

# Crisis and Contagion in East Asia

## Nine Lessons

*Masahiro Kawai*  
*Richard Newfarmer*  
*Sergio Schmukler*

Currency and banking crises such as those originating in Mexico (1994), Thailand (1997), and the Russian Federation (1998) tend to be associated and often take place together across countries. The East Asian experience was a fruitful laboratory for examining key questions. For example: How did contagion occur so extensively, and why was it so devastating? Did policy responses to crises and contagion minimize their impact on the real economy? What type of international financial architecture is needed to prevent and manage crises and contagion?

The World Bank  
East Asia and Pacific Region  
Office of the Regional Vice President  
and  
Macroeconomics and Growth  
June 2001



## Summary findings

Kawai, Newfarmer, and Schmukler investigate the origins of the East Asian crisis and its contagion, examine the channels of contagion, and discuss policy recommendations. They make detailed recommendations in the context of nine general lessons learned from the East Asian crisis.

### *Preventing crises and contagion*

- Avoid large current account deficits financed through short-term private capital inflows.
- Aggressively regulate and supervise financial systems to ensure that banks and nonbank financial institutions manage risks prudently.
- Put in place incentives for sound corporate finance to prevent high leverage ratios and overreliance on foreign borrowing.

### *Managing crises and contagion*

- In the context of sound policies, mobilize timely external liquidity of sufficient magnitude to restore market confidence.
- At times of crisis, “bail in” private foreign creditors. When official resources are too limited for the

magnitude of the crisis or contagion, and when private creditors are not amenable to coordination, some involuntary private involvement may be needed too.

- Keep in mind that there is no one-size-fits-all monetary and fiscal stance for responding to crises and contagion.

### *Resolving the systemic consequences of crises and contagion*

- Move swiftly to establish domestic and international mechanisms for dealing with the assets and liabilities of nonviable banks and corporations.
- Cushion the effects of crisis on low-income groups through social policies to ameliorate the inevitable social tensions associated with adjustment.

### *Developing an effective regional financial architecture*

- Improve mechanisms for preventing, managing, and resolving crises and contagion at the regional level in ways consistent with improvements in the global financial architecture.

---

An earlier version of this paper—a joint product of the Office of the Regional Vice President, East Asia and Pacific Region, and Macroeconomics and Growth, Development Research Group—was presented at the seminar on ASEAN Macroeconomic Outlook and Economic Recovery, organized by the ASEAN Secretariat and held in Manila in February 1999. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room MC3-347, telephone 202-473-7471, fax 202-522-3518, email address [kkhine@worldbank.org](mailto:kkhine@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [mkawai@worldbank.org](mailto:mkawai@worldbank.org), [rnewfarmer@worldbank.org](mailto:rnewfarmer@worldbank.org), or [sschmukler@worldbank.org](mailto:sschmukler@worldbank.org). June 2001. (54 pages)

*The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent.*

# CRISIS AND CONTAGION IN EAST ASIA: NINE LESSONS\*

By

Masahiro Kawai  
*Chief Economist*  
*East Asia and Pacific Region*  
*World Bank*

Richard Newfarmer  
*Economic Adviser*  
*Development Economics*  
*World Bank*

and

Sergio Schmukler  
*Economist*  
*Development Economics – Research Group*  
*World Bank*

**Keywords:** Asian crisis, contagion, policy responses, and crisis management

**JEL Classification Codes:** E44, E50, F30, F36, F41, and G15

---

\* An earlier version of this paper was presented to the “Seminar on ASEAN Macroeconomic Outlook and Economic Recovery,” which was organized by the ASEAN Secretariat and was held in Manila on February 10-11, 1999. We thank David Bisbee for excellent research assistance. The findings, interpretations, and conclusions expressed in this paper are those of the authors and do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent. Contact address: The World Bank, 1818 H Street NW, Washington, DC 20433. E-mail: [mkawai@worldbank.org](mailto:mkawai@worldbank.org), [rnewfarmer@worldbank.org](mailto:rnewfarmer@worldbank.org), [sschmukler@worldbank.org](mailto:sschmukler@worldbank.org)



## I. INTRODUCTION

The recent financial crises in the emerging market economies have attracted considerable attention from policymakers, economists, and the financial press. The currency crisis that originated in Thailand was rapidly transmitted to Indonesia, Malaysia, the Philippines, and Korea; and its impact was also felt in other developed and emerging markets. A similar shock threatened Latin America and the rest of the world when the Mexican peso was devalued in 1994 (the Tequila crisis). In 1998 and 1999, the currency devaluations in Russia (August 1998) and Brazil (January 1999) have unleashed a new wave of financial volatility. The fact that the currency crises in the 1990s, most notably the one in East Asia, were clustered suggests that the crises in different countries were related.

Financial crises, characterized as currency (i.e., balance of payments) crises and banking crises, have long been studied. A currency crisis takes place when there is a run on official foreign exchange reserves, thus exerting downward pressure on the exchange rate in the economy. The “first-generation” models of currency crises (as exemplified by Krugman, 1979) argue that a deterioration in economic fundamentals leads to a crisis in the external account. The “second-generation” models of currency crises (as exemplified by Obstfeld, 1986) argue that currency crises can occur even in countries with sound fundamentals owing to self-fulfilling expectations. In a world of “multiple equilibria,” countries with relatively sound fundamentals may end up with a bad equilibrium; that is, a currency crisis. Financial crises have also been studied from the perspective of the banking sector and are associated with a run on bank deposits. Like currency crises, bank

runs can originate from fundamental weaknesses of several commercial banks or from self-fulfilling expectations (as modeled by Diamond and Dybvig, 1983).

Currency and banking crises (sometimes called the “twin crises”) tend to be associated with each other and often take place together. There are several possible links between banking and currency crises (Kaminsky and Reinhart, 1999).

- Currency crises can cause banking crises. A rapid depletion of foreign exchange reserves under a fixed exchange rate regime typically forces the central bank to contract high powered money, thereby reducing monetary aggregates, increasing bankruptcies, and thus inducing banking crises.
- Banking crises can cause currency crises. When investors believe that serious banking crises are imminent, they will reshuffle their portfolios away from domestic assets and toward foreign assets. When central banks inject liquidity into the financial market to bail out the troubled banks, excessive money creation can lead to currency speculation and a run on foreign exchange reserves.
- Currency and banking crises can result from common factors. When an economic boom is financed by a surge both in large capital inflows and in bank credit, the end of the boom tends to be accompanied by both currency and banking crises. See McKinnon and Pill (1996) and Krugman (1998a).

Before the episodes of the 1990s, financial crises were, in principle, considered as events occurring in individual countries. But the Mexican crisis of 1994–95, the East Asian crisis of 1997–98, and the Russian crisis of 1998 had strong contagion (or spillover) effects in other countries; that is a crisis in one country was rapidly transmitted to the rest of the world. The global extent of the recent crises agitated the debate on the

causes of the crises and contagion. Some authors argue that the crisis which originated in Thailand was transmitted to other countries owing to fundamental linkages and channels. This view was expressed by, among others, Krugman (1998a), the IMF (1998a, 1998b), Summers (1999), and Corsetti et al. (1998). These authors argue that the East Asian countries financed unproductive investments because of implicit government guarantees and a “crony capitalism.” Such unproductive investment generated vulnerabilities both in the real and financial sectors of the economies. At the same time, the governments accumulated large contingent liabilities because of the need to protect depositors of banks and other financial institutions. The strong trade linkages among these economies helped to propagate the crisis throughout the region.

