

INTERNATIONAL FINANCIAL FLOWS AND REGIONAL FINANCIAL SAFEGUARDS IN EAST ASIA¹

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INTRODUCTION

There exists a rich literature that has detailed the various channels through which a devaluation might be contractionary (see Bird and Rajan, 2001a and references cited within). An important channel that was not paid sufficient attention to in this literature is the so-called “balance-sheet effect” due to sizeable unhedged exposures to short-term foreign currency denominated debt (Aghion et al., 2000 and Krugman, 1999a,b)². The rise in corporate bankruptcies due to an escalation in domestic currency liabilities inevitably lead to large-scale domestic “credit rationing”, as decapitalised banks, burdened by large nonperforming loans (NPLs), curtail their lending³. In a recent review of the IMF response to the East Asian crisis, Fund economists acknowledged the importance of this balance-sheet channel:

It was...not foreseen at the outset that these economies would adjust in a dysfunctional way of reduced external financing - largely through a collapse of private domestic demand rather than a boom in exports. This adjustment reflected in large part the harsh balance-sheet effects of the currency depreciations that occurred, given the unhedged foreign currency exposures of banks and corporations (Boorman et al., 2000, p.6)

Thus, while real exchange rate depreciation may boost the exportables sector (“competitiveness channel”), it could simultaneously contract domestic demand by lowering the net value of leveraged, bank constrained firms (“balance sheet channel”). The resultant impact of a real devaluation on aggregate demand therefore depends on the relative magnitudes of the two effects. Krugman (1999b) has noted that the pro-competitive effects of a devaluation might dominate for “small” variations in the exchange rate, resulting in a devaluation being expansionary; the balance sheets effects may dominate for “large” devaluations, resulting in an income contraction. The conundrum is that even a small devaluation in developing countries may act as a trigger leading to sharp capital outflows and outright economic collapse after the initial devaluation. As Calvo (1996) has noted:

if there is a “bad” equilibrium lurking in the background, a devaluation - especially, an unscheduled devaluation - could coordinate expectations and help push the economy to the “bad” equilibrium (p.219).

In other words, if devaluation damages confidence it can result in additional capital outflows. This in turn can cause a further decline in the currency’s value that is anticipated, leading to a vicious spiral of crisis-induced devaluation, illiquidity and insolvency of financial institutions and corporates, and an outright economic collapse eventually. Dornbusch (2001) refers to this as a “new-style” crisis. As he states:

A new-style crisis involves doubt about credit worthiness of the balance sheet of a significant part of the economy – private or public – and the exchange rate...when there is a question about one, the implied capital flight makes it immediately a question about both...the central part of the new-style crisis is the focus on balance sheets and capital flight...Because new-style crises involve the national balance sheet they involve a far more dramatic impact on economic activity than mere current account disturbances..(p.2).

Models emphasising the importance of post-devaluation capital reversals can be differentiated according to the type of capital flows that they focus on, viz. bank flows versus portfolio flows (Figure 1). These new-style crisis models provide the analytical basis for a detailed examination of the capital account transactions of the five crisis-hit East Asian economies (henceforth referred to as the Asia-5 economies).

The remainder of the paper is organised as follows. The next section provides an overview of trends and patterns in international capital flows to the Asia-5 economies and the larger East Asian region during the bust period and eventual recovery period that followed (1997 to 2000). Section 3 discusses the rationale for and progress towards the recent regional initiatives to buttress the international liquidity positions of participating East Asian member countries via a network of swap arrangements (i.e. the “Chiangmai Initiative”). The final section offers a summary and some concluding remarks.

DYNAMICS OF CAPITAL FLOWS IN EAST ASIA IN THE LATE 1990S

There are already by now some comprehensive discussions of the East Asian crisis ⁴. It is suffice to note that the region-wide contagion in East Asia may be broadly divided into four sub-periods. The devaluation of the Thai baht was the first period (July 1997). The second period was when the contagion spread to the other Southeast Asian countries (Indonesia, Malaysia and the Philippines specifically) between July and mid October 1997. The third

period was when the crisis engulfed the larger East Asian region (Hong Kong, Singapore, South Korea and Taiwan) following the pre-emptive devaluation of the New Taiwan dollar in October 1997. Once the South Korean won was devalued in November 1997, this then reverberated back to Southeast Asia and eventually developing countries in general. This was the fourth period (Berg, 1999). The crisis did intensify in mid-1998, but this was due to a pronounced liquidity crunch in emerging markets as a whole following the Russian debt moratorium (discussed later in this section).

