates of multinational corporations, investment-grade bonds and corporate equity traded on international exchanges. This might imply that the boom was in fact a stock readjustment following the earlier decline in demand due to the deterioration of asset quality (that is, the debt crisis) on the one hand, and the expansion of asset supply due to the privatization of utilities and financial liberalization on the other. The subsequent 'drought', then, reflected deteriorating asset quality and a reduced supply of assets as privatizations were completed and sovereign issuers reduced their public sector borrowing under adverse conditions (IMF, 2001).

However Figure 11.2 suggests another explanation. It is clear that in the case of US mutual funds at least, the demand for emerging-market assets was closely correlated with the demand for international assets more generally. In other words the push factors determining the latter – including relative returns, portfolio diversification and home bias – were dominating the pull factor. A similar pattern can be observed for international bank portfolios, which kept on growing at the end of the decade while the emerging-market share steadily declined (ibid.: 23). Hence the divergence in the late 1990s can be attributed to a decline in asset quality (that is, to the successive emerging-market crises), although it should be remembered that this too was related to the previous upsurge of demand, which created an asset bubble. Similar effects have been detected in the bubble in technology stocks, in which emerging-market equities and bonds appear to constitute a single-asset, risk-return class for many institutional investors.

As Figure 11.3 demonstrates, there is also evidence of an increasing cross-correlation between emerging-market assets in times of crisis due to broad selling. For this high and variable degree of contagion, 'common external

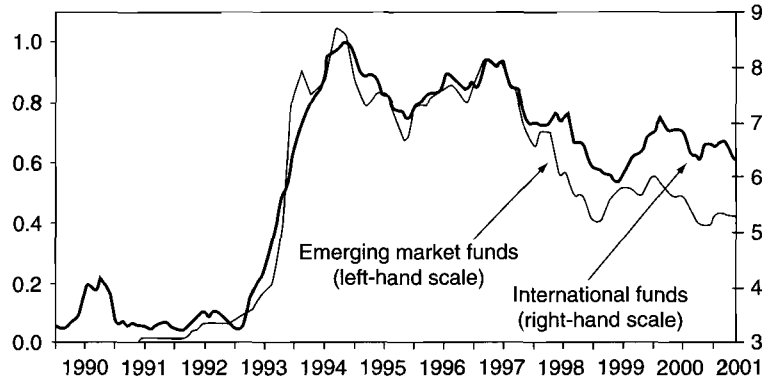

Figure 11.2 Aggregate asset demand composition, 1990–2001 (percentage of total net assets of all US equity mutual funds)

Source: IMF (2001).

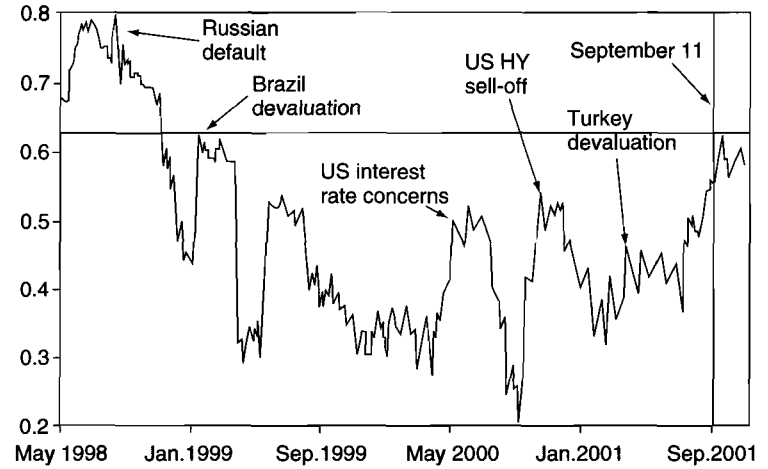

Figure 11.3 Aggregate trends in contagion, 1998–2001 (average cross-correlation of emerging debt markets)

Source: IMF (2001).

factors and lack of investor discrimination are the more likely explanators' (ibid. 18). In downswings the lack of safe havens within an asset class also appears to increase cross-correlation. Eleven 'droughts' of varying length have been identified between 1993 and 2001, defined as periods when the primary dollar market was effectively closed to the main non-investment-grade borrowers. Rate-spread widening and market volatility have been

identified as key factors in such market closures: markets tend to reopen when spreads stabilize or narrow again. These factors also cause issuers to delay issuing, so there is a supply effect as well. However closure tends to be sudden and opening gradual, because 'while there has typically been a key discrete event that closes markets, there has typically not been a clearly identifiable discrete event that reopens them' (ibid.: 20).

In sum, it is clear from the macroeconomic evidence on capital flows that shifts in the demand schedule for emerging-market assets have disproportionate effects on both prices (yields) and quantities (flows), causing major macroeconomic shocks that in turn affect assets in terms of both quality (that is, economic stability and default risk) and supply. The factors that cause these shifts include the cost (interest rates) and availability of capital – that is, the OECD business cycle – on the one hand, and changes in risk aversion on the other. Risk aversion itself depends on home market conditions, and also on the experience of previous crises and the contagion of whole asset classes, independently of the underlying fundamentals, which change over time as collective perceptions of the causes of emerging-market instability change. To understand the changes in risk aversion it is necessary to turn to the microeconomic evidence on investor behaviour.

Momentum trading and risk appetite – the microeconomic dimension of the asset demand schedule

For some time it has been clear that (1) the microeconomic logic of investment behaviour in response to particular financial incentives and (2) the way in which investors use information can have severe consequences for the pricing of developing-country stocks, quite independently of the underlying fundamentals.[3] The consequent asset bubbles can have a serious impact on the real economy in both developed and developing countries even in the presence of low inflation, fiscal balance and monetary rectitude (IMF, 2000).

The principles of investor valuation in terms of the risk of and return on assets in a portfolio are well known, but the liquidity of emerging-market assets (almost a form of contract uncertainty) is also relevant when there is a possibility of market collapse. Liquidity then relates to the perception of other buyers' reactions to news (herding and contagion), and to the anticipated actions of public authorities (so-called 'moral hazard'). As a consequence, asset valuation methods and portfolio composition rules tend to be rather crude, being largely based on considerations of liquidity and exit possibilities (Clark *et al.*, 1993).

However there are limitations to the use of yield spreads on emerging-market bonds as evidence of markets' perception of asset quality in the form of underlying default risk. A measure of yield dispersion and of comovements is necessary to determine whether the effects of shocks are common to all

the bonds surveyed, and the time profile of risk is needed to detect investors' demand for liquidity. Moreover 'care is needed in interpreting yield spreads, since they are influenced by a variety of factors other than the perceived creditworthiness of the borrower including investors' appetite for risk and the liquidity of particular instruments' (Cunningham *et al.*, 2001: 175). In particular, 'changes in risk appetite follow from change in preferences or institutional factors, such as the need to adjust portfolios following losses incurred on holdings of other risky assets' (ibid.: 185).

Yield dispersion increases over time as well as after crises, which can be interpreted as growing discrimination among investors in a cumulative learning process. However it is still the case that beyond investment grade[4] the relationship between risk (as reflected in ratings) and price (reflected in yield spreads) tends to break down, particularly during droughts, when credit rationing severely reduces transaction volumes. Moreover, to the extent that the yield-spread term structure slopes upward (because default risk increases into the future), then average yield measures will be distorted when composition changes through the cycle according to liquidity preference.

We understand very little about how information is actually used in these investment decisions. In particular, perceptions of risk cannot reliably be based on an econometric analysis of past trends, due to the lack of data and the persistence of structural breaks. Under conditions of uncertainty not only is the most recent and timely information used (such as reserve levels or asset price trends, as used by chartists) rather than more informative data, but also judgement is strongly affected by the implicit models used by investors. Moreover in view of the cost of information (that is, research), its untimeliness and its uncertainty, portfolio investors logically prefer to move quickly in response to news. Finally, the incentives faced by fund managers (such as quarterly performance bonuses based on performance relative to the industry average) are widely considered to exacerbate this behaviour.

In effect, as Keynes pointed out a long time ago, uncertainty cannot be reduced to risk or probability, rather it is related to the strength or degree of belief. Thus 'people evaluate the probability of events by the degree to which these events are representative of the relevant model or process' (Kahneman *et al.*, 1982: 97). Measurements of likely risk under circumstances that are difficult to imagine (low availability) or have not been experienced before are systematically underestimated as the event is felt to be unlikely. In general, 'although the language of probability can be used to express any form of uncertainty, the laws of probability theory do not apply to all variants of uncertainty with equal force' (ibid.: 519).

An interesting application of this insight can be found in De Grauwe's model of the 'band of agnosticism' in exchange rates, within which demand is stable but once breached leads to large demand shifts. This reflects 'rational behaviour in an uncertain world' (De Grauwe, 1996: 181–206).

De Grauwe argues that 'the idea that economic agents compute a future exchange rate based on a model they believe in, then telescope it back into the present, is of little use in a world where economic agents have great difficulty in working out what the true model of the world is' (ibid.: 189). Under these circumstances, small information costs lead to quite large asset price bands.[5] De Grauwe suggests that 'the band of agnosticism is also a breeding ground for fads which, in the absence of credible alternatives, are elevated to important theories' (ibid.: 202), and concludes that 'movements of real exchange rates are, within certain bounds, inexplicable' (ibid.: 209) – all one can do is to make probabilistic statements about them.

Another direction is provided by recent work on herding by investors, which indicates three possible causes:

- Payoff externalities, where the payoff to an agent who adopts an action is positively related to the number of agents who adopt the same action.
- Principal–agent considerations such that a manager, in order to maintain or gain reputation when markets are imperfectly informed, may prefer either to 'hide in the herd' to avoid evaluation or 'ride the herd' to improve reputation.
- Information cascades, where later agents, inferring information from the actions of prior agents, optimally decide to ignore their own information (Devenow and Welck, 1996). Here too the use of information is as important as its availability.

The macroeconomic variables discussed in the previous section also enter into standard models of portfolio optimization as the basis for asset allocation by fund managers (Disyatat and Gelos, 2001). Clearly, higher home interest rates, lower volatility in home assets, higher covariance between these and emerging-market assets, and higher risk aversion will all reduce demand for emerging-market assets independently of the supply conditions. Further, the benchmarking model explains pervasive herding behaviour and thus the momentum effect of demand for an asset becoming a positive function of quantity (capital flow). These models take both the risk aversion of investors and the characteristics of assets as given. There is, however, good reason to treat risk aversion (or 'risk appetite') as a variable in itself, one that not only changes but is also path dependent, varying with past experience of yields and bubbles and thus potentially strongly procyclical. Thus the prevalence of home bias, particularly under conditions of uncertainty, is clearly part of the problem for emerging markets as an asset class, and not just a structural factor.

US pension funds hold between 1.5 per cent and 2.0 per cent of their portfolios in emerging-market assets, mainly through mutual funds, which in turn account for about 10 per cent of market capitalization in host countries (Kaminsky *et al.*, 2000b).[6] Econometric analysis clearly indicates that funds'

momentum trading in emerging-market equities is positive – they systematically buy winners and sell losers (Kaminsky *et al.*, 2000a). Contemporaneous momentum (buying winners and selling losers) is stronger during crises; lagged momentum trading (buying past winners and selling past losers) is stronger when there are no crises. Investors also engage in contagion trading, that is, they sell assets from one country when asset prices fall in another. Kaminsky *et al.* also found differences between the behaviour of fund managers and direct investors, with managers being more likely to engage in momentum trading, partly because individuals flee mutual funds during crises even if the fundamentals do not warrant it.

In a similar vein, Disyatat and Gelos (2001) have explored portfolio data for dedicated US mutual funds to assess whether they follow benchmarks or portfolio rebalancing rules. The authors found that benchmarking explains observed behaviour better than the rebalancing rule in the standard mean-variance optimization model, but they did not explore variations in risk aversion over time. The IMF, however, recognizes that risk appetite changes over time, and to identify this it uses the JP Morgan 'global risk aversion index' (IMF, 2001), which measures monetary liquidity and credit premia (Figure 11.4). However, the Bank of England warns that 'it is difficult to construct robust indicators of risk appetite' because of the difficulty of separating out the effects of pure contagion and underlying fundamentals in aggregate indicators[7] (Cunningham *et al.*, 2001: 185).

It is therefore necessary to construct a model of risk aversion (or risk appetite) that suspends the constant absolute risk aversion (CARA) assumption, allowing for observed cyclical behaviour in risk appetite and asymmetry through the cycle, with risk aversion rising suddenly in a crisis and only slowly declining afterwards. Kumar and Persaud (2001) suggest how this might be done. They argue that observed spreads should not be explained in terms of the difference between global risk (α) and the variance of the asset price (σ^2), as is conventionally done, but in terms of the product of risk appetite (K) and the standard deviation of the asset price (P). This defines the expected return $E(R)$, which is measured as the difference between the long-term asset price, $LR(P)$, and the current price, P.

This formulation has two advantages: it allows risk appetite to be separately estimated, and it reflects the fact that variations in risk appetite will have proportionately larger effects on riskier asset prices:

$$E(R) = \alpha + K \log(\sigma^2) \tag{11.1}$$

$$E(R) = LR(P) - P \tag{11.2}$$

$$P = LR(P) - \alpha - K \log\sigma^2 \tag{11.3}$$

This formulation has the attractive property that the effect of global risk is symmetrical on emerging market asset prices, but the effect of risk appetite varies with the riskiness of the asset price itself:

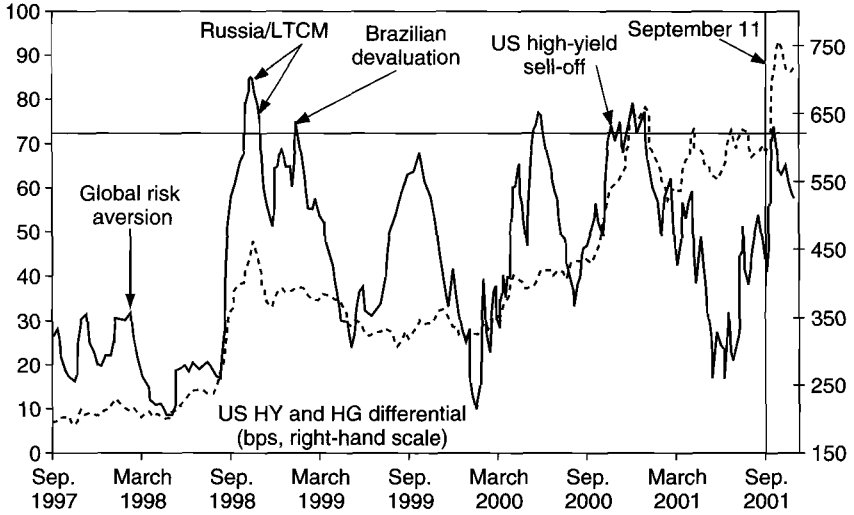

Figure 11.4 Global risk aversion
Source: IMF (2001).

A definition of JP Morgan's LCPI

The LCPI has two broad sub-components measuring liquidity and credit premia respectively. The indicators of a liquidity premia consist of the spread between on- and off-the-run US treasuries and US swap spreads. The credit premia indicators consist of US high-yield spreads, an emerging market bond index (the EMBI), JP Morgan's Global Risk Aversion Index, and implied volatilities of the major exchange rates. An overall index is constructed by equally weighting the different sub-components of the indicators.

$$\partial P/\partial \alpha = -1 \qquad \partial P/\partial K = 2\log \sigma \tag{11.4}$$

It also means that K can be estimated separately as a coefficient in the regression of the volatility of an asset on its price. Empirical tests by Kumar and Persaud on leading emerging market currencies clearly demonstrate cyclical behaviour in risk appetite (K) and support the hypothesis that the more volatile (riskier) an asset is, the greater the rise in expected return in relation to the general level of risk. That is, the demand schedule for emerging market assets will be both steeper and more volatile than that for home assets.

At the microeconomic level, we can draw together the factors discussed above by exploring a simple framework for asset allocation in a portfolio made up of two asset classes:[8] the emerging-market asset, 1, and the home asset, 2, with expected returns, r, and risk profiles, σ^2, such that:

$$r_1 > r_2 \ \sigma_1^2 > \sigma_2^2 \tag{11.5}$$

The share, w, of emerging-market assets in the portfolio and the covariance between the two asset classes, σ_{12}, then determines its overall return, R, and variance, Σ^2, characteristics:

$$R = r_1 w + r_2 (1-w) \tag{11.6}$$

$$\Sigma^2 = w^2\sigma_1^2 + (1 - w)^2 \sigma_2^2 + 2w(1 - w)\sigma_{12} \tag{11.7}$$

The investors' problem is to maximize their objective with respect to portfolio composition, which is defined as follows:

$$\max_w = R - \frac{1}{2}A\Sigma^2 \tag{11.8}$$

where A is the risk aversion coefficient. This then solves for the optimal value of the share of emerging-market assets, w^*, in the portfolio:

$$w^* = \frac{1}{\sigma_1^2 + \sigma_2^2 + 2\sigma_{12}}\left[\frac{r_1 + r_2}{A} + [\sigma_2^2 + \sigma_{12}]\right] \tag{11.9}$$

From our point of view, the key benefit of this standard textbook result is that it enables us to construct an implicit asset demand schedule on the basis of the same characteristics of the asset demand schedule identified in the previous section. In other words the positive (negative) effect on the demand for emerging-market assets of a decrease (increase) in the home rate of return, r_2, an increase (decrease) in the riskiness of home assets, σ_2, a fall (rise) in pure contagion, σ_{12}, and above all an increase in risk aversion, A.

In sum, both empirical evidence and analytical insights indicate that the emerging-market asset schedule is relatively unstable and may respond to exogenous changes in risk appetite. In addition, momentum trading and investor herding combine to create asset bubbles quite independently of changes in the supply conditions or fundamentals. The effect of these demand fluctuations on individual emerging markets is asymmetric in the sense that demand is disproportionately more unstable for higher-risk assets. This evidence supports our interpretation of the nature of the asset demand schedule at the aggregate level, but also implies that changes in aggregate risk aversion should be made endogenous in a dynamic formulation.

'An orderly market' – the effects of official interventions on the asset demand schedule

In combination, the two previous sections imply that if the market is to become more orderly and if capital flows to developing countries are to increase in both volume and maturity, supply-side measures alone will not be sufficient. Therefore we must turn to the issue of intervention in asset demand.

If a full set of prices does not exist, or if perfect information on them is not available, even if firms and households act perfectly competitively (taking prices as parametric) then the market equilibrium – if it exists – is not welfare maximizing (Atkinson and Stiglitz, 1980). This is particularly true of financial markets, because a full set of futures markets, and of markets for all risks, usually does not exist. Again the presence of externalities such as the liquidity effect of major agents leaving the market can also lead to market failure or an absence of markets. Firms (or individuals or governments) cannot issue unlimited bonds at a given risk premium over current interest rates because the risk premium depends on the amount borrowed and the collateral available.

Lenders will not lend even at higher interest rates (or even more collateral) because this would increase the risk and dissuade good borrowers. The profit-maximizing loan book for a bank thus takes the form of rationing – that is, a limit on the overall level of loans to particular classes of borrower or types of asset. Asymmetric information (where borrowers have better knowledge of the likelihood of default than do lenders) will lead to the situation where assets may be sound, but no one is willing to lend – that is, a 'collapsed market' (Hiller, 1997). In these circumstances a small increase in the perceived risk for some borrowers, or a reduction in the overall supply of funds, can cause the credit market to collapse for a whole class of borrowers (Mankiw, 1986). The consequences for macroeconomic stability in a single economy are now widely recognized (Stiglitz and Weiss, 1992), and logically they are even more significant for international capital markets. Specifically, the absence of full market clearing leads to a serious problem with market access: low-income countries do not have access to international bond markets (at whatever premium) while middle-income countries can easily lose access due to regional contagion or political events (World Bank, 2000).

Asymmetric information problems are to some extent resolved by rating agencies, although their record is very mixed (IMF, 1998, 1999). Externalities also exist in the form of overheating on market upswings and liquidity problems on downswings, both of which may justify supervisory oversight and last-resort lending. Contract risk in the case of equities is not great, and the legal costs of transactions are reduced by the use of American or Global Depository Receipts in developed-country markets. However in the case of

bonds there are serious externality and contract problems in cases of bond default and debt workouts, where the interests of individual bondholders may not coincide, thus causing a 'common action' problem. In the case of bank lending there should be fewer information problems because banks possess both expertise and information from their branches. The risk of default, however, remains high due to liquidity problems and financial fragility in emerging markets, so banks tend to make only short-term loans, and preferably to other banks and multinational affiliates. What is more, bank lending tends to become highly volatile in response to political and regional events, and to be strongly procyclical; so it does not provide support in times of economic difficulty, and tends to increase credit availability during macroeconomic booms.

Broadly speaking we can identify three traditional forms of public intervention in the flow of private capital to emerging markets:

- Intermediation between developed-country lenders (that is, global capital markets) and developing countries, based on the particular advantages of information, diversification or contract enforcement that such institutions have over the private sector in order to provide longer-term loans than the market is willing to offer, or to gain access for countries that are not considered creditworthy; this being the role of the World Bank and the other (regional) multilateral development banks.
- Efforts to ensure that financial contracts are more likely to be enforced, either by improving the economic and institutional strength of the borrowing country, or by using international leverage to ensure that contracts are honoured in debt work-outs; and for longer-term lending to offer investment insurance facilities and export credit guarantees on the same principle.
- Provision of countercyclical finance as a lender of last resort in situations where the borrower is fundamentally solvent but there is a liquidity shortage due to market expectations that become self-fulfilling when the maturities of borrowers' assets and liabilities are mismatched (the role of the IMF); helping to restructure and refinance outstanding developing country liabilities where longer-term solvency obtains, and to allocate the costs of writing off debt when the borrower is insolvent – equivalent to bankruptcy proceedings in national private sectors.

All three forms of intervention relate to what we have defined as the supply schedule for emerging-market assets. More recently the dissemination of reliable information to capital markets on the quality of assets and borrowers, thus reducing the asymmetric information problem, has become the key element in the G7 Financial Stability Forum's (FSF) *Compendium of Standards*[9] for the strengthening and extension of existing systems of

global financial supervision, increasing the availability and timeliness of information (mainly official statistics) to the markets.

The positive incentive for compliance despite the high administrative cost is that emerging markets that adhere to the new rules will enjoy enhanced market access, although this is only a potential benefit. The penalties for non-compliance are clearer: financial regulators in OECD countries can apply penalties or constraints such as capital requirements on investors acquiring assets in non-compliant countries; and official lenders (particularly the IMF) can refuse to support non-compliant countries. These disincentives might be effective in reducing foreign interest in non-compliant countries, but they also tend to reinforce the cyclical nature of investors' interest in emerging markets and thus undermine sustainable growth in developing countries.

Moreover, as we have seen, the market does not always use information effectively as much depends on the models used to analyze statistical data. These models are generally backward looking (which leads to 'overshooting'), while traders react to news that does not reflect the underlying fundamentals. The rules proposed by the FSF that attempt to define 'best practice' in emerging-market policies related to economic reform and policy conduct are problematic because what constitutes sound fundamentals is not always agreed (for example the acceptability of capital controls) and indeed tends to change over time.[10] Precisely because capital markets do not function well on their own, developed countries maintain a high degree of prudential regulation of their own national capital and banking markets in order to ensure the integrity of markets by regulating creditors as much as – if not more than – debtors (Goodhart *et al.*, 1998). Nonetheless international measures to stabilize capital flows that affect source countries have been very limited. An increased role for rating agencies in rating countries or companies, as proposed by the Basel Committee, could even risk increasing the negative procyclical features of bank lending and make it more difficult for poorer countries (and companies in those countries) to gain access to bank lending. The current proposals for banks would also lead to the greater use of banks' own value-at-risk (VaR) models when setting regulatory capital requirements, which could strengthen – rather than reduce – the propensity for boom–bust flows and the bias against emerging markets.

The proposal for the revision of bond contracts to permit majority bondholder decisions (the so-called 'collective action clauses') in situations of debt restructuring is an important step forward, but it does not constitute a measure to alter the demand schedule. In effect such measures alter bond quality by making the consequences of default more certain and thus allowing better risk pricing. This is in marked contrast to the OECD markets, where fiscal and regulatory incentives are used to encourage institutional investors to take longer-term positions (Davis, 1995).

Table 11.1 shows key elements of investment regulation of pension funds in a number of industrialized countries (OECD, 2001). It is clear that the UK

Table 11.1 Investment regulation of pension funds in nine OECD countries, 2001

	Direct limits on domestic asset holding (%)						
	Equity	*Real estate*	*Corporate bonds*	*Investment funds*	*Loans*	*Bank deposits*	*Direct limits on foreign investment*
Austria	50	20	*	*	*	*	Non-euro investments and foreign property investments, 50 per cent maximum
Belgium	65[1], 30[2]	40[3]	*	30	40[3]	*	Localization requirement: only assets located in EU, but includes securities issued by authorized institutions; 65 per cent OECD equities, 5 per cent foreign investment funds, non-OECD equities barred
France	65[1], 0.5[2]	0	*		10		
Germany	30[1], 10[2]	25	50	30	50[4], 50[5]	50	30 per cent EU equity, 25 per cent EU property, 6 per cent non-EU equity, 5 per cent non-EU bonds

Italy	*	*	*	20	*
Japan	*	*	*	*	*
Spain	*[1], 10[2]	*	*	*	10[6]
UK	*	*	*	*	No employer-related loans
US	*	*	*	*	*

Notes:
* No limits.
1 Quoted equity.
2 Unquoted.
3 Joint limit.
4 Mortgage loans.
5 Other.
6 If no mortgage guarantee.
Source: OECD (2001, correct as at May 2001), abridged by Alex Cobham.

20	Debt and equity securities not traded in regulated markets: OECD 50 per cent, non-OECD barred. Non-OECD traded in regulated markets 5 per cent
*	*
15	No limits for OECD countries
*	*
*	*

and US pension funds are among the least closely regulated in the developed world. The pressure for more active portfolio allocation to manage risk and the need for higher returns to support an ageing population mean that emerging-market assets could be a valuable component of portfolios if the market becomes less cyclical. There is no explicit regulatory constraint on pension funds holding securities issued by (or backed by assets of foreign investors in) developing countries. In contrast other EU pension funds are much more closely regulated and there are considerable restrictions on their portfolio composition. This is mainly designed to reduce the risk of funds failing but also to generate a market for long-term domestic government and corporate debt and property mortgages.

In sum, despite the fact that demand shifts account for a large part of emerging-market instability because of their asymmetric effects, official intervention has been concentrated almost entirely on asset supply conditions. Interventions that could affect demand, such as new information standards and bank capital adequacy rules, will probably have little effect at best or further destabilize demand at worst.

Conclusions

This chapter has demonstrated how shifts in the demand schedule for emerging market assets affect asset prices, asset quality (for example default risk) and asset stocks, and thus capital flows. In doing so it has identified a number of points at which macroeconomic theory, evidence on aggregate flows, microeconomic evidence and theory on portfolio adjustment can be brought together to define the key components of this demand schedule. It has established that shifts in the demand schedule, independently of conditions in emerging markets, account for a large part of the changes in observed capital flows. But the task is far from complete as we still lack a formal analytical definition of this schedule. A corresponding definition of the supply schedule – including the determinants of borrowing decisions and the interactive effects of the flows on asset quality – will also be needed to construct a well-grounded, reduced-form estimation model for econometric testing of the data.

Nonetheless some tentative policy conclusions can be drawn from the argument so far. First, the G3 governments should pay more attention to the negative effects on emerging markets of volatility in the OECD capital markets. Relatively small fluctuations in G3 interest rates and exchange rates (and the related capital account variations resulting from investment–saving imbalances) cause absolute shifts in the emerging-market asset demand schedule that are very large in relation to the economies of the host countries. However the fact that the G3 governments are unwilling (or unable) to adopt mutual macroeconomic coordination rules in order to sustain their

own economies implies that they are unlikely to do so in order to help developing countries.