On the other hand, other authors, such as Radelet and Sachs (1998a, 1998b), Krugman (1999), and Furman and Stiglitz (1998), emphasize weaknesses in the international financial markets as the major source of a crisis and contagion. Their views argue that the economic prospect in East Asia was sustainable and that these countries were not bound to a crisis. However, once a crisis started in Thailand, whether because of its fundamental weaknesses or out of self-fulfilling expectations, investors’ panic transmitted the crisis to other markets. Uninformed investors reevaluated the risks associated with Indonesia, Malaysia, and Korea when they saw problems arising in Thailand, and decided to pull their investments out of these neighboring countries. In a world of self-fulfilling investor expectations, there exist multiple equilibria. An integrated global economy transmitted investors’ pessimistic expectations across borders, causing contagion and eventual crises.

Several questions are of interest to us: How does contagion take place so extensively, and why is it so devastating? Is it a direct consequence of unfettered capital account liberalization and financial globalization or an outcome of domestic economic imbalances and weaknesses that are common across a cluster of countries? Have the policy responses to crises and contagion been adequate to minimize their impact on the real aspect of the economy? What type of international financial architecture is needed to prevent and to manage crises and contagion, or to cope with the risks generated by volatile capital flows?

The East Asian experience offers a fruitful laboratory to examine these questions. The paper will therefore investigate factors behind and lessons learned from the crisis in Thailand and contagion/crises in Indonesia, Korea, and Malaysia. Particular attention is paid to the extent to which the crises in the latter three countries were home grown or created by contagion and whether these crises and contagion were based on fundamental problems or were dominated by self-fulfilling expectations of investors.

The paper is organized as follows. First, we investigate briefly the origins of the East Asian crisis, emphasizing the fundamental structural vulnerabilities that built up in the three years prior to the crisis. Second, we examine the different transmission channels of contagion observed in East Asia, and attempt to untangle the fundamental linkages from expectations-driven contagion. Third, we present nine lessons learned from the East Asian crisis and contagion, and present policy recommendations to minimize the risks and impact of crises and contagion and to resolve their systemic consequences.



## **II. THE EAST ASIAN CRISIS: VULNERABILITIES AND TRIGGER**

### **1. Globalization and Domestic Weaknesses**

Four factors made Thailand, Indonesia, and Korea particularly vulnerable to external shocks in the pre-crisis period: (a) a burgeoning, global flow of private capital, especially of short-term nature, in search of higher returns; (b) macroeconomic policies that allowed large inflows of short-term, unhedged capital to fuel a domestic credit boom; (c) newly liberalized but insufficiently regulated domestic financial markets with highly leveraged corporations; and (d) mounting political uncertainty. In essence, the push from global capital markets, often without due diligence and beyond prudence, interacted with poorly regulated domestic financial systems to exacerbate a domestic credit expansion. This combination led to over investment in domestic non-tradable sectors (manifested as property price bubbles especially in Thailand) and in selected inefficient manufacturing sectors (as was done by Korean chaebol firms). Availability of cheap capital that was poorly intermediated through weakly supervised and governed financial institutions allowed corporations to add debt to their already highly leveraged balance sheets. This vulnerability exposed many East Asian countries to the shocks of changing investor behavior.

Patterns of indebtedness varied across countries. In Thailand, finance companies and commercial banks, availing themselves of low interest foreign-currency-denominated loans, borrowed heavily from abroad to invest in projects with low rates of return such as construction and real estate. Financial institutions' net foreign liabilities rose from 6 percent of domestic deposit liabilities in 1990 to 30 percent by 1996 (World Bank, 1998b). In Indonesia, corporations were the primary borrowers from foreign

sources, much of it offshore, while they also borrowed from domestic banks. Korean banks had large foreign borrowing, while Korean corporations borrowed heavily from domestic sources. On the other hand, countries with relatively low short-term external debt (in particular measured as a ratio to foreign exchange reserves), such as Malaysia and the Philippines, were not affected much in the initial phase of the East Asian crisis<sup>1</sup>

Three microeconomic factors accentuated the three crisis-affected countries' incentives to borrow abroad. First, explicit or implicit government guarantees of financial institutions' liabilities motivated excessive risk taking, which was passed on to the rest of the domestic economy. Second, *de facto* fixed exchange rate arrangements provided a perception that foreign-currency-denominated loans were not risky for domestic borrowers or foreign lenders. Third, high domestic funding costs and market segmentation added to the incentives to borrow abroad. The domestic cost of funds was significantly higher than the cost of borrowing offshore.<sup>2</sup> Because this access to foreign markets was only available to the largest and best credit borrowers, these firms and banks enjoyed a market advantage of borrowing from abroad.<sup>3</sup>

The inflows also fed into a system of corporate finance that heightened risks from abrupt changes in interest rates or the exchange rate. The corporate sector had grown rapidly over the previous decades in a context of underdeveloped bond markets and over-

---

<sup>1</sup> However, the currency markets of these two countries and Indonesia were immediately affected by Thai baht devaluation in July 1997. In addition, Malaysia eventually experienced a severe economic downturn and banking sector distress.

<sup>2</sup> In Thailand, the average nominal interest rate was 16 percent during 1991–96, of which domestic financial intermediation cost and the base U.S. risk-free rate each represented 4.5 percent and macro and currency risk factors constituted 2.6 percent.

<sup>3</sup> An additional factor in the case of Thailand was the introduction of the offshore banking facility. The establishment of the Bangkok International Banking Facility induced large inflows of foreign bank loans because local corporations and finance companies received regulatory and tax advantages over domestic bank loans. Also, foreign banks without domestic banking licenses poured a large amount of liquidity into Thailand, hoping to obtain licenses for baht businesses. See Kawai and Iwatsubo (1998).

reliance on bank financing. Despite the fact that productivity in the manufacturing sector in many East Asian countries had started to decline in the pre-crisis period, the corporate debt-equity ratio began to rise to high levels (see Claessens et al., 1998).<sup>4</sup> Correspondingly, interest burdens became high and would present an excruciating dilemma to macroeconomic policy makers later when the crisis arose. A high interest rate policy was attempted to support the exchange rate, but only at the cost of imperiling the highly leveraged corporate sectors and creating a domestic liquidity crunch.

In retrospect, it is also clear that the regulations and supervision necessary to manage integration with global external finance had not kept pace with rapid capital inflows. Inconsistent reforms and inappropriate sequencing of liberalization added to the build up of vulnerabilities. In Thailand, for example, finance companies were allowed to undertake an increasing array of activities in the 1990s without a commensurate improvement in supervision of finance companies. In Indonesia, the number of banks expanded suddenly in the late 1980s and early 1990s, but the supervisory authorities spent too little time screening the integrity of owners and managers to keep out applicants with poor prospects or fraudulent ventures. In addition, Indonesia did not monitor international capital flows, and, as a result, the authorities did not collect information concerning external borrowing by private corporations to use that information for macroeconomic management. In Korea, the system of licensing and supervision of merchant banks was inadequate. These Korean banks borrowed heavily in the offshore market and invested in highly risky instruments in countries such as Indonesia and

---

<sup>4</sup> The debt-equity ratio of Korean corporations, for example, was more than 317 percent at the end of 1996, twice the U.S. ratio and four times the Taiwanese ratio. The top 30 Korean *chaebols* had even higher leverage, exceeding 400 percent at end-1996.