Crisis Scenario

It is important to keep in mind that the crisis was principally due to reversals of capital flows from the banking sector. Indeed, balance of payments data from the IMF reveal that the Asia-5 economies saw a sharp reversal in net private capital flows of almost \$96 billion between 1996 and 1998 (Table 2). This reversal was largely due to the “other net investment” category which primarily consists of short-term bank lending. The entire \$60 billion of inflows in average into the Asia-5 economies of this category in 1995 and 1996 were lost within the next two years, as international banks became unwilling to roll over existing short-term debts to the region, let alone extend new ones.

More insights might be obtained by considering quarterly BIS data on banking flows. International bank lending to the crisis countries remained buoyant at almost \$50 billion in the first half of 1997, but swung to -\$40 billion in the third quarter of 1997, and then averaged close to -\$100 billion for the three consecutive quarters that followed (BIS, 1999)⁵. The sudden reversal in bank lending from the region is often portrayed as strong evidence of a bank panic model (Chang and Velasco, 1998, 1999)⁶. A less noticed but important aspect of the sharp contraction of private market financing was the decline in portfolio flows in 1997-98 following the initial bank panic, as investors too tried to scale down their regional financial exposures (“flight to quality”)⁷. There was net portfolio investment turnaround of almost \$34 billion between 1996 and 1998 (from \$26 billion in 1996 to -\$8 billion in 1998). In contrast to bank and portfolio flows, FDI flows have remained very stable during the crisis period, averaging about \$10 billion⁸.

The East Asian crisis appeared to be abating by early 1998 in all the regional economies except for Indonesia (where the rupiah remained extremely weak in light of economic policy slippages and civil unrest). However, market turbulence reemerged and intensified following the devaluation and unilateral domestic debt default by Russia followed by the near-collapse of the US hedge fund, Long Term Capital Management (LTCM).

Depreciation of the Japanese yen vis-à-vis the US dollar, which in turn caused concerns about the recovery prospects of the other Asian economies, exacerbated the circumstances in the Asia-5 economies. This is reflected in a pointed rise in emerging secondary market spreads in all major East Asian borrowers in August and September of 1998 following the Russian debacle - a combination of a contraction in liquidity and a reassessment of credit risk among all emerging markets as creditors and investors fled *en masse* from emerging economies (ADB, 2000 and IMF, 1999).

Stabilisation and Recovery

Marked as this downturn was, it proved to be temporary, as the easing of official interest rates in the US and other industrial countries, as well as an agreement on an IMF rescue package for Brazil, worked in tandem to generate a broad-based recovery in emerging markets in general by the fourth quarter of 1998. While the devaluation of the Brazilian real in early 1999 threatened to derail the recovery in East Asia yet again, in actuality it did not. There was very limited negative fallout from the Brazilian crisis⁹. Korea, Malaysia and Thailand were all upgraded by ratings agencies immediately in the first half of 1999 (IMF, 1999).

While capital flows have varied significantly across the Asia-5 economies, in aggregate, net private capital outflows, which totalled over \$40 billion in 1997 and 1998, slowed down to half that in 1999 and 2000. The growth performance in the regional economies broadly mirrored the dynamics of capital flows (Figure 2). Having contracted markedly in 1998, due mainly to drops in capital investment and private consumption, the regional economies bounced back in 1999 and consolidated their respective positions in 2000. The economic revival essentially began in early 1999 as monetary and fiscal policies remained highly accommodative (Boorman et al., 2000).

a) Bank Flows

Closer examination of IMF data on recent capital flows to the Asia-5 economies reveals some important points. First, bank-related outflows have continued unabated (i.e. the “other net investment” component). The sustained bank outflows from the region occurred despite a renewed willingness of lenders to maintain, if not slightly increase, exposures to the region because of repayments of external liabilities to commercial banks. These repayments were largely concentrated in Thailand and Indonesia (IIF, 2001). It is important to note that a central difference between the outflows in 1997-98 and 2000 was that the former was largely unanticipated and thus highly disruptive. In the latter, the loan repayments had been

anticipated and scheduled. According to the IIF (2001), net repayments by *all* Asian economies to banks totalled almost \$100 billion in 1998 and 1999.