Given the inevitability of macroeconomic cycles in the G3 zone, there appear to be two other policies that could stabilize capital flows to emerging markets from the demand perspective. The first would be to encourage – by a combination of regulatory changes and tax incentives – G3 institutional investors to acquire and hold emerging-market assets of a longer maturity than at present. This would both shift the demand upwards and reduce its volatility over the cycle by increasing risk appetite on a structural basis. The advantages to institutional investors would, of course, be higher long-term yields without the excess risk generated by the market instability of the past decade.

The second would be to create greater liquidity in the market by encouraging market makers (such as international financial institutions) to make an explicit commitment to countercyclical intervention by standing ready to buy assets from the private sector during the downswing of the cycle (when risk appetite declines) and sell during the upswing. This form of liquidity provision would probably be more effective than the present practice of last-resort lending when crises occur, particularly as it would reduce the *ex ante* volatility of emerging-market assets and thus enhance their attractiveness to institutional investors.

Notes

* Earlier versions of this chapter were presented to the WIDER/ECLAC seminars on 'Capital Flows to Emerging Markets since the Asian Crisis' in Santiago de Chile (8–9 March 2001) and Helsinki (1–18 October 2001). I would like to thank colleagues at these seminars for their critical yet constructive comments.

1. This problem is discussed in depth in Luttick (1998), who also addresses the major inconsistencies between asset–liability and inflow–outflow statistics, recorded by the countries of origin and destination.
2. Not that this had been absent from the critical economics literature, of course, from Keynes through to Kindleberger.
3. See IMF (1995), particularly the section on institutional investor behaviour and the pricing of developing country stocks (pp. 37–44).
4. According to the Bank of England, the spread/rating curve tends to the origin, moves through 250 basis points at Moody's A2 and 500 basis points at B3, becoming asymptotic to infinity beyond B3 (Cunningham *et al.*, 2001).
5. The size of the band (that is, the speculative estimate of future exchange rate minus forward price) must logically be greater than the square root of the volatility multiplied by the risk aversion coefficient and the cost of information. An increase of 1 per cent in information costs as a proportion of the gain from the transaction can widen the band width by 20 per cent under reasonable parameter assumptions.
6. These are World Bank estimates for 1997; the total assets amounted to US$50–70 billion.
7. Such as JP Morgan's EMBI global index (IMF, 2001).

8. In fact it would be more realistic to build a 'decision tree' in the way that trade modellers do (derived from models of aggregate consumption), allowing for successive stages of disaggregation. Thus the first division would be between home and international assets, the second within international assets between the OECD and emerging markets, the third within emerging markets between regions, and so on. But the essence of the model would be similar.
9. The FSF *Compendium of Standards* contains the work of six separate bodies: the Basel Committee on Banking Supervision (BCBS), the Committee on Payment and Settlement Systems (CPSS), the International Association of Insurance Supervisors (IAIS), the International Monetary Fund (IMF), the International Organisation of Securities Commissions (IOSCO) and the Organisation for Economic Co-operation and Development (OECD).
10. As has, for that matter, the content of and support for the so-called Washington Consensus.

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Part II
National Policy Responses

12

Capital Account and Countercyclical Prudential Regulations in Developing Countries*

José Antonio Ocampo

The association between capital flows and economic activity has been a strong feature of the developing world, and particularly of emerging markets, for a quarter of a century. This highlights the central role played by the mechanisms that transmit externally generated boom–bust cycles in capital markets to the developing world, as well as the vulnerabilities they engender. The strength of business cycles in developing countries, and the high economic and social costs they generate, are thus related to the strong connections between domestic and international capital markets.

This implies that an essential objective of macroeconomic policy in developing countries is to reduce the intensity of capital account cycles and their effects on domestic economic and social variables. This chapter explores the role of two complementary policy tools in achieving these objectives: capital account regulations and countercyclical prudential regulation of domestic financial intermediation. After a brief look at the macroeconomics of boom–bust cycles, the chapter focuses on the possibility of directly affecting the source of the cycles through capital account regulations, and then considers the role of countercyclical regulations.

The macroeconomics of boom–bust cycles

Capital account cycles in developing countries are characterized by the twin phenomena of volatility and contagion. The first is associated with significant changes in risk evaluation during booms and crises of what international market agents consider to be risky assets, which involve a shift from an 'appetite for risk' (or more properly, an underestimation of risks) to a 'flight to quality' (risk aversion). The second implies that, due to information asymmetries, developing countries are pooled together in risk categories that are viewed by market agents as strongly correlated. Beyond any objective

criteria that may underlie such views, this practice turns such correlations into a self-fulfilling prophecy.

Capital account volatility is reflected in variations in the availability of financing, in the procyclical pattern of spreads (narrowing during booms, widening during crises) and in the equally procyclical variation of maturities (reduced availability of long-term financing during crises). Such cycles involve both short-term movements – such as the very intense movements observed during the Asian and, particularly, the Russian crises – and, perhaps primarily, medium-term fluctuations, as the two cycles experienced over the last three decades indicate: The boom in the 1970s was followed by a debt crisis in a large part of the developing world, and another boom in the 1990s was followed by a sharp reduction in net flows after the Asian crisis. Due to contagion, such cycles tend to affect all developing countries, although with some discrimination by the market, reflecting the perceived level of risk of specific countries or groups of countries.

The main way in which the economic literature has explored the effects of external financial cycles on developing countries is by analyzing the mechanisms through which vulnerability is built up during capital-account booms. This may lead to the endogenous unstable dynamics analyzed by Minsky (1982) and Taylor (1998), among others, whereby the accumulation of risk leads to a sudden reversal of flows, and eventually to, a financial crisis. Alternatively the accumulated vulnerability is reflected in sensitivity to an exogenous shock, for example a contagion effect generated by a crisis in other developing countries or a downturn in financial markets in the industrialized world.

Thus in addition to the effects of traditional trade shocks, new sources of vulnerability have arisen. These are associated with the flow and balance-sheet effects of capital account fluctuations on domestic financial and non-financial agents, and with the impact of such fluctuations on macroeconomic variables. Some of these effects are transmitted through public sector accounts, but the dominant feature of the 'new generation' of business cycles in developing countries is the sharp fluctuation in private spending and balance sheets. The macroeconomic effects are amplified if the stance of macroeconomic policy is procyclical, as market agents actually expected it to be. The credibility of macroeconomic authorities and domestic financial intermediaries plays a key role throughout this process.

If the fiscal policy stance is procyclical, temporary public sector revenues and readily accessible external and domestic financing induce an expansion of public sector spending, which is later followed by an adjustment when those conditions are no longer present. Furthermore, during the downswing interest payments follow an upward trend due to devaluation and to increased domestic interest rates and international spreads. This trend, together with downward pressure on public sector revenues, triggers a procyclical cut in primary spending, but this may be insufficient to avoid a sudden jump in public sector debt ratios.

The structure of public sector debt plays a crucial role in this dynamic. In particular, if most of the public sector debt is short term the necessary rollovers considerably increase the financing requirements during the crisis, thus undermining confidence in the capacity of the government to service the debt. If the short-term debt is external, risk premiums increase and the availability of financing may be curtailed. If it is domestic, there may be strong pressure on interest and exchange rates, as asset holders' high liquidity facilitates the substitution of foreign assets for public sector debt securities.

As in the past, exchange rate fluctuations also play an important part in the business cycle, but their flow effects are now mixed with, or even dominated by, the wealth effects they have in economies with large net external liabilities. The capital gains generated by appreciation during the upswing helps to fuel the private spending boom, whereas the capital losses generated by depreciation have the opposite effect in the downturn. Furthermore such gains induce additional net inflows when there are expectations of exchange rate appreciation, and the opposite effect if depreciation is expected, thus endogenously reinforcing the capital account cycle. The income effects may have similar signs, or at least in the short run, if the traditional conditions for the contractionary effects of devaluation (or the expansionary effects of appreciation) are met (Krugman and Taylor, 1978). Policy-induced overvaluation of the exchange rate, generated by anti-inflationary policies that anchor the price level to a fixed exchange rate, accentuate these effects.

Domestic financial multipliers play an additional role through their effects on private spending and balance sheets. Indeed the domestic financial sector is both a protagonist and a potential victim of the macroeconomics of boom–bust cycles. The external lending boom facilitates domestic credit expansion and private sector spending during the upswing, but private sector debt overhangs accumulated during the boom subsequently trigger a deterioration in portfolios and a contraction in lending and spending during the downswing. At the same time banks and other financial intermediaries have inherent weaknesses that make them particularly vulnerable to changes in market conditions since they operate with high leverage ratios; they can be affected by maturity mismatches between deposits and lending (which are essential to their economic role of transforming maturities), and are subject to market failures that affect the assessment of credit risk.

Market failures are associated with information asymmetries, adverse selection and (possibly) moral hazard, all of which distort risk assessments and the allocation of funds to investment (Stiglitz, 1994; Mishkin, 2001). Buoyant expectations and their effects on the value of assets and liabilities may cause market agents to underestimate risks during booms. Overestimation of credit quality increases the speed of credit growth. In many cases, under the pressure of increased competition banks relax their standards of risk appraisal and make loans to borrowers with a lower credit quality.

This strategy is more frequent in the case of new participants in the market, since the older and larger institutions tend to retain the best-quality borrowers. Overall a deterioration of banks' balance sheets results from the excessive risk taking that characterizes lending booms, but it only becomes evident after a lag. De Lis *et al.* (2001) refer to 'a strong positive impact of credit growth on problem loans with a lag of three years'.

Eventually the risks that have built up are revealed in a rise in non-performing loans. In the absence of new capital, which is hard to raise when balances have deteriorated, banks are forced to cut lending even if borrowers are willing to pay higher interest rates. The protection provided by loan-loss provisions and capital may be insufficient to absorb the adverse shocks. The severity of the ensuing credit crunch depends on the magnitude of the credit boom and its effects on credit quality, and may be exacerbated by the fragility of the balance sheets of non-financial firms. Even the best-run banks may find it difficult to manage a shock that severely affects their clients.

The accumulation of currency and maturity mismatches on the balance sheets of both financial and non-financial agents is an additional source of vulnerability. Mismatches are associated with asymmetries in the financial development of industrialized and developing countries – that is, the considerable 'incompleteness' of markets in the latter (Ocampo, 2002a). In particular domestic financial sectors in developing countries have a short-term bias. Domestically financed firms thus have significant maturity mismatches on their balance sheets. Whereas small and medium-sized enterprises (SMEs) are unable to avoid such mismatches, large corporations may compensate for them by borrowing in external markets, but firms operating in non-tradable sectors then develop currency mismatches. A variable mix of maturity and currency mismatches is therefore a structural feature of non-financial firms' balance sheets in developing countries.

Domestic asset prices reinforce these cyclical dynamics. The rapid increase of asset prices during booms (particularly of stocks and real estate) stimulates credit growth. In turn, lending booms reinforce asset demand and thus asset price inflation. The resulting wealth effects intensify the spending boom. This process is further reinforced by the greater liquidity that characterizes assets during periods of financial euphoria. However this behaviour also increases the vulnerability of the financial system during the subsequent downswing, when debtors have difficulty serving their obligations and it becomes clear that the loans did not have adequate backing or that asset price deflation has reduced the value of collateral. Asset price deflation is reinforced as debtors strive to cover their financial obligations and creditors seek to liquidate the assets received in payment for outstanding debts under conditions of reduced asset liquidity. The negative wealth effect of decreasing asset prices contributes to the contraction of the economy and the credit crunch that follows in its wake.

Monetary policy has a limited degree of freedom to smooth out the dynamics of boom–bust cycles under all exchange rate regimes. In a fixed exchange rate regime, reserve accumulation during the boom fuels monetary expansion, which together with falling international spreads leads to a reduction in domestic interest rates. Under a floating exchange rate, both can be avoided, but only by inducing exchange rate appreciation, which also has expansionary wealth effects. Intermediate regimes (including dirty floating) generate variable mixes of these effects. A contractionary monetary policy will induce, in all cases, endogenous incentives that amplify the capital surge. The typical instrument of a contractionary monetary policy – that is, sterilized foreign-exchange reserve accumulation – also has large quasifiscal costs. The inducement to borrow abroad is also reflected in additional currency mismatches in the portfolios of either financial or non-financial intermediaries. The opposite types of pressure arise during a downswing, thereby exposing the accumulated financial vulnerabilities. Under a fixed exchange regime or a dirty float, the increase in interest rates and the reduction in financing generated by contractionary monetary policy aimed at containing speculative attacks on the currency exert strong pressure on weak balance sheets, particularly on agents with significant maturity mismatches. In a floating exchange rate regime, strong pressure is placed on agents with currency mismatches.

The frequency and intensity of financial crises is thus associated with the vulnerabilities generated by boom–bust cycles. In historical perspective, the frequency of 'twin' external and domestic financial crises is indeed a striking feature of the period that started with the breakdown of the Bretton Woods exchange rate arrangements in the early 1970s (IMF, 1998; Bordo *et al.*, 2001). The most important policy implication of this is that developing-country authorities need to focus their attention on crisis prevention – that is, on managing booms – since in most cases crises are the inevitable result of poorly managed booms. Focusing attention on crisis prevention recognizes, moreover, an obvious fact: that the degree of freedom of the authorities is greater during booms than during crises. The way crises are managed is not irrelevant, however. In particular, different policy mixes may have quite different effects on economic activity and employment, as well as on the domestic financial system (see Chapter 13; see also ECLAC, 2002; Ocampo, 2002b).

Capital-account regulations

The dual role of capital-account regulations

As we have seen, the accumulation of risks during booms depends not only on the magnitude of private- and public-sector debts but also on maturity and currency mismatches on the balance sheets. Thus capital account

regulations potentially have a dual role: as a macroeconomic policy tool to provide some room for countercyclical monetary policies that smooth out debt ratios and spending; and as a 'liability policy' to improve private sector external debt profiles. Complementary liability policies should also be adopted, particularly to improve public sector debt profiles. The emphasis on liability structures rather than on national balance sheets recognizes the fact that, together with liquid assets (particularly international reserves), they play an essential role when countries face liquidity constraints; other assets play a secondary role in this regard.

Viewed as a macroeconomic policy tool, capital account regulations aim at the direct source of boom–bust cycles: unstable capital flows. If they are successful, they provide some room to 'lean against the wind' during periods of financial euphoria through the adoption of a contractionary monetary policy and/or reduced appreciation pressures. If effective, they also reduce or eliminate the quasifiscal costs of sterilized foreign exchange accumulation. During crises they provide breathing space for expansionary monetary policies. In both cases, capital account regulations improve the authorities' ability to mix additional degrees of monetary independence with a more active exchange rate policy.

Viewed as a liability policy, capital account regulations recognize the fact that the market rewards sound external debt profiles (Rodrik and Velasco, 2000). This reflects the fact that, during times of uncertainty, the market responds to gross (and not merely net) financing requirements, which means that the rollover of short-term liabilities is not financially neutral. Under these circumstances a maturity profile that leans towards longer-term obligations will reduce domestic liquidity risks. This indicates that an essential component of economic policy management during booms should be measures to improve the maturity structures of both the private and the public sector's external and domestic liabilities. On the equity side, foreign direct investment (FDI) should be preferred to portfolio flows, as the former has proved to be less volatile than the latter. Both types of equity flow have the additional advantage that they allow all risks associated with the business cycle to be shared with foreign investors, and FDI may bring parallel benefits (access to technology and external markets). These benefits should be balanced against the generally higher costs of equity financing.

Innovations in capital account regulations in the 1990s

A great innovation in this sphere during the 1990s was unquestionably the establishment of an unremunerated reserve requirement (URR) for foreign-currency liabilities in Chile and Colombia. The advantage of this system was that it created a simple, non-discretionary and preventive (prudential) price-based incentive that penalized short-term foreign-currency liabilities more heavily. The corresponding levy was significantly higher than the level suggested for an international Tobin tax: about 3 per cent in the Chilean

system for one-year loans, and an average of 13.6 per cent for one-year loans and 6.4 per cent for three-year loans in Colombia in 1994–98. As a result of the reduced supply of external financing after the Asian crisis, the system was phased out in both countries. Other capital account regulations complemented reserve requirements, particularly the one-year minimum-stay requirement for portfolio capital (lifted in May 2000) and approval (subject to minimum requirements) for the issuance of ADRs and similar instruments in Chile, as well as the direct regulation of portfolio flows in Colombia.

The effectiveness of reserve requirements has been the subject of a great deal of controversy.[1] There is broad agreement that they were effective in reducing short-term debt flows and thus in improving or maintaining good external debt profiles. However in contrast to this positive view of these regulations as a liability policy there has been widespread controversy about their effectiveness as a macroeconomic policy tool. This question has been made more complex by the fact that neither country was free from the strong pressures generated by the external financing cycle that emerging economies faced during the 1990s, or from the effects of procyclical macroeconomic policies (Ocampo, 2002b).

However, judging from the solid evidence that exists on the sensitivity of capital flows to interest rate spreads in both countries, it can be asserted that reserve requirements do influence the volume of capital flows at given interest rates.[2] This may reflect the fact that national firms' access to external funds is not independent from their maturities – that is, that the substitution effect between short- and long-term finance is imperfect on the supply side – and/or that the available mechanisms for evading or eluding regulations may be costly.[3] In any case, a significant part of the history of these regulations, particularly in Chile, was associated with the closing of regulatory loopholes.[4] Alternatively, the URR allows the authorities to maintain higher domestic interest rates at a given level of capital inflows, and thus of the money supply. Hence in broader terms the usefulness of reserve requirements as a macroeconomic policy tool depends on the ability to affect capital flows, domestic interest rates or both, with the particular combination being subject to policy choice.[5] To the extent that capital flows affect the supply of foreign exchange, exchange rates may also be affected. Given the numerous channels through which the URR can affect the economy, the effectiveness of these regulations can best be measured by a broad index of 'monetary pressures' that includes capital inflows, domestic interest rates and exchange rates. This is the procedure used below.

In Colombia, where these regulations were modified more extensively during the 1990s, there is strong evidence that increases in the reserve requirements reduced flows (Ocampo and Tovar 1998, 1999) or, alternatively, were effective in increasing domestic interest rates (Villar and Rincón, 2002). Similar evidence is available for Chile (see Larraín *et al.*, 2000; Le Fort and Lehman, 2000; for interest rate spreads see De Gregorio *et al.*, 2000). The

evidence of effects on exchange rates is more mixed, though this may reflect the difficulties inherent in exchange rate modelling (Williamson, 2000: ch. 4).

Some problems in the management of these regulations were associated with changes in the relevant policy parameters. The difficulties experienced in this connection by the two countries differed. In Chile the basic problem was the variability of the rules pertaining to the exchange rate, since the lower limits of the exchange rate bands were changed on numerous occasions before the exchange rate was allowed to float in September 1999. During capital account booms, this gave rise to a 'safe bet' for agents bringing in capital, since when the exchange rate neared the floor of the band (in pesos per dollar) the probability that the floor would be adjusted downward was high. In Colombia the main problem was the frequency of the changes made to the reserve requirements. Changes foreseen by the market sparked speculation, thereby diminishing the effectiveness of such measures for some time after the modification. It is interesting to note that in both countries the reserve requirements were seen as complementary to, rather than a substitute for, other macroeconomic policies, which were certainly superior in Chile. In particular the expansionary and contractionary phases of monetary policy were much more marked in Colombia, and this country's fiscal position deteriorated throughout the decade.

Malaysia also made major innovations in its capital account regulations in the 1990s. In January 1994 it prohibited non-residents from buying a wide range of domestic short-term securities and established other limitations on short-term inflows; these restrictions were lifted later in the year. These measures also had a preventive focus, but were quantitative rather than price-based. They proved highly effective, indeed superior in terms of reducing capital flows and asset prices than the Chilean regulations (Palma, 2002). They also improved the country's debt profile (Rodrik and Velasco, 2000). However, after they were lifted a new wave of debt accumulation and asset price increases developed, though the debt profile was kept at more prudential levels than in other Asian countries hit by the crisis in 1997 (Kaplan and Rodrik, 2001; Palma, 2002).

An additional innovation came with the Asian crisis. In September 1998 Malaysia established strong restrictions on capital outflows. The main objective was to eliminate offshore trading of the local currency – that is, the segmentation of its demand – by restricting its use to domestic operations by residents. Ringgit deposits abroad were made illegal, and it was determined that those held abroad by nationals had to be repatriated. Trade transactions had to be settled in foreign currency. It was also decided that ringgit deposits held in the domestic financial system by non-residents could not be converted into a foreign currency for a year. In February 1999 this regulation was replaced by an exit levy on the principal, with a decreasing rate for investments held for a longer period and no tax on those held for

more than a year. For new capital inflows, an exit tax on capital gains was established, with a higher rate for capital that stayed less than a year (30 per cent; 10 per cent otherwise). The exit tax was reduced to a flat 10 per cent in September 1999; in January 2001 it was decided that it would henceforth apply only to portfolio flows held for less than a year, and in May 2001 it was eliminated altogether.

Significant discussions have taken place on the effects of these controls. Kaplan and Rodrik (2001) provide the strongest argument on the effectiveness of the regulations.[6] Drawing on previous studies, they show that the regulations were highly effective in rapidly closing the offshore ringgit market and reversing financial market pressure, as reflected in the trends in foreign exchange reserves and exchange and interest rates. The removal of financial uncertainties, together with the additional scope for expansionary monetary and fiscal policies, led to a speedier recovery of economic activity, lower inflation and better employment and real wage performance than comparable IMF-type programmes during the Asian crisis. This is true even adjusting for the improved external environment when the Malaysian controls were imposed, and despite the fact that the country did not receive large injections of capital; indeed the initial reaction of external capital markets to the regulations was negative.

Figure 12.1 offers a simple way to view the effectiveness of capital account regulations in the three countries. Based on similar indicators used in the literature, it calculates an index of expansionary monetary pressures. Since a capital surge generates expansionary effects through three different channels – the accumulation of international reserves, an appreciation of the exchange rate and a reduction in interest rates – the index weights the trends of these three indicators by their standard deviation during the period analyzed. A simple inspection of the graph indicates that the Malaysian controls were extremely effective, both in reversing the strong expansionary effect of capital surges in 1994 and in stopping the strong contractionary effects generated by capital outflows in 1998. The price-based capital account regulations in Chile and Colombia had weaker effects, particularly in the first case. Indeed the introduction of such regulations in Chile in June 1991 and their strengthening in May 1992 was not accompanied by a reversal of the expansionary trend;[7] those instituted in July 1995 had a more discernible effect. In Colombia, which used price-based regulations more aggressively, the effects were stronger. In particular the movement in the index of expansionary pressures was more closely tied to changes in capital account regulations in 1993–97. In both countries the capital account turned contractionary in 1998, with the reduction in the URR having only a negligible effect on this trend.

Overall the innovative capital account regulations in the 1990s served as useful instruments, both for improving debt profiles and for improving the exchange rate/monetary stance trade-off. However the macroeconomic

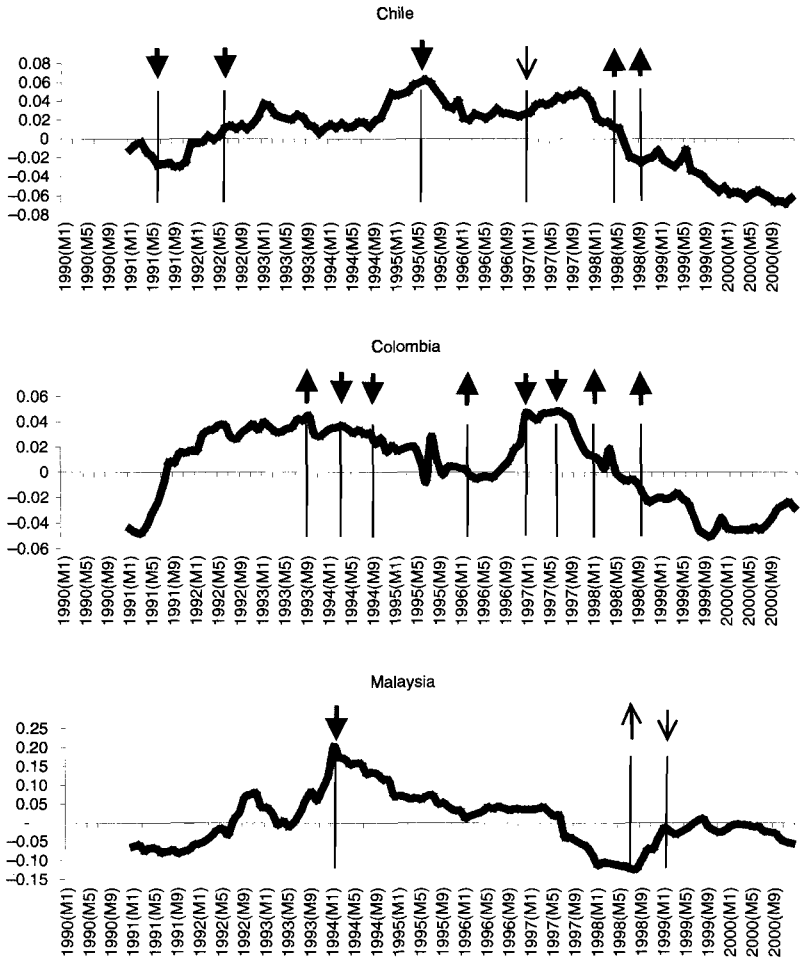

Figure 12.1 Index of expansionary monetary pressures, 1990–2000

▼▲ Imposition or relaxation of restrictions on capital inflows, respectively (the direction of the arrows indicates the expected effect on the index)

↑↓ Imposition or relaxation of restrictions on capital outflows, respectively

Index = $aR + be - ci$, where R = international reserves corrected by the log trend
e = the twelve-month variation of the real exchange rate, i = the real deposit interest rate, and
a, b, c are the standard deviations of R, e and I, respectively.

Source: Estimates based on IMF data.

effects depended on the strength of the regulations, which were only temporary and operated as 'speed bumps' rather than as permanent restrictions, to use Palma's (2002) expression. The basic advantages of the price-based instrument used by Chile and Colombia were its simplicity, its non-discretionary character and, as we shall see in the following section, its neutral effect on corporate borrowing decisions. The more quantitative-type Malaysian system had stronger short-term macroeconomic effects.

It must be emphasized that these systems were designed for countries that chose to be integrated into the international capital markets. In the case of Colombia the transition from the old type of exchange controls to price-based capital account regulations was, in effect, a liberalization of the capital account, as reflected in the increased sensitivity of capital flows to interest arbitrage incentives (Ocampo and Tovar, 1998).[8]

Traditional exchange controls and capital account regulations may therefore be superior if the policy objective is significantly to reduce domestic macroeconomic sensitivity to international capital flows. India provides an alternative successful example in this regard. Despite the slow and cautious liberalization that has taken place in India since the early 1990s, this country still largely relies on quantitative restrictions on flows: overall quantitative ceilings, minimum maturities for external borrowing and end-use restrictions (most of which have been liberalized in recent years), plus the prohibition of borrowing in foreign currencies by non-corporate residents; direct regulation (including, in some instances, explicit approval) of portfolio flows in the case of non-residents, as well as of ADRs and investment abroad by domestic corporations; some sectoral restrictions on FDI; and minimum maturities and interest rate regulations on deposits by non-resident Indians (Habermeier, 2000; Reddy, 2001; Rajaraman, 2001; Nayyar, 2002). It must be emphasized that, despite the reduced sensitivity to the Asian crisis and the increased macroeconomic autonomy that this system has allowed, India has not been entirely detached from external financing cycles.

In contrast to the successful experiences previously analyzed, crisis-driven quantitative controls generate serious credibility issues and may be ineffective, as a strong administrative capacity is essential for any capital account regime to be effective. This implies that a tradition of regulation may be necessary, and that permanent regulatory regimes that are tightened or loosened through the cycle may be superior to the alternation of different (even opposite) capital account regimes. In broad terms this means that it is essential to maintain the autonomy to impose capital account regulations and thus the freedom to reimpose controls if necessary (Rajaraman, 2001; Reddy, 2001; Ocampo, 2002a, 2002b). This is indeed a corollary of the incomplete nature of international financial governance (Ocampo, 2002a) and a basic lesson from the Malaysian experience. Also, traditional quantitative capital account regulations and direct approval of sensitive flows (external portfolio flows, issuance of ADRs and investment abroad by

residents) can make perfect sense if they are sufficiently well managed to avoid loopholes, high administrative costs and, in particular, corruption. Indeed simple quantitative restrictions that rule out certain forms of indebtedness (for example short-term foreign borrowing, except trade credit lines, or borrowing in foreign currency by residents operating in non-tradable sectors) are also preventive in character and easier to administer than price-based controls (Ariyoshi *et al.*, 2000). These restrictions are more attractive and effective when domestic financial development is limited, but they may become obstacles to financial development. Indeed this may, be viewed as one of the basic costs of capital account regulation. More broadly, there may be inherent trade-offs between domestic financial deepening and capital account volatility (due in part to the dismantling of capital controls). We shall explore some aspects of these trade-offs in the following section.