Russia. But the authorities had little capacity to monitor and regulate those activities. In these East Asian countries, banks were often owned by the same groups of firms to whom they were lending. Regulations requiring prudential management of currency risks, credit evaluation, and financial reporting and disclosure were wholly inadequate.

A final factor that the three most severely affected countries shared in common is often overlooked by economists: the role of political uncertainty. In Thailand, the political coalition in mid-1997 was judged weak, and the business community openly worried about its capacity to manage the economy. The problem was more in evidence in Korea, where by November 1997 worries over the elections and the prospect of an opposition victory for the first time in the democratic period fueled concern about the course of economic policy. But the problem was most obvious and acute in Indonesia, where everyone was aware of the aging of President Soeharto. This concern reached crisis proportion when the enfeebled president appeared on television after his stroke in November, revealing to a nation that the once invulnerable political lion was seriously ill.

## **2. The Ticking Time Bomb and Vulnerability Indicators**

The time bomb was set and ticking. Rising global liquidity fed huge amounts of capital into an institutional setting of poor regulation, limited transparency, and related party lending often with negligible due diligence from foreign lenders. Explicit or implicit government guarantees of bank liabilities and a promise of fixed exchange rates fed into a domestic credit boom that macroeconomic policy failed to manage. East Asian countries had taken risks that left them exposed to shocks in several ways:

- Widening current account deficits, financed by short-term, unhedged capital inflows, exposed the economies to sudden reversals in capital flows.

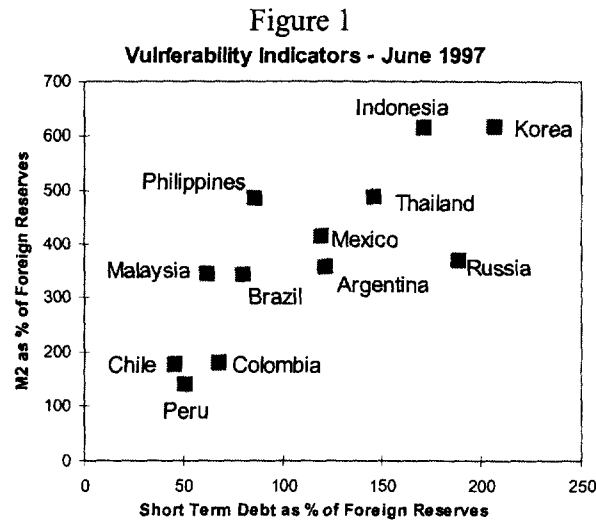
- Weaknesses in the under-regulated financial sector had allowed expansion of lending into risky investments of low rates of return and inflated values, often with currency and maturity mismatches. This exposed banks, non-bank financial institutions, and corporations to exchange rate risks.
- Corporations, often with insider relationships with banks and with weak incentives to use capital efficiently, became even more highly leveraged when presented with additional funding options from abroad. This exposed them to both interest and exchange rate shocks.
- Finally, political uncertainty had risen to unusually high levels, particularly in Indonesia.

Figure 1 illustrates that in June 1997 Korea was, among a select group of emerging markets, the country with the highest ratios of M2<sup>5</sup> to foreign reserves and short-term debt to foreign exchange reserves. Indonesia, Thailand, and Russia were other countries that before the East Asian crisis ranked high according to these indicators of vulnerability.<sup>6</sup>

---

<sup>5</sup> M2 is a broad definition of the money supply, including cash, demand deposits, time and savings deposits, and money market balances.

<sup>6</sup> It should be noted that the definition of “reserves” in Figure 1 understates the actual exposure because it does not account for forward commitments of the Bank of Thailand of some US\$26 billion and the Bank of Korea of about US\$6 billion.



It is important to note that a strong counterfactual case can be made that at several key junctures different domestic policies might have defused the ticking time bomb. The Korean government, for example, was able to borrow at 50 basis points over LIBOR during the first half of 1997, and, had the government known about—and reacted to—the mounting short-term debt in the private banks and corporations, they could have taken policies to reduce the ratio of short-term debt to international reserves. Had Thailand tightened fiscal policy in 1996, then it might have cooled property markets, deflated aggregate demand, and brought down the current account imbalance financed largely through short-term borrowings, which, together with the floating of the baht, could arguably have led to a soft landing. Had President Soeharto reacted boldly and decisively early in the fall of 1997 to demonstrate new commitments to reform (as Kenward (1999) argues), then Indonesia might have avoided the meltdown that subsequently occurred.

We can not, of course, know the answers because these policies were not adopted. Nonetheless, noting these counterfactuals underscores two points. First, no set of

indicators is fully reliable as predictors of crises. Second, a reason for this lack of predictive power is that expectations—and interdependence of expectations among financial agents—play a large and unpredictable role in crises.

### **3. The Trigger: The Thai Baht Crisis**

Macroeconomic imbalances and financial sector vulnerabilities were pronounced in many East Asian economies, particularly in Thailand. The Thai current account deficit, which was financed by short-term capital inflows, had reached a high of 8 percent of GDP in 1996. The heavy inflows and credit boom had channeled funds into nonproductive assets such as construction and real estate, creating asset price bubbles. The private sector had borrowed huge amounts from abroad and, while taking advantage of the perceived promise of a pegged exchange rate, did not hedge against foreign currency risks.

In 1996, export growth began to slow down after growing 20 percent in 1995. Thai exports contracted by 1 percent in 1996. Although all East Asian exports had slowed with the slow growth in world demand, Thailand was the worst hit. This was mainly due to three factors. First, there was a loss of wage competitiveness associated with Thai baht appreciation on a real, effective basis. Second, the demand for Thai products slumped badly in world markets, particularly electronics. Third, foreign markets for Thai products, notably Japan, were in the doldrums of a recession. At the same time, prices of real property had begun to decline. Vacancy rates increased in 1996 as the supply of office space began to overshoot demand. Several finance companies and a few commercial banks experienced serious difficulties in early 1997, and the central bank chose to

provide liquidity support. But this only added to funds in the market ready to attack the currency peg.

Equity investors were the first to withdraw. The stock market peaked for the year in February and fell by more than 30 percent by year-end. Perceptions began to take hold in the market that the exchange rate was misaligned despite rising interest rates. Private capital flows started to taper off in early 1997, with bond issues and syndicated loans falling in the first half of 1997 by 30 percent relative to the same period in the previous year. Confidence took a further hit when Somprasong Land defaulted on a eurobond issue.

The Thai government intervened heavily to support the peg when the baht came under serious attack for the first time in February 1997. The central bank eventually issued some US\$23 billion in forward foreign exchange contracts at a time when foreign exchange reserves were hovering about US\$25 billion. As investor perceptions remained jittery, the finance companies came under pressure, and the government continued to pump a large volume of liquidity to support those companies. This led to further capital outflows and a decline in foreign exchange reserves. In mid-May, Thailand announced capital controls after facing selling pressure and massive intervention in the forward markets.<sup>7</sup> Finally, on July 2, 1997, the government yielded to the market forces and abandoned the peg, thus allowing baht devaluation.

---

<sup>7</sup> The Thai authorities tried to keep foreign investors from acquiring the baht, thereby causing a shortage of the baht and propping up the value of the baht offshore. The capital controls essentially segmented the onshore and offshore foreign exchange markets and introduced different baht rates to the two markets for about two months. The swap premium in onshore and offshore markets began to converge after end-August 1997, suggesting the diminishing effectiveness of controls (see Ariyoshi et. al., 2000). The controls were lifted in January 1998.



