

VI. THE RECENT EXPERIENCE WITH CAPITAL FLOWS TO EMERGING MARKET ECONOMIES

The excessive volatility of cross-border capital flows has imposed substantial costs on emerging market economies. Reforms of the international financial system are under consideration, aiming both at preventing crises and at dealing more effectively with them when they occur. This chapter reviews the principal causes of the recent volatility of capital flows and possible remedies that emerging market economies and the international community can take to stabilise such flows. First, by comparing key institutional features of financial markets in developed and emerging economies, the chapter examines the extent to which the domestic financial system played an important role in pushing some emerging market economies into crises in the 1990s. Second, it assesses whether the reversal of capital flows was linked to a build-up of macroeconomic imbalances, the role played by fixed exchange-rate arrangements in generating such imbalances, and strategies to exit fixed rates in an orderly fashion. Third, it reviews the role of liquidity panics, herding and contagion in amplifying and spreading investors' reaction to bad news in an individual country. Finally, the chapter discusses whether there is a role for capital controls to stabilise cross-border flows.

The domestic financial systems of emerging markets

A financial system that functions well is vital for stable foreign capital flows in emerging and mature markets alike. Given the underdeveloped nature of capital markets in most emerging market economies, the banking system plays a critical role in intermediating cross-border financial flows. The capacity of the banking system to cope successfully with large-scale capital inflows without assuming excessive risks depends in part on the institutional environment in which the banks operate. This includes the design of the financial safety net and the extent of government directed lending, the regulatory and supervisory frameworks, and effective standards of financial disclosure. These institutional arrangements differ significantly across emerging-market economies.

A financial system that functions well is vital...

Defective financial systems were arguably a key factor behind the highly volatile capital flows in some of the Asian countries.¹ Borrowing by Asian banks in international markets at low interest rates for lending at higher ones at home – the

... but financial systems in emerging markets have often been defective

1. In some Asian countries the non-bank private sector borrowed extensively in international markets. However, this might have involved borrowing abroad from a subsidiary of a domestic bank as well as borrowing from an international bank. Moreover, close ownership links between corporations and banks often meant that businesses could borrow abroad on behalf of banks, which could then use the deposited funds for relending at home.

so-called “carry trade” – proved to be highly profitable. But these profits were based on a gamble that the exchange rate would be more stable than interest-rate differentials suggested that the market expected. They were also based on the willingness of domestic corporations to increase significantly their leverage and on international banks’ readiness to fund such lending. The strong domestic demand for credit was in turn related to the extraordinary growth performance that corporations had enjoyed in these countries and to the corporate strategies, sometimes explicitly or implicitly condoned by the authorities, that emphasised gains in market share rather than profitability. With financial institutions failing to counter excessive optimism or non-commercial objectives in the corporate sector, the exposure of the banking sector to credit risks rose. Demand from lower quality borrowers was increasingly accommodated and the maturity mismatch between banks’ assets and liabilities widened, as long-term lending was more and more financed by short-term borrowing in the international market.

Even when commercial banks were not directly engaged in the carry trade, their lack of prudent management in the intermediation of capital inflows made the system vulnerable. Thus, while capital inflows in the run up to the Mexican crisis in 1994 were predominantly related to portfolio flows, they provided the banking system with the resources needed for strong expansion of domestic credit. During the surge in domestic credit expansion, banks appear to have paid little attention to the increased vulnerability of their customers to a peso depreciation. In the run up to the crises in Russia and Brazil, commercial banks played a relatively modest direct role in importing foreign capital and the expansion of lending to the private sector was small. However, banks in both countries invested heavily in high yielding short-term government debt. This strategy became increasingly risky as the budget positions worsened, and commercial banks, together with other domestic and international investors, arguably became over-exposed to public debt. The Russian government’s effective default on its domestic debt last August had severe effects on the domestic banking system, and Brazilian banks are highly vulnerable to any rescheduling of public debt.

Banks have taken on excessive risks because of moral hazard problems...

It is uncertain to what extent moral hazard² problems due to the safety net for banks are more serious in emerging-market economies than in developed economies. Deposit insurance arrangements are similar, in practice, in both groups of countries: formal insurance for depositors being employed mainly in developed economies, and, at least until recently, implicit guarantees from the authorities being used in emerging markets – especially in East Asia. To prevent confidence in the financial system from being eroded, government bodies in both developed and emerging economies operate as “lender of last resort” rather than allow major financial players to fail in the event of a liquidity problem. In mature financial systems, such assistance typically implies large losses for bank shareholders and is conditional on a change in management. However, the access to the safety net in East Asia prior to the 1997 crisis has typically included injections of public funds into privately owned banks as going concerns. By alleviating both managers and shareholders of financial risk, such measures may have posed particular moral hazard problems.³

The role and functioning of the banking sector appear to be more closely linked to the government in emerging-market economies. This stronger involvement does not show up as greater public ownership of banks, which is not significantly different

2. Moral hazard implies that agents do not bear the full cost of their actions.

3. Corsetti, Pesenti and Roubini (1998) argue that moral hazard was the root cause of the crisis in some of the Asian countries.

in emerging and mature market economies,⁴ but is more related to programmes of directed lending or funding, and to complex and distorting tax and subsidy regimes. Under these conditions, banks are not autonomous profit-maximising entities, but rather operate to some extent as quasi-fiscal bodies, providing virtual subsidies to selected parts of the economy which do not appear on the general government balance sheets. However, this may nurture a perception that banks' loans and their international liabilities are guaranteed by the government. During years of rapid economic growth, the sub-normal performance of such directed loans tends to be masked by the growth in deposits (and, on some occasions, by additional capitalisation of banks by the government); but when macroeconomic slowdowns occur, such features can be a major source of banking-sector fragility. For example, banks in Indonesia, Korea, Malaysia, the Philippines and Thailand have, at some time over the past two decades, been subject to regulatory requirements or pressures to allocate fixed proportions of their loan portfolios to particular sectors (OECD, 1998, and Folkerts-Landau *et al.*, 1995)⁵ and this has left their banking sectors particularly vulnerable.