Additional insight might be obtained from the BIS data on nationality of creditor banks (Rajan and Siregar, 2001). While all major creditor banks between December 1997 and June 1998 reduced their stocks of outstanding loans to the region, this trend continued between June 1998 and June 1999 only in the cases of Japanese and UK banks, as most of the repayments by Asian borrowers were focused on these two creditors. In contrast, outstanding loans by US, French and German banks stabilised.

b) Equity Flows

What about equity investments? Portfolio equity investment flows appeared to have stabilised and turned positive (\$7 to \$8 billion in aggregate in 1999-2000). FDI flows remained positive mainly due to sharply depreciated asset values and exchange rates and relaxation of foreign ownership rules which spurred merger and acquisitions (M&As) activities in Korea. However, Asia-5 economies' share of FDI to the whole of the developing East Asian region has been on a declining trend, particularly so in the case of Southeast Asian-4 (Tables 3 and 4). The decline appears to be a reflection of growing concerns by international investors about the commitment by some of the economies to structural reforms, along with heightened political uncertainties in a number of these countries (ARIC, 2001).

While it is certainly revealing that FDI has *not* been stimulated in the regional economies despite large currency depreciations and reductions in domestic asset values, Indonesia was the only country where the actual *stock* of FDI continued being eroded with net outflows since 1998. Two ways Granger-causality between direct investment and GDP for Indonesia using quarterly data from second quarter of 1986 to the fourth quarter of 1999 is instructive. The causality test reveals only one direction causality to be significant, viz. movements in direct investment Granger-cause currency variations in GDP growth (with a two period lag). In other words, the collapse of direct investment in Indonesia, both domestic and foreign, may have contributed significantly to a worsening of the country's growth (Rajan and Siregar, 2001).

Reserve Accumulation and Exchange Rate Policies

Large-scale reserve holdings accumulated by the East Asian economies in the 1990s somewhat cushioned the exchange rate depreciations in 1997-98. Also of importance is the fact that the regional economies began re-accumulating international reserve holdings

following the sharp declines in 1997, implying that the current account surpluses exceeded the total capital outflows (Figure 3).

Another reason for the reserve accumulation is the “fear of floating” that seems to characterise developing countries (Calvo and Reinhart, 2000a,b and Hausmann, et al., 2000). To be sure, there certainly has been a generalised move towards greater exchange rate flexibility during the post-crisis period (Figure 4). However, while the Malaysian capital controls have allowed for the simultaneous maintenance of monetary autonomy and a fixed regime (by breaking the “Impossibility Trilemma or Trilogly” – please provide a endnote on what is the Impossible Trilemma or Trilogly) , the other countries have depended on a combination of activist interest rate policy and foreign currency market intervention to ensure relative exchange rate stability. Consequently, they have experienced sharp gyrations in monetary variables and international reserves. Some countries like Thailand have also taken steps to curb currency speculation.

The replenishment and accumulation of international reserves, on the one hand, as well as the lengthening of the average maturity profile of external indebtedness of the regional economies (Table 5), on the other, has significantly improved the external positions of the regional economies. As a result, their vulnerability to the destabilising effects of volatile and easily reversible capital flows appears to have eased¹⁰. The issue of safeguarding against financial vulnerability is the focus of the next section.