### III. CHANNELS OF CONTAGION

#### 1. Contagion Syndromes

The Thai baht devaluation triggered withdrawal of capital from the Association of South East Asian Nations (ASEAN) region and several other East Asian countries as a financial panic progressively ensued. Developments in Thailand caused investors to look more critically at vulnerabilities elsewhere in the region that they had previously ignored. In the process, investors discovered new information that amplified their concerns, especially about the health of the financial system and the magnitude of short-term external debt in the region. Market doubts were compounded by the lack of transparency about the financial and corporate sectors and, hence, about the magnitude of contingent liabilities. Once investors lost confidence that foreign exchange reserves would cover short-term external debt, both foreign and domestic investors scrambled to get out.<sup>8</sup> Markets became much less forgiving. The lack of a mechanism for orderly workouts of private external debt undoubtedly contributed to the full-scale financial panic that swept Thailand, Indonesia, Korea and to a lesser extent Malaysia.

A quick review of its chronology illustrates the dynamics of the crisis, along with its spillover effects.<sup>9</sup> After Thailand devalued the baht, the Philippines allowed the peso to freely float on July 11 and Malaysia abandoned the defense of the ringgit peg on July

---

<sup>8</sup> With the possible exception of Thailand, foreign investors apparently did not play a large role in triggering the crises. Data on mutual fund and pension fund holdings of equities and other assets in Asian countries do not suggest a massive outflow of foreign capital during the July–December 1997 period (Kaminsky et al., forthcoming). Foreign investors appear to have reduced their holdings *prior* to the crisis, particularly in Thailand, and increased their holdings *afterward*, particularly in the first few months of 1998. According to Eichengreen and Mathieson (1998), hedge funds and other short-term investors played a limited role in triggering the crisis. The massive reversal in capital flows arose mainly from the reluctance of foreign lenders to roll over short-term claims after September 1997 (causing an outflow of about US\$50 billion for the affected countries); the purchases of foreign exchange by local corporate institutions to cover unhedged, open positions; and capital flight owing to political uncertainty in Indonesia.

14.<sup>10</sup> When an IMF package was signed with Thailand on August 14, Indonesia allowed the rupiah to float. Under exchange market pressure, Taiwan floated the new Taiwan dollar on October 17. When the Hong Kong dollar was tested in late October, the Hong Kong Monetary Authority allowed the interest rate to rise to defend its currency board, leading to a sharp fall in the Hang Seng index. This produced a shockwave felt around global financial markets, causing stock price declines in both Europe and Wall Street on October 27 and reverberating back again to East Asian markets. At that point, the crisis was also transmitted to Latin America.<sup>11</sup>

An IMF rescue package for Indonesia was signed on November 4, but could not stop the depreciation of the rupiah. Korea was forced to widen the exchange rate band in mid-November, and both the stock price and the won fell sharply. Korea officially abandoned the exchange rate band following the signing of the IMF financial package on December 4 and moved to a floating system in mid-December. The Korean crisis situation was contained by mid-January 1998 when an agreement was reached between Korea and international creditor banks to restructure Korean banks' short-term external

---

<sup>9</sup> For descriptions of the East Asian crisis see, for example, IMF (1997, 1998a, 1998b), ADB (1998), ADB and World Bank (1998), World Bank (1998a, 1998b), and Montes (1998).

<sup>10</sup> In response to the increasing volatility, the Malaysian authorities, in August 1997, introduced restrictions on banks' non-commercial-related offer-side swap transactions with non-residents. As a result, wide spreads emerged between onshore and offshore interest rates. However, capital outflows continued through various legal channels to take advantage of the high offshore interest rates (see Ariyoshi et. al., 2000). After substantial capital outflows had taken place and foreign exchange reserves had stabilized at a lower level, Malaysia introduced in September 1998 a number of selective controls on capital outflows, requiring foreign investors in the stock market to keep ringgit funds in Malaysia for 12 months, limiting offshore trading of ringgit, and imposing a series of restrictions on residents. In February 1999, the authorities replaced the 12-month holding period rule for repatriation of portfolio capital with a graduated exit levy on repatriation of the principal of capital investments made before February 15, 1999, and with a graduated exit levy on repatriation of the profits (including capital gains) from investments made after February 15, 1999. In September 1999, the authorities abolished the levy on principal repatriation. Remaining controls include prohibition of ringgit internationalization, exit levy on profit repatriation, and restrictions on residents.

<sup>11</sup> Perry and Lederman (1998) provide a good description of how the Asian crisis affected Latin America.

debt. Between February and May 1998, the most significant events took place in Indonesia, with riots and looting and the resignation of President Soeharto.

These events show how the crisis spread from one country to another and how the crisis and contagion swamped the entire East Asian region. Contagion produced simultaneous falls in exchange rates and stock prices (see Figures 2 and 3) reflecting massive capital outflows. Capital outflows from the region erased the inflows of the first semester within the space of the last six months of 1997 and turned the net flow negative by US\$20 billion for the East Asia-5-affected countries. Between 1996 and 1997, net capital flows had reversed by more than US\$100 billion for the ASEAN-4 (US\$71 billion) and Korea (US\$33 billion).

The drop in stock prices (in local currency and dollar terms) since July 1997 was much more pronounced than in any previous downturn in East Asia, and even exceeded downturns in most Latin American countries following the Tequila crisis. Exchange rate co-movement was pronounced among the ASEAN-4 countries during the period after August 1997, except for the Indonesian rupiah, which was after November. Private capital inflows came virtually to a halt for the ASEAN-4 countries and Korea in the last quarter of 1997 and first half of 1998.

Indeed, if the crisis had stopped at this point and been confined to East Asia, then the view that the domestic macroeconomic disequilibria combined with domestic structural weaknesses was the primary cause of the crisis might have dominated the Radelet-Sachs (Radelet and Sachs, 1998a, 1998b, 1999) view that investor panic was the primary cause. But the fact is that the crisis was beginning to drive the global financial markets into turmoil.

The global financial market turmoil intensified when Russia decided to devalue the ruble and to impose a forced rescheduling of domestic government debt on August 17, 1998. The Russian crisis was felt in developed and emerging markets. A number of highly leveraged investors, including hedge funds, with assets in Russia suffered large losses. In particular, financial markets around the world were hit hard after the deteriorated financial condition of Long-Term Capital Management became public news. The private rescue, organized by the Federal Reserve Bank of New York, and the reduction of the U.S. interest rates helped to avoid a systemic global crisis.

The events in Russia generated strong spillover effects on emerging market economies. In East Asia, Malaysia imposed capital controls on September 1, 1998, to isolate the market from the global financial turmoil and to prevent speculation against the Malaysian ringgit. Other markets in East Asia did not suffer particular stress following Russia's devaluation and unilateral debt rescheduling. On the other hand, Latin American financial markets faced severe stress in September and October. The most affected country was Brazil, which was forced to devalue its currency, the real, in January 1999. Other Latin American countries, such as Argentina, Chile, Colombia, Ecuador, Mexico, and Venezuela, also suffered directly or indirectly the effects of the Russian crisis.

Irrespective of the channels of contagion, it is clear that East Asia at least has become much more financially interdependent as a region. Even though exchange rate policy became much more flexible after the crisis, cross-country correlation among movements of exchange rates became significant and large (Table 1). With the exception of Hong Kong (because of its dollar peg), the average monthly movements of currency values were closely correlated within the region, typically ranging from 0.5 to 0.8.