To reduce the capacity of the financial sector to exploit the insurance inherent in the safety net, both mature and emerging market economies have attempted to limit risk-taking by subjecting banks and other financial institutions to prudential regulations. Banks are typically restricted in their exposure to a single borrower to prevent them from being captured by a big debtor (Table VI.1) and their foreign currency exposure is often limited to avoid excessive exchange-rate risks (Table VI.2).⁶ Moreover, banks are subject to minimum capital adequacy rules which, in principle, raise both the cost of riskier lending and the stakes for owners from engaging in risky lending. However, these rules have failed in many emerging economies to prevent excessive risk taking. Indeed, studies have found poor regulatory and supervisory frameworks to have been one of the principal causes of bank crises in emerging markets (Figure VI.1), (Dziobek and Pazarbasioglu, 1997; Lindgren *et al.*, 1996).⁷

*... lack of enforcement
of prudential regulations...*

The failure of prudential rules in emerging economies in the past has been ascribed to several factors:

- By allowing banks to overstate their capital, weak loan classification and provisioning rules undermined the discipline in minimum capital adequacy ratios. Whereas best practice in mature economies considers loans to be sub-standard if they are three months in arrears, many of the Asian countries classified loans as non-performing if they had not been serviced for six months or more. And while mature economies generally require (or encourage via tax rules) prompt and full provisioning for non-performing loans, rules in many emerging economies called for only gradual and incomplete provisioning.

4. The extent of public ownership of banks differs significantly across emerging-market countries, ranging from less than 10 per cent of banks' total assets (Malaysia and Thailand) to around a half of all assets (Indonesia and Brazil). In mature countries the range is similar (*e.g.* zero in the United States to 50 per cent in Germany. See Table 2 in Blöndal and Christiansen, 1999).

5. Also, credits to the public sector from banks controlled by the general government have sometimes given rise to banking crises; for example, loan delinquencies by state governments were at the root of serious state bank insolvencies in Brazil around 1994. For a discussion, see Honohan (1997). Since the state banks were ultimately bailed out by the central bank, state authorities can be said to have indirectly obtained large credits from the central authorities.

6. Most emerging-market economies have rules on maximum currency exposure. For example, in addition to the countries listed in Table 2, the Slovak Republic requires an 80 per cent ratio between foreign exchange claims on non-residents and total foreign exchange liabilities.

7. The importance of good regulations and supervisory mechanisms was emphasised in *e.g.* OECD (1997) and G-10 (1997).

Table VI.1. Incentives for adequate risk assessment in banking systems

	Capital adequacy ratio (Basle definition)		Maximum lending to a single borrower	Sub-standard loans, 1996		Non- performing loans, as percentage of all loans, 1996
	Minimum ratio, 1995	Actual ratio ^a	Per cent of capital	Months of arrears	Provisioning (per cent)	
Korea	8	9.1	15	6+	20-75 ^b	0.8
Mexico	8	13.1	10-30 ^c	3+	Variable	12.2 ^e
Hong Kong, China	8	17.5	25	None	None	2.7
Indonesia	8	11.9	10-20 ^e	3-6	10	8.8
Malaysia	8	11.3	30 ^f	6-12	Variable	3.9
Thailand	8	9.3	25 ^g	6+	7½-15 ^b	7.7 ^e
Chinese Taipei	8	12.2	3-5	6+	Variable	3.8
Argentina	12	18.5	15	3-6	1-25 ^b	9.4
Brazil	8	12.9	30	3-6	20-100 ^b	5.8
Chile	8	10.7	5 ^h	1-2	20 ⁱ	1.0
Russia	8	13.5 ^e	50-100		Variable	15.1
United States	8	12.8	15	3+	Variable ^k	1.1
Japan	8 ^d	9.1	20	6+ ^j	None	3.4
Germany	8	10.2 ^e	25	None ^l	None	

a) 1996 for OECD economies; 1995 for others.

b) Conditions depend on types of collateral and guarantees.

c) Per cent of net capital; the lower figure refers to individuals and the higher to corporations.

d) Only enforced from 1998 for international banks; from 1999 for national banks.

e) 1997.

f) Capital consists of paid-up capital, reserves and provisions.

g) Per cent of tier-one capital.

h) Per cent of capital and reserves.

i) Provisions at an estimated default risk of 5-40 per cent.

j) Changed to three months in 1998.

k) An allowance for impaired loans should be based on the present value of the expected future cash flows of the loan, or at the loan's observable market price or at the fair value of the collateral if the loan is collateral dependent.

l) Specific criteria are used to determine if a loan is sub-standard.

Source: OECD; BIS; M. Goldstein and P. Turner, 1996.

- Failure to regulate financial institutions' offshore activities has reduced the impact of rules to contain risks. Financial groups typically have offshore branches and affiliates that represent a significant part of a bank's business. Risky lending is often concentrated in such centres. Lack of consolidation for regulatory purposes has also meant that banks and other financial institutions can easily evade rules on limiting lending to connected parties, and recent research indicates that this has been an important factor behind the financial fragility in the past.⁸ Moreover, rules on maximum currency exposure are not effective when banks' offshore activities are not regulated. The expansion of financial derivatives, which regulators have found difficult to control, has also seriously undermined prudential controls on currency exposure (Garber, 1998).
- Supervisory agencies have often been weak in emerging economies and penalties for non-compliance have tended to be low. This situation has reflected: the informal nature of inter-company links (especially in Asia) and unclear property rights which made it difficult to assess the degree of connected

8. A study of ten banking crises in the 1980s concluded that connected lending had been a contributing factor in all cases, see Sheng, (1996).