REGIONAL FINANCIAL SAFEGUARDS

Sustenance and hastening of growth in the medium and longer terms hinge on the extent to which the regional economies persevere with structural reforms in general, and the pace of financial and corporate restructuring in particular. Financial sector restructuring has been an essential element of the IMF structural adjustment programs for resolving the crisis in the East Asian economies (Lane et al.,1999 and Lindgren et al., 1999)¹¹. Slow progress towards corporate debt restructuring is the single biggest obstacle towards rapid improvements of banks’ balance sheet positions and, consequently, domestic credit availability, particularly to small and medium-sized enterprises (SMEs)¹².

Table 6 summarises the progress with corporate restructuring in the four of the five crisis-hit economies. It is suffice to note here that, by and large, corporate restructuring has lagged behind financial sector restructuring, with Korea again making the most headway (having introduced measures to strengthen corporate governance), and Indonesia is the laggard.

While much remains to be done at a domestic level to restructure the economies, the financial crisis of 1997-98 and the perceived inadequacies of the International Monetary Fund's (IMF's) response to it has motivated a sub-group of East Asian economies to take some small but important steps towards enhancing regional financial stability and protected themselves against externally induced shocks and liquidity crises. The establishment of the Manila Framework group (MFG), the ASEAN Surveillance Process (ASP), which is managed by the newly created ASEAN Surveillance Coordinating Unit (ASCU), as well as the recently formed Regional Economic Monitoring Mechanism (REMU) of the ADB, are all steps in the right direction. These initiatives have been discussed in some detail by Chang and Rajan (2001) and Manzano (2001) and will not be repeated here. While these initiatives towards enhanced regional surveillance are important in their own right, they do not in and of themselves reduce a country's susceptibility to capital account crises, which requires access to international credit lines (Bussiere and Mulder, 1999 and World Bank, 2000).

Contingent Credit Lines: Why Regional?

There are two main liquidity enhancement measures, viz. holding adequate reserves to cover short-term debt and the creation of contingent credit lines. As noted previously, the East Asian economies have been rapidly accumulating international reserves since the crisis. However, the anticipated decline in current account surpluses as the economies continue with their expansions and concomitant increased import propensities may limit the near-term buildup of these reserves. Recent weaknesses in the regional currencies and the desire by the central banks to offset, at least partly, the currency declines (*vis-à-vis* the US dollar) have in fact led to a slight drain in reserves in some of the regional economies since late 2000 (Figure 3). This is particularly so in the case of Malaysia, which has maintained a fixed US dollar peg since September 1998 (and has seen a decrease in reserves from about US\$26 billion in the end of April 2000 to US\$ 35 billion in the end of April 2001), as well as Indonesia whose currency has been faced with the greatest bearish pressures. In addition, a policy of reserve accumulation involves high fiscal costs as the country effectively swaps high yielding domestic assets for lower yielding foreign ones¹³.

Accordingly, contingent credit lines are viewed as being of significant importance in providing additional international liquidity to deal with sudden capital flow reversals. Countries unilaterally with foreign banks and private financial institutions can negotiate such lines of credit. Indonesia, Argentina, Mexico and South Africa are recent examples of countries that have arranged such private lines of credit with international banks. However,

there are a number of problems and limitations of obtaining such credit lines unilaterally and on a private basis rather than regionally or multilaterally via official channels.

First, there may be high opportunity costs involved insofar as the individual countries have to commit certain assets/revenue streams as collateral. Second, calling upon these lines of credit when needed may lead to a hike in the country's international risk premium. Third, while negotiating lines of credit with a country, the financial institutions may undermine the effectiveness of these commitments and their effective exposures to that country through other channels (through various corporate risk management techniques). Fourth, and related to this, if the credit lines are called upon by one country, the international financial institutions may be forced to reduce their exposures in other emerging economies, either to cover losses or in order to reduce portfolio risks and improve the liquidity position ("flight to safety" effects).

While it need not always be, this negative externality or spillover tends often to be *regional* rather than *global* (see Chang and Rajan, 2001 and references cited within). For instance, in a recent study using a sample of 20 countries covering the periods of the 1982 Mexican debt crisis, the 1994-95 Tequila crisis and the 1997-98 Asian crisis, De Gregario and Valdes (1999) found contagion to be directly dependent on *geographical horizon*. Using a panel of annual data for 19 developing countries for the period 1977-93, Krueger et al (2000) concluded that a currency crisis in a *regional economy* raises the probability of a speculative attack on the domestic currency by about 8.5 percent points. All of this provides rationale for developing regionally based contingent credit facilities to buttress reserve holdings of individual countries so as to prevent a sudden credit contraction due to a liquidity crisis.