However, with a few exceptions, exchange rate movements were not strongly correlated across regions. This is in sharp contrast with stock market prices, which were strongly correlated within each region (East Asia, Latin America, and Central and Eastern Europe including Russia) as well as across regions. In this sense, contagion of stock market prices is more global than that of exchange rates.

## **2. Channels of Contagion**

The word “contagion” in this paper is used in a broad sense to denote the spillover effects across countries.<sup>12</sup> Contagion has been widely used to characterize the reaction of financial variables—such as exchange rates, interest rates, and stock market prices—to events in foreign countries. Movements of one country’s exchange rates, stock prices, and interest rates correlated with another country’s movements are interpreted as contagion. Contagion therefore involves cross-country co-movements of the financial variables and high correlations of these variables across countries.

As described in Dornbusch, Park, and Claessens (2000), there are different possible channels of contagion. These channels include both fundamental linkages among economies and factors unrelated to fundamentals. Fundamental linkages include both “real” and “financial” linkages. We use the framework described in Dornbusch et al. to analyze the channels of contagion during the East Asian crisis.

*Fundamental linkages—real.* Real linkages have generally been associated with trade and/or foreign direct investment (FDI). FDI linkages are real in East Asia because FDI flows tend to complement and strengthen the trade linkages between the source and recipient countries.<sup>13</sup>

---

<sup>12</sup> For a more complete guide to contagion, see [www.worldbank.org/contagion](http://www.worldbank.org/contagion).

<sup>13</sup> See papers on trade-FDI linkages that are included in Lee and Roland-Holst (1998).

Intra-regional exports among the East Asian economies accounted for almost 40 percent of total exports in 1996, up from 32 percent in 1990. If Japan is included, then the figure rises to 51 percent. These high levels of intra-regional trade reflect a process of specialization and outsourcing of activities from the higher to the lower income economies in the region. About three-quarters of the intra-regional trade is in raw materials, intermediate inputs, and capital equipment. Such intra-regional trade accounts for over 50 percent of total East Asian imports of these products. This trade complementarity probably contributed to the high speed and directness of contagion. The drop in demand for imports in one East Asian country would reduce income of the potential exporting countries, triggering declines in these countries' demand for imports from the original and other countries. These mechanisms were probably more significant, causing contagious currency depreciations, than the changing price competitiveness would indicate.

*Fundamental linkages—financial.* A financial linkage is created when international investors engage in global diversification of financial portfolios and connect different economies financially. Countries with internationally traded financial assets and with liquid markets tend to be subject to contagion. For examples of this linkage see Kodres and Pritsker (1998) and Calvo (1998).

Table 1. Cross-Country Correlation Coefficient Matrix of Exchange rates and Stock Prices, July 1997-September 1999

Exchange Rate Correlation Coefficient Matrix		Korea	Taiwan	Hong Kong	Singapore	Malaysia	Thailand	Indonesia	Philippines	China	Mexico	Brazil	Argentina	Chile	Peru	Colombia	Venezuela	Russia	Poland	Hungary	Romania	S. Africa	India	Pakistan	
Korea	1.00																								
Taiwan	0.49	1.00																							
Hong Kong	0.35	-0.22	1.00																						
Singapore	0.57	0.75	-0.03	1.00																					
Malaysia	0.60	0.58	0.00	0.80	1.00																				
Thailand	0.73	0.51	0.00	0.81	0.79	1.00																			
Indonesia	0.51	0.73	0.00	0.76	0.68	0.64	1.00																		
Philippines	0.55	0.72	0.00	0.72	0.79	0.89	0.89	1.00																	
China	0.38	0.15	0.29	0.13	0.38	0.34	0.08	0.23	1.00																
Mexico	0.13	0.01	0.08	0.10	-0.05	0.01	0.04	-0.04	0.01	1.00															
Brazil	-0.02	0.01	0.08	0.10	-0.05	0.01	0.04	-0.04	0.01	0.13	1.00														
Argentina	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00													
Chile	0.07	0.42	0.00	0.31	0.32	0.31	0.26	0.28	-0.10	0.07	0.42	0.00	1.00												
Peru	-0.02	0.13	-0.21	0.07	-0.26	-0.12	0.07	-0.15	0.06	0.34	0.72	0.00	0.30	1.00											
Colombia	0.11	-0.11	-0.13	-0.14	-0.06	0.14	-0.06	0.27	-0.47	0.33	0.07	0.00	-0.04	0.01	1.00										
Venezuela	-0.08	0.15	0.10	0.12	-0.20	-0.07	0.03	0.13	0.22	0.28	-0.02	0.00	0.16	0.12	0.06	1.00									
Russia	0.02	-0.15	-0.08	-0.18	-0.41	-0.15	-0.19	-0.08	0.00	0.00	0.02	0.00	-0.13	0.37	0.33	0.16	1.00								
Poland	0.10	0.28	0.12	0.31	0.01	0.32	0.11	0.21	0.06	0.04	0.28	0.00	0.28	0.26	-0.15	0.13	0.09	1.00							
Hungary	0.23	0.35	0.14	0.44	0.19	0.35	0.29	0.21	0.21	-0.27	-0.01	0.00	0.24	-0.07	-0.40	0.28	-0.24	0.37	1.00						
Romania	-0.01	0.05	-0.06	0.17	0.03	0.01	-0.02	-0.15	0.29	-0.33	0.28	0.00	0.00	0.12	-0.30	-0.28	0.11	0.26	0.29	1.00					
S. Africa	-0.11	0.34	-0.07	0.37	0.27	0.12	0.26	0.21	0.14	-0.03	0.06	0.00	0.26	0.00	-0.40	0.56	-0.23	0.27	0.22	-0.04	1.00				
India	0.28	0.59	0.39	0.48	0.28	0.42	0.33	0.28	-0.12	0.04	-0.12	0.00	0.28	-0.08	-0.13	-0.03	-0.21	0.02	0.19	-0.23	0.24	1.00			
Pakistan	-0.03	0.16	-0.19	0.05	0.10	-0.04	-0.04	0.00	-0.30	0.01	-0.10	0.00	-0.01	-0.18	0.08	0.13	-0.13	-0.15	-0.21	-0.10	0.29	-0.03	1.00		