Table VI.2. Prudential limits on banks' currency exposure

	Limits on overall position (per cent of capital)	Other comments
Indonesia	25 (NAP)	Short-term liabilities limited to 30 per cent of own capital
Malaysia	Variable, depending on management quality	
Korea	15 (sum of long positions) 10 (sum of short positions)	Limit on spot short positions is 3 per cent of bank capital or US\$ 5 million, whichever is greater.
Thailand	20 (net long positions) 15 (net short positions)	
Argentina	25 (NAP)	
Brazil		Short position ceiling is dependent upon each bank's adjusted net worth Long position ceiling is US\$ 1 million (any amount above the ceiling must be deposited in the central bank)
Chile	20 (NAP)	Average overall short position is forbidden
Mexico	15	
Russia	Variable absolute amounts for different range of bank capital	
United States	None	
Germany	21 (GAP)	

Note: NAP stands for Net Aggregate Position, *i.e.* the difference between short and long positions; GAP stands for the gross aggregate position, *i.e.* the sum of short and long positions.

Source: R.K. Abrams and P. Beato (1998); IMF (1996b).

lending;⁹ resource constraints which made on-site inspections rare and the monitoring of credit risk assessment minimal; the limited weight of supervisory agencies in the public administration compared with those charged with business sector policies; and political difficulties for supervisors to make companies provision against changes in official policy (such as, for example, a departure from announced exchange-rate policies).

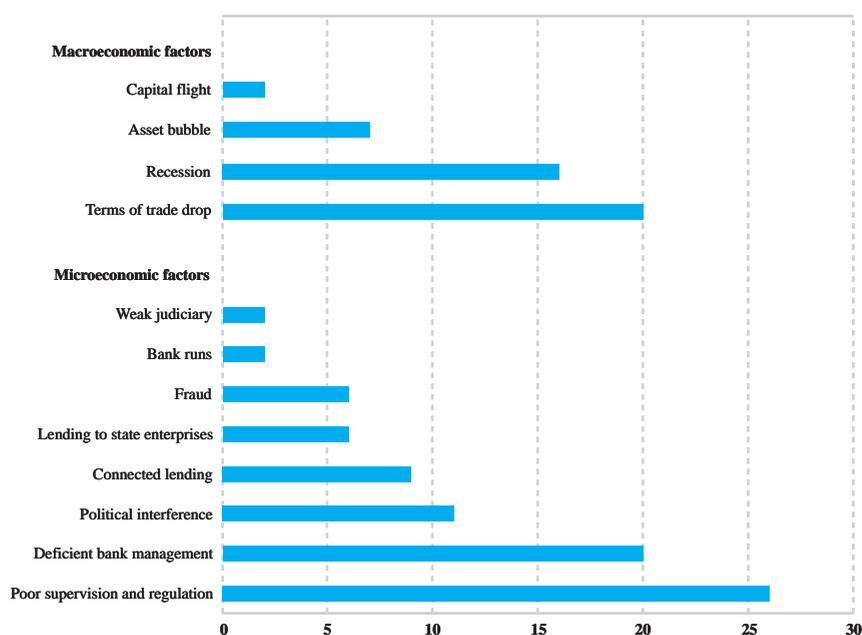
The most common supervisory problems in mature economies relate to resource constraints combined with rules lagging financial sector liberalisation (this was a factor behind the 1992-93 Nordic banking crisis) and innovation. In emerging markets there is stronger evidence of unclear corporate structures and outright forbearance hampering efficient bank supervision.

Excessive risk-taking by domestic financial institutions may in part have been based on difficulties in assessing the risks that were being assumed owing to a lack of information about the health of individual enterprises. However, though lacking the tradition for certified accounting and auditing mechanisms, an effort by many emerging market economies to adapt their national practices to international standards was widely perceived to have closed the gap between leading emerging and mature

... and inadequate standards of financial disclosure of corporations

9. This also tends to be a problem in some mature economies where corporate governance favours conglomeration.

Figure VI.1. Factors behind twenty-nine bank insolvencies



Note: Shows the number of times each factor was cited in twenty-nine country cases.

Source: Caprio and Klingebiel, 1996.

economies in this area. In 1990, for example, a study by the International Finance Corporation (IFC) concluded that financial reporting in selected East Asian countries (except for Chinese Taipei and, to some extent, Thailand), was “good, of internationally acceptable quality” (IFC, 1990). Also, a cross-country survey of accounting and auditing practices done in 1995 showed a very high standard of financial disclosure in Asian countries later affected by financial crises.¹⁰ However, while national standards have often been aligned with international ones, there is evidence that domestic companies failed to follow them in their financial reporting (Cooke and Parker, 1994), reflecting partly that a tradition of full and fair disclosure had not yet developed. For example, the recent crises in some of the Asian countries has unmasked the widespread practice of using undisclosed balance sheet items to provide guarantees or similar commitments between related companies (see *e.g.* OECD, 1998).

**Corrective policy action will
reduce volatile bank-
driven capital flows over
the long term...**

The long-term policy response for dealing with bank-driven volatile capital flows in emerging market economies is to strengthen prudential regulations and supervisory mechanisms, and to improve the effective standard of financial disclosure. Indeed, recent financial support from the international community to crises-ridden economies has typically been conditional on such measures being taken. To reduce moral hazard problems, the authorities should impose sanctions on those who require access to lender-of-last-resort facilities. They should also refrain from directing bank lending. A critical part of the regulatory overhaul would involve tighter effective prudential restrictions on banks’ foreign currency exposure and position

10. See Center for International Financial Analysis and Research (1995). Some of the findings of the survey are reported in Table 5 in Blöndal and Christiansen (1999).

taking. This could prevent banks and their international creditors from misusing the financial sector safety net, thus reducing their capacity to engage in carry trade with the associated capital inflows.

Over the short run, financial market reform of this kind will not benefit countries that have already become over-exposed. Stemming capital outflows, once confidence has weakened, will often require very high interest rates which will undermine the economy in general and the banking system in particular. Attempts to reduce the outflows with a transaction tax on capital flows would be relatively ineffective, unless very high tax rates were employed. Imposing quantitative restrictions on outflows, or unilateral or forced rescheduling of loans could provide short-term respite, but could seriously compromise the future access of banks in emerging market economies to the international inter-bank market if such measures were seen by creditors to reduce borrowers' commitments to honour their obligations. Given these difficulties, international conditional assistance in unwinding the currency imbalances in an orderly manner would seem to be the most promising response.