Certain regulations on current-account transactions (export surrender requirements or the obligation to channel trade transactions through certain approved intermediaries) and effective segmentation of the market for financial instruments denominated in the domestic currency may be essential to guarantee the effectiveness of regulations. This implies a need to avoid or strongly regulate the internationalization of the domestic currency, as well as to take a highly conservative approach to domestic financial dollarization (Reddy, 2001). These are in fact common features of the four case studies considered above; and in the case of Malaysia, achieving this objective involved dismantling the offshore market for the domestic currency.

It should be emphasized again that capital account regulations should always be seen as an instrument that, by providing an additional degree of freedom to the authorities, facilitates the adoption of sensible countercyclical macroeconomic policies. Hence it can never be a substitute for them.

Complementary liability policies

Prudential regulation and supervision can, in part, be substituted for capital account regulations. Indeed the distinction between capital controls and prudential regulations that affect cross-border flows is not clear cut. In particular, higher liquidity (or reserve) requirements for the financial system's foreign currency liabilities can be established, and domestic lending to firms operating in non-tradable sectors that have substantial foreign-currency liabilities can be discouraged by more stringent regulatory provisions.

The main problem with these options is that they only indirectly affect the foreign-currency liabilities of non-financial agents, and indeed may encourage them to borrow abroad. Accordingly they need to be supplemented with other regulations, including rules on the types of firm that can borrow abroad and the prudential ratios with which they must comply; restrictions on the terms of corporate debts that can be contracted abroad (minimum maturities and maximum spreads); public disclosure of the short-term external liabilities of firms; regulations requiring rating agencies to give

special weight to this factor; and tax provisions for foreign-currency liabilities (for example no or only partial deductions for interest payments on international loans).[9] Some of the most important regulations of this type concern external borrowing by firms operating in non-tradable sectors. A simple rule that should be considered is the strict prohibition of foreign borrowing by non-financial firms without income in foreign currency or restrictions on the maturities (only long term) or end use (only investment) of such borrowing.

Price-based capital account regulations may thus be a superior alternative and may be simpler to administer than an equivalent system based on prudential regulations plus additional policies aimed at non-financial firms. Among their virtues, *vis-à-vis* prudential regulation and supervision, we should also include the fact that they are price-based (some prudential regulations, such as prohibitions on certain types of operation, are not), non-discretionary (whereas prudential supervision tends to be discretionary in its operation) and neutral in terms of the choice made by corporations between foreign-currency-denominated borrowing in the domestic market versus the international market. Indeed equivalent practices are used by private agents, for example the selling fees imposed by mutual funds on investments held for a short period in order to discourage short-term holdings (JP Morgan, 1998: 23).

In the case of the public sector, specific legal limits and regulations are required. Direct approval of borrowing and the establishment of minimum maturities and maximum spreads by the Ministry of Finance or the central bank may be the best liability policy. Provisions of this sort should cover the central administration as well as autonomous public sector agencies and subnational governments (ECLAC, 1998: ch. 8). Such regulations should apply both to external and to domestic public-sector liabilities. The most straightforward reason for this is that residents who hold short-term public-sector securities have, in periods of external or domestic financial instability, other options besides rolling over the public sector debt, including capital flight. This is even more so if foreigners are allowed to purchase domestic public sector securities.

Thus when the gross borrowing requirements are high, the interest rate will have to increase to make debt rollovers attractive. Higher interest rates are immediately reflected in the budget deficit, thereby rapidly changing the trend in public sector debt, as happened in Brazil prior to the 1999 crisis. In addition rollovers may be viable only if the risk of devaluation or future interest rate hikes can be passed on to the government, which generates an additional source of destabilization. Mexico's widely publicized move in 1994 to replace peso-denominated securities (Treasury Certificates, or Cetes) with dollar-denominated bonds (Tesobonos), which was one of the crucial factors in the crisis that hit the country late that year, was no doubt facilitated by the short-term profile of Cetes (Sachs *et al.*, 1996; Ros, 2001).

The short-term structure of Brazil's debt was also the reason why, after late 1997, fixed-interest bonds were swiftly replaced by variable-rate and dollar-denominated securities, which cancelled out the improvements that had been made in the public debt structure in previous years. It is important to emphasize that, despite its fiscal deterioration, no substitution of a similar magnitude was observed in Colombia during the 1998–99 crisis; this country's tradition of issuing public sector securities with a minimum one-year maturity is a significant part of the explanation (Figure 12.2).

Thus a sound maturity profile for domestic public sector debt is an essential complement to a sound public and private external debt profile when trying to reduce the degree of vulnerability to capital account shocks. Furthermore, on strictly prudential grounds, external borrowing by the public sector generates currency mismatches (except for public sector firms operating in tradable sectors) and should thus be avoided. However this principle should not be translated into simple prohibitions for two reasons.

The first reason is macroeconomic in character. To the extent that external private capital flows are procyclical, it is reasonable for the public sector to follow a countercyclical debt structure strategy. This means that, during capital account surges, it should reduce the borrowing requirements and adopt a liability policy aimed at substituting domestic for external liabilities. The opposite is true during periods of reduced private flows. Indeed in this case the public sector may be one of the best net suppliers of foreign exchange, thanks to its better access to external credit, including credit from multilateral financial institutions. Such external borrowing may also be helpful in maintaining a better external debt profile and avoiding private borrowing abroad at excessively high spreads during crises.

The second reason relates to the depth of domestic bond markets, which determines the ability to issue longer-term domestic debt securities. This attribute includes the existence of secondary markets and active agents (market makers) that provide liquidity for these securities. In the absence of these preconditions the government faces a serious trade-off between maturity and currency mismatches, a trade-off that is typical of all domestic agents that produce non-tradable goods and services. Indeed a domestic market for public sector debt securities with an excessive short-term bias can be extremely destabilizing during a crisis. It may therefore make sense to choose a debt mix that includes an important component of external liabilities, despite the associated currency mismatch. In the long term the objective of the authorities should be to deepen the domestic capital markets. Indeed, due to the lower risk levels and the greater homogeneity of the securities it issues, the central government has a vital function to perform in the development of longer-term primary and secondary markets for domestic securities, including the creation of benchmarks for private sector instruments.

The development of such markets will not eliminate the need for an active external liability policy, however, as deeper capital markets are also more

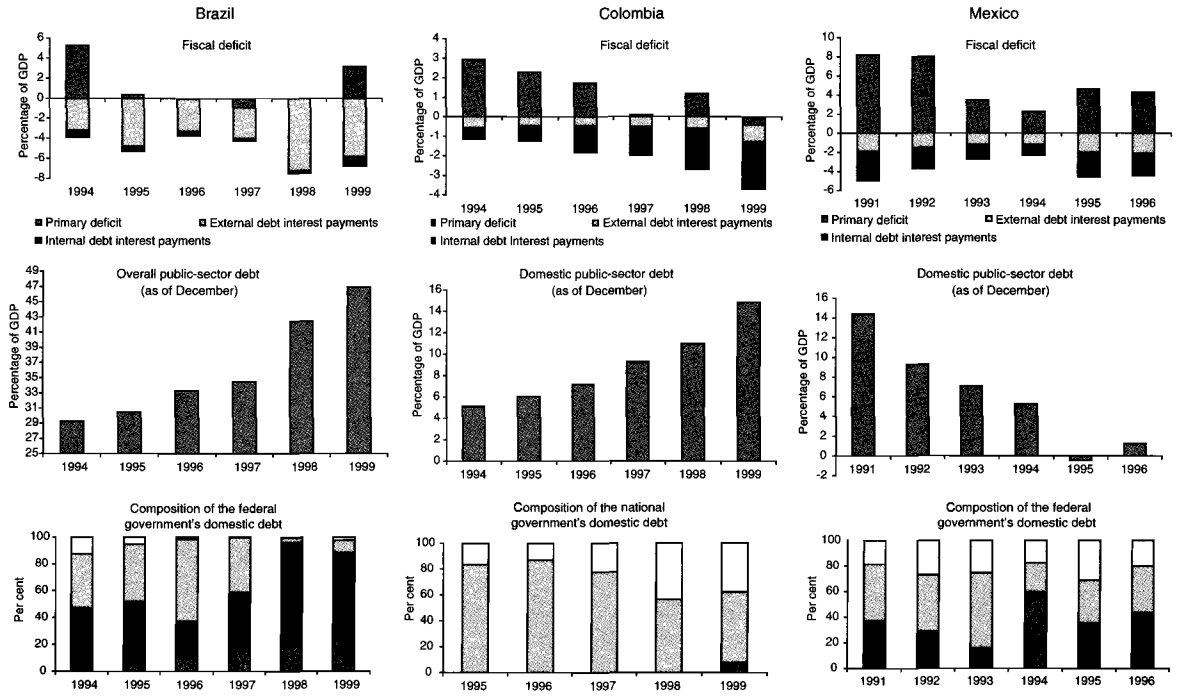

Figure 12.2 Fiscal deficit and public debt: Brazil (1994–99), Colombia (1994–99) and Mexico (1991–96)

Source: Central Bank of Brazil; IDEA; Ministry of Finance of Colombia; Secretary of Finance and Public Credit of Mexico; Bank of Mexico.

likely to cause volatile portfolio flows. Unfortunately the trade-offs are not simple in this regard as international institutional investors may help to develop domestic capital markets. Thus the authorities must choose between less volatile external capital flows and the development of deeper, liquid domestic capital markets. Chile's decision to eliminate the one-year minimum maturity for portfolio flows in May 2000, as well as Colombia's decision in 1996 to allow foreign investment funds to participate in the domestic market for public sector securities, may be understood as a choice for the second of these options at the cost of additional capital account volatility. Similar trade-offs may be faced in relation to the development of deep domestic private-sector stock and bond markets.

The role of countercyclical prudential regulations

Micro- and macroeconomic dimensions of prudential policies

As we have seen, the origins of problems that erupt during financial crises are associated both with excessive risk taking during booms, as reflected in a rapid increase in lending, and with maturity and currency mismatches on financial and non-financial agents' balance sheets. In many countries these problems are related to inadequate risk analysis by financial agents, as well as weak prudential regulation and supervision of the domestic financial systems. The combination of these factors becomes explosive under conditions of financial liberalization in the midst of a boom in external financing. The underestimation of risks that characterizes environments of economic optimism is then combined with inadequate practices for evaluating risks, both by private agents and by supervisory agencies.

This underscores just how important the sequencing of financial liberalization processes is. This became evident during the first wave of financial crises that hit Latin America in the early 1980s (see for example Díaz-Alejandro, 1988: ch. 17) but was broadly ignored in later episodes of financial liberalization in the developing world. Since the Asian crisis it has finally become a mainstream idea. Indeed it is now widely recognized that financial liberalization should take place in a suitable institutional setting, which includes strong prudential regulation and supervision. Such regulation should ensure, first of all, the solvency of financial institutions by establishing appropriate capital adequacy ratios relative to the risk assumed by lending institutions, strict write-offs of questionable portfolios and appropriate standards of risk diversification. Properly regulated and supervised financial systems are structurally superior in terms of risk management since they create incentives for financial intermediaries to avoid assuming unmanageable risks.

To the extent that agents assume that the sources of financial risks have a macroeconomic origin, the traditional microeconomic focus of prudential

regulation and supervision must be complemented with regulations that take account of such macroeconomic factors. This is particularly true in developing countries, where the dynamics associated with boom–bust cycles in external financing are particularly intense. Due attention should thus be paid to the links between domestic and external financing, the links among these factors and asset prices and economic activity, and the links between domestic financial risks and variations in interest and exchange rates.

The basic problem in this regard is the inability of individual financial intermediaries to internalize the collective risks assumed during boom periods, which are essentially of a macroeconomic character and therefore entail coordination problems that exceed the possibilities of any one agent. Moreover risk assessment and traditional regulatory tools, including Basel standards, have a procyclical bias in the way they operate. Indeed in a system in which loan-loss provisions are tied to loan delinquency, precautionary regulatory signals are ineffective during booms, and hence do not hamper credit growth. On the other hand the sharp increase in loan delinquency during crises does reduce financial institutions' capital, and hence their lending capacity. This, in conjunction with the greater subjectively perceived level of risk, triggers the credit squeeze that characterizes such periods, thereby reinforcing the downswing in economic activity and asset prices, and in turn the quality of the portfolios of financial intermediaries.[10]

Indeed the sudden introduction of strong regulatory standards during a crisis may worsen a credit squeeze, so although the authorities must adopt clearly defined rules to restore confidence during a financial crisis, the application of stronger standards should be gradual. In order to avoid moral hazard problems, the authorities must never bail out the owners of financial institutions by guaranteeing that their losses will be written off, up to their net worth, if regulators have to intervene in these institutions.

In order to take account of the macroeconomic factors that affect risks, instruments need to be designed that will introduce a countercyclical element into prudential regulation and supervision. In this regard the major instrument is undoubtedly forward-looking provisions. Such provisions should be estimated when loans are disbursed on the basis of expected or latent losses, taking into account the full business cycle, rather than on the basis of loan delinquency or short-term expectations of future loan losses, which are highly procyclical. This means, in fact, that provisioning should approach the criteria traditionally followed by the insurance industry (where provisions are made when the insurance policy is issued) rather than the banking industry. This practice could help to smooth out the cycle by increasing provisions or reserves during capital account surges, thus helping to reduce the credit crunch that takes place during busts.

It must be emphasized that all regulatory approaches have clear limits and costs that cannot be overlooked. Prudential regulation involves some non-price signals, and prudential supervision is full of information problems and

is a discretionary activity that is susceptible to abuse. Some classic objectives of prudential regulation, such as risk diversification, may be difficult to attain when macroeconomic issues are at the root of the difficulties. The experience of many industrialized countries indicates that even well-regulated systems are subject to periodic episodes of euphoria, when risks are underestimated. The recent crisis in Argentina is a specific case in which a system of prudential regulations that was considered to be one of the best in the developing world – working within the framework of a financial sector characterized by the large-scale presence of multinational banks – clearly failed to avert the effects of major macroeconomic shocks on the domestic financial system. Moreover, being able to separate cyclical from long-term trends is always a difficult task, as any process that involves learning will always generate path-dependent mechanisms in which short- and long-term dynamics are interconnected. Learning processes include those associated with the formation of expectations of future macroeconomic events, which is particularly difficult in developing economies facing substantial shocks (Heyman, 2000).

Moreover many regulatory practices aimed at correcting risky practices on the part of financial intermediaries shift the underlying risks to non-financial agents, thus generating indirect risks that are expressed in credit risks. The net effect of regulation on banks' vulnerabilities is therefore partial, as the literature on the migration of risks indicates. Thus regulatory standards that establish lower risk ratings for short-term credits and reduce mismatches between the maturities of bank deposits and lending will reduce direct banking risks, but will also reinforce the short-term bias in lending. Maturity mismatches are thereby displaced to non-financial agents. Indeed the net effect of this type of regulation may be an inadequate supply of long-term financing and reduced fixed capital investment. Also, prudential regulations that forbid banks to hold currency mismatches in their portfolios will reduce their direct risk, but may encourage non-financial agents to borrow abroad. The risks assumed by corporations, particularly those operating in non-tradable sectors, will eventually be translated into credit risk by domestic financial institutions that are also their creditors.

For the same reason, stronger regulation will result in higher spreads in domestic financial intermediation, particularly if it results in more stringent domestic *vis-à-vis* international regulatory practices, which is a likely outcome given the stronger volatility of developing countries. Higher spreads will generate incentives for corporations with direct access to international capital markets to borrow abroad, thus increasing the likelihood of currency mismatches in the portfolios of these agents. They may also result in a suboptimal supply of financing for SMEs, or an excessively short-term bias in the supply of credit for such firms. In all these cases the reduced vulnerability of the domestic financial sector will have as a corollary the maturity and currency mismatches of non-financial agents (as well as suboptimal fixed

capital investment), which may become credit risks for domestic financial agents during the downturn.

The differentiation between systemic and non-systemic risks that is typical in portfolio risk analysis is particularly relevant in this regard. The former depends on the correlation of the price fluctuations of each particular asset with prices for the entire market and arises from exposure to common factors (for example economic policy or the business cycle) while non-systemic risks depend on the individual characteristics of each stock and may be reduced by diversification. Whereas the second type of risk can be reduced by adequate regulations aimed at improving microeconomic risk management, the first cannot, and in the face of systemic risks the use of common risk management techniques can actually result in greater macroeconomic volatility (Persaud, 2000). Thus to a large extent, macroeconomic risks that are systemic in character can only be shifted to other market agents within a specific economy and are only authentically diversified when external economic agents are willing to assume them. Nonetheless countercyclical prudential policies can help to reduce the collective risks that agents may assume during periods of euphoria. They can also help to generate improved incentives for financial agents that behave procyclically (those exposed to industries with high systemic risks).

In all cases, as in the case of capital controls, improved prudential regulation, including the introduction of strong countercyclical components that take into account the macroeconomics of boom–bust cycles, is a complement but not a substitute for appropriate countercyclical macroeconomic policies.

Instruments to protect against credit risk

Under generally accepted accounting principles, provisions should cover expected losses, though of an uncertain magnitude, and are thus registered as expenses, while reserves apply to unexpected losses and are part of capital. These principles also imply that banks should charge an interest premium for expected risk while stockholders should cover unexpected risks. Accounting practices also differentiate between general and specific provisions. In most countries the calculation of specific provisions is done on an individual basis for commercial loans and on a pooled basis for retail loans. General provisions are estimated on the basis of pools of loans, or the total portfolio. In some countries they are treated as reserves, and as such as capital, while in others they are subtracted from assets. With traditional accounting methods, specific provisions are made shortly before or even after a loan becomes delinquent. In this sense a system based wholly on this type of provision will not reflect the true credit risk of the loan portfolio and, as indicated above, will be inherently procyclical. The rules on general provisions and reserves are usually more flexible and allow for more forward-looking approaches in the appraisal of risk.

In some countries the authorities (the government or the central bank) take a restrictive approach and establish statutory rules that determine the level of provisions. In others the system varies from a strict formula to statistical approaches that use historical data, information on peer groups and more explicit internal risk models. Several OECD countries allow the constitution of forward-looking provisions based on past experience and the expectation of future events. However most of them are oriented towards the short term, using a one-year horizon to measure risk.

The best-known exception to this rule is Spain, which in December 1999 issued a regulation requiring countercyclical provisions calculated by statistical methods. The main feature of this approach is the estimation of 'latent risk' based on past experience over a period long enough to cover at least one business cycle. This generates a dynamic in which provisions build up during economic expansions and are drawn upon during downturns (Poveda, 2000; De Lis *et al.*, 2001). The major innovation of this system is its explicit recognition that risks are incurred when credits are approved and disbursed, not when they fall due.

More particularly, under this scheme statistical or actuarial provisions for latent risks must be estimated for homogeneous categories of credit according to the possible loss that a typical asset (loan, guarantee, interbank or fixed income portfolio investment) in each category is expected to involve, estimated on the basis of a full business cycle. Either the internal risk management model of the financial institution or the standard model proposed by the Banco de España can be used for that purpose. The latter establishes six categories, with annual provisioning ratios that range from 0 to 1.5 per cent. These statistical provisions must be accumulated in a fund, together with special provisions (traditional provisions for non-performing assets or the performing assets of borrowers in financial difficulties) and recovered non-performing assets.[11] The fund can be used to cover loan losses, thus in effect entirely substituting for special provisions if resources are available in adequate amounts. If this is so the provisions actually follow the credit cycle.

Although the accumulation and drawing down of the fund made up by statistical and specific provisions has a countercyclical dynamic, this only reflects the cyclical pattern of bank lending. In this regard the system is, strictly speaking, 'cycle-neutral' rather than countercyclical, but it is certainly superior to the traditional procyclical provisioning for loan losses or forward-looking provisioning based on short time horizons.

Therefore a system such as this should be complemented by strictly countercyclical prudential provisions, decreed by the regulatory authority for the financial system a whole, or by the supervisory authority for special financial institutions, on the basis of objective criteria. These criteria could include the growth rate of credit, the bias in lending towards sectors characterized by systemic risks or the growth of foreign-currency-denominated

loans to non-tradable sectors. Voluntary prudential provisions could also be encouraged. In both cases it is essential that tax deductibility be granted to the provisions. Indeed accounting and taxation rules contribute to failures in risk assessment because, in general, they make it necessary to register events that have already occurred.

The foregoing analysis indicates that an appropriate policy for managing the macroeconomic effects of boom–bust cycles in developing countries should involve a mixture of: (1) forward-looking provisions for latent risks, to be made when credit is granted so that financial intermediaries will have to take account of the risks they incur throughout the entire business cycle; and (2) more discrete countercyclical prudential provisions based on a series of objective criteria. Specific provisions should be managed together with forward-looking provisions, as in the Spanish system. As we shall see in the following sections, these provisions should be supplemented by regulations in other areas. Reserves or general provisions play a less clear role and in fact are not distinguishable from the role of capital in covering unexpected losses.

A system of provisions such as this would certainly be superior to the use of capital adequacy ratios to manage the effects of business cycles. Capital adequacy requirements should instead focus on long-term solvency criteria rather than on cyclical performance. Insofar as developing countries are likely to face more macroeconomic volatility, there may be an argument for requiring higher capital–asset ratios (see the additional arguments below), but there is none for requiring that capital adequacy requirements should be, as such, countercyclical.

It should also be remembered that the stricter standards in developing countries for the management of macroeconomic risks – in terms of provisions, capital or other variables – increase the costs of financial intermediation, thereby reducing international competitiveness and creating arbitrage incentives to use international financial intermediation as an alternative. Also, prudential policies are certainly not a solution for the risks that procyclical macroeconomic policies may generate.

Prudential treatment of currency and maturity risks, and volatile asset prices

Experience indicates that currency and maturity mismatches are essential aspects of financial crises in developing countries. Prudential regulation should thus establish strict rules to prevent currency mismatches (including those associated with hedging and related operations) and to reduce imbalances between the maturities of the assets and liabilities of financial intermediaries. In addition, liquidity regulations should be established to manage such imbalances.

The strict prohibition of currency mismatches in the portfolios of financial intermediaries is the best rule. The authorities should also closely monitor

the intermediation of short-term external credits. As we have seen, the currency risks of non-financial firms, particularly those operating in non-tradable sectors, may eventually turn into credit risks for banks.[12] This points to the need for better monitoring of the currency risks of these firms, and probably for specific regulations on lending to firms in non-tradable sectors with substantial liabilities in foreign currency. In particular, regulations could be used to establish more stringent provisions and/or risk weighting for those operations, or a strict prohibition on lending in foreign currencies to non-financial firms with no income in those currencies; capital account regulations would have to establish complementary norms for direct borrowing abroad by these firms (see above).

In addition, prudential regulation needs to ensure adequate levels of liquidity for financial intermediaries so that they can handle the mismatch between the average maturities of assets and liabilities that is inherent in the financial system's essential function of transforming maturities, which generates risks associated with volatility in deposits and/or interest rates. This underscores the fact that liquidity and solvency problems are far more closely interrelated than traditionally assumed, particularly in the face of macroeconomic shocks. Reserve requirements, which are strictly an instrument of monetary policy, provide liquidity in many countries, but their declining importance makes it necessary to find new tools. Moreover their traditional structure is not geared to the specific objective of ensuring financial intermediaries' liquidity in the face of the maturity mismatches they hold in their portfolios. An important innovation in this area was the system created in 1995 in Argentina, which set liquidity requirements based on the residual maturity of financial institutions' liabilities (that is, the number of days remaining before reaching maturity).[13] These liquidity requirements – or a system of reserve requirements with similar characteristics – have the additional advantage that they offer a direct incentive to the financial system to maintain an appropriate liability structure. The quality of the assets with which the liquidity requirements are met is obviously a crucial factor. In this regard it must be pointed out that allowing such assets to be invested in public sector bonds was an essential weakness of the Argentinean system, as it increased the vulnerability of the financial system to public sector debt restructuring, a risk that turned into reality in 2001.

The valuation of assets used as collateral for loans also presents problems when these assets exhibit price volatility, because in many cases *ex ante* assessments may be significantly higher than *ex post* prices. Limits on loan-to-value ratios and rules to adjust the value of collateral for cyclical price variations should be adopted. One approach in this regard is the 'mortgage lending value', a valuation procedure applied in some European countries that reflects long-term market trends in real estate prices based on experience (ECB, 2000).

The proposal for the new Basel Accord attempts to align risk weights with the evaluations of external credit rating agencies. Unfortunately this would introduce an additional procyclical bias, given the procyclical pattern of credit ratings (see Chapter 7). The high concentration of the rating industry is an additional argument against adopting this recommendation. Moreover it would be difficult to apply this practice in developing countries due to the absence of adequate credit ratings for most firms.

Conclusions

This chapter has explored the complementary use of two instruments to manage capital account volatility in developing countries: capital account regulations and the countercyclical prudential regulation of domestic financial intermediaries. These instruments should be seen as complementary to countercyclical macroeconomic policies, but neither of them can nullify the risks that procyclical macroeconomic policies can generate.

Overall the innovative capital account regulations of the 1990s can be seen as useful instruments in terms of improving debt profiles and facilitating the adoption of (possibly temporary) countercyclical macroeconomic policies. The main advantages of the price-based unremunerated reserve requirement pioneered by Chile and Colombia are its simplicity, non-discretionary character and neutral effect on corporate borrowing decisions. The more quantitative Malaysian system has been shown to have stronger short-term macroeconomic effects. Traditional quantitative exchange controls may be superior if the objective of macroeconomic policy is significantly to reduce domestic macroeconomic sensitivity to international capital flows.

Prudential regulation and supervision can, in part, be substituted for these direct regulations on the capital account. The main problem with this option is that it has, at best, indirect effects on the foreign-currency liabilities of non-financial agents and may encourage them to borrow abroad. Accordingly they need to be supplemented with other disincentives for external borrowing by those firms. Unremunerated reserve requirements may be a superior alternative and may be simpler to administer. In the case of the public sector, direct regulation of external borrowing should be combined with a strategy aimed at the development of domestic bond markets.

Prudential regulation and supervision should take into account not only microeconomic risks but also the macroeconomic risks associated with boom–bust cycles. In particular, instruments need to be designed that will introduce a countercyclical element into prudential regulation and supervision. More specifically, we argue for a regulatory approach that involves a mixture of: (1) forward-looking provisions for latent risks, with provisions to be made when credit is granted on the basis of the credit risks that are expected throughout the full business cycle (this was the approach adopted

by the Spanish authorities); and (2) more discrete countercyclical prudential provisions, to be applied by the regulatory authority to the financial system a whole, or by the supervisory authority for special financial institutions, on the basis of objective criteria (for example the growth rate of credit, or the growth of credit for specific risky activities). Capital adequacy requirements should focus on long-term solvency criteria and should not be countercyclical, but it may be advisable for countries facing strong cyclical fluctuations to establish higher capital–asset ratios.

The system of countercyclical prudential regulation and supervision should be complemented by regulations in other areas. In particular, prudential regulation should establish strict rules to prevent currency mismatches (including those incurred by firms operating in non-tradable sectors when borrowing in foreign currency), liquidity requirements and limits on loan to collateral value ratios or rules on the valuation of collateral designed to reflect long-term market trends in asset prices.

Notes

* This chapter has benefited from joint work undertaken with Maria Luisa Chiappe for the Expert Group on Development Issues (EGDI), Ministry of Foreign Affairs of Sweden.