Stock Price Correlation Coefficient Matrix		Korea	Taiwan	Hong Kong	Singapore	Malaysia	Thailand	Indonesia	Philippines	China	Mexico	Brazil	Chile	Argentina	Peru	Colombia	Venezuela	Russia	Poland	Hungary	Romania	S. Africa	India	Pakistan	
Korea	1.00																								
Taiwan	0.43	1.00																							
Hong Kong	0.57	0.72	1.00																						
Singapore	0.61	0.66	0.82	1.00																					
Malaysia	0.66	0.59	0.65	0.75	1.00																				
Thailand	0.73	0.51	0.72	0.80	0.79	1.00																			
Indonesia	0.59	0.66	0.65	0.61	0.65	0.66	1.00																		
Philippines	0.58	0.54	0.68	0.69	0.77	0.80	0.67	1.00																	
China	0.11	0.31	0.07	0.07	0.06	0.11	0.08	0.13	1.00																
Mexico	0.25	0.49	0.62	0.55	0.35	0.43	0.45	0.59	-0.01	1.00															
Brazil	0.25	0.44	0.55	0.43	0.42	0.42	0.59	0.53	0.04	0.21	1.00														
Chile	0.40	0.57	0.58	0.64	0.37	0.64	0.69	0.68	0.00	0.77	0.80	1.00													
Argentina	0.23	0.59	0.64	0.63	0.43	0.67	0.69	0.66	0.00	0.88	0.78	0.68	1.00												
Peru	0.15	0.58	0.54	0.44	0.32	0.56	0.60	0.52	0.04	0.63	0.73	0.75	0.69	1.00											
Colombia	0.22	0.15	0.21	0.34	0.16	0.24	0.38	0.31	0.29	0.37	0.34	0.47	0.53	0.57	1.00										
Venezuela	0.35	0.55	0.47	0.66	0.57	0.50	0.54	0.56	0.09	0.85	0.65	0.65	0.67	0.65	0.67	1.00									
Russia	0.34	0.44	0.51	0.37	0.43	0.43	0.54	0.54	0.07	0.70	0.78	0.78	0.63	0.66	0.50	0.53	1.00								
Poland	0.41	0.42	0.49	0.47	0.49	0.60	0.60	0.57	0.00	0.54	0.61	0.59	0.57	0.57	0.54	0.51	0.66	1.00							
Hungary	0.34	0.40	0.46	0.41	0.40	0.58	0.58	0.56	0.00	0.56	0.64	0.69	0.62	0.59	0.56	0.42	0.73	0.71	1.00						
Romania	0.35	0.47	0.57	0.47	0.44	0.58	0.58	0.47	0.00	0.56	0.60	0.58	0.57	0.56	0.44	0.44	0.75	0.57	0.70	1.00					
S. Africa	0.33	0.49	0.60	0.53	0.45	0.59	0.60	0.69	0.00	0.66	0.81	0.66	0.65	0.61	0.52	0.37	0.72	0.72	0.59	0.56	1.00				
India	0.24	0.52	0.38	0.31	0.42	0.28	0.34	0.34	0.00	0.54	0.61	0.57	0.59	0.52	0.50	0.50	0.81	0.37	0.20	0.51	0.52	1.00			
Pakistan	0.21	0.32	0.33	0.37	0.33	0.24	0.30	0.30	0.00	0.53	0.61	0.53	0.52	0.52	0.50	0.42	0.78	0.48	0.40	0.41	0.48	0.58	1.00		

Notes: The correlation coefficients are calculated by using the log first difference in the monthly nominal exchange rates and stock market prices in local currency (period average). The correlation coefficients that are statistically significant at the 5% level are highlighted.  
Source: IMF, International Financial Statistics (exchange rates) and Datastream (stock prices).

Figure 2

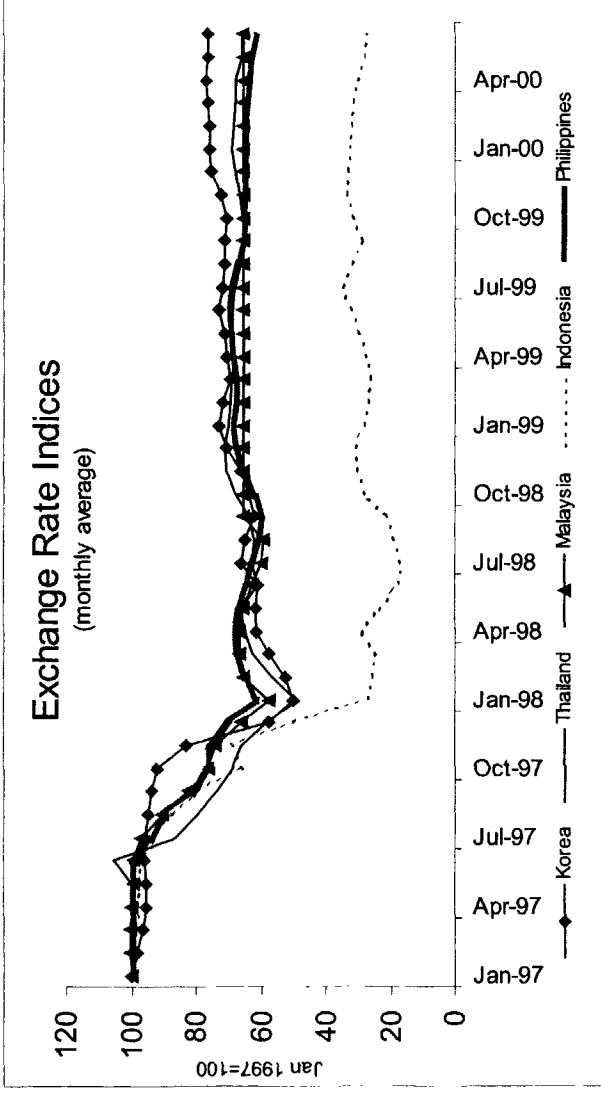
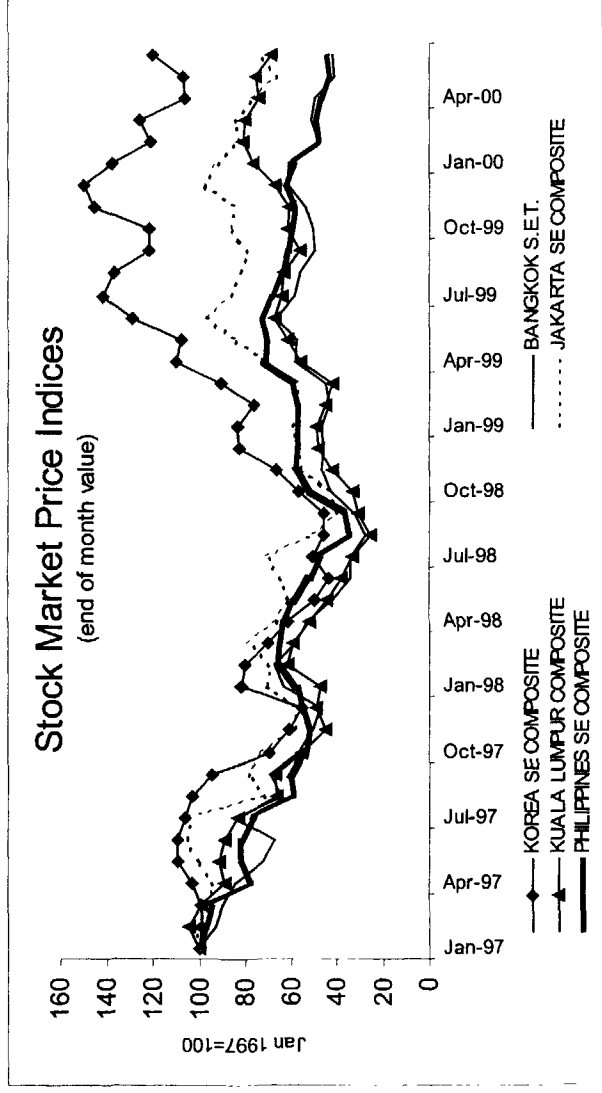


Figure 3





Financial linkages in a region are often more substantive through bank loans, which also suggests that events in one country can affect other countries. Japanese banks had an extensive exposure to East Asia when the latter was hit by a currency crisis in 1997, much in the way that U.S. banks did to Latin America just before the outbreak of the debt crisis of the early 1980s. Japanese banks were forced to reassess the quality of their portfolios invested in East Asia when the Thai baht crisis erupted, calling loans and cutting off credit lines in the region, thus propagating to the neighboring economies. European commercial banks operating internationally in the region were also forced to rebalance the overall risk of their portfolios and reverse bank credits, thereby transmitting crisis. Some Korean banks that borrowed foreign currency and invested it in Indonesian instruments were badly affected by rupiah depreciation and were driven into serious financial distress. In a broader sense, the Thai crisis may have led global investors and bank creditors to revise their model of East Asian development and to reduce their exposure in the regions, thus negatively affecting the foreign exchange and stock markets in the neighboring countries.