... but it may have little short-run gains for countries that are already facing crises due to excessive risk-taking by banks

Macroeconomic conditions and exchange-rate arrangements

Macroeconomic conditions differed significantly across the countries that ultimately succumbed to crises in the 1990s. In the case of the Asian countries, inflation showed little sign of increasing, asset price bubbles¹¹ were mostly absent and the central government account was in surplus. There were also no major fiscal deficit problems in the run up to the Mexican crisis in 1994. However, the two most recent sharp reversals of capital flows took place against the background of serious fiscal imbalances. The Russian crisis in August 1998 was prompted by an unsustainable build-up of public debt, driven by a fiscal deficit amounting to 8½ per cent of GDP in 1997. The origin of the Brazilian crisis in January 1999 was also the continued widening of the fiscal deficit, the revenue shortfall in 1998 being 8 per cent of GDP.

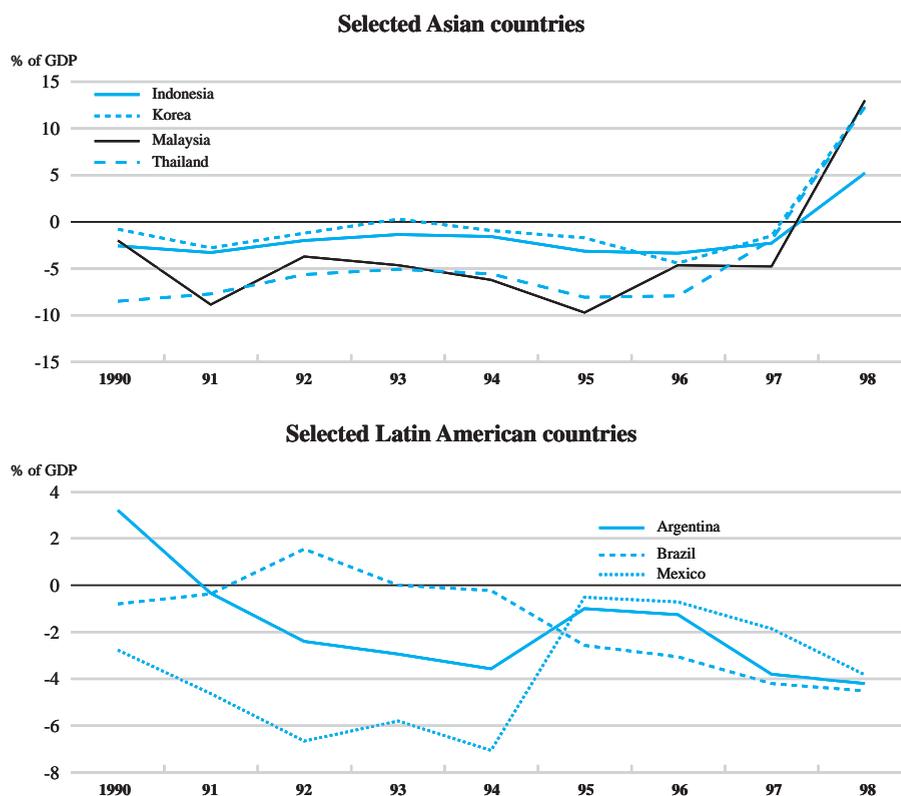
Internal imbalances preceded crises in some emerging markets...

Notwithstanding differences across the crisis countries with respect to fiscal positions and inflation developments, a common feature in most of them was that strong domestic credit expansion had weakened their external position. While domestic inflation was moderate or declining, the rate of price increases in Asia was higher than in the mature economies and in many Latin American countries it was even substantially higher. This factor did play a role in the eventual crises. The reversal of capital flows to Mexico took place against a backdrop of a large current account deficit (Figure VI.2) and a 40 per cent increase in the real effective exchange rate in the five years prior to the crisis (Figure VI.3). Prior to the depreciation of the Brazilian real last January, the real effective exchange rate had appreciated over a four year period and the current account deficit in 1998 had reached 4 per cent of GDP. The appreciation of the real effective exchange in Russia was close to 100 per cent in the four years preceding the crisis in August 1998. However, even the

... and the external balance came under increasing pressure...

11. With the notable exception of Hong Kong, China; and Singapore, commercial property prices were subdued in the main Asian cities in the period leading up to the crisis and lower in real terms than at the beginning of the decade. See the International Monetary Fund, 1998, and the Bank for International Settlements, 1997. The increase in stock prices in Asian emerging markets in the two years to mid-1997 was generally also inferior to that in many mature economies.

Figure VI.2. Current account balances in selected emerging market countries



Sources: IMF and OECD.

worst-affected Asian countries in the current crisis had experienced no major deterioration in their external competitiveness over extended periods until 1995, when the appreciation of the US dollar *vis-à-vis* the yen started to erode their competitive position and when the external terms-of-trade worsened (see below). The implications of deteriorating competitiveness on future prospects of export industries may have contributed to unsettling investors' confidence.