It is important to note that the IMF has also established an international contingent credit line (CCL) which has recently undergone modifications in view of some important limitations, including the relatively high costs of borrowing via this facility and the conditionality involved as part of obtaining the funding. Although the merits of these modifications or of the CCL will not be discussed here in general, it is worth noting that there remains the possibility that application for this facility by a country may lead market participants to be concerned about the health of the country, leading to a self-validating speculative attack and crisis. This is especially so if, as Radelet and Sachs (1998) have suggested, the "arrival of the IMF gives all the confidence of seeing an ambulance outside one's door" (page number ? from Radelet and Sachs' paper). In any case, there is no reason

why such CCLs cannot co-exist with a regional mechanism, particularly if the eligibility criteria are agreed upon with the IMF beforehand.

Against this background it is important to note that selected East Asian economies have recently agreed to create a network of bilateral currency swaps and repurchase agreements as a “firewall” against future financial crises. This has since come to be termed the Chiang Mai Initiative (CMI) following an agreement in Chiang-Mai, Thailand on May 6, 2000.

The Chiang-Mai Initiative

Broadly, the CMI is aimed at providing countries under pressure with short-term hard currency liquidity to bolster reserves through bilateral swaps (the hard currencies are mainly in US dollars, but also in Yen and Euro). The CMI extends and expands upon the little known ASEAN Swap Arrangement (ASA) to encompass all ASEAN countries as well as China, Japan and Korea (i.e. ASEAN Plus Three or APT). The ASA was established in 1977 to provide short-term swap facilities to members facing temporary liquidity or balance of payments problems. There were initially only five ASEAN signatories (Indonesia, Malaysia, Philippines, Singapore and Thailand), and the facility stood at US\$200 million. At the Fourth ASEAN Finance Ministers Meeting in Brunei Darussalam (March 24-45, 2000), the Ministers agreed to expand the ASA to include the remaining ASEAN members, Brunei Darussalam, Cambodia, Lao PDR, Myanmar and Vietnam. In keeping with this expansion, the ASA was enlarged to US\$ 1 billion effective November 17, 2000. There also exist a series of repurchase agreements (repos) that allow ASEAN members with collateral like US Treasury bills to swap them for hard currencies and then repurchase them at a later time. The ASA is to be made available for two years and is renewable upon mutual agreement of the members. Each member is allowed to draw a maximum of twice its committed amount from the facility for a period of up to six months with the possibility of a further extension which is not to exceed six months.

This buttressing of the ASA is the first step envisaged by the CMI which aims to eventually create a broad and comprehensive network of swaps among the APT economies. Unlike repos, the CMI envisages that hard currency lines of credit can be made available to members without strict linkages to repos (Rowley, 2001). Beyond this beefing up and expansion of the ASA among Southeast Asian countries, the three ASEAN Dialogue partners, China, Japan and Korea, have simultaneously been in discussions to establish bilateral swap arrangement (BSA) and repos among themselves (Wheatley, 2000). Japan has

recently signed BSAs totalling US\$6 billion with Malaysia, Thailand and Korea, and is planning others with China and the Philippines. BSAs among other members of the APT are expected in the near future (Rowley, 2001)¹⁴. While the maximum amount of withdrawal under each of the BSA will be determined by negotiations between the two countries concerned, in the spirit of regional partnership, there is to be full coordination and consultation among all members when deciding on disbursements.

While the basic principal of the CMI is clear, the conditions that will apply to the disbursements and speed at which they can be activated remain sketchy. Based on available accounts and reports, 10 percent of the funds will be available automatically while the rest are subject to IMF approval and conditionality. Other critical details of the new swap arrangements, such as the type of collateral that may be required for hard currency loans, the interest rate to be charged, number of withdrawals that can be made, and the like, appear to be unavailable. As part of the CMI, there is an agreement by member countries to exchange information on cross-border capital flows. Progress on this front too is unclear. Insofar as “the devil lies in the details”, a proper evaluation of the CMI cannot be undertaken at this stage. Nevertheless, the creation of the CMI is notable, not least because it involves real financial commitments by APT members to one another.