1. For documents that support the effectiveness of these regulations in Chile see Agosin (1998), Larraín *et al.* (2000), Le Fort and Lehmann (2000), Agosin and Ffrench-Davis (2001) and Palma (2002). For a more mixed view see Valdés-Prieto and Soto (1998) Ariyoshi *et al.* (2000), De Gregorio *et al.* (2000) and Laurens (2000). For strong views on their positive effects in Colombia see Ocampo and Tovar (1998, 1999) and Villar and Rincón (2002); for a more mixed view see Cárdenas and Barrera (1997) and Cárdenas and Steiner (2000).
2. Indeed evidence of the insensitivity of the volume of capital flows to capital account regulations comes from econometric analysis in which URR is not included as a determinant of interest rate spreads but rather as an additional factor affecting capital flows. This may be seen as an inadequate econometric specification.
3. Some of these mechanisms, such as the use of hedging, enable investors to cover some of the effects of these regulations, but in large part this is done by transferring risks (more specifically, the risk associated with longer-term financing) to other agents who would only be willing to assume them at an adequate reward. More generally, if there is no stable external demand for the domestic currency, hedging may be available only in limited quantities, a fact that affects the maturities and costs involved.
4. In Brazil some authors have argued that the capital account regulations, which included a mechanism similar to the URR (direct taxation of capital flows), were ineffective due to widespread loopholes associated with the existence of sophisticated domestic financial instruments (Ariyoshi *et al.*, 2000; García and Valpassos, 2000). However they provide no statistical evidence comparable to that available for Chile and Colombia.
5. This is the very apt interpretation provided by Williamson (2000: ch. 4). Indeed with this interpretation the conflicting evidence on the Chilean system largely disappears.

6. See Ariyoshi *et al.* (2000), Ötker-Robe (2000) and Rajaraman (2001) for additional evidence of the effectiveness of these regulations.
7. The level of the URR may account for this result. Valdés-Prieto and Soto (1998) find evidence of a 'threshold effect', which would explain why these regulations were only effective in reducing capital flows in 1995–96. It must be emphasized that this does not imply a better evaluation of the overall macroeconomic policy package of 1995–96 compared with that of 1991–92. Agosin and Ffrench-Davis (2001) argue that, on broader grounds, macroeconomic management in the earlier part of the 1990s was more appropriate.
8. This is captured in other studies (for example Cárdenas and Steiner, 2000) through the use of a dummy variable for the period during which the URR was in place, and has been interpreted (inaccurately, according to the alternative view presented in the text) as evidence against the effectiveness of regulations.
9. For an analysis of these issues see World Bank (1999: 151) and Stiglitz and Bhattacharya (2000).
10. For recent analyses of these issues and policy options for managing them, see BIS (2001: ch. 7), Borio *et al.* (2001), Clerc *et al.* (2001) and Turner (2002).
11. In addition, general provisions equivalent to 0 per cent, 0.5 per cent and 1.0 per cent of three classes of assets are required.
12. For an analysis of the risks associated with non-tradable sectors see Rojas-Suárez (2001).
13. Banco Central de la República Argentina (1995), 11–12.

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13

How Optimal are the Extremes? Latin American Exchange Rate Policies during the Asian Crisis*

Ricardo Ffrench-Davis and Guillermo Larraín

One common feature of the countries most affected by the Asian crisis and its shockwaves – such as Thailand, Malaysia, Indonesia, the Republic of Korea and Brazil – is that they had exchange rate systems that in different versions were closer to pegged systems than to floating systems (they were often called 'soft pegs'). Countries with exchange rate bands, such as Israel, Chile and Colombia also suffered, while floating countries such as Australia, New Zealand and Mexico apparently fared better. Based on this, many observers have concluded that intermediate exchange rate systems are dangerous and that optimality is located at the extremes. This chapter evaluates this conclusion by analyzing the experiences of three different exchange rate systems: Those of Argentina, Chile and Mexico, which have diverging exchange rate policies, at least formally.[1]

A straight observation of recent events is that countries with pegged systems, such as the currency boards in Hong Kong and Argentina, suffered significant contagion in times of international financial stress. Argentina experienced deep recessions during both the Mexican and the Asian crisis. Hong Kong suffered a recession as a consequence of the Asian crisis, but during the Mexican crisis growth merely decelerated from 5.4 per cent in 1994 to 4.0 per cent in 1995. There are reasons to believe that completely rigid exchange rate systems amplify external shocks. Apparently they put overly strong and therefore unrealistic requirements on domestic flexibility, particularly on wage and price flexibility. The amplification effect arises during an external shock when agents consider that the shock may be strong enough to induce the authorities to modify the exchange rate policy; this is particularly so when the exchange rate appears to be overly appreciated. Rigid systems are therefore prone to changes in market sentiment and credibility (or at least eventually, with the exception of full dollarization).

Likewise exchange rate bands did not function well during the Asian crisis. In many cases this was partly the result of management of the bands.

The huge increase in capital inflows to emerging economies between 1990 and 1997 put severe upward pressure on the value of domestic currencies. The response in terms of expanding the size of bands or appreciating them caused a credibility loss. Subsequently the bands had trouble adapting to the new real exchange rate when the Asian crisis appeared and capital inflows suddenly stopped. These events aggravated the bands' mismanagement and therefore caused a further credibility loss. The major benefit of the band system arises in times of normality when there are no severe or one-sided shocks. In such circumstances bands can maintain exchange rate stability and partially absorb the effects of standard shocks. Consequently the exchange rate more efficiently fulfils its allocative role between tradables and non-tradables. The main trouble with bands appears in times of financial distress.

After a general discussion, this chapter examines the experiences of three symbolic cases of exchange rate policies. On the currency board side, it considers the experience of Argentina in order to understand the appeal this system has had for other countries, some of which later dollarized. It then examines Chile for the case of intermediate regimes and Mexico for the floating regime. The analysis focuses on the period in which the Asian crisis took place.

Exchange rate regime and stability of financial and real sectors

The Asian crisis and its aftermath caused a considerable shock not only in Asia but in Latin America as well, but with varying degrees of intensity. Chile was by far the most directly affected due to its significant trade relations with Asia. But as emerging-market spreads increased, especially after the Russian default, Brazil and Argentina also felt its consequences. Later the Brazilian devaluation introduced additional uncertainties that affected all of Latin America. It was therefore a period of instability and large shocks.

Table 13.1 compares the outcome in terms of the financial and output volatility of a number of countries with different initial exchange rate regimes in the period immediately after the explosion of the Asian crisis. In order to compare financial and real volatility, we construct a financial volatility index (FVI), which can be computed independently of the exchange rate (ER) regime.[2] If CV denotes the coefficient of variation, the index is defined simply as FVI = CV(ER) + CV(reserves) + CV(nominal interest rates).

When a country faces a period of stress it normally reacts by depreciating the exchange rate, selling international reserves or increasing interest rates. In fixed exchange rate regimes, volatility appears in reserves and interest rates, while in a pure float volatility should appear in the exchange rate and interest rates. Bands or dirty floating systems combine all three elements. Real sector volatility is captured using the standard deviation of GDP growth.

Table 13.1 Volatility in selected countries during international financial turmoil, 1997(Q3)–99(Q4)

	Initial exchange rate system	*Coefficient of variation of the levels of*				*Volatility of GDP (s.d.) (%)*
		Nominal exchange rate (%) (a)	*International reserves (%) (b)*	*Interest rates (%) (b)*	*Index of financial volatility (%) (a) + (b) + (c)*	
Argentina	Fixed	0.0	7.9	13.1	21.0	5.3
Hong Kong	Fixed	0.1	3.9	23.0	27.0	5.5
Australia	Float	5.7	14.5	14.2	34.4	0.6
Mexico	Float	8.5	5.6	22.6	36.7	1.9
New Zealand	Float	7.8	5.7	27.4	41.0	2.3
Chile	Band	8.2	8.2	31.1	47.5	5.3
Colombia	Band	16.7	8.2	26.4	51.3	4.5
Thailand	Soft peg	9.4	9.0	42.1	60.5	7.3
Malaysia	Soft peg	9.8	19.0	37.9	66.7	7.8
Brazil	Soft peg	25.1	26.8	26.4	78.3	1.6
Korea	Soft peg	14.8	36.4	30.7	81.9	8.5

Source: Calculations based on IMF data.

Table 13.1 ranks the countries according to their financial volatility index and reveals five important and to some extent surprising conclusions about the role of exchange rate policy during the Asian crisis:

- Ranking countries according to their financial volatility index results in their being grouped according to their exchange rate system.
- Fixed systems appear to have delivered more nominal stability than alternative systems, but they displayed more volatility in a real variable, namely GDP growth.
- Floating regimes had the lowest GDP volatility, but they displayed greater financial volatility than fixed systems.
- Soft pegs displayed the worst combination of financial and real volatility.
- Bands fell into an intermediate position, with higher financial volatility than credible fixed systems and more real volatility than floating regimes.

Some qualifications are required at this point. First, the lesser financial volatility in fixed exchange rate regimes was probably due to the fact that in the period in question there were no serious challenges in Argentina or Hong Kong to the stability of the exchange rate policy.[3] Therefore it can be concluded that a credible fixed exchange rate policy delivers greater financial stability. But it also follows that, despite having had credible exchange rate policies, Argentina and Hong Kong also had high output volatility.

In the case of Argentina, some observers have suggested that the problem was due to rigidity in the labour market, but the fact that Hong Kong also experienced greater volatility suggests that this argument may be overstated. Moreover if we compare the two countries' inflation records we find that they were not significantly dissimilar: during this period cumulative annual inflation in Argentina was −0.4 per cent while in Hong Kong it was 1.8 per cent. Therefore prices contributed more to real depreciation in Argentina than they did in Hong Kong.[4]

Second, as we shall see, the Chilean band was already suffering from lack of credibility during the period considered. Therefore faced with a shock as strong as the Asian crisis, when the stabilizing properties of the rigid part of the band mechanism should have appeared, they did not because credibility had been lost. Hence it can be concluded that when faced with a shock a non-credible band causes high volatility, both financial and real. What cannot be argued is that the lack of credibility is inherent in the band system.

Third, soft pegs displayed the worst performance. Analyzed *ex post* the soft peggers all had repressed exchange rates and in some cases the market did not have enough information on fundamentals (for instance, short-term external liabilities). When a currency is overvalued and there is pressure for correction, soft peg systems are prone to speculation and thus financial volatility.

Four, floating regimes did better in terms of real variables but less so in terms of financial volatility. Beyond the exchange rate volatility that is inherent in a floating system, interest rates swang in floating countries as much as they did in countries with pegged systems. Flotation could not avoid interest rate volatility. As is clear from Table 13.1, policy reactions differed considerably among the countries. For instance, despite the float Australia used its international reserves quite intensively, while New Zealand used interest rates more intensively. Among the floaters, Mexico was the most intensive user of the exchange rate.

Table 13.1 also suggests that each country chose different combinations of nominal depreciation, reserve accumulation and interest rate changes when facing the shocks. It appears that, for the countries in the sample, the less harmful financial consequence in terms of growth was volatility in the exchange rate, as can be seen in Figure 13.1. This implies that exchange rate changes may have been effective in producing the necessary expenditure switching to reduce the net demand for tradables and minimize the impact on non-tradables.[5] Also, it appears that the most harmful response was interest rate changes. The adjustment of external disequilibria tended to work as a global demand-reducing tool, generating unemployment and idle capital in non-tradable sectors.

Beyond the exchange rate system, countries' ability to smooth the cycle is correlated with their financial integration with the rest of the world. The

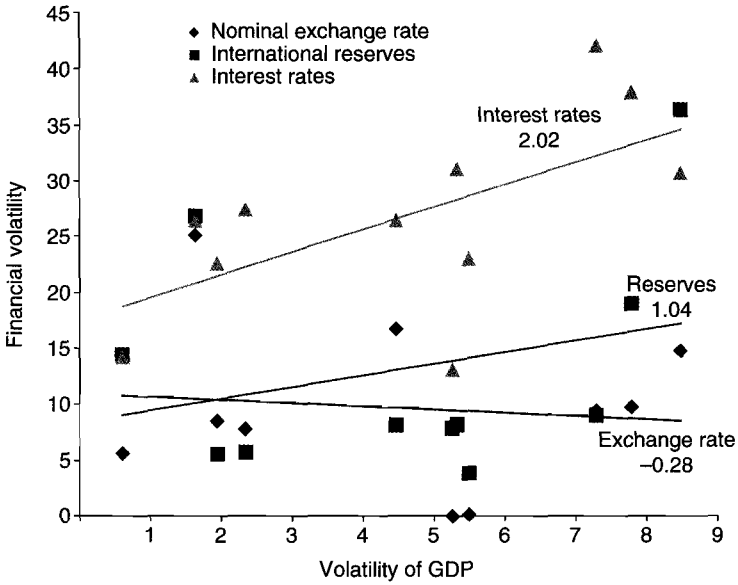

Figure 13.1 GDP volatility versus various financial volatilities (per cent)

Notes: Each point represents the ordered pair of volatility in GDP and some definition of financial volatility (in exchange rate, reserves or interest rates). The numbers on linear regressions refer to the partial correlation.

Source: Calculations based on IMF data.

United States runs an enormous current account deficit but the market does not ask for its immediate correction (nor do the authorities think it is necessary), as has happened many times in Latin America. Among the reasons for this is the fact that foreigners have a high demand for dollar-denominated assets, and that the United States does not need to make its financial obligations contingent on commodity price movements as its economy is so diversified that the negative covariance of shocks is probably strong enough to stabilize overall risk.

Hence to reduce the domestic impact of external shocks it is necessary to improve the quality of Latin America's financial links with the rest of the world. Three methods have been discussed recently. One is to create a foreign demand for assets denominated in the national currency, as inspired by the Australian and New Zealand cases. The degree of international financial integration of these two OECD countries is far more than that of a typical emerging economy. Among other things, they have offshore markets for securities issued in domestic currencies (see Chapter 4), and are therefore able to hedge their exposure to exchange rate risk in their non-tradable

sectors.[6] Second, according to Caballero (2001), Latin American financial instruments are incomplete in that they are not contingent on the main shocks faced by these economies. If Chilean bonds were contingent on the price of copper, an external shock would be less demanding in terms of current account adjustment.[7] It is not obvious that a typical emerging economy will move quickly in either of these directions. Third, the quality of financial links could be improved with prudential macroeconomic policies on excessive short-term or liquid external liabilities, the size of the external deficit and the appreciation of the real exchange rate in periods of capital surges.[8]

The main benefit of the floating regime appears when significant, long-lasting shocks emerge abruptly. In this case a pure floating regime delivers a rapid adjustment in the exchange rate and the authorities stay out of the scene, thus keeping its credibility intact, except when depreciation leads to inflation and the country has adopted an inflation targeting scheme. By increasing the exchange rate risk perceived by the public, it also better prepares agents for sudden shocks. Conversely floating regimes cause significantly higher exchange rate instability across the cycle, which may have harmful effects on growth, with inefficient allocative signals. In particular a floating regime cannot avoid overvaluation in episodes of capital surge.

We shall now briefly analyze the behaviour of exchange rate regimes in the period from the Mexican crisis to 1999, using our measures of financial and real volatility. Figure 13.2 considers three subperiods: one encompassing the Mexican crisis (the fourth quarter of 1994 to the first quarter 1996) a normal subperiod between the second quarter of 1996 and the third quarter of 1997, and the one in which the Asian crisis took place (the fourth quarter of 1997 to the fourth quarter of 1999).

Figure 13.2 suggests that in crisis periods there is a higher correlation between financial and real volatility than in normal periods. In normal periods the correlation between financial and real variables is almost zero. However the correlation varies between crises, and surprisingly it was higher in the Mexican crisis than in the Asian one. This can be explained by the fact that the degree of contagion was less during the Mexican crisis as, among the countries in the sample, it only spread to Argentina.[9] Hence the high R^2 reflects a statistical issue rather than an economic one.

If the data are decomposed according to the exchange rate regime prevailing at the beginning of each period, Mexico appears in the group of bands in one period and as a float in the latter two (Figure 13.3). The figure shows that, across crises, the more stable behaviour in financial and real terms was exhibited by floating regimes. When negative shocks arrived, all systems but the floating ones exhibited high financial and/or real volatility, with soft pegs performing worst. Pegged systems appear to have a curious property: without negative shocks they display low real and financial volatility, but when there is a shock, financial volatility remains much the same and the

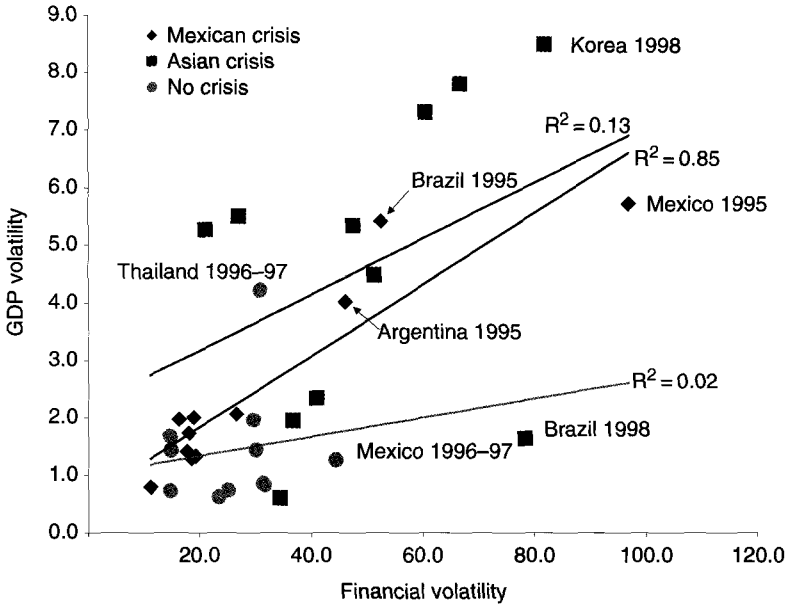

Figure 13.2 Real and financial volatility in three episodes (per cent)
Source: Based on IMF data.

shock translates into real sector volatility. Bands exhibit similar behaviour with respect to real volatility in stress periods, but with greater financial volatility.

It is interesting to note that in normal times, floating regimes cause relatively more financial volatility than do the other systems, but during a crisis overall volatility is reduced in floating regimes.[10]

In light of the above considerations, an 'ideal' but crude exchange rate system that might be able to minimize real sector volatility would involve a two-pronged approach. In normal times, when shocks are small and uniformly distributed, managed flexibility or a crawling band would increase stability and therefore growth. When large shocks appear and their distribution is biased in the same negative direction (terms of trade fall, external financing declines and so on), then ideally there should be a temporary switch to a floating regime. However implementing such a system would be difficult. First, it would be problematic to determine whether a shock was large or small, temporary or permanent.[11] Second, in order to be successful, fixed exchange rate regimes need full credibility independent of the shock suffered; such an ideal switching exchange rate system is incompatible with a fixed rate system.

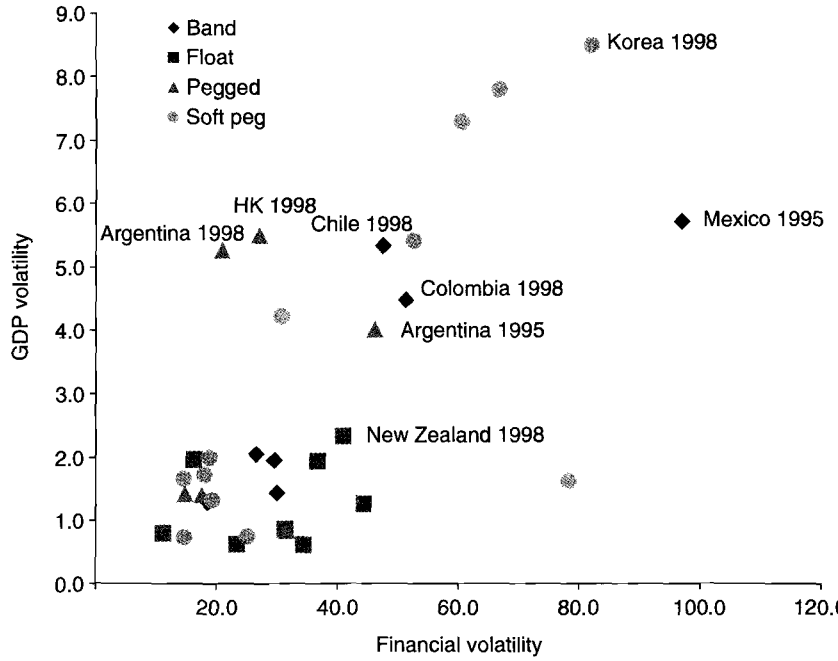

Figure 13.3 Exchange rate regimes since 1994 (per cent)
Source: Based on IMF data.

Argentina: low inflation and output volatility under the currency board

After experiencing hyperinflation in 1989 and 1990, in 1991 Argentina adopted an extreme exchange rate policy: a currency board. This system, like the traditional fixed exchange rate system, links the national currency, in this case the peso, in a given proportion to a foreign currency. In Argentina the parity was fixed one-to-one with the US dollar. In the traditional fixed exchange rate system the central bank is able to realign the parity at its discretion and has the freedom to control the quantity of high-powered money. However in Argentina parity was fixed by law (the Convertibility Law) and the central bank was required to match any increase in high-powered money with an accumulation of international reserves. In this sense it was an extreme version of a fixed exchange rate system, with no space for domestic macroeconomic policy. Of course the most radical option was simply to suppress the domestic currency and fully dollarize.

The main reason for the adoption of a currency board in Argentina in 1991 was to fight hyperinflation, that is, the strategy was a deliberate

anti-inflationary device. Between 1975 and 1990 the lowest inflation rate in Argentina was 90 per cent (1986), and during the hyperinflation years it scored as high as 3079 per cent (1989). After the implementation of the currency board, annual inflation fell to below 5 per cent in 1994, and then to an average of −0.3 per cent between 1996 and 2000.

At the same time as inflation was collapsing, GDP growth was accelerating. After an average rate of −0.9 per cent in the 1980s, growth resumed and averaged 4.1 per cent in the 1990s. This was due to three main factors.

First, around the time that convertibility was adopted, international liquidity increased significantly. Until 1994 Argentina was able to attract a huge amount of capital, further encouraged by its massive privatization programme. This, in combination with the mechanics of convertibility described before, provided a significant stimulus to aggregate demand, expectations and economic activity.[12] Average GDP growth in the period 1991–94 was 7.9 per cent. However at the end of 1994 Mexico devalued its currency, and the suspicion that Argentina would follow suit increased its sovereign risk from 434 bp over Treasuries in 1994 to 1259 in 1995 (Table 13.2). The net capital inflow of US$4.3 billion in the last quarter of 1994 reversed abruptly to an outflow of US$3.3 billion in the first quarter of 1995. The result was a severe recession in which GDP fell by 2.9 per cent in 1995 and unemployment rose to 18 per cent. However in 1996–98 capital flows returned and output recovered. Then between September 1998 and February 1999 the Russian default and the Brazilian devaluation again induced capital outflows and a recession that lasted over three years. Hence the Argentinean experience after 1995 was one of low growth accompanied by significant volatility, associated with the instability of capital flows.

Second, the acceleration of growth in the first half of the 1990s was the result not only of capital inflows but also of some important structural reforms, two of which merit specific mention: trade reform and privatization. Trade policy in Argentina took place under the framework of MERCOSUR, the free trade agreement Argentina signed with Brazil, Paraguay and Uruguay. After this trade liberalization exports soared from US$18 billion in 1990 to a peak of US$34 billion in 1998. With regard to privatization, as described by Larraín and Winograd (1997), given the initial size of the public sector and the low productivity levels in public companies, the massive programme undertaken in the first half of the 1990s resulted in huge gains in the average value added per worker in privatized firms, especially in the non-tradable sector. This not only had a positive impact on growth but also helped to reduce the overappreciation of the real exchange rate.[13]

Third, a most relevant and usually ignored factor, the acceleration of growth in Argentina, is linked to the poor recessive starting point. Take as a benchmark 1974, the year in which real GDP per capita reached its peak. After 1974 there was a steady deterioration in GDP and by 1990, the year before convertibility was adopted, it was 16 per cent below that in 1974,

Table 13.2 Argentina: capital flows, real exchange rate and macroeconomic performance, 1994–99

	1994	*1995*	*1996*	*1997*	*1998*	*1999*
Current account balance (US$ million)	−11 158	−5 191	−6 843	−12 497	−14 603	−12 312
Net foreign direct investment (US$ million)	2 620	4 112	5 348	5 503	4 546	22 665
Net portfolio investment (US$ million)	8 389	1 893	9 832	10 887	8 337	−6 323
All others (US$ million)	341	−1 100	−3 451	835	4 990	−1 637
Change in reserves (US$ million)	−675	−2 311	3 258	3 162	4 090	2 013
Total capital inflows (US$ million)	10 484	2 879	10 100	15 659	18 694	14 325
Without FDI (US$ million)	7 864	−1 233	4 752	10 156	14 148	−8 340
Average spread over FRB	434	1 259	635	301	608	726
Growth of money supply (%)	11.6	−1.8	14.4	12.3	−0.9	−2.9
External debt/ exports (%)*	540.8	470.1	461.0	471.3	530.6	606.9
External debt/ GDP (%)*	33.3	38.2	40.3	42.5	46.9	50.1
Terms of trade index (annual average)	101.5	101.8	109.8	108.4	102.5	96.4
GDP growth (%)	5.8	−2.9	5.5	8.1	3.9	−3.0
Real exchange rate (average 1987–90 = 100)	58.6	66.0	67.9	66.1	64.2	56.6

* Outstanding public and private debt at year end, as a share of annual exports and annual GDP, respectively.
Source: BBVA; IMF/EFI.

having fallen sharply since 1988. Two interpretations can be made of this: that convertibility and the structural reforms mentioned above were able to correct the long-standing loss in output per capita; and that growth was relatively easy to achieve initially, due to the significant gap between actual GDP and potential GDP.[14]

The growth recovery in the early 1990s and the impressive drop in inflation were probably the main reasons why convertibility attracted so much attention in the international economy. However the currency board had

pitfalls, mainly its dependence on international capital flows, a variable that was far from the sphere of influence of the domestic authorities. On top of that, volatility increased due to a relatively new phenomenon in the international economy: financial contagion and the 'globalization of financial volatility' (Ffrench-Davis and Ocampo, 2001). But contagion attacks all countries more or less equally, the difference among them being the differential in economic fundamentals and the capacity to correct them, particularly when they are misaligned. A fixed exchange rate system adds another potential risk, namely forced realignment, which is normally preceded by efforts to avoid it. In this sense fixed exchange rate systems may amplify the original external shock.

In Table 13.2 it is shown that in the recession years, 1995 and 1999, the capital flows to Argentina decreased significantly. The other side of the coin was a significant increase in sovereign spread. Between 1994 and 1995, as stated earlier, the differential cost of public sector borrowing increased by 825 bp. After a sharp drop in 1996 and again in 1997, during the Asian crisis the spread increased to 608 bp in 1998 and 726 bp in 1999. In the context of an open capital account, this implies an increase in the domestic cost of borrowing.

The reduced capital inflows and the higher cost of borrowing resulted in a sudden halt in money supply growth and two significant recessions, a relatively short one in 1995, with a loss of 2.9 per cent in real GDP, and a quite long one in 1999–2000, when GDP fell by 4.0 per cent. Argentina and Uruguay were the only two Latin American countries to suffer a domestic recession in both the financial crises.[15]

The crawling-band approach in Chile

In the early 1990s, in the context of massive capital inflows, the Chilean authorities identified two main priorities for macroeconomic management, and particularly exchange rate policy. First, as the economy was prone to huge cycles[16] it was crucial to achieve sustained macroeconomic stability. Second, it was vital to emphasize growth as the dominant criterion in policy making. This meant assigning exports a strategic role, in terms of both expansion and diversification.

Several works, including those by Caballero and Corbo (1990) and ECLAC (1998: ch. 4), note that in order for exports to be an engine of growth, maintaining the level and stability of the real exchange rate is crucial. The Chilean authorities considered that this could be placed in jeopardy if capital surges caused excessive exchange rate appreciation, and that there would be greater future volatility if the direction of net flows went into reverse.