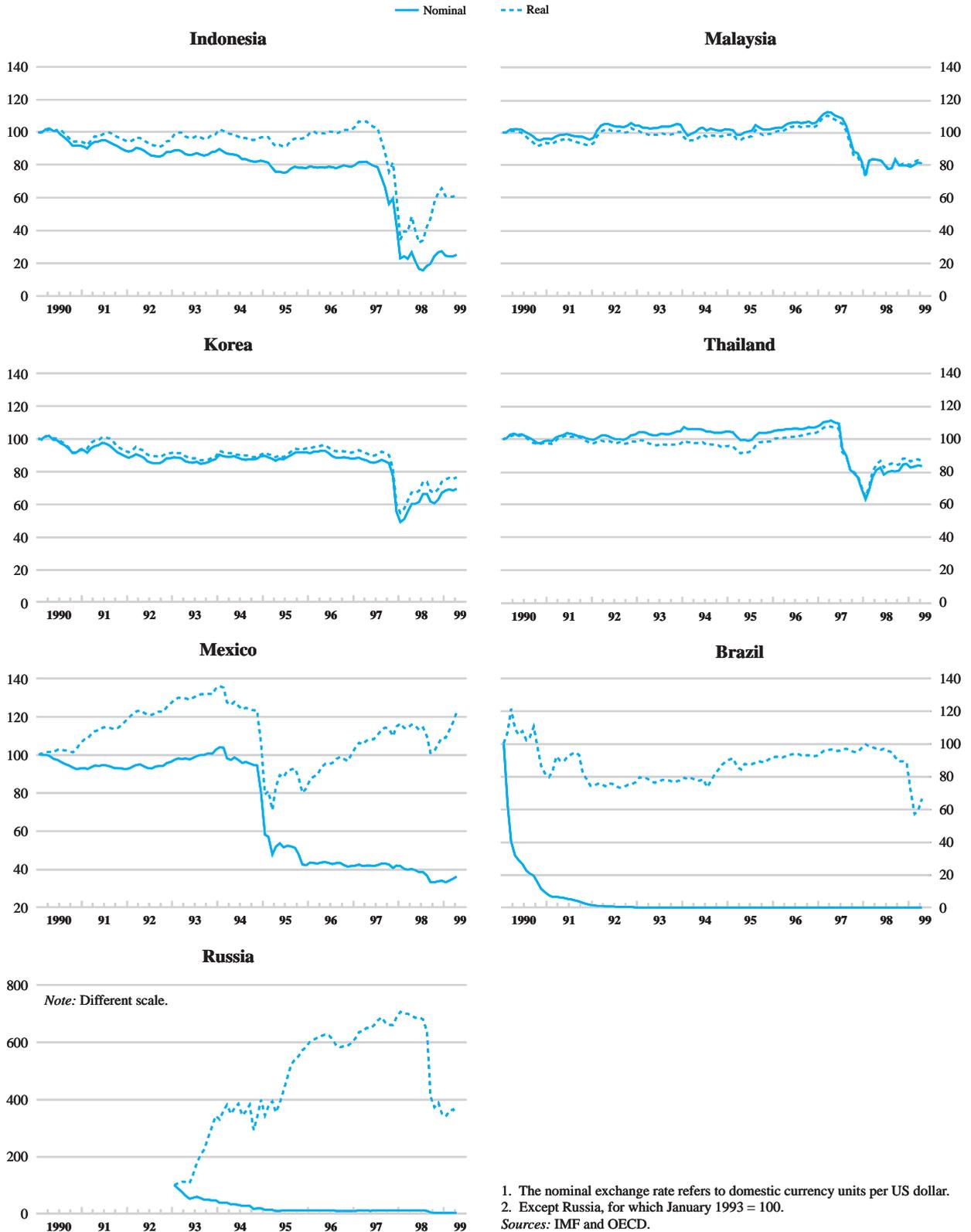
...partly reflecting fixed exchange rates

The emergence of the external imbalance was largely driven by the maintenance of fixed exchange rate arrangements¹² during a period of strong capital inflows. Indeed, fixed rates appear to have amplified capital inflows as businesses and banks in many countries became complacent about currency risks. At the same time, they made it difficult to contain the expansionary effects of capital inflows. In principle, countries can neutralise the expansionary effects of capital inflows through various means. In practice, the various methods are not without limitations and problems. For example, sterilisation via open market operations can only be undertaken if there is a

12. Even where formal exchange-rate arrangements appeared to allow for considerable flexibility, *e.g.* managed floating (Korea and Malaysia) or wide bands around a central parity (Mexico prior to December 1994), the authorities chose to keep the exchange rate within a narrow band around central parities.

Figure VI.3. Nominal and real effective exchange rates¹

January 1990 = 100²



well-functioning securities market and such operations often turn out to be costly for the government budget and may encourage even stronger inflows of capital; higher reserve requirements may result in dis-intermediation as funds are channelled via institutions not subject to such requirements; and fiscal policy must be extremely flexible in order to cancel the effects of yearly capital inflows amounting to several per cent of GDP and such flexibility may not be feasible where the government sector is small. More flexible exchange-rate arrangements, such as floating, would have meant lower capital inflows and lower demand pressures.

Exchange-rate pegs served as nominal anchors in some countries

Emerging market economies have chosen to maintain currency pegs for a reason. An important rationale in favour of fixed exchange rates is that they provide a clear and transparent nominal anchor. This has often been used to help to establish the credibility of stabilisation programmes in countries with a history of high inflation rates, notably in Latin America, and in countries with no history of credible anti-inflation institutions, such as in Russia. In these countries, alternative nominal anchors, such as money supply targets and inflation targets, may not be adequate for technical reasons (*e.g.* unstable money demand) and are unlikely to carry the same weight as an exchange-rate peg. The experience of many of these countries demonstrates that pegged rates have often been fundamental in breaking wage-price-currency spirals.¹³ However, even when a peg is the overriding objective of macro-economic policy, inflation is likely to converge only slowly to that of the countries to which the currency is fixed. During this adjustment period, the real exchange rate appreciates and can end up at levels that are unsustainable. The peg will thus ultimately lose credibility in high-but-falling-inflation countries.

In Asian countries exchange-rate pegs operated for many years to facilitate exports...

The prime objective of fixed exchange rates in many Asian countries seems to have been to help promote a stable external environment during the period of export-led growth. Together with the maintenance at times of slightly undervalued exchange rates (World Bank, 1993), this played an important part in the authorities' policies to facilitate exports. The importance attached to export promotion could explain the reluctance of the Asian countries to abandon pegs when exchange rates were under upward pressure in the mid-1990s, conditions which would seem to have been ideal for unpegging in an orderly way (Eichengreen and Masson *et al.*, 1998). With the United States being the most important export market for products from Asia, currencies were typically linked *de jure* or *de facto* to the US dollar.