*Factors unrelated to fundamentals—herding.* The magnitudes of recent swings in exchange rates and stock prices across countries seem to be beyond those predicted by any fundamental linkages. Shocks were indeed transmitted to economies where fundamental linkages are not present or strong. Domestic and international financial markets transmit shocks across countries when the markets become concerned about the future prospects of countries or when markets see a crisis somewhere else. Investors may have inferred that when Hong Kong was under attack in October 1997, Argentina, another country with a currency board, would also be under attack. These events affect

expectations. So investors panic and run away from countries that do not necessarily share fundamental linkages. Such investor behavior is called “herding.”

### **3. Contagion: What Can We Conclude?**

What seem to have been the dominant channels of contagion that transmitted the Thai virus to other countries? First, it seems hard to argue that trade and FDI were a dominant channel of contagion, if at all. While trade and FDI linkages were relatively strong among the East Asian countries, Korea had relatively weak trade or FDI linkages with Thailand. Second, demand and supply effects through the real sectors take longer to transmit than the time actually observed. Third, speculators mounted attacks on countries with minimal trade or FDI relationships. On October 23, 1997, at the height of the attacks on Hong Kong, speculators attacked Argentina, whose main relation to East Asia was its similarity of exchange rate regime (i.e., the currency board) rather than trade or FDI linkages. The strong trade linkages among the East Asian countries (much like Brazil and Argentina in early 1999) and large FDI flows were important, but only as filtered through the expectations of financial investors. To be sure, real linkages were important, simultaneously contracting aggregate demand in the region, but only after the currency crisis induced a recession in each country.

What then about financial contagion? There seems to be more evidence that the crisis was transmitted through financial linkages. For example, a shock in one country induced international commercial banks to reduce exposure in other countries to protect the quality of their portfolios, thus propagating shocks and crises across countries. That some Japanese, European, and Korean banks, badly hit by the rupiah depreciation, were driven into distress or at minimum saw rapid deterioration in their portfolio quality,

thereby reducing their bank exposure to the region, argues that they were channels of contagion (see Kaminsky and Reinhart, 2000).

Probably of greater consequence, however, was the contagion driven by investor sentiments and perceptions. This appears to have two distinct elements: First, a common reaction to perceived problems and, second, a common fear—irrespective of individual agent judgments about the perceived problems—of what the herd of investors might do.<sup>14</sup> In Korea, investors simultaneously came to note the risk of large short-term external debt, relative to foreign exchange reserves, and began to sell the won, and any individual investor could ignore the stampede only at his peril. In Indonesia, the collapse was also driven by investor panic. In this case, domestic investors were scared by the haphazard closure of the domestic banks and some news associated with President Soeharto's ill health. The politics of regime change added to the uncertainty in Korea, Indonesia, and Thailand and unquestionably fed investor panic.

#### **IV. NINE LESSONS FROM THE EAST ASIAN CRISIS AND CONTAGION**

Dornbusch, Park, and Claessens (2000) review five categories of evidence on contagion: correlation of asset prices; conditional probabilities of a currency crisis; changes in volatility; comovements of capital flows and rates of return; and other tests. Their conclusion is that “fundamentals help predict spillovers and that trade links are important factors as well”, though “common creditor and other links through financial centers transmit volatility from one country to another...” (2000:190). Their review confirms their conclusion that “comovements are unavoidable and that fundamental

factors are important” in determining the susceptibility of an economy to contagion. They conclude with preliminary suggestions for policy, focusing on the importance of disclosure, improved standards, and prudential controls as well as changes in international financial architecture.

In this section, we draw lessons from East Asia’s experience with contagion. As Dornbusch, et al (2000) conclude, it is difficult to distinguish conceptually (much less empirically) whether investors are reacting to the fundamentals of an economy at risk *or* to their predictions of the herd behavior of the group of investors. This implies that policy makers have to ensure that both their fundamentals are sound and, more difficult, they are widely perceived to be sound among domestic and foreign investors. Because crises can originate either internally in the domestic economy or externally through contagion, policymakers must aim at crisis/contagion prevention on both fronts. Minimizing the negative impact of a crisis or contagion, once it occurs, should be the next policy concern. When the crisis develops into systemic proportions, resolving its economic and social consequences should be the final policy objective.

We present nine lessons about crisis and contagion that apply regardless of its origin—that is, regardless of whether it is internally or externally generated. These are grouped in four not mutually exclusive categories of policies: preventing crises and contagion, managing crises and contagion, resolving the systemic consequences of crises, and strengthening regional arrangements to complement the global financial architecture to help in prevention, management, and resolution.

---

<sup>14</sup> As part of the growing empirical evidence, Kaminsky and Schmukler (1999) find that 33 percent of the sharpest changes in stock market prices during the Asian crisis were unrelated to any relevant news about

## 1. Prevention of Crisis and Contagion

In a world of free capital mobility, attacks on currencies can occur whenever confidence is lost. A currency crisis in a foreign country can rapidly trigger a crisis at home. Crisis prevention measures attempt to lower the probability of having a crisis and contagion and to reduce ex-ante the risk factors.

In retrospect, three elements combined to build up East Asian vulnerability: the rise in external private indebtedness, mainly short-term and unhedged; the asset-liability mismatch in the financial system together with its low return intermediation; and the highly leveraged financial position of corporations. Each provides a lesson for the future.

***Lesson 1: Avoid large current account deficits financed through short-term private capital inflows.***

Several policy domains affect the external net liability position of a country and its propensity toward crisis. In East Asia, it is instructive to review several interrelated policies: information disclosure, foreign exchange reserves, fiscal and monetary policy, exchange rate policy, and policy toward the capital account.

*Information disclosure.* Much of the over-lending prior to the East Asian crisis might not have occurred had international lenders correctly appraised the actual balance sheets of borrowing corporations and portfolio of financial institutions. Many investors tried to undertake due diligence, but could not receive accurate information. Because information was costly to gather, many investors did not spend resources to obtain valuable, but costly, information, relied on superficial reviews by others, and simply followed the herd. Better information disclosure can help mitigate this problem, particularly among relatively uninformed international investors.

---

economic fundamentals.

Some macro information was available before the crisis, such as the stock of loans in each East Asian country by BIS (Bank for International Settlements)–reported banks, which indicated that some countries had large bank exposure that exceeded foreign exchange reserves. However, investors ignored such information in their investment decisions. Better information can guide international investors to efficient and productive investment, if sufficient incentives are created for the investors to use such information.

The international financial system also needs to increase its transparency on the lenders' side and coordinate its regulatory frameworks to limit the tendencies towards boom-bust behavior and to create a more level playing field. Specifically, information disclosure by large international investors, including highly leveraged institutions, is necessary to prevent them from imprudent decision making. An internationally coordinated approach is imperative to better regulate hedge funds and other highly leveraged institutions.