In the early 1990s the authorities decided to regulate the foreign exchange market and capital inflows in order to prevent large misalignments in the real exchange rate relative to what they assumed to be its long-term trend.

The intention was to make long-term fundamentals prevail over short-term factors, based on the assumption that there was behavioural asymmetry between the market and the monetary authorities: the latter needed a long-term planning horizon when seeking sustainable macroeconomic stability, in contrast to private agents, who operated more intensively at the short-term end of the market and were rewarded with profits during that term. In order to deal with market uncertainty, rather than setting a unique price the authorities used a crawling band centred on a reference price that was linked to a basket comprising the dollar, the Deutschmark and the yen, weighted according to their share in Chilean trade.[17] The centre of the band crawled according to inflation differential criteria, thus following a PPP rule adjusted by estimates of net productivity improvements in Chile.

The changes taking place in the global financial markets, the increasing international approval of Chile's economic policies, high domestic interest rates and the smooth transition to democracy stimulated a capital inflow to Chile from mid 1990. This flow was earlier and relatively stronger than in other emerging economies and was quickly reflected in an appreciating real exchange rate. Beginning in July 1990, the market rate lay at the appreciated extreme of the band. During the following months the economic authorities designed a new macroeconomic policy that, contrary to the fashion among multilateral institutions and financial agents for across-the-board opening of the capital account, was based on the prediction that the large external supply of financing was not sustainable and that short-term factors affecting the current account, such as the high price of copper, would tend to reverse in the medium term.[18]

The set of policies that followed were designed to provide a prudential macroeconomic environment in order to achieve sustainable equilibria. In June 1991 a non-interest-bearing reserve requirement of 20 per cent was imposed on foreign loans. Reserves had to be maintained at the central bank for a minimum of 90 days and a maximum of one year.

Central bank proponents of a dirty float argued that the prevailing rules, with a pure band, an increasingly active informal market and a more porous formal market, would lead to the exchange rate moving towards either extreme of the band (it had already hit the ceiling in 1989–90, and the floor later on). This prompted the bank to initiate dirty floating in March 1992. Thereafter the rate fluctuated within a range of one to eight percentage points above the floor for several years, with the bank continuing to make purchases but also some sales (overall there was a significant net accumulation of reserves).

In the ensuing months US interest rates continued to decline, encouraged by the recession the United States was experiencing, which put pressure on Chile's Central Bank. However the Chilean economy was booming and its GDP growth rate had risen into two digits. For reasons of macroeconomic equilibrium the central bank decided to increase rather than lower the

domestic interest rates. In order to make space for monetary policy in the context of continued capital inflows, the reserve requirement was tightened. In May 1992 it was raised to 30 per cent and was extended to time deposits in foreign currency, and in 1995 to purchases of Chilean 'secondary ADRs' by foreigners. The period over which the deposit had to be maintained was extended to one year, regardless of the maturity of the inflow. Permanent monitoring was conducted in order to identify loopholes, which were then closed. In general, evasion was quite limited (Zahler, 1998; Le Fort and Lehmann, 2000).

The system of reserve requirements and taxes on foreign lending was directed at relative market prices. The implicit tax rate on inflows increased dramatically as maturities shortened. For instance by 1995, for inflows with a one-year term it stood at 4 per cent, while for 90 day-terms it represented a cost of 13 per cent (Agosin and Ffrench-Davis, 2001). With the outbreak of the Asian crisis and the subsequent scarcity of financial inflows, the reserve requirement rate was reduced to 10 per cent and then to zero in 1998.

As a result of the policy mix implemented in 1990–94, plus the improved terms of trade in 1995 after the Tequila crisis exploded in late 1994 and its effects spread to Argentina, Chile maintained a solid external sector (a small deficit on the current account, a sustainable exchange rate and a limited amount of short-term external liabilities). Therefore the across-the-board cut-off in liquid funding for Latin America did not dampen the Chilean economy. Towards mid 1995 capital flows began to return to the region, and with special intensity to Chile.

Given the expectations of currency appreciation when the Tequila shock was over, the large interest rate differential between the peso and the dollar gave foreign portfolio and short-term investors a profitable bet, in spite of the price they had to pay for entering the Chilean financial market (in the form of the reserve requirement). The trend towards appreciation could have been curbed by intensifying the price restrictions on inflows (that is, increasing the size of the reserve requirement; Le Fort and Lehmann, 2000). However the authorities more or less maintained the intensity of the policy tools they were using in 1996–97, and a consequence capital inflows overwhelmed the domestic market. The central bank was unable to prevent a significant real appreciation of the peso and this contributed to a widening of the current account deficit, which climbed to 5.7 per cent of GDP in 1996–97 (Table 13.3).

In the negotiations for a free trade agreement with Canada the Chilean authorities successfully defended the maintenance of the reserve requirement as a policy tool to regulate financial inflows. But the general overoptimism in domestic and foreign financial markets, the widespread agreement that the crisis had been left behind and the risky temptation to speed the reduction of domestic inflation with exchange-rate appreciation, weakened the policy of sustainable macroeconomic equilibria.

Table 13.3 Chile: capital flows, exchange rate and macroeconomic performance, 1990–2000

	1990–95	*1996–97*	*1998*	*1999*	*2000*
Actual GDP growth (%)	7.8	7.4	3.9	−1.1	5.4
Productive capacity growth (%)	7.8	6.8	7.3	5.9	4.2
Investment ratio (% of GDP)	26.1	31.6	32.2	26.9	26.6
Inflation (%)	14.7	6.3	4.7	2.3	4.5
Current account balance (% of GDP)	−2.5	−5.7	−6.2	−0.2	−1.6
Fiscal balance (% of GDP)	1.8	2.1	0.4	−1.5	0.1
Terms of trade (% of GDP)	0.2	−1.4	−3.0	0.2	0.0
Net capital inflows (% of GDP)	6.9	8.0	2.8	−0.9	1.7
Real exchange rate (1986 = 100)	99.5	81.4	78.0	82.3	85.9

Note: The terms of trade effect are expressed in current prices.
Sources: Central Bank of Chile; Ffrench-Davis (2002).

The authorities' exchange-rate management did not deter speculative inflows after 1995. In spite of their formal adhesion to a crawling band in 1996–97, in order to appreciate the band (beyond a formal broadening of the band to ±12.5 per cent), in 1997 the authorities tinkered with the weights assigned to each currency, making the peg to a currency basket rather than the dollar less credible. In November 1994 the weight of the US dollar had been reduced from 50 per cent to 45 per cent, reflecting the falling use of that currency in Chilean trade. In January 1997 it was arbitrarily raised to 80 per cent. Also, the external inflation used to correct the referential exchange rate was overestimated by 10 percentage points between 1995 and 1997, generating considerable additional revaluation. Furthermore an annual 2 per cent appreciation of the reference rate had been set in November 1995, based on the assumption that Chilean productivity would grow faster than that of its main trading partners.

The Asian crisis notably worsened terms of trade in 1998–99 and Chile found itself with an overvalued real exchange rate and a deficit on the current account that was more than twice as large as the average for 1990–95.[19] Capital outflows began in late 1997 and accelerated in 1998–99, inducing an exchange rate depreciation in the context of a relative price correction process after the significant macroeconomic imbalance created in 1996–97.

Since 1991 capital outflows had been encouraged as a way of alleviating appreciating pressures on the exchange rate. Pension funds had been allowed to invest up to 16 per cent of their total asset abroad, in gradual steps. However the higher rates of return on financial assets in Chile than abroad and expectations of peso appreciation had discouraged foreign investment by Chilean institutional investors. By mid 1997 pension funds had invested merely 0.5 per cent of their funds abroad. The outflow sped up with the

Asian crisis, when the contagion to Chile reversed expectations from appreciation to depreciation. Within a short period the outflow from pension funds reached the equivalent of 4.8 per cent of GDP. This worsened Chile's external position and was an important source of the sharp monetary contraction in 1998–99.

The Central Bank had been soft with the appreciating pressures in 1996–97, but it sharply repressed the depreciating pressures at the end of 1997, arguing that in an overheated economy devaluation would be too inflationary. In September 1999, when the economy was already in recession, the central bank announced the suspension of the exchange rate band to enable a substantial devaluation under a freely floating rate.

The stabilizing properties of a band emerge when there is credibility in its parameters, namely the level of the central parity, the rate of crawl and the band's width. The crawling band – the intermediate regime in force in Chile until 1999 – gradually lost credibility due to its mismanagement.[20] Indeed the lack of active intervention to enforce the band, the various realignments to the central parity and/or the width of the band, and the arbitrary changes in the weights used to determine the central parity all gave the signal that the parameters could be changed at will.[21] Eventually the monetary authorities recognized the need to correct the excessively appreciated real exchange rate.

The period of active intervention in capital inflows and the management of the real exchange rate was correlated with a high rate of productive capacity utilization. The negligible gap between effective and potential GDP achieved in 1991–97 proved to be a determining factor in the significant increase in capital formation and potential GDP (Agosin, 1998). In fact the investment ratio rose 10 points in 1990–98 compared with 1982–89, and GDP growth jumped from 2.9 per cent a year to 7 per cent (Table 13.3).

With the recessive adjustment in 1999 and the lack of vigorous recovery in 2000–1, the investment ratio lost nearly one half of its previous gain. Our interpretation is that the intensity of what was an unavoidable downward adjustment was associated with the disequilibria in 1996–97, first the excessive appreciation and then the delay in allowing a depreciation in 1998. Thereafter the authorities failed to exploit all the positive features of the Chilean economy that would allow movement towards the production frontier, thus encouraging economic employment and capital formation.

Mexico: the oldest floating exchange rate regime in Latin America

The adoption of a floating exchange rate regime in Mexico was the outcome of a full-scale balance of payment crisis in December 1994. Before that, since October 1992, Mexico had used an exchange rate band in which the floor

was fixed in nominal terms and the ceiling crawled daily. In spite of the fact that the economy grew at an average of only 3.8 per cent per year between 1989 and 1993, Mexico attracted a lot of attention for two reasons. First, it became a leading country in terms of privatization, with revenues of 3.3 per cent of GDP in 1991 and 1992. Second, in 1993 Mexico joined the North American Free Trade Agreement (NAFTA), and this led to its becoming a member of the OECD. These two associations resulted in the rapid liberalization of capital flows.

The markets reacted positively to these events, as reflected in the fact that 49 per cent of total capital inflows to Latin America went to Mexico in 1990–93. On average the country received US$23.6 billion per year, 83 per cent of which consisted of flows other than foreign direct investment (FDI). On the domestic front, higher expected returns eventually led to a boom in private expenditure. As a result the deficit on the current account rose from US$7 billion in 1990 to US$30 billion in 1994 and the real bilateral exchange rate with the United States appreciated 30 per cent in four years.

According to Ros (2001) the Mexican crisis was not the outcome of inconsistency in economic policy, nor a self-fulfilling mechanism. Instead he points to (1) the part played by the ill-conceived perception that the shocks being faced by Mexico – higher interest rates in the United States and political turmoil at home – were temporary, and (2) perceptions of the high cost involved in tightening monetary policy in early 1994 or modifying the exchange rate policy. These two considerations led the government to sell international reserves and increase the issuance of dollar-denominated, short-term Tesobonos against the peso-denominated Cetes. Reserves fell from US$26 billion in the first quarter of 1994 to US$16.5 billion three months later. The debt not only changed denomination but the average term shortened as well. US$28.6 billion in Tesobonos were due to mature in 1995, 35 per cent of this during the first quarter (Ros, 2001). Given the state of the international reserves, this put the country in danger of default and eventually led to speculative attacks on the peso. The new government tried to change the band by lowering the ceiling by 15 per cent, but it was too late and it was forced to quit the band system. At the same time interest rates rocketed, marking the start of the severe and costly Tequila crisis (Calvo and Mendoza, 1996).[22]

According to Carstens and Werner (1999) the crisis had three aspects. First, short-term capital inflows encouraged and financed the overspending that caused the abovementioned current account deficit. Second, even if the public debt and the fiscal balance suggested a healthy public sector, the short maturity of the stock of government debt 'exposed the country to a financial panic' (ibid.) In that context, any doubt about the will of markets to continue rolling over the existing debt would have caused an attack on Mexico's external debt. Finally, a severe banking crisis occurred. After the exchange rate band was abandoned and a float was adopted, there was an

abrupt devaluation of about 95 per cent between just before the crisis and March 1995. To avoid the inflationary consequences of this devaluation, the central bank tightened monetary policy by raising the interest rate from 16 per cent in December 1994 to 86 per cent three months later. Fiscal policy was tightened by 2.6 per cent of GDP in 1995. This contractionary package resulted in a sharp recession in which GDP fell by 6.2 per cent and domestic demand by 12.9 per cent.

Just after the crisis there was a brief experiment with monetary targeting, but as inflation came down and there was strong evidence of instability in the demand for money, the central bank started to set annual inflation targets (Ortiz, 2000). The main elements of the current framework are (1) the medium-term goal of reducing inflation to the international level in 2003, with annual inflation targets, (2) monetary policy actions based on an assessment of inflationary pressures, and (3) a transparent system based on the publication of quarterly inflation reports.

A basic difference between Mexico and other 'inflation targeteers' is the former's choice of policy instrument. While most inflation targeteers use the short-term interest rate, the Mexican central bank uses a reserve operating procedure known as the 'corto'. This system causes significant short-term volatility in nominal interest rates, leading to a more stable exchange rate and hence a more stable inflationary environment.

Between 1996 and 2000 Mexico enjoyed a relatively prosperous period in which GDP growth averaged 5.3 per cent; however by 2000 the economy was clearly overheated. Indeed in that year GDP grew 6.9 per cent, well beyond what had been estimated, the real exchange rate had appreciated 13 per cent since 1997 and the deficit on the current account had more than doubled over the same period, despite the high oil prices (Table 13.4).

With regard to the float, this was not a pure float as there was a complicated rule to regulate intervention in the foreign exchange market. The rule included a two-pronged approach in which an option mechanism was used to accumulate reserves and a contingent sale was used when the central bank wanted to minimize a sudden depreciation. This approach was aimed at fighting peso appreciation and accumulating international reserves. Had the central bank intervened directly in the spot market the outcome would have been more similar to that achieved with an exchange rate band or a soft peg. The mechanism, now abandoned, was asymmetric in that it put greater emphasis on stopping a sudden depreciation than on stopping a sudden appreciation (Galán *et al.*, 1999).

This intervention mechanism and Mexico's surrender to interest rate volatility rather than exchange rate volatility resulted in Mexico enjoying a significant degree of exchange rate stability. The adoption of the floating regime coincided with a period of high and relatively stable GDP growth and significant financial stability. Of course a substantial part of this was due to the fact that Mexico's largest trading partner, the United States,

Table 13.4 Mexico: capital flows, real exchange rate and macroeconomic performance, 1992–2000

	1992	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*
Current account balance (US$ million)	−24 442	−23 400	−29 662	−1 575	−2 330	−7 448	−16 090	−14 325	−17 690
Net capital inflows (US$ million)	26 187	30 632	12 465	−14 735	6 190	21 447	19 300	18 602	24 800
Changes in reserves (US$ million)	−1 173	−6 057	18 398	−9 648	−1 806	−10 512	−2 138	−592	−2 824
GDP growth (%)	3.6	2.0	4.4	−6.2	5.2	6.8	5.0	3.8	6.9
Terms of trade (1995 = 100)	105.0	104.9	103.3	100.0	102.8	104.0	100.4	102.3	107.4
Real exchange rate (average 1987–90 = 100)	74.0	70.3	72.1	106.0	95.4	83.5	84.0	76.7	71.6
External debt/ GDP (%)	32.0	32.4	33.2	57.9	47.3	37.2	38.1	34.7	25.9

Source: ECLAC.

experienced dynamic growth until 2000, with a substantial increase in imports (particularly from Mexico). The story changed sharply for both from late 2000.

Concluding remarks

In the context of the more integrated world economy, exchange rate policy is crucial as it is the variable that links national prices to foreign prices. It also affects returns in many significant sectors of the economy, such as the production of exportables. Also, being an international benchmark it acts as a gauge to domestic investors, and also affects shadow prices.

The review in this chapter of the Argentinean, Chilean and Mexican experiences shows that a policy that is suitable in one macroeconomic environment may not be so in another. Each exchange rate system has its own logic and requires measures to enhance its credibility. In this sense, a crucial point to bear in mind when adopting an exchange rate policy is the cost of switching to an alternative policy if it fails. However in some cases, public discussion on an exit strategy may have a negative effect on the credibility of the policy, for example in fixed exchange rate regimes.

Credible pegged systems promise greater (nominal) financial stability, and to some extent that was the case in Argentina during the period examined. But the required complementary policy is high price-level flexibility in order to adjust to negative real shocks by cutting prices. The long-term credibility of this system therefore depends on high flexibility in the labour market and an active fiscal policy to respond adequately to negative shocks. Without these measures, pegged systems are prone to greater real sector volatility.

Floating systems induce more real stability but at the price of increased financial instability. There may also be a cost in terms of growth as the real exchange rate loses power to allocate resources, in which case it is necessary to consider the use of other policy instruments to promote exports, such as technology policy, trade policy and so on. Floating systems are useful in times of financial distress when the authorities have doubts about the level of the real exchange rate, the nature of the shock they face and their response to it, as flotation enables them to avoid jeopardizing their reputation by defending the wrong exchange rate.

Finally, bands are useful in times of normality when there are no large shocks on the horizon. In this situation, bands help to stabilize the nominal exchange rate and hence the real exchange rate, which has a positive effect on exports and growth. But bands are of less use if a large shock occurs and the authorities fail to make a prompt and adequate response, because they open the way to speculation and significant financial instability. Probably the best policy here is active intramarginal intervention within the band. Intervention is likely to be more effective when the exchange rate is kept far

from the edges of the band (Mundaca, 2000). This suggests that there may be some optimal band width, as the Chilean experience shows.

Corner solutions do not have symmetrical consequences. Exchange rate policy makes a difference when significant capital surges occur and subsequent shocks cause a sudden reversal of the flows (Williamson, 2000; Ffrench-Davis and Ocampo, 2001). Most significant increases in the supply of external financing are not one-off events but a process that takes time, as in 1977–81, 1990–94 and 1996–97. When capital inflows occur the current account deteriorates, asset prices increase and the real exchange rate appreciates. Different exchange rate policies deliver different combinations of these three elements. With pegged systems, an upward surge in foreign capital flows creates a demand boom, with consequences for asset prices, probably a crowding out of domestic savings and a worsening of the external balance. Inflation in non-tradables may lead to real appreciation. With floating regimes a nominal appreciation will take place, making the process of real appreciation faster (and henceforth potentially more disruptive if the increased liquidity is transitory) than with the pegged system. In fact when the force behind the capital surge is external, small economies may suffer from significant overvaluation.

Pegs tend to work better in the upward phase of the cycle, but after the peak the float does better in terms of the necessary expenditure switching. As shown by Wyplosz (1999) and Ros (2001), in this type of cycle there is the possibility of multiple equilibria based on self-fulfilling beliefs: expectations of more inflows (outflows) may further appreciate (depreciate) an already appreciated (depreciated) currency.

Exchange rate instability is not costless, and large deviations from the equilibrium level by the real exchange rate are not costless either. Exports, in terms of both growth and diversification, benefit from stable environments (ECLAC, 1998: ch. 4). Therefore exchange rate policy faces two challenges when attempts are being made to improve overall growth performance: the need to maximize real exchange rate stability without pegging the currency, and the need to avoid significant currency misalignments, that floating does not impede. Bands, the obvious solution, may address both but they are sensitive to large shocks.[23] Irrespective of the policy adopted, central banks must concern themselves with both the level and the stability of the exchange rate. In this respect, and despite what has happened since the Asian crisis, crawling bands are still an option to consider.

Latin American financial instruments suffer from at least two shortcomings. One is linked to the instruments themselves, in that they lack contingency measures to deal with the shocks that are common in Latin American countries. The other is linked to the markets, where there is a lack of sustainable foreign demand for instruments denominated in local currencies. Macroeconomic policies may expand in terms of addressing both instruments and

markets, but it is not clear at all that countries will be able to do both things in significant ways in the short term.

In the current phase of the cycle, when there is a significant shortage of capital inflows, many countries in Latin America have moved towards across-the-board liberalization of the capital account. However policy makers will need to take care when the cycle moves into the next phase. Recent experience in emerging economies shows that the behaviour of capital inflows can be inconsistent with macroeconomic sustainability, particularly in terms of the stability of the exchange rate and economic activity. Therefore the authorities need to follow closely the developments in various markets and have flexible policy packages rather than single, rigid policy tools.

Notes

* We acknowledge the comments made by Amar Bhattacharya, Stephany Griffith-Jones, José Antonio Ocampo, Avinash Persaud, Helmut Reisen, Rogerio Studart and Heriberto Tapia. All remaining errors are our responsibility. The opinions expressed in this chapter are those of the authors and do not necessarily reflect those of ECLAC or the BBVA.

1. See Fischer (2001) and Levy and Sturzenneger (1999) for a classification of exchange rate regimes.
2. For a recent discussion of the sources of volatility in Latin American economies, see Rodrik (2001).
3. This becomes evident when we consider Argentina in 2001.
4. However we have not controlled for the degree of overvaluation of the exchange rate in each country. Because in Argentina the exchange rate was used explicitly as an anti-inflationary device and it appreciated sharply in 1991–92, the required fall in domestic prices and wages was greater than that which effectively took place.
5. This does not tackle the problem posed by the negative effect of real exchange rate instability on the production of tradables and the diversification of exports. See Caballero and Corbo (1990) and ECLAC (1998).
6. A recent move in this direction has involved Chile. There have been two bond issues, one by the IADB and the other by the government of Uruguay in instruments denominated in Chilean pesos indexed to Chilean inflation.
7. Chile developed an efficient proxy by establishing a copper stabilization fund. Other countries have also utilized funds, such as the Fondo Cafetero in Colombia, and the oil stabilization funds in Mexico and Venezuela.
8. Real exchange rate misalignment can also occur in developed economies, for example the huge swings of the US dollar in the 1990s and its sharp appreciation *vis-à-vis* the euro since 1998 (Williamson, 2000). For emerging economies, see Ffrench-Davis and Ocampo (2001).
9. Countries not included in the sample were also subject to contagion, including Peru and Uruguay.
10. The title chosen by Braga *et al.* (2001), *Don't Fix, Don't Float,* is in line with this sort of argument.
11. This proposal is consistent with the content and title of Frankel (1999).
12. In the meantime the real exchange rate appreciated sharply, the deficit on the current account rose and gross capital formation recovered only modestly (Frenkel *et al.*, 1998).

13. Most of the privatized companies belonged to the non-tradable sector. In these firms, average productivity per worker rose after privatization. The link to real exchange rate is because – contrary to the Balassa–Samuelson effect, in which net productivity growth in the tradable sector causes a real appreciation of the currency – the transmission mechanism was a reduction in the real cost of the services produced by those companies. This productivity gain does not consider that all unemployed had zero productivity. As such overall productivity growth, which takes account not only of employed people but of all the labour force, increased by much less.
14. In fact annual growth in 1988–2000 was a mere 2.3 per cent. It can be assumed that the gap between effective and potential GDP in 1991 was quite large.
15. Several LACs experienced a recessive gap (The gap between effective and potential GDP), but absolute GDP kept rising. Average GDP growth dropped from 5.2 per cent in 1994 and 1997 to 1.1 per cent in 1995 and 0.3 per cent in 1999.
16. In 1975 and 1982 Chile had experienced the sharpest recessions of all Latin American countries; see Ffrench-Davis (2002: chs 1, 6).
17. Chile was a pioneer in implementing exchange rate policies based on the various crawling-peg approaches (Williamson, 1981). This happened between April 1965 and July 1970. Subsequently, from October 1973 to June 1979, a second experiment of this kind was carried out. In the 1980s, after the 1982 crisis, a crawling peg was reinstated and this evolved into a crawling band, which continued until September 1999 (Ffrench-Davis, 2002: chs 4, 10).
18. In addition Chile was coming out of a profound debt crisis, which had been accompanied by sharp exchange rate depreciation. Consequently there was room for some equilibrating appreciation. However as agents' expectations changed from pessimism to optimism, they sought a new stock of investment in the emerging market over a short period of time. This implied excessively large transitory inflows.
19. An enlarged deficit on the current account in 1995–97, adjusted by the trend in the terms of trade, was proof of an overly appreciated exchange rate that adjusted faster than productivity improvements. We contend that the actual appreciation in 1990–94 had been equilibrating (given the moderate deficit on the current account and an appreciation that was softer than in all other emerging Latin American countries). See Ffrench-Davis (2000: ch. 10).
20. The band and its centre had been credible for a long time. Magendzo *et al.* (1998), using data until 1997, before the Asian crisis reached Chile, find that credibility in the band had decreased, but they do not quantify the degree of credibility that had existed prior to that time.
21. According to Krugman (1991) there is exogenous full credibility in the band's parameters without intramarginal intervention. The 'honeymoon effect', that is, stabilizing speculation, appears because of such credibility. In practice credibility and reputation needed to be built up by the central bank. Intramarginal intervention directed at enforcing the limits of the band was crucial as without it speculation would tend to be destabilizing.
22. Larraín *et al.* (2000) show that credit risk agencies also failed to play a countercyclical role. The main two agencies downgraded their rating only after the devaluation took place.
23. Wyplosz (1996), commenting on a paper by Leiderman (1996), states that the arguments in favour of bands were so strong that it was difficult to be sceptical about it. However he mentions some of the elements that ultimately led bands

into trouble, among which was the level of the band, that is, how it could cope with changes in the real exchange rate (for example in response to a shock) that lay beyond the limits of the band.

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Countercyclical Fiscal Policy: A Review of the Literature, Empirical Evidence and Some Policy Proposals*

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Introduction

At the beginning of the 1990s the United States experienced a recession, but the US government's large budget deficit did not allow the use of a discretionary countercyclical fiscal policy to stimulate the economy. With the elimination of budget deficits in recent years, the use of discretionary fiscal policy has re-emerged. In fact, in the face of an economic downturn the United States recently enacted a tax reform that reduced tax rates. Similarly in Chile a law to reduce personal income tax rates has been approved by the government in order to cool aggregate demand and improve efficiency. Both countries have considered expanding their fiscal expenditure to accelerate their economic recovery. Discretionary countercyclical fiscal policy again appears to be a feasible option.

Over the last decade many of the world's central banks have changed their procedure for conducting monetary policy. Decisions on the nature of monetary policy have become more explicit, more transparent, more systematic and more sensitive to changes in inflation. In the case of the United States, Chile and several other countries, these new policies have been very effective in reducing inflation, although their effect on the stability of the real economy during downturns has been questioned.

The appropriate macroeconomic role of fiscal policy when monetary policy is systematically and strongly reacting to changes in inflation is evident: to sustain public accounts and play a countercyclical role. The task of countercyclical monetary policy can be described as trying to keep real GDP near potential GDP when inflation is on target. Of course with the effects of a change in monetary policy occurring with long and variable lags, the central bank might not be able to match aggregate demand with potential GDP rapidly enough to prevent incipient inflation from becoming a reality.

There is some controversy about whether central bankers should try to adjust interest rates in order to change aggregate demand in the way described here. This issue has brought to the debate the possibility of using fiscal policy as a countercyclical device. When discussing fiscal policy issues a distinction should be made between discretionary changes in taxes and spending, and changes in taxes and spending due to automatic stabilizers, such as increased spending on unemployment benefit and the decrease in tax revenue caused by reductions in income during a recession. Both types of change in taxes and spending affect aggregate demand, but the automatic ones may be more predictable and work more quickly than the discretionary ones.

This chapter discusses discretionary countercyclical monetary and fiscal policies. It analyzes the role of automatic stabilizers in fiscal policy, and reviews concepts, measurements and methodological issues to assess the stance of fiscal policy. It then analyzes fiscal policy reactions to external shocks, public and external finance and the economics of stabilization funds in countries whose exports consist mainly of volatile commodities. An analysis of the role of fiscal policy in Latin America follows, including Chile's recent experience with fiscal policy. Next, some proposals for fiscal reform are discussed.