... but the credibility of this policy was undermined by structural changes in the 1990s and the appreciation of the dollar after 1995

The credibility of this exchange-rate policy was arguably undermined by the extraordinary change in the export composition of the Asian emerging-market economies that took place in the 1990s (World Bank, 1998). By increasing the share of high-technology products destined for highly competitive markets where Japan was the dominant incumbent, the emerging market economies in Asia became more sensitive to fluctuations in the value of the dollar *vis-à-vis* the yen. This made the peg of their currencies to the US dollar increasingly inappropriate, and the dollar peg proved to be a source of instability when the yen began to fall *vis-à-vis* the dollar in 1995.

A peg must be abandoned before the exchange rate becomes overvalued

Though exchange-rate pegs directed at price stability or export promotion objectives tend ultimately to become unsustainable, there is no precise rule for when to give up an exchange-rate peg or to make it more flexible. It is clear that it has to be done before the exchange rate is perceived to be significantly overvalued, which

13. See for example, S. Edwards (1995). The experience with exchange-rate-based stabilisation is also reviewed in Chapter 6 in the International Monetary Fund (1996).

raises the risk of a disruptive speculative attack. In principle, the exchange rate is overvalued when it generates cyclically-adjusted current-account deficits that are larger than sustainable capital inflows. In practice, it is difficult to identify underlying equilibrium exchange rates with any precision, and therefore to use them as criteria for abandoning a peg. However, one symptom of an over-valued exchange rate is often a large external deficit. Another indication is a sustained running down of foreign exchange reserves, which could ultimately bring about a currency crisis. However, an overvalued exchange rate need not be accompanied by falling reserves for some time if capital inflows are driven by herd behaviour (see below). In the absence of clear criteria for identifying overvalued exchange rates, policy-makers must use their judgement in deciding on when to leave a peg. Past experience suggests that they have typically held on to a peg for longer than was useful.

A successful use of fixed exchange rates for stabilisation purposes must acknowledge early on that a given peg is only a temporary device. Indeed, it might be appropriate to accompany the pegging of a currency with an explicit and a coherent exit strategy, stating the exit conditions, the exchange-rate and monetary-policy regimes that would replace the peg, and transitional arrangements if any (such as gradually widening fluctuation bands around a central parity). An explicit statement of exit conditions would show that the authorities intended the peg to be a stop-gap measure only, to be replaced by different arrangements. During the period of the peg, institutional capacities would be developed to control inflation after the exchange rate became unpegged. This would typically involve making the central bank independent with an overriding aim of pursuing price stability, improving data dissemination so that the success (or otherwise) in meeting inflation objectives can be monitored on a timely basis, consolidating the government budget to reduce the risk of monetisation and introducing mechanisms that would make it easier technically to control monetary aggregates or interest rates.¹⁴ The authorities could signal their resolve in developing these institutional capacities by fixing a timetable for the introduction of the new structures. Provided that the authorities are seen to be making progress in investing in stability-oriented post-pegged-rate institutions, the pre-announcement of the exit conditions might not diminish the impact of the peg on inflationary dynamics.

A pegged system could be replaced by systems with varying degrees of flexibility, ranging from a clean float to narrow bands around a (crawling) peg. An unfettered float has the advantage that it frees monetary policy from having to respond to exchange-rate developments. However, there are concerns that floating could result in excessively volatile exchange rates. The floating of the major world currencies since 1973 has been accompanied by fluctuations of an amplitude that are difficult to explain by economic fundamentals (Frankel and Rose, 1997). Indeed, exchange-rate movements over the short and medium-term may often have been driven by herd behaviour and forecasting techniques that are de-stabilising. With the market for currencies of emerging-market economies less sophisticated than that of the larger countries, the risk is that they would be more prone to such behaviour. Moreover, with exchange rates being influenced by political factors, a number of emerging market countries could experience large swings in their exchange rates under a floating regime. For all these reasons, a clean float may not be the most appropriate exchange-rate regime for all emerging-market economies.

A successful exchange-rate-based stabilisation requires that the period of a peg be used to prepare the way for alternative nominal anchors

Countries can leave a peg for exchange-rate systems of various degrees of flexibility...

14. It would also involve the strengthening of the banking system.

An alternative less flexible arrangement is an adjustable central rate *vis-à-vis* a trade-weighted basket of currencies but with wide fluctuation bands on either side (Williamson, 1998). This could help to anchor exchange-rate expectations and encourage stabilising speculation, but might also involve many of the disadvantages associated with fixed rates. In general, the optimal degree of flexibility in exchange-rate arrangements will differ across emerging market countries, depending on their circumstances.

... and rigid pegs may be optimal for small and very open economies

For some emerging-market economies, the most appropriate long-run exchange-rate regime may still be rigid pegs supported by currency-board arrangements. Currency boards, whereby the domestic money supply is backed by foreign reserves, would seem to be particularly attractive for small and very open economies. There are few gains for such countries from having an independent monetary policy when capital is mobile, whereas they are highly vulnerable to changes in the external value of their currency. However, a rigid peg can provide stability only if it is set at a rate that reflects economic fundamentals and if domestic wages and prices adapt flexibly to inflation developments in the country to which the home currency is tied. Moreover, since exchange-rate pressures are immediately translated into a drain on bank liquidity and high interest rates under a currency board, such an exchange-rate arrangement requires a strong and well-capitalised banking system in order to meet adverse shocks. In practice, several emerging-market economies (*e.g.* Hong Kong, China, and Argentina) have found currency boards to be useful, but such arrangements have not completely sheltered these economies from recent turmoils.

International liquidity, herding and contagion

Adverse news can trigger off a “run” when foreign exchange reserves are low...

The extent of the reversal of capital flows to some emerging market economies in the 1990s suggests that more has been involved than changing perceptions of fundamentals. Foreign reserves may be used as a gauge by international creditors of the capacity of the authorities to act as a lender of last resort for domestic entities with foreign debt.¹⁵ As long as foreign reserves are well in excess of short-term external debt,¹⁶ individual creditors may feel reasonably assured that their assets are protected from a “run” by other creditors. As a result, they can consequently adjust their portfolios in an orderly way to news of banking and macroeconomic problems. In the opposite case, individual creditors will be confronted with a smaller probability of recapturing their investments in the event of problems, increasing the incentive to withdraw funds as quickly as possible. These types of incentives can generate a self-fulfilling financial panic resulting in disproportionately large outflows, especially when they are accompanied by evidence of disclosure problems.