The CMI appears to have been well received, even by the IMF and the US administration. The IMF Managing Director, Horst Kohler (2001), expressed support for the AMF and other regional initiatives as long as they are complementary and not competitive to the IMF approach. China too has expressed open support for the CMI and has become an active participant in it (Goad, 2000 and Rowley, 2000, 2001). Support by these entities is significant, not least because their opposition stifled the initial proposals for fortified monetary regionalism via an Asian monetary facility. In fact, a successful introduction of a network of regional swap arrangements in East Asia (possibly enlarged to encompass most of Asia as defined by the ADB over time) has been viewed by some observers as an important step towards the eventual creation of a full-fledged regional monetary facility (Luce, 2001 and Rowley, 2001). Bird and Rajan (2000) and Chang and Rajan (2001) have detailed the rationale for the creation of an Asian monetary facility at a general level, and we will not go over well-travelled terrain. It is merely noted that regional monetary facilities can complement the IMF in similar ways that regional development banks (such as the ADB) complement the World Bank’s operations¹⁵. The ADB (1999) suggests that:

“(The) AMF could play a potentially important role as a complement to the IMF in providing funds to crisis-affected countries and developing an early

warning system. The implementation of such regional institutions as the AMF as part of the newly emerging financial architecture will help both to enhance the efficiency of global financial markets and to minimize systematic risk” (p.44).

SUMMARY AND CONCLUSION

To conclude, the Asia-5 economies experienced a speedy adjustment from the 1997-98 crisis, i.e. the recessions, though severe, have proven to be short-lived. While this is frequently taken as a sign of the region’s oft-repeated economic “strengths” (such as their high saving rates), in actuality, such a post-crisis “V-shaped” recovery is not unique to East Asia, typifying financial crises experiences in general (Eichengreen and Rose, 2001; also see Hutchison, 2001). Rather, of concern is that the rapid recoveries in capital flows and economic activity in Asia-5 economies may retard their commitment to push ahead with necessary structural reforms so essential to ensure that growth is sustained. Some important inroads have certainly been made with respect to bank recapitalisation and rehabilitation though lingering financial strains in the corporate and banking sector plague these economies. Concerted efforts are needed to ensure that reform fatigue does not creep in, particularly when some of the longer-term reforms to upgrade domestic financial and corporate systems and comply with international best standards are outstanding.

The inevitable lethargy and limited progress at reforming the international financial architecture¹⁶, on the one hand, and the recent financial crisis in Argentina, Turkey and elsewhere, on the other, emphasise the need for East Asia (and the larger Asian region) to take steps towards developing self-help mechanisms to complement their domestic reforms and restructuring efforts, and as a means of providing momentum for genuine reforms at the international level. The enhancement of liquidity support via the accumulation of reserves, activation of private credit lines, and the establishment of a system of interregional swap arrangements as part of the Chiang-Mai Initiative (CMI) are important financial safeguards against sharp liquidity crises in the short and medium terms. Over the longer-term, these initiatives are small but practical steps in furthering more broad-ranging monetary cooperation in the region.