The macroeconomic role of discretionary countercyclical monetary and fiscal policy

Fiscal policy has two macroeconomic objectives: to sustain public accounts and to regulate aggregate demand. It is more or less evident that policy efforts have concentrated on the first objective, leaving the stabilizing role to monetary policy.

Sustainability of public debt implies keeping the long-run solvency of the government so as to satisfy its intertemporal budget constraint. Public debt financing of public deficits is sustainable if interest rates are lower than the growth of the economy. When interest rates exceed GDP growth the persistence of a primary deficit leads to an explosion of public debt, endangering the solvency of the public sector.

Under traditional Keynesianism, fiscal policy must run surpluses under full employment and allow for deficits during recessions. Macroeconomic stabilization requires symmetric, countercyclical regulation of aggregate demand. Keynesianism differs from the neoclassical view in the recommendation of more active policies, resulting in more pronounced fluctuations in fiscal accounts but always with a null result on average in the cycle.

Strict fiscal discipline in normal circumstances is required to preserve the ability to intervene when adverse economic events occur. Fiscal discipline and flexibility are two fundamental principles of budget policy under economic globalization. Fiscal discipline is essential to the credibility of macroeconomic

policy, while flexibility is needed to face unexpected shocks in a highly volatile economic environment.

If fiscal policy can shift aggregate demand and change real GDP in the short term, how should this power be used? From a normative perspective, a reasonable countercyclical goal of fiscal policy will be the same as that of monetary policy: to keep real GDP close to potential GDP when inflation is on target. However countercyclical fiscal policy may not be needed if a central bank wisely uses its power to move the aggregate demand curve to try to keep real GDP in line with potential GDP. However this may not be the case for emerging markets that are subject to sizeable shocks to the terms of trade and the capital account, and where there are frequent external financing constraints. In fact using both policies in a complementary manner may better distribute the burden of their effects between different markets.

As argued by Taylor (2000) not all recent developments suggest a smaller role for discretionary fiscal policy. If monetary policy targets inflation at a rate near zero there is a risk that the short-term interest rate will approach its lower bound of zero in a recession.[1]

What can and should central banks do to stabilize output and employment? According to King (1999) the uncertain effect of monetary policy on real variables – originated in transmission mechanisms that are neither sufficiently well understood nor sufficiently stable over time – puts a considerable constraint on the ability of central banks to target real variables. This leads to the conclusion that monetary policy should focus on keeping inflation close to its target and not on finetuning output.[2]

According to Taylor (2000), when monetary policy reacts to the state of the real economy, expectations that monetary policy is trying to exploit the Phillips curve may develop, reducing its credibility and its scope to respond. To recover credibility, monetary policy should focus entirely and publicly on reacting to inflation, so that the central bank can develop a strong reputation as an inflation fighter, while fiscal policy should focus on the countercyclical job of keeping real GDP close to potential GDP.

Experience has shown that, with the exception of automatic fiscal stabilizers, implementation lags are much shorter for monetary policy than for fiscal policy, which puts legislated changes in fiscal policy at a disadvantage as countercyclical tools. The central bank can make adjustments in interest rates relatively quickly – all that is needed is a board meeting and a vote, and then to convey the decision to the trading desk, where the short-term interest rate is changed.

Furthermore the use of traditional discretionary fiscal policy can make the job of a fully autonomous central bank more difficult, because of the need to spend time forecasting the size of fiscal proposals and determining the probability that such proposals will be passed. This can be countered with strong day-to-day coordination and information exchanges between both institutions.

One way of overcoming the lack of timeliness and predictability of current fiscal policy is to give the government, in consultation with the central bank, the authority to raise or lower the value-added tax (VAT) rates and pension fund contributions, or to accelerate or decelerate certain public spending.

The role of automatic stabilizers in fiscal policy

Economic fluctuations have a significant effect on public accounts. Fiscal automatic stabilizers are defined as public earnings and expenses that are directly linked to the economic cycle. Automatic stabilizers are those elements of fiscal policy that tend to mitigate output fluctuations without any explicit government action. They include all components of the government budget that act to offset fluctuations in effective demand by reducing taxes and increasing government spending during a recession, and doing the opposite during an expansionary cycle. Perhaps the most commonly analyzed automatic stabilizer is income tax, which reduces the multiplier effects of demand shocks through the marginal taxation of income fluctuations. A progressive income tax with high marginal rates can substantially reduce fluctuations in after-tax income and private spending without the need for explicit discretionary policy changes. Moreover automatic stabilizers avoid the implementation timing problems that cause discretionary policy to lag behind events.

Automatic stabilizers must be triggered by a shock that causes economic activity to fall or rise. As argued by Auerbach and Feenberg (2000), the effectiveness of an automatic stabilizer not only depends on how much of a change in disposable income it produces, but also on how significant the effect is on private consumption. Potentially, progressive income taxes, value-added taxes, taxes on corporate profits and unemployment insurance premiums and benefits can serve as automatic stabilizers.

One of the most familiar measures of the sensitivity of taxes to income changes is the elasticity of aggregate income taxes with respect to changes in aggregate income. This elasticity serves as an indicator of the tax system's overall progressiveness. For a given level of taxes, the higher the elasticity the smaller the change in after-tax income that results from a given change in income before tax. However, in terms of measuring the tax system's role as an automatic stabilizer the income elasticity of taxes has a severe shortcoming: it is invariant with respect to whether the share of income taken as taxes is high or low. If taxes take a large share of the economy they will be more able to act as an automatic stabilizer than if they take a smaller share. Key determinants of the magnitude of automatic fiscal stabilizers are the share of tax revenues, and the size of tax and expenditure elasticities, with respect to GDP.

For output to be stabilized it is necessary for the mitigating effect of taxes due to changes in before-tax income to translate into more stable household

consumption. However, a high reaction of consumption to a short-term shock to current disposable income requires the presence of a liquidity constraint that reduces household consumption to below its desired level. Any change in tax payments must translate into changes in aggregate demand if automatic stabilizers are to succeed. For example the effect of corporate income taxes on consumption will be tenuous if the ownership of corporate stock is strongly concentrated among individuals who are unlikely to face liquidity constraints.

In the case of state unemployment benefit, it is important to note that this fluctuates in response to rises and falls in unemployment during the business cycle. The relationship between output fluctuations and changes in the level of unemployment benefit depends on the relationship between output and unemployment, the extent of unemployment covered by unemployment insurance, the rate of benefits demanded by those who are eligible, and the fraction of lost wages that is replaced by unemployment benefit.

It is important to create enough room for automatic stabilizers to work fully during a recession in order to complement the regulatory role of monetary policy. In Latin America fiscal policy has not played a countercyclical role. During recessions, fiscal policy is typically oriented towards keeping financial solvency under control, while during booms expenditure tends to expand with the cycle.

It is necessary to design an institutional framework that will ensure the consistency of fiscal policy, such as stabilization funds from tax revenues.[3] Such mechanisms can work countercyclically to allow saving during booms and withdrawals for spending purposes during crises.[4] Public spending management must follow clear, long-term sustainability criteria. The main countercyclical components should be social safety net provision and the presence of a tax revenue stabilization fund.

Review of concepts and measurement issues in fiscal policy

Following Heller *et al.* (1985), this section reviews the existing techniques for assessing the stance of fiscal policy, with the purpose of characterizing the expansionary or contractionary nature of current fiscal policy.

The first approach, used by the IMF, measures the total impulse or initial stimulus to aggregate demand arising from fiscal policy, whether discretionary or otherwise, during a given period. Conceptually it identifies as a fiscal impulse any change in the actual budget that is not caused by the business cycle. The idea is to obtain a new measure of the budget in isolation from endogenous forces that arise from changes in GDP. The IMF measure currently makes no distinction between a change in aggregate demand that results from a discretionary budget decision and one that results from automatic fiscal stabilizers.

The approach starts by establishing a base year in which the tax revenue to effective output ratio, t_o, and the public spending to potential output ratio, g_o, correspond to a period of macroeconomic stability, including a balance between potential and effective GDP. The 'cyclically neutral budget' is derived from the actual budget by assuming that nominal tax revenues are unit elastic with respect to actual nominal output, and nominal government expenditures are unit elastic with respect to potential output valued at current prices. This gives a benchmark to determine whether fiscal policy is procyclical, neutral or countercyclical. Growth in expenditure that is above, equal to or below potential output, yp_t, growth is respectively defined as expansionary, neutral or contractionary. Similarly, growth in tax revenues that is above, equal to or below effective output, y_t, growth is respectively classified as contractionary, neutral or expansionary, regardless of the source of the change in revenue (discretionary tax increase, progressive tax structure).

This simple IMF approach calculates the cyclically neutral budget under the assumption of unitary elasticities of expenditure and revenue with respect to potential and actual output, therefore allocating the contribution of automatic stabilizers to the fiscal impulse.

A change in public deficit has a cyclical character when it is due to the difference between current and potential GDP. A structural deficit is equivalent to the difference between the effective deficit and the cyclical deficit. An effective deficit in excess of the cyclically neutral deficit is deemed expansionary, relative to the base-year fiscal stance. The effective budget surplus, B_t, can be decomposed into two elements: the cyclically neutral budget surplus, $t_o\, y_t - g_o\, yp_t$, and the fiscal stance, Fis_t, which represent the deviations between the cyclically neutral budget surplus and the effective budget surplus:

$$B_t = t_o\, y_t - g_o\, yp_t - Fis_t \tag{14.1}$$

Any increase (reduction) in the budget surplus above the cyclically neutral budget leads to a contractionary (expansionary) stance in fiscal policy. The fiscal impulse, FI_t, is defined as the change (first difference) in the fiscal stance measure:

$$FI_t = Fis_t - Fis_{t-1} = dG_t - g_o\, dyp_t - (dT_t - t_o\, dy_t) \tag{14.2}$$

The fiscal impulse in a given period reflects the change in the fiscal stance. The fiscal impulse at best provides a measure of the magnitude of the initial stimulus to aggregate demand arising from the net changes of fiscal policy in a given period.

One advantage of this approach is the simplicity of the calculation and information requirements. To calculate the fiscal impulse, one only needs actual and potential output growth, a set of base-year public expenditure and public revenue to output ratios, and the change in the actual budget balance. However such a measure may miss the intensity and direction of

the effects. In fact the elasticity of tax revenues with respect to output is an empirical matter that is likely to vary with the rate of inflation and the effects of progressivity and administrative lags in collection. In particular the elasticity of VAT depends on the composition of private consumption of durable and non-durable goods, the elasticity of imports with respect to GDP and the cyclical behaviour of evasion. In fact, as durable consumption is more sensitive to economic activity than non-durable consumption, a higher proportion of durables may raise the income elasticity of VAT. The elasticity of government expenditures is also an empirical issue.

This approach also suffers from the so-called balanced budget multiplier problem. The measure implicitly assumes that equal increases in government spending and taxes provide no additional stimulus to aggregate demand, whereas most conventional models imply that a change in government spending has a larger effect on income than an equivalent transfer or tax change. Therefore this method must be combined with an approach to measure expenditure on goods and services, transfers and taxes on a more disaggregated basis to obtain a finding on the potential impact on aggregate demand.

Moreover, as this technique calculates the fiscal impulse residually, it will include the effects not only of changes in fiscal policy and the subsequent effects of automatic stabilizers, but also of structural changes in the economy. Finally, the calculation of the fiscal stance only adjusts the budget for deviations of output from its potential level – a problem also encountered with other techniques. The effects of prices, interest rates (both real and nominal) and the exchange rate are ignored.

The OECD provides an alternative technique that has two major differences from the IMF measure. First, the elasticities of cyclically neutral expenditure and revenue with respect to real output are not constrained to unity in the OECD method. Hence the OECD's fiscal impulse indicator is free from automatic stabilizer effects. Second, the OECD method uses ratios of expenditure and revenue to potential and actual output, respectively, in the previous period, not base-period values.

The OECD approach has a larger data requirement than the IMF's method as it includes estimates of government expenditure and revenue elasticities. The elasticity of public expenditure is a function of the magnitude of the subsidies given to the unemployed. The relative importance of the cyclical deficit depends on the size of income elasticity of tax revenues, the output gap measured by the difference between effective and potential output and the proportion of tax revenues relative to the level of economic activity.

Another method is the weighted standardized surplus measure. This provides a good empirical estimate of fiscal policy aimed at measuring discretionary action by the authorities. The method was first developed by Blinder and Goldfeld (1976) using US data. Simulation techniques are

employed to decompose the budget into autonomous (exogenous) and induced (endogenous) components. The fiscal impulse is defined as the change in the exogenous component of the budget.

In the IMF's current fiscal impulse methodology the growth of government expenditures other than unemployment benefits is regarded as cyclically neutral if it is equal to potential output growth. Unemployment benefits are excluded from the base-year expenditure ratio and from actual expenditure in a given period, implying that any changes in unemployment benefits are treated as a fully cyclical phenomenon. As unemployment benefits depend on the state of the economy, this methodology implicitly assumes that economic recovery will return the unemployment rate to the level prevailing in the base year.

It is important to stress that, depending on the policy question, certain measures of the fiscal budget will be more adequate than others. If the policy question centres on the short-term financial pressure caused by the government's financing requirements, then there is a strong case for a budget balance measure that accurately reflects this pressure. The cash base budget data dominates in this regard. However if the main concern is to analyze the effects of government expenditure and revenue policy on aggregate macroeconomic variables, such as consumption and investment, then a strong case can be made for using national account data when constructing the fiscal impulse, so that the budgetary data is more systematically related to aggregate demand.

Stabilization funds, public and international finance, fiscal policy and external shocks

Commodity price risk is the risk that commodity prices may change rapidly, substantially and unpredictably. Governments typically bear two kinds of commodity price risk. First, many governments obtain substantial revenue from commodity production/exportation. Second, many governments try to smooth some domestic commodity prices to mitigate the social, economic and political impact of large and frequent changes in prices.

In the absence of financing opportunities, when prices go down for a producer or up for a consumer, the government has to cut expenditure or raise other revenue. This is difficult to do quickly and efficiently. Increasing spending when export prices rise is easier, but it is difficult to do efficiently. Reliance on commodity revenue normally leads to stop–go fiscal policy. It is also likely to make fiscal policy procyclical. Other problems include the difficulty of planning, such as basing a budget on commodity price assumptions that could turn out to be very wrong.

Developing countries typically base their international trade on a few commodity exports and imports that are subject to highly volatile market prices. A practice that has been extensively used in the past has been for

governments to establish stabilization funds to reduce commodity price volatility, to make prices and revenues more predictable and to keep expenditure in line with permanent income flows. For commodity producers, the fund accumulates resources when the international spot price is above its reference price, and *vice versa*. For commodity consumers, the fund subsidizes domestic consumption when the spot price is above its reference level, and *vice versa*.

Recent empirical work on commodity prices shows that most commodity prices eventually revert to their mean – a requirement for a stabilization fund to be viable – but only very slowly, with the average reversal time being measured in years rather than months. Hence a commodity stabilization fund has to be very large to be effective. Furthermore, in the case of an export (import) stabilization fund it is strongly recommended to initiate it in scenarios of high (low) prices rather than long-term or trend prices, so that the fund can finance subsequent negative price situations.[5]

Many countries have abandoned these funds as government intervention to stabilize commodity prices and reduce uncertainty has often proved ineffective and costly. Nonetheless there are some successful cases, such as the commodity stabilization funds in Chile (copper) and Colombia (coffee), which are aimed at stabilizing commodity-related government revenues instead of prices. When governments collect commodity-related revenues, these funds are appropriate mechanisms for separating the terms of trade cycle from the fiscal cycle. They are characterized by three elements: (1) a reference price for raw material, determined in the budget formulation and, based on conservative, medium-term projections; (2) a fund that accumulates resources during booms and pays out during adverse periods; and (3) operating rules that establish a relation between price fluctuations and contributions to or withdrawals from the fund.

Instead of setting up a stabilization fund, governments can borrow or run down assets when the international price goes against them. The problem is that when the country most needs funding it is less likely to be able to obtain it. Also, many countries do not have significant foreign assets to dispose of. Furthermore it is politically difficult to generate a sufficient surplus to repay the debt when the situation is reversed, leading to solvency problems.

To hedge against commodity price volatility, policy makers can consider the use of commodity derivatives. This has several advantages: commodity derivatives reduce uncertainty about future revenues, they rely on market prices rather than administrative prices, they shift the risk outside the country and they reduce the cost of commodity financing, thus increasing the creditworthiness of the commodity producer. However a disadvantage is that they will not prevent a persistent deterioration of or sudden spikes in commodity prices.[6] They typically mitigate the short-term effects on output of adverse price movements,[7] but as they concentrate on the short-term they are unable to match the long production horizon of some commodities.

In theory, if price shocks are of a permanent nature it is be better to adjust rather than to use compensatory financing. However the question is how quickly to adjust to the new price conditions in order to minimize domestic adjustment costs with an incomplete derivatives market.

Let us provide a formal framework to analyze a price stabilization scheme for consumption purposes.[8] Suppose the government wishes to minimize the cost of expected, E, quadratic deviations of the domestic price from the international price, $(p_t - p_t^*)^2$.[9] The government is against the quick adjustment of domestic prices over time $(p_t - p_{t-1})^2$, so it negatively weights quadratic deviations of the current domestic prices from past domestic prices. As is well documented in the literature, if international prices follow a random walk process, a stabilization scheme will be neither feasible nor sustainable without explicit fiscal support.[10] If the government is concerned about adjustment costs, there is a smoothing role for prices even if the shock is of a permanent nature. If the government does attach a negative weight to the quick adjustment of domestic prices it is better to introduce a formal stabilization scheme, such as a formal price band with rules rather than an implicit band with no rules.

The government's optimization problem is to minimize the following cost function:

$$\text{Min } aE(p_t - p_t^*)^2 + bE(p_t - p_{t-1})^2 \tag{14.3}$$

subject to the random walk process followed by international prices:

$$p_t^* = p_{t-1}^* + u_t \tag{14.4}$$

The optimal stabilization policy will lead to the smoothing of internal prices based on the following rule:

$$p_t = b/(b + a)p_{t-1} + a/(b + a)p_{t-1}^* \tag{14.5}$$

Intuitively, the higher the cost attached to the adjustment of domestic prices over time (b) and the lower the weight given to deviations of the local price with respect to international prices (a), the more gradual the optimal process of adjustment for internal prices will be to new international conditions.

During external booms, monetary sterilization must be performed through the generation of a fiscal surplus. In the presence of a commodity stabilization fund, a higher (lower) commodity export price is automatically transformed into a higher (lower) fiscal surplus by the rules of accumulation (depletion) of the fund. Under such conditions the adjustment effort does not rely on higher taxation or lower public expenditure.

If the ownership of a commodity export is public (foreign), then a stabilization fund (FDI financing) will stabilize the economy through an adequate response by public savings (profit repatriation). In the case of mining, projects typically mature in several years. The associated debt for project finance has

to pay interest periodically, while amortization typically takes place after constructing the plant. If there is an excess of cash flow generation, the last instalment of the loan is prepaid, while the opposite occurs under a deficit.[11]

To deal with shocks that trigger external crises, contingent policies based on simple, easily verifiable rules, and a function of variables not directly controlled by the authorities can be of help.[12] The first step is to identify a small set of shocks that capture a large share of triggering factors. For example positive indexation to the terms of trade and inverse indexation to an indicator of tightness in international financial markets such as the EMBI spread would probably suffice as indexation mechanisms for interest payments on public and external debt, or for public expenses that are less costly and inefficient to stop. Indexation to the price of a commodity avoids manipulation and moral hazard problems, due to its exogenous nature. Several firms have experimented with commodity-indexed bonds, but most seem to hedge commodity price volatility using the options markets.

With respect to contingent public debt management, private sector investment with public sector insurance represents a strictly procyclical fiscal policy, as guarantees are freely given during booms, when the private sector invests, and fall due during downturns. The general policy prescription would instead suggest establishing an explicit public sector fund financed by an insurance premium charged to the private sector, which is essential in countercyclical policies today. It is important to recognize that unemployment insurance, public works guarantees, deposit insurance and minimum pension guarantees should be explicit, limited and financed by taxes or premium charges.

Ex ante funding has a relative advantage and *ex post* financing a relative disadvantage in smoothing cash flows along the path to improved stabilization. Flat rate premiums are more appropriate than risk adjusted premiums for smoothing and stabilizing in the course of the cycle, as risk tends to be low during booms and high during downturns.

In a small open economy fiscal policy has to play a countercyclical role when external shocks occur. When capital inflows are a private sector phenomenon the fiscal accounts may not be strengthened enough, thus requiring an increase in taxes or a reduction in public expenditure. In combination with tight monetary policy and restrictive fiscal policy, measures devoted to limiting capital surges may be considered. When the accumulation of international reserves is attributable to an export boom, it is difficult to question that the higher generation of saving should be an effort made by the sector that directly benefits from it. If the external surplus has its origin in the private sector, it is more difficult to distribute the savings equitably.[13]

The use of a temporary restrictive fiscal policy may be of help when there are surges in capital inflows. Although such a policy would not stop the inflows, it could contain the inflationary impact and reduce aggregate

demand.[14] As the need to issue public debt is reduced, it is also possible that a restrictive policy may help to lower domestic interest rates. If tax changes are transitory and there are borrowing constraints, an increase in taxes may be effective in controlling absorption.

As corporate taxes, progressive income taxes, value added taxes and customs duty revenues normally have an output elasticity of greater than one, strong capital inflows will help finance growth in absorption above GDP, leading to an increase in tax collection. Following a structural surplus rule, the government should save more and obtain a higher effective surplus.[15] However would that be enough? Probably not. Therefore in addition to the automatic stabilizers, policy makers might consider measures to increase VAT, payroll taxes or contributions to the pension fund or the unemployment insurance fund. This would better distribute the burden of monetary and fiscal policy to contain absorption.

If strong capital inflows generate an absorption that exceeds potential GDP, a contractionary demand policy will be required. If the central bank applies a restrictive monetary policy, then quasifiscal losses and further capital inflows will take place. To avoid such a vicious circle, it may be more desirable to apply a contractionary fiscal policy. Conversely, when massive capital outflows take place and the economy is overheated, both contractionary fiscal and monetary policies may be needed.

Public sector and the level of activity: theory and empirical evidence

Under Keynesian unemployment and the need to reduce the fiscal deficit and public debt, fiscal adjustment measures will depress the economy. A public deficit under these conditions expands the level of activity.

Under the neoclassical full employment model, the repercussions of fiscal policy depend on the nature of the fiscal adjustment. Tax increases that lead to distortions in market prices or an increase in current expenditures that are expected to be financed by future taxes will have a contractionary effect on the level of economic activity. Reductions in both expenditure and tax tend to increase the level of economic activity. A credible cut in expenditure will prompt expectations of reduced taxes, producing positive supply-side effects that will increase GDP in the short-term. Supply-side models assume that fiscal adjustment is expansionary if it is based on expenditure reductions, but contractionary if taxes are raised.[16]

Other models describe macroeconomic behaviour according to the level of public debt. When the stock of public debt approaches default level, an increase in the deficit significantly raises the probability of insolvency and of higher interest rates, leading to reduced domestic activity.[17]

In the Latin American context, Gavin *et al.* (1996) have found that the volatility of macroeconomic outcomes is greatly augmented by the highly procyclical fiscal responses in the region. Procyclical fiscal responses are most pronounced during recessions and they stem from the fact that access to international capital markets often vanishes in the face of adverse shocks, forcing a fiscal contraction in an already weakened economy. Thus policy must be concerned with ensuring fiscal sustainability and solvency. But the weak relationship with international capital markets is due to the volatility of the macroeconomic environment in Latin America, and creates the need for large fiscal adjustments that can be politically unfeasible, thus reducing creditworthiness and prompting investors to exit from the region at the first sign of trouble.[18]

According to Gavin *et al.*, deficits in Latin America *vis-à-vis* the domestic financial system (or taxes) are three times larger than in the OECD countries. Furthermore the tax base in Latin America is highly volatile and procyclical. Latin America relies extensively on non-tax, indirect taxation and trade taxes.

With regard to spending patterns, Gavin *et al.* note that Latin America spends a higher proportion on interest payments, capital expenditure and wages, and less on non-interest transfers than do OECD countries. Moreover Latin America exhibits less flexibility in times of crisis as interest payments on debt tend to increase. Furthermore Latin America pays higher and more variable country risk premiums than the OECD countries.

The ratio of fiscal deficit to GDP in Latin America is twice as volatile as in the OECD countries (ibid.) Fiscal deficit with respect to the financial system is five to ten times more volatile than in the OECD. When GDP increases, the surplus in OECD countries increases, but in the Latin American region they tend to remain stable or fall. Tax revenues are also more sensitive in Latin America than in the OECD. This implies that public spending in Latin America is highly procyclical and fiscal outcomes are particularly contractionary during recessions.

International capital flows to Latin America often disappear just when they are needed to finance a countercyclical fiscal policy. Given the region's precarious access to international financial markets, procyclical fiscal measures are the best tools available to the fiscal authorities. Precarious creditworthiness is rooted in weak fiscal structures in a volatile macro environment.

Talvi and Vegh (2000) provide a political explanation of the puzzling behaviour of fiscal policy in developing countries. Starting from the observation that fluctuations in the tax base are much larger in developing countries than in the G7 countries, full tax smoothing would imply running large budgetary surpluses in good times and large budgetary deficits in bad times. However, due to political constraints it may be impossible to run large budgetary surpluses when times are good. If a government is unable

to generate large enough surpluses during expansions it is forced to borrow less during recessions in order to satisfy the solvency constraint.

The pattern of procyclical fiscal deficits in Latin America has been interpreted as arising from suboptimal policies, and probably from the financial constraints faced by the governments concerned. However according to Caballero (2000, 2001), when external financial shocks are an important cause of fluctuations, the economic authorities should optimally distribute their scarce international resources among domestic agents in order to smooth the differences in financial distress.

Although in principle it may be possible to follow a countercyclical taxation and/or fiscal spending policy that could completely eliminate the variance in GDP growth, the possibility of achieving such a degree of flexibility seems unrealistic. Tax-smoothing considerations, the difficulty of adjusting and controlling wages, the need to make expenditures required by law and the time needed to build public works may reduce the authorities' ability to exercise the required degree of flexibility for countercyclical purposes. A stop–go process in investment is likely to generate waste, and therefore a more stable spending pattern may improve matters.

The experience of Chile

The role played by fiscal policy in Chile has been extensively analyzed and debated. Its interpretation is not easy, since although an average surplus of 1.9 per cent of GDP was maintained in 1990–97, public spending grew strongly at 6.5 per cent. Increased public spending on health, education and other social provisions was financed through increased taxes and revenues linked to the country's strong economic growth, and contributed to a further expansion of aggregate demand.

The key developments in Chile's fiscal policy in the past 15 years have been the maintenance of a fiscal surplus between 1985 and 1998, and the creation of a copper stabilization fund in 1985 and a petroleum stabilization fund in 1991. The purpose of the copper stabilization fund is to stabilize public expenditure, while the petroleum fund is intended to smooth the volatility of international prices on the adjustment path of domestic oil prices. In the case of the copper stabilization fund, at the beginning of each year the budget office sets a reference price, and withdrawals and deposits are made quarterly as a step function of actual and reference prices. The finance minister decides the amount and the timing of withdrawals for two precise purposes: to complement income when the effective price is significantly below the budget projections, or to prepay debt during booms.

Chile has also exhibited partial flexibility in respect of VAT in the recent past, as in 1996 the government was allowed by law to set the VAT rate

between 16 per cent and 18 per cent. In the event the authorities decided to increase VAT from 17 per cent to 18 per cent to help finance the education reforms.[19]

Ffrench-Davis and Tapia (2001) argue that fiscal policy in the period 1990–95 was very prudent. The increases in social expenditure were financed with new tax revenues and fiscal policy strictly followed the accumulation or depletion rules of the copper stabilization fund.