15. See notably Dooley (1997). The importance of foreign reserve cover in amplifying investors' reactions in the Mexican crisis has been emphasised in *e.g.* Sachs *et al.* (1996), and in Calvo and Mendoza (1996). Radelet and Sachs (1998) emphasise it in explaining the Asian crisis.

16. When domestic currency can be freely converted into foreign currency, the ratio of foreign reserves to money (M2) provides an alternative measure of reserve cover. Foreign reserves are typically only a fraction of the domestic money supply.

Liquidity problems seem to have been an important element in the sharp reversal of capital flows in both the Mexican and Asian crises. In mid-1994, foreign reserves in Mexico were only around 60 per cent of short-term foreign debt (Table VI.3), which may have triggered a run by investors. Some of the other countries seriously affected by the turbulence in the mid-1990s, such as Argentina, also had low reserve cover. This was the case for some of the Asian countries by the mid-1990s and the reserve cover continued to drop until the onset of the crises in 1997. The importance that investors attach to the reserve cover was amply demonstrated when the Korean authorities announced in late 1997 that short-term external debt was higher and “employable” foreign reserves were lower than had been earlier reported.

... and a low reserve cover seems to have been an important element in many of the crises in the 1990s

— Table VI.3. Foreign reserves as a per cent of short-term foreign debt^a —

	End-1990	Mid-1994	End-1996	End-1997	Mid-1998
Indonesia	55	58	53	47	65
Korea	73	62	50	142	123
Malaysia	475	397	241	34	176
Thailand	151	101	83	67	93
China	335	228	333	422	467
Argentina	65	75	72	65	66
Brazil	34	142	136	104	131
Chile	148	198	192	164	151
Mexico	55	58	72	105	109
Russia	n.a.	n.a.	43	40	32

a) Foreign reserves equal total reserves minus gold; short-term debt is defined as claims of all BIS reporting banks vis-à-vis the countries, at maturities up to and including one year.

Source: Bank for International Settlements, IMF.

There is concern that volatile capital flows may in part be driven by herd behaviour in financial markets and contagion effects. Herding in financial markets would tend to amplify capital flows in both directions (“overshooting”), and contagion would tend to determine capital flows to one country by reference to factors in another country perceived to be similar and/or interdependent through trade and financial linkages. Herding and contagion need not be irrational in a world where information is costly. Under these circumstances it can be optimal for one investor to follow the lead of another perceived to have an information advantage. To “hide in the herd” may also be an optimal strategy for managers whose investment performance is measured against the average performance of all managers. Moreover, an environment in which international investors expect to be bailed out of problems will make it rational to follow the herd. But even if herding and contagion may be rational from an individual point of view, to the extent that they result in excessive volatility, they are unlikely to be socially optimal or desirable. In any case, the link between cross-border capital flows and the economic fundamentals of the receiving country are weakened or severed.

Herd behaviour and contagion effects may increase the volatility of capital flows

It is difficult to gauge to what extent herding and contagion, unrelated to economic fundamentals, played a role in driving recent capital flows. Low risk premia on emerging market debt in the mid-1990s could suggest that these effects were operative.¹⁷ There is also substantial evidence that a crisis in one country increases the

Contagion can be transmitted through trade and financial linkages...

17. Kim and Wei (1999) show that foreign portfolio investment in Korea was influenced by herd behaviour on the part of foreign investors.

probability of a crisis in other countries (Eichengreen *et al.*, 1996). To the extent that the transmission is related to trade linkages, and there is evidence that suggests that this transmission channel has been important in the past, such contagion is based on economic fundamentals. An alternative transmission channel can occur through “demonstration” or “wake-up call” effects (Goldstein, 1998): an event in one country alerting investors to risks in “similar” countries that had not been properly taken into account previously, thus leading to a re-adjustment of balance sheets. Such contagion could bring exposure more into line with economic fundamentals, provided that the re-assessment is based on a country-by-country basis. It cannot be determined to what extent such revisions of perceived risks have been based on an assessment of fundamentals rather than being driven by herd mentality.

While the contagion across the Asian countries could arguably be explained by trade and “wake-up” linkages, that from Asia to Latin America and Russia in 1997 seems to have operated *via* financial linkages: Asian banks suffering losses on lending at home selling their holdings of Russian and Brazilian high-yielding bonds to improve their liquidity position. The ensuing drop in bond prices in these countries was then transmitted to other key emerging markets via widely-employed modern risk management systems, whereby market volatility in one country automatically increases estimated credit and market risk in another country with similar past volatility.

... and leveraged positions can amplify contagion effects

The extraordinary impact of the Russian crisis on global financial markets appears to have been transmitted through highly leveraged positions of some financial institutions (including hedge funds). The small weight of Russia in international trade indicates that trade links cannot account for the contagion that took place in August 1998. Direct financial linkages were also too small to propagate the shock throughout the international financial system. However, although firm data do not exist, anecdotal evidence suggests that holdings of high-yielding Russian securities had been financed partly by borrowing on margin and also that they served as collateral for further borrowing. Under these conditions, the drop in the price on Russian securities would have given rise to margin calls, forcing investors to raise liquidity by selling Russian and other assets. Together with increased risk aversion, this in turn would have depressed prices on these assets further, reducing their value as collateral and prompting additional margin calls. The result may have been a broad-based sell-off of emerging market securities and high yielding instruments issued in mature markets. The small response in international financial markets to the Brazilian crisis last January could reflect that financial institutions had substantially reduced their leveraged positions in the wake of the Russian crises.

Emerging market countries can take measures to reduce their vulnerability to international liquidity problems and to adverse herding and contagion effects...