NOTES

1. This paper was completed while the author visited the Hong Kong Institute for Monetary Research (HKIMR). Views expressed here are strictly personal and should not be attributed to the HKIMR, the Council of Advisors, or Board of Directors. Comments of an earlier version by seminar participants in HKIMR and ISEAS, particularly by Donal Donovan and Pradumna Rana, are gratefully acknowledged, as is research assistance by Regan Engelhardt. The usual disclaimer applies.
2. Over fifty percent of long-term external debt in developing countries (for which data are available) is held in US dollars, with the remainder being held primarily in euros and Japanese yen. This inability by developing countries to borrow externally in their local currency has come to be referred to as the “original sin” hypothesis, a term attributed to Hausmann (1999) and Hausmann et al. (2000). For a discussion of the implications of this original sin hypothesis on exchange rate policy in Southeast Asia, see Rajan (2001b) and references cited within.
3. We do not enter here into the controversial debate of defining what is meant by a “credit crunch” and how it is most appropriately measured, only recognising that credit growth reflects both the demand for and supply of credit (see Lane et al, 1999, Lindgren et al., 1999 and Furman and Stiglitz, 1998).
4. For detailed accounts of the East Asian crisis, see Berg (1999), Corsetti et al. (1999), Radelet and Sachs (1998), Rajan (1999a) and World Bank (1998).
5. Interestingly, the data also reveal that while Japanese and US banks reduced their exposures in Asia-5 between June and December 1997, the European banks were still expanding their lending to the region in these few months (Rajan and Siregar, 2001).
6. Of course, these *ex-post* swings in bank flows are only *necessary* and not *sufficient* evidence in support of a bank panic model. Accordingly, at least in the case of Thailand, Rajan (2001a) has provided data on the foreign asset and liability positions in order to determine its *ex-ante* vulnerability to an external shock (such as a devaluation) and then discusses the movements in capital withdrawals from the country following the shock.
7. This is consistent with the Calvo-Mendoza capital crisis model which rationalises an equity-based boom and bust cycle of capital flows (Calvo and Mendoza, 1996, 2000). This model is a simple one period mean-variance model of optimal portfolio diversification/allocation. It shows that the marginal gain from gathering information about any single country falls as portfolios get increasingly diversified internationally. Thus, just a rumor or some other adverse event - such as a devaluation - may suffice to generate large-scale reallocation of funds away from one destination to another, making small open economies susceptible to sharp boom and bust cycles (also see Rajan and Siregar, 2001).
8. Possible interactions between the various types of capital flows will not be discussed here (see Bird and Rajan, 2001b and references cited within).
9. For an early discussion of the Brazilian crisis, see Rajan (1999b). The other significant negative shock during this period was the collapse of one of China’s largest investment and trust corporations (ITICs), the Guangdong ITIC (GITIC) in October 1998.
10. The extent of short-term indebtedness has been found to be a robust predictor of financial crises (Dadush et al., 2000, Rodrik and Velasco, 1999 and World Bank, 2000). According to Dadush et al., on the basis of data for 33 developing countries, the elasticity of short-term debt with GDP growth is 0.9 when there is a positive shock to output and -1.8 when there is a negative shock. This extreme reversibility of short-term debt in the event of negative shock exposes borrowers to liquidity runs and systemic crises.
11. We do not enter into the debate of the appropriateness of the IMF conditionality per se. While Malaysia

did not enter into an IMF agreement, it did embark on “shadow” IMF structural adjustments.

12. SMEs have been especially hard hit by the credit crunch, particularly since many are in the nontradables sector. For instance, in Malaysia, three quarter of the NPLs are to firms in the nontradable sector. In Thailand, small firms and households account for half of the NPLs (ADB, 2000 and World Bank, 2000).
13. There is the additional question of what the appropriate size of reserve holdings are. The generally accepted rule of thumb that a country needs to hold reserve equivalent to short-term debt cover (i.e. debt that actually falls due over the year) is true only in the case where a country is running a current account balance and there are no other liabilities that are easily reversible. The optimal level of reserves depends on a number of factors such as degree of export diversification, size and variability of the current account imbalance, type of exchange rate regime, etc. (Bussiere and Mulder, 1999). A related issue pertains to the appropriate currency composition of reserves in terms of currency composition (Eichengreen and Mathieson, 2000).
14. While Singapore is a contributor to the ASA, it has announced its intention not to sign bilateral swap agreements at this time under the CMI in view of its seemingly secure external position.
15. Of course, the flip side of this would be that the ADB and other regional development banks are largely redundant and ought themselves to be shut down, leaving only international institutions like the World Bank, IMF and BIS as part of the new financial architecture (Dornbusch, 1999).
16. Eichengreen and James (2001) have suggested that one reason why international financial reforms are not occurring at a faster pace is because the recent financial crises do not appear to have threatened the global trading system.

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