With regard to fiscal responsibility for the excess aggregate demand that took place in 1996–97, fiscal expenditure (7.9 per cent) rose more than GDP growth (7.4 per cent). However the fiscal sector in Chile only accounted for 20 per cent of the economy and therefore the main impulse for aggregate demand growth (8.5 per cent) must have come from the private sector. The eventual fiscal contribution was clearly insufficient. The fiscal budget was showing a surplus and the government not only rejected new loans from the World Bank and the IDB but also prepaid debt. The effective fiscal surplus was even higher as the copper stabilization fund was accumulating resources at the time.

In 1999 Chile ran a fiscal deficit for the first time since 1985. At the end of 1999 the country's macroeconomic policies shifted towards more rules and a less discretionary framework, with monetary policy following an inflation target approach. The government that took power in March 2000 proposed to recover the fiscal surplus by establishing a structural budget surplus rule of 1 per cent, starting in 2001.

The fiscal policy rule allows the operation of automatic stabilizers in the budget and avoids the need for fine-tuning according to the phase of the economic cycle, leaving this role to monetary policy. While some expenditures and revenues depend on the evolution of the economy, an important proportion of expenses and revenues are not flexible because they represent legal commitments.

The new method of preparing the budget in Chile delivers indicators for identifying the stance of fiscal policy, avoids a procyclical bias in public finance, allows evaluation of the macroeconomic impact of fiscal policy, ensures the stability and continuity of fiscal policy and reinforces fiscal discipline.

In the construction of the structural balance indicator, the government has considered the existence of a strong revenue component originating in the production of copper that exhibits mean reversion in its price behaviour. The structural balance excludes the cyclical effect of GDP (the gap between effective and potential output) and random effects of the price of copper. The structural budget is not only explained by autonomous decisions of the government (discretion) but also reflects fluctuations in the fiscal balance that are due to factors other than the business cycle.

Taxes and copper revenues are believed to be cyclical; spending is assumed to be non-cyclical. The methodology adopted by Chile for defining the

structural budget surplus follows the OECD method, allowing for a tax revenue elasticity with respect to GDP that is different from unity:

$$\ln Tp_t - \ln Tp_{t-1} = 1{,}05 * (\ln Yp_t - \ln Yp_{t-1})$$
(permanent tax revenue increases) (14.6)

$$\ln T_t - \ln T_{t-1} = 1{,}05 * (\ln Y_t - \ln Y_{t-1})$$
(current tax revenue increases) (14.7)

$$\ln Rcu_t = \ln Pcu_t + \ln Qcu_t \quad \text{(current revenues from copper)} \tag{14.8}$$

$$\ln RScu_t = \ln Pcup_t + \ln Qcu_t \quad \text{(trend revenues from copper)} \tag{14.9}$$

There is a clear separation between the structural component and the cyclical component of the effective balance that allows the operation of automatic budgetary stabilizers.[20] Structural surpluses allow transitory fiscal deficits up to the desired levels and avoid the inefficient contraction of spending during recessions. They also avoid the overexpansion of expenditures using transitory windfall fiscal revenues.

This policy promotes saving, enables the financing of contingent liabilities, compensates the central bank deficit and saves financial resources for future generations who will not benefit directly from non-renewable resources such as copper. The new policy framework brings together greater responsibility and transparency in the administration of public resources.

Total Chilean public debt is relatively small, reaching 14.2 per cent of GDP in 2000. Contingent liabilities do not compromise the fiscal balance in the short term, although they may do so in the medium term. Contingent liabilities linked to minimum pensions are estimated at US$7.2 billion,[21] and the Chilean government proposes to put fiscal surpluses into a fund to finance future social security expenditure.

Fiscal policy proposals

As noted by Massad (1998), with increasing capital mobility a higher degree of flexibility in fiscal policy is required to keep public savings high in periods of strong capital inflows.

To reduce the procyclical behaviour of Chile's GDP, Budnevich and Le Fort (1997) suggest limiting the growth of public absorption (the relevant macroeconomic indicator) to potential output growth.[22] They point to the need for escape clauses, and consider it desirable to allow some flexibility in respect of public investment and emergency situations.

In the area of tax flexibility, Budnevich and Le Fort argue that VAT may be a useful tool because of its broad base, high revenue response, lower efficiency costs and redistributive character. It has several other advantages, such as its ability to help stabilize consumption, its quick collection response and the simplicity of its administration. VAT changes operate through adjustments

to disposable income as well as to relative prices. Among the costs of VAT flexibility are an increased menu of costs and greater short-term inflation instability, which tend to limit the potential use of such a mechanism.[23] An additional cost of using taxes as countercyclical devices is the uncertainty they generate.

Budnevich and Le Fort also argue that it may be useful to complement VAT flexibility with some income tax flexibility.[24] Moreover, given that the profit base has a much higher cyclical fluctuation than GDP, and given the progressive structure of personal income tax, both corporate and personal income tax constitute automatic stabilizers.

The creation of a stabilization fund would complement the countercyclical fiscal policy proposal, for the purpose of monitoring and accumulating the countercyclical responses of fiscal policy. The fund should accumulate (pay out) resources when additional (lower) revenues are obtained because of increases (reductions) in the VAT rate with respect to its long-term level. To ensure the transitory nature of such a policy, Budnevich and Le Fort propose floor and ceiling levels for the stabilization fund of 0 per cent and 8 per cent of GDP. If one of these limits were to be hit, a mechanism should be activated to increase or reduce taxes, as applicable.

In the Latin American context, Gavin *et al.* (1996) suggest that the fiscal budget should be consistent with a gradual movement towards the desired debt levels in the medium term. This means that fiscal surpluses should be accumulated and net public debt reduced during economic booms, and that the fiscal balance should be allowed to move into deficit during contractions. The authors note that it is hard to reverse public spending commitments and to change tax rates in response to changes in long-term fundamentals. Fiscal deficit and debt should adjust in response to transitory shocks. They propose as an operational fiscal target a cyclically adjusted fiscal deficit, taking into account differences between current and future expectations of the level of output, the level of domestic absorption, the terms of trade and the real exchange rate.

Meanwhile the Business Council of Australia (1999) has explored the possibility of re-engineering Australian institutions to increase the timeliness and effectiveness of fiscal policy. When there is a sharp and serious deterioration in national income, for example as a result of a sudden decline in the terms of trade, the most appropriate economic response would be a small and temporary nominal wage cut. If short-term wage flexibility is put in place before the occurrence of shocks, a capacity for rapid adjustments can be built into wage setting institutions, for example by allowing a portion of wages to be paid in the form of bonuses linked to profits.[25] Profits would be less volatile and booms and busts would be moderated, and the impact on labour costs and firms' incentive to hire and fire would be countercyclical.

Bonuses can have procyclical effect on employees' consumption. Empirically, however, countercyclical effects are dominant. While the

11. Project finance lending in mining is also stabilizing as debt payments accelerate or decelerate depending on cash flow behaviour, which basically reflects the price of the product sold. For more details see Budnevich *et al.* (2001).
12. See Caballero (2000, 2001) for more details.
13. In fact with a fiscal surplus it is possible to reduce the monetary base and interest rates by prepaying public external debt and reducing the demand for funding.
14. Our analysis of capital flows assumes no effect on the demand for money.
15. This only takes place if tax revenue expansions above GDP growth are cyclical.
16. See Frenkel and Razin (1989) for more details.
17. For models explaining such behaviour, see Bertola and Drazen (1993) and Sutherland (1995).
18. This effect is in addition to the typical key price misalignments and unsustainable accumulation of public debt.
19. In fact this tax rate flexibility was not used for countercyclical purposes.
20. To measure the structural budget an estimate of potential output is required. The first step is to estimate a Cobb–Douglas production function for the Chilean economy, and the second is to calculate potential output as the value of the production function evaluated at trend input levels.
21. Estimate by the Ministry of Finance.
22. Alternative ways of calculating potential output growth can be found in Morandé and Vergara (1997) and Ffrench-Davis (2001).
23. Budnevich and Le Fort (1997) propose a limited variation of VAT of ± 1 per cent.
24. According to simulation exercises conducted for Chile by Budnevich and Le Fort (1997), a hypothetical countercyclical fiscal policy could reduce the variance of GDP growth by 24 per cent. This reduction in the variance of GDP growth is due in 58 per cent to the stabilization of public absorption growth, while the rest correspond to the operation of countercyclical stabilizing taxes.
25. This practice is widespread in countries such as Japan, Taiwan and Korea.
26. A simulation conducted by the Business Council of Australia (1999) suggests that if a bonus system had been operating at the time of the last major recession there would have been a much more moderate fall in employment in Australia than in fact took place.
27. See Caballero (2000, 2001) for further details.
28. However inflationary bias does not affect underlying inflation, relevant for policy decisions.
29. On occasion, in addition to traditional macroeconomic management instruments, Singapore has used its compulsory savings vehicle, the Central Provident Fund, with some success.
30. Compulsory pension fund systems usually prohibit the use of accumulated funds as collateral for obtaining loans.

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15

Financial Regulation and Supervision in Emerging Markets: The Experience of Latin America since the Tequila Crisis

Barbara Stallings and Rogerio Studart

Introduction

The increasing integration of international financial markets poses new challenges to domestic financial markets everywhere, but especially those in emerging economies. The financial crises of 1994–95 and 1997–98 sounded wake-up calls to Latin America and East Asia, respectively, indicating that regulation and supervision needed to be strengthened substantially. Since then important steps have been taken to improve the rules and ensure their implementation, but financial regulation and supervision do not take place in a vacuum. On the one hand they must be consistent with domestic macroeconomic policies, and they need a supportive macroeconomic environment in which to operate – as the Argentine crisis that began in 2001 shows only too well. On the other hand they have to take into account the international rules set by the Bank for International Settlements (BIS), the International Monetary Fund (IMF) and other institutions.

The issue that links this chapter with the others in the UNU/WIDER project is that volatility – deriving from international capital flows as well as macroeconomic trends in individual countries – is a leading cause of financial crises. Problems in individual banks can set off chain reactions because of the direct links between banks, and because of the effects that bank collapses can have on borrowers' capacity to honour their commitments. This is the main rationale for the concept of systemic risk. Financial regulation is meant to mitigate systemic risk by imposing restrictions on the way in which banks finance their operations and allocate their portfolios. The aim is to ensure that they conduct adequate assessments of the risks implied in their activities, make provisions for expected losses and maintain enough capital to absorb unexpected losses.

There is a good deal of evidence that financial activity is highly procyclical. This problem goes beyond the usual asymmetric information problem and has to do with at least two processes. First, increasing confidence among individual investors tends to generate a self-fulfilling process of change in asset prices. As investors become more optimistic, they try to expand their holdings of such assets at a pace that is far more rapid than that of their supply. Booms in asset prices then tend to corroborate past expectations, leading to further optimism. Individual risk assessment thus changes with the state of collective enthusiasm. Second, banks are also procyclical, even though the chain of reaction is slightly different. Waves of optimism in the banking sector lead to an expansion of lending, which affects the level of aggregate demand and thus the income and cash flow of consumers and the productive sector. In times of expansion, real and financial asset prices increase, as does the value of collateral. Through these self-fulfilling processes, banks tend to increase their leverage and thus their vulnerability to changes in the variables that affect their risks: economic activity and level of employment (credit risk), borrowing interest rates (liquidity risk) and asset prices (market risk).

This chapter examines financial sector behaviour in Latin America, although many of the same problems and attempts at solutions can be found in other emerging economies.[1] It begins with a brief look at the structure of the financial sector as a whole, which has changed substantially over the last decade. Despite these changes, banks continue to dominate the sector and so the analysis focuses on them. In this context, the chapter turns next to the regulatory and supervisory systems for banks and to developments since the Mexican crisis in 1994–95. It also looks briefly at the new international guidelines being proposed by the BIS and the IMF to investigate whether they can help shelter the banking systems from the types of shock they have suffered in the recent past, or whether they are likely to create additional problems.

The chapter then looks at case studies of four of the most important countries in the region: Argentina, Brazil, Chile and Mexico. By examining the experiences of these countries we can gain a better idea of how the changes came about and the way in which individual country characteristics have affected the operation of the financial systems. These two sections provide evidence that bank regulation and supervision in Latin America have improved in recent years, but much remains to be done. The chapter concludes with a set of policy recommendations.

We are certainly not the first to discuss these topics, as over the past few years there has been an explosion of research on the financial sector in developing countries, including issues of regulation and supervision.[2] We draw on the theoretical and empirical dimensions of this literature where relevant, and bring it to bear on the issues under consideration in the UNU/WIDER research project.

The financial sector in Latin America in the 1990s

Liberalization, crisis and rescue: some stylized facts

The essential background for understanding current developments in the financial sector in Latin America is the financial liberalization process, both domestic and international, that took place in the 1980s and 1990s in most countries. Chile was an important exception in that both liberalization and crisis preceded those of its neighbours by at least a decade.

Moving from a system in which the authorities set interest rates, directed credit and held a large share of bank deposits as required reserves, governments freed commercial banks to make their own decisions on borrowers, loan volume and prices. At approximately the same time, capital account liberalization enabled local banks to engage in transactions in foreign currencies and allowed foreign institutions to enter local markets. Such changes were frequently made without there being an adequate regulatory and supervisory system in place, which compounded the problems for bankers who lacked sufficient experience in conducting credit analyses of local borrowers and were not conversant with the complexities of international financial markets.

The typical results were credit booms, mismatches between maturities and currencies, and eventually banking crises. As seen in the emblematic Chilean case (but also later in Mexico, East Asia and Argentina), errors by domestic actors provided the basis for such crises, and if this was combined with external shocks the situation became far more serious (see Held and Jiménez, 2001). Government rescues tended to follow a standard procedure. In the first instance they involved the takeover of non-performing loans, the recapitalization of banks and liquidations and mergers, usually involving foreign institutions. Later, in an attempt to prevent future crises, regulation and supervision were stepped up, greater information and transparency were required and deposit insurance was sometimes put in place.[3] In the process the characteristics of the sector changed significantly.

Characteristics of the new financial sector

The financial sectors in Latin American countries remain bank-based, but they have undergone a number of important changes in recent years. First, the size and depth of the financial sector increased in most countries during the 1990s. In part this was the result of the dramatic decline in inflation throughout the region, such that in most countries prices rose at single-digit rates compared with the three- or four-digit rates often found in the 1980s. Thus individuals, households and firms became more willing to hold money and other financial assets, providing the necessary prerequisite for the development of robust financial systems. Better institutions complemented the behaviour of individual agents.[4] Table 15.1 gives an idea of the extent of the trend towards financial deepening, using M2 as a share of GDP as

Table 15.1 Money supply (M2) as share of GDP, 1992–2000 (per cent)

	1992	*1994*	*1996*	*1998*	*2000*
Latin America					
Argentina	14	21	23	29	32
Brazil	n.a.	n.a.	28	31	29
Chile	38	37	43	46	50
Colombia	20	20	20	24	26
Costa Rica	32	32	33	33	35*
Mexico	29	28	26	28	21
Asia					
Republic of Korea	39	41	43	58	80
Malaysia	72	80	92	95	103
Philippines	36	47	56	61	62
Thailand	75	78	81	103	106

* Figure for 1999.
Source: Based on IMF international financial statistics.

an indicator. It shows an increase for four of the six Latin American countries during the decade; the prominent exception was Mexico. The biggest increase was in Argentina, although Chile had the highest levels. The table also shows data for four Asian countries. The interregional contrast is striking in two senses: not only were the levels higher in every case in Asia, but the rate of increase was also higher.

Second, the existing banks were allowed to engage in new activities, resulting in the formation of so-called universal banks. In general this was the result of the deregulation of banking activities, which led to bank operations expanding into securities trading and insurance and increased their real estate activities. Deregulation also enabled banks to own non-financial firms. This trend moved in tandem with events in mature economies,[5] but unlike some of the latter, the securities markets in emerging economies were still very underdeveloped and shallow. Therefore most bank portfolio diversification was into short-term securities, insurance and real estate activities.

Third, foreign institutions became increasingly significant actors in the financial sector. Their greater role was part of the liberalization process, as new sectors were opened to foreign participation. Three vehicles were used by foreign banks and financial service firms to enter developing-country markets: privatizations, mergers and acquisitions, and greenfield investment. Consequently, as can be seen in Table 15.2, foreign assets as a share of total assets rose substantially in all seven Latin American countries for which data is available (Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela); the increase for Mexico would be much greater if the recent

Table 15.2 Foreign bank assets as share of total bank assets, 1994–2000 (per cent)

	1994	*1999*	*2000*
Latin America			
Argentina	17.9	48.6	49
Brazil	8.4	16.8	23
Chile	16.3	53.6	54
Colombia	6.2	17.8	26
Mexico	1.0	18.8	24
Peru	6.7	33.4	40
Venezuela	0.3	41.9	42
Central Europe			
Czech Republic	5.8	49.3	66
Hungary	19.8	56.6	62
Poland	2.1	52.8	70
Turkey	2.7	1.7	n.a.
Asia			
Korea	0.8	4.3	3
Malaysia	6.8	11.5	18
Thailand	0.5	5.6	12

Sources: IMF (2000: 153) for 1994 and 1999; BIS (2001: 25) for 2000.

sale of the country's second largest bank were included in the table. It is interesting to note that there were similar trends in Eastern Europe but not in Asia.[6]

Fourth, there was a decrease in the number of banks – especially in Latin America and Asia – as a result of the mergers and acquisitions just mentioned, including privatizations (Table 15.3). What is somewhat surprising is that this process did not result in a significant increase in concentration. Indeed in Asia and Eastern Europe there appears to have been a decrease in concentration. In Latin America the share of the largest ten banks rose, but not by a large amount. This implies that the institutions that disappeared from the market were the smallest ones.

Fifth, there was some expansion of capital markets. This development had several causes: the increase in portfolio flows to the region until 1998; the privatization of social security and the deregulation of private institutional investors, which led to an increase of investments in securities; and the virtuous circle created by the process of stabilization and securities market expansion in some economies in the region. Table 15.4 shows one indicator of this trend: the volume of debt securities issued in domestic markets (both in absolute amounts and as a share of the world total) between 1989 and 2000. While this indicates that such issues in Latin America expanded rapidly during the period, more than doubling between 1992 and 2000, the vast

Table 15.3 Indicators of concentration in the banking sector, 1994 and 2000 (share in total deposits)

	1994				*2000*			
	Number of banks	*Largest 3 banks*	*Largest 10 banks*	*HH Index*	*Number of banks*	*Largest 3 banks*	*Largest 10 banks*	*HH Index*
Latin America								
Argentina	206	39.1	73.1	756.9	113	39.8	80.7	865.7
Brazil	245	49.9	78.8	1 220.9	193	55.2	85.6	1 278.6
Chile	37	39.5	79.1	830.4	29	39.5	82.0	857.9
Mexico	36	48.3	80.8	1 005.4	23	56.3	94.5	1 360.5
Venezuela	43	43.9	78.6	979.2	42	46.7	75.7	923.1
Asia								
Republic of Korea	30	52.8	86.9	1 263.6	13	43.5	77.7	899.7
Malaysia	25	44.7	78.3	918.9	10	43.4	82.2	1 005.1
Philippines	41	39.0	80.3	819.7	27	39.6	73.3	789.9
Thailand	15	47.5	83.5	1 031.7	13	41.7	79.4	854.4
Central Europe								
Czech Republic	55	72.0	97.0	2 101.5	42	69.7	90.3	1 757.8
Hungary	40	57.9	84.7	1 578.8	39	51.5	80.7	1 241.8
Poland	82	52.8	86.7	1 263.6	77	43.5	77.7	899.7
Turkey	72	40.7	79.1	957.2	79	35.9	72.0	710.2

Source: IMF (2001: 11).

Table 15.4 Outstanding amounts of debt securities issued in domestic markets, 1989–2000 (US$ billion and per cent)

	US$ billion				*Percentage of total*			
	1989	*1992*	*1997*	*2000*	*1989*	*1992*	*1997*	*2000*
All issuers	14 149.7	18 713.2	25 572.7	29 951.3	100.0	100.0	100.0	100.0
OECD (excl. Mexico)	13 790.0	18 231.8	24 631.3	28 852.9	97.5	97.4	96.3	96.3
France	605.8	956.3	1 102.5	1 068.1	4.3	5.1	4.3	3.6
Germany	729.4	1 260.2	1 732.1	1 688.9	5.2	6.7	6.8	5.6
Japan	2 558.5	3 355.5	4 399.3	6 088.8	18.1	17.9	17.2	20.3
United States	6 682.2	8 546.5	12 071.7	14 571.6	47.2	45.7	47.2	48.7
Latin America	101.2	190.5	448.7	446.3	0.7	1.0	1.8	1.5
Argentina	44.7	15.5	27.3	38.5	0.3	0.1	0.1	0.1
Brazil	n.a.	111.0	344.5	297.0	n.a.	0.6	1.3	1.0
Chile	7.0	17.4	36.5	34.9	0.0	0.1	0.1	0.1
Mexico	49.5	46.6	38.5	72.3	0.3	0.2	0.2	0.2
Peru	n.a.	n.a.	1.9	3.6	n.a.	n.a.	0.0	0.0

Source: Based on BIS data (www.bis.org/publ/qcsv0203/anx16a.csv).

majority of the increase was due to a single country – Brazil. Moreover the region's share of total issues remained minuscule.

All these trends have implications for regulation and supervision. The risks associated with the increasing strength of financial crises, a greater mix of activities, the increasing operational complexity of the activities undertaken by banks and a bigger foreign presence can all complicate the tasks of regulators and supervisors. A particular danger in recent years has been the increased occurrence of 'twin crises': simultaneous crises in the banking and foreign exchange markets. As Kaminsky and Reinhart (1999) argue, when two crises take place simultaneously they are far more severe than when they occur in isolation.

As a consequence of these new challenges, regulators and supervisors must be better trained, and in some cases they will need greater support from their governments. At the same time the new circumstances may also offer advantages if the banks see it as being in their collective interest to improve their image and if foreign supervisory institutions provide useful support. Insofar as the local financial sector becomes more sophisticated, there will also be a need for coordination among the regulators of the various components.

Regulation and supervision: the state of the art

Drawing on an important new database created by the World Bank,[7] we can sketch out the current situation with respect to the regulation and supervision of the banking sector in many Latin American countries at the end of the 1990s.

Table 15.5 provides a set of indicators on banking regulation in seven Latin American countries, plus the United States as a benchmark. The most widely known indicator is the minimum capital–asset ratio requirement, currently set at 8 per cent by the BIS through the Basel I agreement. While the United States sets its minimum at the 8 per cent level, as do Chile and Mexico, the other Latin American countries have higher ratios, with Brazil and Argentina at the top of the list with 11 per cent and 11.5 per cent respectively. A similar situation is found with the actual risk-adjusted ratio. With the exception of Bolivia, all Latin American countries maintain higher ratios than the 12 per cent found in the United States. Again, Argentina and Brazil have the highest ratios.[8]

Several other indexes are presented in Table 15.5. The capital stringency index includes adherence to the BIS guidelines, but also various measures of the degree to which leverage potential is limited (for precise definitions see Barth *et al.*, 2001a). With a range from 1 to 6, where 6 is the most stringent and the US benchmark is at 4, only Argentina among the Latin American countries has a score of 6, followed by Bolivia and Peru; Venezuela is last with a score of 2. The capital regulation index combines the previous index with one measuring the type of assets that can count toward the

Table 15.5 Bank regulation: selected indicators

	Argentina	*Brazil*	*Bolivia*	*Chile*	*Mexico*	*Peru*	*Venezuela*	*US*
Minimum capital–asset ratio requirement (%)	11.5	11.0	10.0	8.0	8.0	9.1	10.0	8.0
Actual risk-adjusted capital ratio (%)	16.4	15.8	11.4	12.3	13.0	12.7	14.0	12.0
Capital stringency index	6.0	3.0	5.0	3.0	4.0	5.0	2.0	4.0
Capital regulation index	8.0	6.0	8.0	5.0	7.0	6.0	2.0	6.0
Overall bank activities and ownership restrictiveness index	1.8	2.5	3.0	2.8	3.0	2.0	2.5	3.0

Source: Barth *et al.* (2001a).

capital–asset ratio, with a range of 1 to 9. On this indicator Argentina and Bolivia have the highest degree of stringency, followed by Mexico, with Venezuela again at the rear. The activities and ownership index deals with the types of activity that banks can engage in and restrictions on who can own a bank. This qualitative index ranges from 1 to 4, with the United States at 3. Unlike other indicators, Argentina allows the greatest freedom to banks, while Mexico and Bolivia are the most restrictive.

It is clear from the data in Table 15.5 that regulation has many dimensions, with some countries being stricter on some than on others. Nonetheless there is some indication of a cross-country pattern. To measure this we constructed a summary index (the overall regulation index, ORI) by dividing the values in each row of Table 15.5 by the average of that row and then summing them up by country. Figure 15.1 presents the result of these calculations.

The figure shows that regulation is strictest in Argentina, followed by Bolivia; Venezuela is the least restrictive. Nonetheless it is important to note that the United States has a lower level of restrictions than do many Latin American countries. Likewise Chile, which is commonly regarded as having the best regulatory and supervisory system in Latin America (Held and Jiménez, 2001), does not rank highly on the overall index. It could be hypothesized that an inverted U-shaped relationship is involved, whereby banks become more self-regulating after some level of development (and/or some minimal level of experience) is attained. Thus lower scores do not necessarily indicate poor regulation and supervision. On the contrary they may indicate that a country has advanced to the point where it can allow

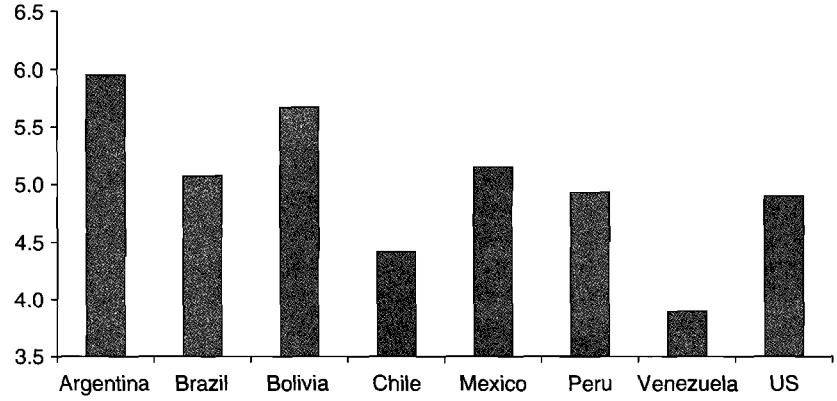

Figure 15.1 Overall regulation index (ORI)
Source: Based on Table 15.5; see text for methodology.

individual financial institutions a little more autonomy with respect to regulation, or for market-based regulation to play a larger role. At the same time it is clear that very strong macroeconomic shocks can undermine even the highest scores and lead to banking crises, as the Argentine situation in 2001–2 shows.

Table 15.6 uses the same data to examine trends in bank supervision. While more attention is typically devoted to the matter of regulation, the best regulations are of little use if they are not enforced. The number of professional supervisors per bank varies widely, from 0.1 in the United States to 11.5 in Mexico, but there seems to be only a very weak relationship between the number of supervisors and their attributes, as measured by the official supervisory index.[9] The latter indicator is the sum of 16 measures of supervisory power to deal with abnormal situations and the degree of discretion supervisors have in such circumstances. The less the discretion and the greater the power, the higher the index. With the United States at 14, only Brazil has a higher ranking, while Bolivia and Mexico have the lowest. A subset of the 16 items on the supervisory power index is found in the index of forbearance discretion. Argentinean supervisors have the least discretion, while Chilean and Venezuelan supervisors have the most; the United States is in the middle.