Countries can reduce their vulnerability to liquidity-driven disturbances by maintaining sufficiently high reserve cover and by establishing credit lines that can be drawn on in a crisis situation. Moreover, to minimise the risk of falling victim to herd behaviour and contagion, the most appropriate policy in the long run is to make it easier and less costly for foreign investors to acquire information about the economy, and to take measures to reduce the perception that investors will be bailed out if they make mistakes.¹⁸ However, countries on the verge of financial panics have even fewer options to modify capital flight than when outflows are driven by changing perceptions of fundamentals only. In such circumstances

18. Investors have little incentives to engage in credit risk assessment when they expect to be bailed out, thereby increasing the likelihood that they will simply follow the lead of the herd.

interest rate hikes and the imposition of a transaction tax on capital flows are likely to prove ineffective. Quantitative restrictions on outflows may not even prove to be very effective, as there would be very strong incentives to find measures to circumvent such regulations.

Recent measures and proposals to reform the international financial architecture have been motivated by a perceived need to help countries facing a potential crisis. Such help is not necessarily altruistic insofar as it acts as a “circuit-breaker” to contagion or herding effects. Thus, the recently established contingent credit line facility in the International Monetary Fund (IMF) for countries facing adverse contagion effects despite sound fundamentals could make liquidity-driven panics less likely. Increased private sector involvement in the resolution of crises (e.g. automatic extension of loans under certain circumstances) could also reduce the risk of sudden withdrawal of credit lines, but might also unduly reduce the availability of funds in the longer term. Moreover, an international lender of last resort and an international bankruptcy court could help to prevent financial panics altogether. In order for the international community to create effective institutions of this kind,¹⁹ it is necessary to address adequately the moral hazard inherent in such arrangements (Giannini, 1999). At the domestic level, this is done by giving the lender of last resort and bankruptcy courts vast powers to impose conditions unilaterally on those seeking their services. Wielding such powers with supra-national institutions may not be compatible with national sovereignty.

... and changes to the international financial architecture are being proposed to contain and minimise the likelihood of crises

On the efficacy of capital controls

The volatility of foreign capital flows has raised questions about the desirability of free capital movements, and the possible use of controls to shelter countries from the disruptions associated with such instability. However, notwithstanding substantial liberalisation of capital-account transactions,²⁰ legal and administrative restrictions remained common in several emerging economies in the mid-1990s,²¹ including those that later succumbed to crises. In addition to controls directly targeted at cross-border movements of capital, most countries have prudential regulations on banks’ foreign currency exposure (discussed above) which can indirectly influence capital flows. Direct restrictions typically take two different forms:

Capital controls remain common in emerging market countries...

- Quantitative restrictions that prohibit outflows or inflows of funds. Such restrictions are often used to prevent excessive exchange rate volatility due to sudden capital outflows. Malaysia’s controls announced last September fall under this category.
- “Tax-based” controls that make it more costly to move capital across borders. The Chilean capital control system, in effect since 1991, imposes a transaction tax on all inflows, except for foreign direct investment, through unremunerated reserve requirements and withholding periods.

19. Fischer (1999) argues that the IMF, generally acting in concert with other official organisations, has undertaken certain important lender of last resort functions in the past.

20. The average capital controls index for 17 emerging countries, constructed by Bartolini and Drazen (1997) to gauge the restrictiveness of capital controls, fell by one-third from 1987 to 1995. This is reported in Bacchetta and van Wincoop (1998).

21. See Table 1 in Blöndal and Christiansen (1999).

... and aim at stabilising cross-border flows...

The objective of these restrictions has been to gain greater independence in macroeconomic policy making and to shelter countries from capital flows perceived to be excessively volatile. Some countries have also aimed at reducing volatility through systematic discretionary changes: tightening controls on inflows when the availability of foreign capital is abundant, and tightening restrictions on outflows when foreign capital becomes scarce.

... but their long-term effectiveness is open to doubt

Proposals to limit capital movements implicitly assume that such flows can be controlled by legal means. There is, however, evidence that they are difficult to restrict (Dooley, 1997; Eichengreen and Mussa *et al.*, 1998). The private sector can develop various means to circumvent such restrictions: mis-invoicing in trade, leads and lags, substituting exempted flows for flows subject to restrictions, and resorting to illegal methods, including bribery. The ability to avoid selective capital controls has also increased substantially with the proliferation of financial derivative instruments, which facilitate the transformation of one financial instrument into another (Garber, 1998). Indeed, a common finding of studies in this area is that the effectiveness of control programmes diminishes over time as the private sector invests in avoidance techniques. And there may be serious difficulties in enforcing a reimposition of capital controls once the private sector has become accustomed to a liberalised system.

When effective, controls may have short-term benefits but can also have long-term costs

If the reimposition of capital controls could be made effective as an emergency measure, they would have short-term benefits but could also have long-term costs. The short-term benefits would come from greater independence in setting interest rates with the aim of supporting economic activity (Edwards, 1998). The costs relate to the risk that temporary controls might become permanent and be used to perpetuate inappropriate policies rather than foster policy reforms. Transitory restrictions on financial flows could also reduce trade in goods and services if they would imply that trade-related currency exposure could not be hedged. Temporary controls may also entail longer-lasting burdens in terms of higher borrowing costs, if the risk of losses related to possible future controls is factored into financial asset prices, and lower foreign direct investment, especially if the controls affect the ability of investors to repatriate their profits and assets.

Emerging market countries should aim at progressive liberalisation of capital flows over time, based on sound financial systems and macroeconomic stability

Given the potential benefits of international integration,²² emerging market economies should aim at progressive liberalisation of capital account transactions over time. As the experience of the crises in emerging markets in the recent and the more distant past demonstrates, it is essential to precede and/or match capital-account liberalisation with measures to strengthen the financial system and to establish macroeconomic stability. This should not serve as an excuse to unduly postpone liberalisation and to continue to pursue inappropriate structural and macroeconomic policies.

22. Empirical studies provide only weak evidence that capital account liberalisation improves economic growth, but this may be related to methodological problems in detecting the benefits. See Eichengreen and Mussa *et al.* (1998).

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