The last two items in Table 15.6 deal with what the World Bank calls 'private monitoring'. The index on this factor measures whether an external audit is required, the percentage of the ten largest banks that are rated by international rating agencies, the degree of accounting disclosure and director liability, and the lack of an explicit deposit insurance scheme. On a scale of 1 to 8, the United States, Argentina, Chile and Peru score 8, while

Table 15.6 Bank supervision: selected indicators

	Argentina	*Brazil*	*Bolivia*	*Chile*	*Mexico*	*Peru*	*Venezuela*	*US*
Professional bank supervisors per institution	2.4	4.0	6.0	3.0	11.5	3.6	1.0	0.1
Official supervisory index	12.0	15.0	11.0	13.0	10.	14.0	14.0	14.0
Prompt corrective action index	n.a.	6.0	n.a.	3.0	3.0	4.0	5.0	5.0
Restructuring power index	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Declaring insolvent power index	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Forbearance discretion index	3.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Supervisor tenure index	6.2	15.0	6.0	n.a.	n.a.	13.5	n.a.	7.0
Likelihood that supervisor will move into banking index	3.0	2.0	3.0	3.0	1.0	3.0	3.0	1.0
Percentage of top ten banks rated by international credit rating agencies	100.0	100.0	20.0	50.0	n.a.	50.0	40.0	100.0
Private monitoring index	8.0	8.0	7.0	8.0	6.0	8.0	6.0	8.0

Source: Barth *et al.* (2001a).

Mexico and Venezuela are lowest at 6. The percentage of top banks rated by international agencies is 100 per cent for the United States, Argentina and Brazil, and 20–50 per cent for the other countries in our sample.

To obtain a summary view of supervision in each economy we created an overall supervision index (OSI), following the same methodology used to construct the ORI. Figure 15.2 shows the OSI values for the countries in our sample. Argentina, Brazil and Mexico have the highest ratings (the strictest supervisory standards), with Venezuela at the low end, along with Bolivia (which paradoxically has a comparatively high ORI). As with the overall index on regulation, the United States and Chile rank lower than the Latin American countries with the highest scores, again suggesting the inverted-U interpretation.

The data presented in Tables 15.5 and 15.6 and in Figures 15.1 and 15.2 have several problems: they represent only a single point in time, they are

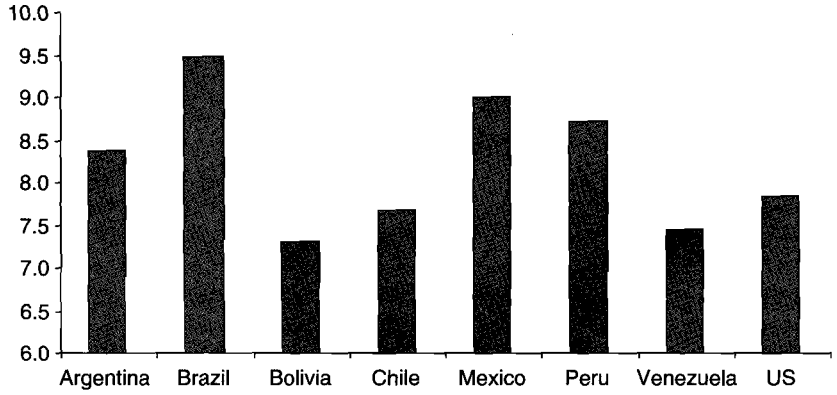

Figure 15.2 Overall supervision index (OSI)
Source: Based on Table 15.6; see text for methodology.

overview measures that summarize a large amount of information in a single number, and they give a somewhat mechanical impression of a very complex problem. To obtain a better idea of some of the details as well as the changes in the regulatory and supervisory systems in recent years, we have to turn to other studies of the region. We shall consider two such studies before turning to our own country analysis.

In one of the most important studies, Aguirre (2000) stresses that significant changes had been made in banking legislation in almost all of the 17 countries he surveyed. In general, these changes were made in response to crises or serious problems in the countries' banking systems. He identifies the key changes as less public-sector ownership, greater foreign participation, broader scope for banking activities and improvements in the supervisory and regulatory authority. With respect to the latter, he focuses mainly on institutional factors, such as the agency that performs the supervision and the scope of the mandate of such institutions (only banking, or also insurance and securities activities). He found a wide difference across countries, but admits that the literature is not conclusive on the relative merits of different systems.

The second study, by Livacic and Sáez (2000), focuses specifically on supervision. Again noting the improvements during the 1990s, the authors emphasize the gap between the rules on the books and the ability of supervisors to enforce them. Examples include loans to 'related' clients and the treatment of overdue loans. They suggest various remedies, including the provision of more resources (financial and human) and greater autonomy for supervisors.

Basel II and the IMF financial sector assessment programmes

Most of the changes in bank regulation and supervision in Latin America have been made in response to events in individual countries or, to some extent, in the region more broadly (especially the Mexican crisis of 1994–95). Nonetheless developments at the international level have also played a part. In particular the BIS and the Basel Committee on Banking Supervision have been influential in putting these issues onto the agenda and homogenizing the standards in developed and developing countries. At the moment, however, the international standards themselves are in a state of flux and the proposed changes pose new challenges to developing country institutions.

The Basel Capital Adequacy Accord (Basel I), introduced in 1988, was a milestone in banking regulation. The 8 per cent minimum capital requirement for internationally active banks, which was adopted by over 100 countries (including most in Latin America), clearly contributed to financial stability. Nonetheless the criticism began to be voiced that the approach was too rigid and simplistic and that it did not correspond to actual levels of risk. Developing countries were especially concerned that the rules provided incentives for short-term rather than long-term lending.

Basel II was meant to correct the problems identified by introducing more complex alternatives for determining risk, including the use of models developed by individual banks. Experts studying the potential impact on developing countries feared that the new approach could have a negative impact on those economies in two ways. First, the new risk categories were likely to lead to a significant decline in lending to developing countries or greatly increase the cost. Second, the new system would be inherently procyclical, increasing the frequency of crises that have an especially negative impact on the developing world. Partly because of these criticisms, the implementation of Basel II was postponed to allow further study (for further details see Chapter 10).

In a parallel initiative the IMF and World Bank introduced some 60 standards and codes (ROSCs) to increase financial stability by offering policy benchmarks. These have been incorporated into the IMF's surveillance of member countries' economies through the financial sector assessment programmes. While agreeing that the measures could be helpful, developing-country representatives have complained that they had no say in determining the standards and that implementing all of them would be an extremely expensive undertaking. At the same time they fear that not being able (or willing) to comply would further reduce their chance of obtaining finance. (For a discussion of the codes and standards from a developing country perspective see *IMF Survey*, 2 April 2001.)

National responses to recent financial crises

Financial structure and changes before the Tequila crisis

Moving beyond regional trends, a consideration of individual country cases can deepen our understanding of the reform process as well as the problems that remain. The four countries that have been selected – Argentina, Brazil, Chile and Mexico – have much in common but also important differences in timing, operational characteristics and the macroeconomic environment in which the financial sector operates.

All four economies went through a process of financial liberalization at some point between the 1970s and the 1990s, which resulted in changes in the way banks operated and eventually in banking crises. Chile was the first to embark on the liberalization process, beginning shortly after the military coup in 1973. Changes included the freeing of interest rates, eliminating directed credit, reducing the reserve requirements and relaxing regulation and supervision more generally. As in the other three cases it was followed by a rapid increase in lending and then a banking crisis in 1981–84. The crisis forced the authorities to take immediate action, and they restructured the banking sector by intervening in 21 private financial institutions, including the two largest banks in the country. Later 14 of these institutions were liquidated and the rest were rehabilitated and privatized again.

Soon after the crisis, policy makers introduced changes in regulation and supervision that drew on the lessons learnt from the previous experience. The crisis thus led to a modern system of prudential regulation and increased supervisory capacity by the state. A new banking law was promulgated in 1986, encompassing a lower debt-to-capital ratio, reserve requirements according to banks' leverage position, mandatory information disclosure to the public, a partial public guarantee of deposits, restrictions on loans to 'related' clients, and a strict separation between the core business of banks and their subsidiaries. After the introduction of the restrictions, external financial liberalization was implemented gradually. Firms were initially allowed to issue bonds and shares in external markets, and subsequently institutional investors (banks, pension fund managers and insurance companies) were permitted to hold external assets and capital controls were gradually eased. Further changes in 1997 included adoption of the Basel Committee's 8 per cent rule (for more details see Budnevich, 2000; Held and Jiménez, 2001).

The other three countries began the liberalization process a decade or more later as part of a broader economic reform package that was typical of the region (see Stallings and Peres, 2000). The measures introduced were similar to those in Chile in the 1970s, but each country's measures had individual characteristics that distinguished its package from the others.

After a long period of recovering from the 1982 debt crisis, Mexico embarked on an ambitious financial liberalization process in 1988: interest rates were freed, the liquidity requirements were eliminated, credit allocation directives were abolished and the previously nationalized banks were reprivatised. The response of the banking system was almost immediate. There was a rapid growth of lending (around 30 per cent per year in real terms from 1989–94), and the share of loans to the private sector rose from 10 per cent to 40 per cent of GDP (Yacamán, 2001). But as admitted by most analysts, the first years of privatization were characterized by 'reckless – sometimes fraudulent – lending' (EIU, 2001: 7) due to poor regulation and supervision, weak credit-analysis procedures and lack of internal controls. As lending outpaced deposits, banks put themselves in a dangerous position by funding their shortfall through interbank borrowing, mainly from foreign banks. As a consequence non-performing loans increased from around 2 per cent of total loans in 1990 to 9 per cent in 1994, prior to the peso crisis (McQuerry, 1999).

In addition to these micro-level problems, macroeconomic policies also contributed to the build-up of the financial crisis. The use of an exchange rate anchor to control inflation led to overvaluation of the peso, large current account deficits and strong capital inflows. In the short run these flows stimulated growth of credit, but when they were reversed they set the stage for a twin crisis, as discussed earlier.

Argentina's financial liberalization, which began in the early 1990s,[10] had some of the characteristics of that of Mexico. In particular liberalization – which lifted most of the controls on the domestic and foreign operations of the domestic financial system that had been imposed during the period of high inflation and external constraints – took place at the same time as an exchange-rate-based stabilization programme (the *Plan de Convertibilidad*). The international situation in the early 1990s, which was marked by rising liquidity, declining international interest rates and increased access to the financial markets of industrial countries, led to a surge of optimism in the Argentinean markets. Simultaneously price stability and a fixed exchange rate regime abruptly reduced both inflation and exchange rate risk. These factors created fertile ground for the rapid growth of financial activity, but also led to maturity and exchange rate mismatches.

The Argentinean financial sector enjoyed an impressive recovery until 1994: deposits and loans grew rapidly, while peso and dollar lending rates fell significantly, although they remained very high in comparison with those in most developed economies and a significant number of developing economies. These improvements were the result of several important events. First, a process of monetization – which normally follows price stability – led to the rapid growth of deposits in the banking sector. Second, there was an increase of foreign capital inflows, which raised confidence in the Convertibility Plan, and increased banks' propensity to make dollar-denominated

loans and borrowers' willingness to borrow in dollars, thus leading to the rapid dollarization of both liabilities and assets in the banking sector. Third, the increased competition among banks and the improvement of overall confidence reduced banks' liquidity preference, resulting in a rapid expansion of credit. In the case of domestic banks, this increased liquidity caused them to be less careful in their lending strategies and hence their portfolio quality deteriorated.

Brazil also went through significant liberalizing bank reforms before 1994, although it started from a stronger initial position than the other countries. In this case the initial liberalization preceded stabilization. Three important regulatory shifts marked the development of Brazil's financial system in the early 1990s: external liberalization and the banking reform in 1988, and acceptance of the Basel capital-adequacy ratio in 1994. The Brazilian reform had immediate consequences. From 1989 there was a sharp reduction in the number of commercial banks, investment banks and finance companies, most of which became universal banks. An important step in the process of liberalization was to allow the expansion of existing foreign financial institutions and the entry of new ones (especially commercial and investment banks). These changes should not prompt an overestimation of the importance of the reform, whose real significance was that it consolidated a trend that was already underway in the 1980s: the overwhelming dominance of universal banks that operated with a very short time horizon.

The Tequila crisis and its effects on the stability of the banking system

The devaluation of the Mexican peso in December 1994 sparked a crisis that severely damaged the country's banking system and had ramifications elsewhere in the region and the world. Because Mexican regulations limited banks' foreign exchange exposure, the problems caused by the devaluation were less significant than in other cases (although loopholes enabled banks to get around some of the restrictions, see O'Dougherty and Schwartz, 2001). Several indirect problems were also serious. These included a sharp drop in economic activity, a hike in interest rates and an increase in the demand for dollars. The consequence was a growing inability among debtors to service their obligations and therefore a further rise in the already high number of non-performing loans. Initially, however, the authorities thought the banking crisis would be limited in scope because of the restrictions on foreign exchange exposure. In addition the lack of an established regulatory authority meant that information was scarce. Thus the Mexican approach was incremental, with solutions being adopted as new problems appeared (McQuerry, 1999).

The other country in the region that was particularly affected by the Tequila crisis was Argentina, whose banking system was also hit hard. The currency board system in Argentina meant that the domestic monetary authorities had no other way of preventing potential capital outflows than

allowing domestic rates to rise in 1995. This provoked an increase in arrears and defaults and reduced the confidence of depositors, leading to significant withdrawals of deposits. Even though the Convertibility Plan had been successful for almost five years, depositors showed their fear of devaluation by withdrawing their dollar deposits. Thus in addition to a liquidity problem the banks faced increased exchange rate mismatching. The combination of deteriorating asset quality and loss of deposits revealed the vulnerable side of the seemingly solid Argentinean system. In order to avoid a full banking crisis the Argentinean central bank (the BCRA) began injecting liquidity through its discount window, backed by the sale of dollar-denominated bonds (which in turn led to increased exchange-rate exposure on the part of the government) and reducing the reserve requirements for banks. Despite these steps by the BCRA, the accumulated losses amounted to 12 per cent of the banking sector's net worth by the first quarter of 1995.

Unlike in Argentina, the causes of the 1995 banking crisis in Brazil preceded the Tequila crisis, although the latter exacerbated the problems. The fundamental reasons had to do with the abrupt adjustment that the banks had to make due to the success of the 1994 stabilization programme (the *Plano Real*). During the 1980s banks earned substantial profits from inflationary gains associated with the double intermediary role of public debt that the Brazilian banks enjoyed during the long period of high inflation and indexation. The abrupt decline in these gains and the high fixed costs in Brazil's banking sector led private banks to expand credit, which prompted the boom in consumer demand that followed the 1994 stabilization programme.[11] The rapid and sometimes careless expansion of credit, the high interest rate policy and rising unemployment provoked a rise in non-performing loans and arrears. The monetary authorities tried to restrict this expansion by setting very high reserve requirements, but these failed to constrain credit expansion. In addition interest rates were maintained at high levels, which created an increasingly dangerous mix of credit expansion and high lending rates. The public banks faced additional problems due to their limited capacity to restructure their portfolios (dominated by state government debt) and their high operational costs (in view of the job security of many of their employees). The Tequila crisis was the last straw in a process of increasing bank problems.

Chile was much less vulnerable than the other countries for two reasons. First, its macroeconomic performance was barely affected by the Tequila crisis due to its lower external debt, strong trade balance and sound domestic fundamentals (for example high growth and fiscal balance). Second, as explained above, the Chilean banking system had already gone through major changes in supervision, regulation and structure. As a matter of fact, from 1991 onwards bank activity started expanding at a rate that was slightly higher than that of GDP, such that the ratio between loans and GDP grew from 45 per cent in 1990 to 66 per cent in 1999 – much higher than the peak

achieved in 1984. Other indicators also point to an improvement in the efficiency and further consolidation of the banking sector (Ahumada and Marshall, 2001: 46–7).

Regulatory changes after the 1994–95 crisis

The Tequila crisis revealed the strengths and vulnerabilities of the banking systems of the four countries. The speed and depth of the changes in regulation and supervision varied with the information available to the authorities, their perception of the severity of the problems confronting them and the instruments they had at hand. In this context Chile's situation – with almost no impact on the banking sector – stands out as completely different from the other three cases and shows the importance of its earlier steps to clean up the banking sector, establish a modern regulatory and supervisory system and maintain comprehensive real macroeconomic balances.

In Argentina after 1995, given the characteristics of its monetary and exchange rate regime, it became clear that (1) its banking sector was highly vulnerable to changes in domestic interest rates, exchange rates and depositor confidence; (2) domestic banks were more vulnerable than foreign-owned ones; and (3) since the capacity of the monetary authorities to intervene in periods of crisis was very limited under the Convertibility Plan, some additional mechanisms were needed to increase systemic liquidity (especially for dollar deposits). In order to overcome these weaknesses a set of measures was introduced to restructure the sector by injecting more capital, promoting mergers and acquisitions, and creating incentives for the expansion of foreign banks.

Of the most important regulatory changes, five should be emphasized. First, the *Fondo Fiduciário de Capitalización Bancaria* was a full restructuring programme supported by BCRA funds and aimed at capitalizing and strengthening the banking sector by providing incentives for the acquisition of banks in trouble by those with a more solid market position. Second, the *Fondo de Garantía de Depósitos*, a deposit insurance scheme financed by private funds, was aimed at increasing depositors' confidence and the banking safety net. Third, a new system of reserve requirements was introduced in order to reduce leverage and improve safety. This new system widened the scope of the previous policy to encompass all bank liabilities, rather than just sight and saving deposits as was the case earlier. Fourth, the *Programa Contigente de Pases* was an innovative mechanism to increase the systemic liquidity of the banking sector by establishing contracts between the BCRA and international banks, in which the former acquired the right to sell dollar-denominated government bonds and mortgage-based securities to the latter. This meant that the participating banks provided a short-term overdraft line that gave the BCRA a lender-of-last resort facility in times of crisis.[12] Finally, measures were introduced to stimulate the continuing

process of mergers and acquisitions and to expand the share of foreign banks in the domestic market.

The results of these measures initially seemed quite positive in many respects. In the second half of the 1990s private bank provisions in relation to total credit increased substantially, liquidity within the banking sector rose, and the capital-adequacy ratio was maintained at levels far beyond those established by the Basel I guidelines. In addition foreign banks more than doubled their share of the market between 1994 and 1999. In sum the banking sector became more solid, which explains why its ability to deal with the emerging market crises that characterized the late 1990s was far superior to what had been observed after the Mexican crisis. Nonetheless macroeconomic policies – and especially the Convertibility Plan – eventually undermined these improvements and the banking sector entered a severe crisis after the devaluation of 2002. It will clearly take many years to recover.

Brazil also took important steps to strengthen its banking system, but as mentioned above, these were not prompted by the Tequila crisis itself. During the first three years of the successful stabilization programme the central bank intervened in 40 banks (of the 271 that existed in July 1994): 29 were liquidated, four failed, six were placed under temporary administration and one continued to operate. A further 32 banks went through a restructuring process that resulted in mergers and acquisitions, some of them with government support through the bank restructuring programme (PROER), which included fiscal incentives for banks to acquire other financial institutions and for the promotion of mergers (among domestic banks) and acquisitions (by foreign banks). Another programme (the PROES) was directed at the restructuring of the public financial institutions, which were in particular difficulty. This facility was created by the central bank to provide loans to federal and state banks to speed up their restructuring and in some cases their privatization or liquidation. In the process of restructuring, foreign banks were allowed to enter the economy. The number and participation of foreign banks increased significantly after 1995, presenting a competitive challenge to the Brazilian banks.

In addition to the restructuring of the banking sector, a number of complementary regulatory measures were decreed in late 1995. These included the establishment of a deposit insurance fund that guaranteed up to R$20 000 per depositor, and increased capital requirements for the establishment of new banks. Separately, new central bank regulations were introduced to promote accountability and avoid bailouts by ensuring that the shareholders of institutions that were sold or transferred were liable for any previous wrongdoings. Perhaps the most significant of these additional measures was a 'preventative' law that gave the central bank authorization to restructure financial institutions that were not meeting system requirements or were demonstrating financial problems. While a form of this law had existed previously, and the central bank was authorized to place banks under one of three forms of special regime (a temporary system of special administration,

intervention, or extrajudicial liquidation), these laws had lacked a preventative character. Now the central bank was empowered to prescribe preventative remedies (for example increased capitalization, the transfer of stockholder control, or mergers and acquisitions) for faltering banks, and certain assets of failing banks could be confiscated. An indicator of the effectiveness of the changes was the lack of a serious banking crisis in the face of the devaluation of 1999.

Mexico moved more slowly than Argentina and Brazil in dealing with its financial crisis. Indeed Mexico has had constant banking difficulties since 1995 and is still involved in a costly restructuring of its banking system. The government set up several programmes to help recapitalize and strengthen the banks. The best known was administered by the deposit insurance agency FOBAPROA, which involved the purchase of the banks' non-performing loans to clean up their balance sheets. In addition a number of banks were intervened in and later resold, leading to a dramatic increase in foreign participation in the banking sector (Graf, 1999).

In December 1998, new financial legislation was approved by the Congress and duly implemented. Chief among the changes were:

- A new deposit insurance system, which ended the *de facto* unlimited deposit insurance that had existed previously and increased the oversight of the deposit insurance agency.
- Stricter accounting standards, which increased the transparency of credit operations for both supervisors and the public, imposed stricter standards for handling overdue loans and substantially increased loan-loss provisions.
- A series of measures to improve lending practices and new laws on credit transactions to speed up the process of foreclosing on assets and allowing for a wider range of property to be used as collateral.
- Stricter rules on capital quality (EIU, 2000).

In addition, in order to reduce possible future exchange rate mismatching the Bank of Mexico lowered the existing ceilings on foreign currency liabilities and imposed compulsory liquidity coefficients in foreign currency (Yacamán, 2001). In the aftermath of the crisis, banking activity as a percentage of GDP declined between 1994 and 1996, and only in 1996 did overall lending start to grow again. Lending to the private sector only began to rise in 2000.

Conclusions: policy lessons from the Latin American experience

As we have seen through the experiences of Argentina, Brazil, Chile and Mexico, managing the financial system is an enormous challenge, especially in developing countries. The inherent fragility of the financial sector is magnified by the volatility of capital flows and the macroeconomic shocks that

have been discussed in earlier chapters. The resulting instability mounts as the problems of individual banks quickly spread to other institutions and to the real economy as well. While such problems have always existed, new ones are continually arising with the increased integration of international capital markets.

It is important to stress, as we have throughout the chapter, that financial instability is not an isolated problem but is closely related to macroeconomic policy and performance. The relationship runs in both directions. On the one hand financial crises undermine attempts to maintain stable output growth rates and thereby increase employment opportunities and reduce poverty. They are also extremely expensive and can hobble government finances and private sector viability for years afterwards. On the other hand macroeconomic policy can bring about financial instability or even crises. For example raising interest rates can create problems for the financial sector, especially if it is already in a weakened condition. Likewise devaluing the local currency is very risky if the financial sector is heavily indebted in foreign currency.

Among our cases, Chile provides a good example of the way in which a well-functioning financial system can be an important asset for an economy. After the significant corrections made after the deep financial crisis in the early 1980s, the financial sector became crucial in maintaining high economic growth for a long period, and it gave policy makers room to follow flexible policies when hard times emerged. At the other extreme the Argentinean crisis is an especially dramatic example of negative interactions between the two. Despite significant improvements in regulation and supervision during the 1990s, the banking system was kept afloat after the January 2002 devaluation only by tight capital controls and the freezing of deposits.

Based on our analysis, and in the context of these new dilemmas, several policy lessons can be drawn by developing countries. First, it is clear that much remains to be done in the specific areas of regulation and supervision. Some countries are more advanced than others, but all can do more in terms of developing institutional supervision, improving the transparency of regulations and so on. However it is important to bear in mind that the tightest regulations are not necessarily found in the best-performing banking systems. This may mean that very strict regulations are necessary when the banking system is beginning to develop, but it may be possible to relax them somewhat in the longer term, if and when banks begin to take greater responsibility for their own behaviour.

Second, even countries that have made substantial progress in the regulatory and supervisory sphere cannot assume that this is sufficient. The best regulatory and supervisory systems assume a relatively stable macroeconomic environment. The procyclical nature of the banking sector, with its implications for stability, is exacerbated in the case of Latin America due to the nature and sharpness of its recent business cycles. In a situation of strong

volatility, whether domestic, international or both, the financial system will become increasingly fragile. Hence regulation of the financial sector must go hand in hand with adequate fiscal, monetary and exchange rate policies, as well as with measures to prevent external shocks from ravaging local economies.

Third, because of the procyclical nature of the banking sector, some observers have recommended provisioning rules that take into consideration changes of risk throughout the cycle (see for example Ocampo, 2002). Under such a system, like that which is currently in place in Spain, risk is estimated for categories of credit according to the possible loss that a typical asset would experience over the entire cycle. Even though this method aims to provide a cushion for changes in risk throughout the cycle, Ocampo argues that it can also be used as a countercyclical instrument.

Fourth, there are other problems in the financial sector that have little to do with regulation and supervision, and may even involve trade-offs with the latter. The main function of the financial sector is to support the development of the local economy, which means providing credit in such a volume that production and consumption can grow at an appropriate rate. If the regulations are too tight, banks may prefer to hold only the safest assets, whether government bonds or loans to the largest and lowest-risk customers in the private sector. Consideration must be given to these aspects of the financial system while balancing them with the obvious need to make the system a safer one.

Finally, a supportive international environment must complement a sound domestic regulatory and supervisory system in developing countries. This includes adequate macroeconomic coordination in industrial countries as well as appropriate regulation of their financial systems. It also means that any new international regulations must consider the implications for developing countries. It must be recognized that the impact on the financial sectors of industrial and developing countries is not the same, and both must be taken into account.

Notes

1. For discussions of these topics in Asia see Masuyama *et al.* (1999) and ESCAP (1999, 2000).
2. The most extensive work has been conducted by the Development Research Group and the Financial Sector Strategy and Policy Department of the World Bank. This is summarized in World Bank (2001); background papers can be found on the World Bank website. BIS annual reports and working papers are very useful, especially with respect to the issue of cycles (for example Borio *et al.*, 2001), as are the publications of the FSF. The IMF's annual publication, *International Capital Markets*, contains extensive data and analysis, and the IMF's financial sector assessment papers can now be found on its website. On regulation and supervision in Latin America see Held and Szalachman (1991), Norton and Aguirre (1998), United Nations (1999) and Aguirre (2000).

3. This became a common approach in the management of financial crises in both developed and (more often) developing economies in the 1990s; see Fischer (2001).
4. On financial institutions see Burki and Perry (1998) and World Bank (2002).
5. On these trends see Feeney (1994), Blommestein (1995), Fornari and Levy (1999) and BIS (2001).
6. The issue of foreign participation in the banking sector of developing countries has been extensively studied in the last few years. See for example IMF (2000), Clarke *et al.* (2001), Litan *et al.* (2001) and Chapter 4 of this book.
7. See Barth *et al.* (2001a) for a description of the database, which was constructed from a survey of bank regulators and supervisors in 107 countries. In a companion paper Barth *et al.* (2001b) present a preliminary analysis of the data and question the relevance of the regulatory and supervisory guidelines stressed in their paper. We believe that the conclusions reached by Barth *et al.* are due to their failure to distinguish between developing and developed countries, whose experiences have been quite different with respect to the behaviour of the financial sector. We intend to test this hypothesis in future research.
8. ECLAC has often advocated that developing countries should maintain ratios that are above the international norm, given the extremely high cost of banking crises. See for example ECLAC (2000).
9. This result is to be expected, given the differences in the structure of the banking system between countries. In particular the US banking sector is characterized by a myriad of small local banks, while the Latin American countries have a much smaller number.
10. Argentina attempted financial liberalization in the late 1970s, but the related measures were reversed as part of the overall abandonment of reforms at that time. For an analysis of the earlier attempt see Studart and Hermann (2001: 34–8).
11. In the first months of the implementation of the *Plano Real*, Brazil's central bank expanded the monetary base very rapidly to accommodate the increased demand for money that usually occurs after a successful price stabilization programme. This also increased the reserve base of the domestic banks, permitting them to expand credit.
12. This mechanism, which was designed to deal with liquidity problems, did not work during the recent crisis because of the magnitude of the challenges facing the BCRA. That is, since in a currency board the central bank does not act as lender of last resort, the mechanism was a way of mimicking this role in periods when specific banks experienced reduced liquidity. However the mechanism was not meant to deal with potential solvency problems, as in the case of the recent crisis. In a solvency crisis of the magnitude faced by Argentina, if the mechanism had been used the international banks would have had to cover a very significant part of Argentina's total deposits, thus putting their own assets at unacceptable risk. Hence it was not used and the government had to freeze bank deposits in order to avoid the overall insolvency of the system.

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