*Foreign exchange reserve policy.* As capital movements have become larger, foreign exchange reserves have become an increasingly important line of defense. The adequacy of foreign exchange reserves can no longer be measured by their coverage of imports but by the magnitude of potential capital outflows. Guidotti (1999) concludes that reserves should equal the amount of capital contractually due in the coming year. But reserves should arguably be larger if current account deficits are large (e.g., more than 2 percent of GDP), if the exchange rate is fixed and hence more vulnerable to shocks, or if the economy has historical tendency toward instability, e.g., because of commodity dependence and chronic terms of trade shocks (see World Bank, 2000b). The optimal amount of reserves must also be judged against the opportunity cost of carrying them.

*Fiscal and monetary policy.* In the case of the affected East Asian economies, fiscal policy was disciplined and monetary policy was non-inflationary until the mid-1990s. But in Thailand, fiscal policy became pro-cyclical in an attempt to stave off a growth slowdown in the quarters immediately preceding the crisis. The country continued to face mounting current account deficits in 1996, investor perceptions began to shift against local assets, and capital inflows began to attenuate. Authorities tried to extend the growth cycle, but fiscal stimulus, instead of increasing output, was transmitted mainly to the balance of payments through rising imports and more outflows in the capital account, worsening the external balance and pressuring the peg (World Bank, 2000a, Chapter 3). With benefit of hindsight, we can now conclude that to reduce vulnerabilities and the probability of crisis, macroeconomic policy in 1996 should have reigned in aggregated demand, avoided excessive credit expansion in the domestic economy, and curtailed the excessive external reliance on foreign savings. This would have slowed the expansion, but reduced the extent of real effective overvaluation, reduced the current account deficit, and slowed the build up of short-term external debt relative to foreign exchange reserves.

Monetary policy, as soon as capital inflows began to taper off, should have maintained consistency with the *de facto* pegged exchange rate arrangement, which would have implied reduced credit growth, rising interest rates, and slower output growth. This adjustment to aggregate demand might have preempted the currency run that eventually came.

*Exchange rate policy.* Countries with large current account deficits are dependent on capital inflows to maintain their external balance. If investors lose confidence in a currency value, however, capital inflows can stop abruptly and capital outflows can take

place in massive amounts. In the face of sudden shocks to capital flows and currency markets, the country may be forced to adopt a contractionary monetary policy and to curtail the economic activity sustained by capital inflows. It is therefore important to maintain a viable exchange rate regime, with a consistent monetary and fiscal policy framework in order to deter speculative attacks and thus avoid “sudden stops.”<sup>15</sup>

In the case of East Asia, several economies had maintained stable exchange rates vis-à-vis the U.S. dollar until the crisis. For example, Thailand had its baht pegged to a basket of currencies, with the U.S. dollar having a dominant weight. Other countries also had their currencies *de facto* pegged to the dollar. This was widely perceived as an official guarantee to minimize currency risk and to encourage capital inflows. U.S. dollar appreciation since 1995, against currencies of other major industrialized countries, particularly against the Japanese yen, may have contributed to a perception of unsustainable exchange rates in East Asia. But even more important was the unwillingness of authorities to take early corrective action to adjust external imbalances when investor perceptions began to shift against local assets and capital inflows began to attenuate.

*Capital account liberalization.* The East Asian crisis has shown that capital account liberalization that provides financial institutions with access to cheap foreign savings can set the stage for asset-liability mismatches. Unfettered capital mobility may not be desirable if the macroeconomic and supervisory policy framework is weak and if domestic financial and corporate sectors cannot manage risks prudently nor intermediate to highest return investments.

---

<sup>15</sup> See Calvo (1998) and Kawai (1998b).



Some countries have adopted capital controls as ways to isolate the domestic economy from the volatility of global financial cycles (see Kawai, 1998b; World Bank 2000b, Chapter 5).<sup>16</sup> Restrictions on capital inflows usually have the objective of curtailing excessive short-term inflows through taxation of foreign loans with a short maturity (usually less than 12 months), higher reserve or liquidity requirements (see Dooley, 1996), or imposition of outright controls. Chile had unremunerated reserve requirements (URR) in place from 1991 until September 1998, starting with a 20 percent URR in a non-interest bearing account with the central bank on all newly entering portfolio capital for a maturity of up to one year. This rate was raised in May 1992 to 30 percent for foreign currency borrowing except by corporations and for all transactions in August 1992, and then lowered to 10 percent in June 1998 before being zeroed out in September 1998.<sup>17</sup> The effectiveness of the controls seemed to progressively diminish as investors learned of ways to circumvent the legislation, requiring successive efforts at expanding the comprehensiveness of the control regime. Several authors (Gallego et al., 1999; Edwards, 1999) found that the URR measures were effective in lengthening the contracted maturity of capital inflows, and the average maturity of newly contracted debt rose, though this had little impact on the volume of repayment associated with the stock of debt.

A similar type of control can be exercised through prudential regulation of banks (see Stiglitz and Bhattacharya, 1999). Calvo and Mendoza (1999) studied the effectiveness of prudential controls on capital inflows in limiting foreign borrowing by banks. Prudential regulation is less distortionary and less subject to evasion, but less

---

<sup>16</sup> Here we focus on controls to regulate capital inflows, while we consider controls on capital outflows under "Managing Crises and Contagion," Lesson 5.

comprehensive. As such, prudential regulation does not prevent direct corporate borrowing of the type prevalent in Indonesia, but it does wall off the financial sector from the largest contingent risk to the treasury. Both types of controls on inflows require complex and sophisticated administration, careful monitoring, and raise interest costs to domestic borrowers.

***Lesson 2: Aggressively regulate and supervise financial systems to ensure that banks and corporations manage risks prudently.***

In East Asia, in the run up to the crisis, banks developed huge asset-liability mismatches—unhedged foreign exchange borrowings invested in non-tradable sectors and short-term loans lent long into property—all of which left banks vulnerable to exchange depreciations and to interest rate surges. This reflected the fact that domestic financial systems were not well-regulated or governed when capital account liberalization was accelerated in the first half of the 1990s. Regulatory and supervisory frameworks over financial institutions were weak. Domestic financial institutions were not sufficiently governed for prudent risk-management, nor were they sufficiently capitalized with appropriate loan classification and adequate loan loss provisions. Moral hazard was created because of the explicit or implicit government guarantees to individual financial institutions.

Having a resilient and robust financial sector is key to avoiding crises and contagion. First, as a preventive measure, countries with resilient and robust financial sectors will probably suffer less from contagion. Second, these countries will have more flexibility to cope with external shocks and to take corrective measures during a crisis and contagion. Countries with a solvent banking sector and low corporate leverage ratios

---

<sup>17</sup> See Ariyoshi et. al. (2000).

will be able to raise interest rates to contain speculative attacks on the exchange rate. Countries with large foreign exchange reserves and access to contingent liquidity facilities will be able to inject liquidity in the system, avoiding credit squeeze and bank runs.

Policies that can achieve this financial structure include:

- Prudential regulation of asset-liability matches and portfolio and loan standards that apply internationally accepted norms;
- Capital adequacy regulations of at least those required under Basle standards, and even higher;
- Clear governance rules to prevent insider and group lending not subject to loan evaluation and creditworthiness and standards;
- Transparency for investors and depositors through mandatory public disclosure of audited financial statements; and
- Deposit insurance limited to a minimal share of private liabilities to bound government contingent liabilities in event of crisis, and share risk with investors and depositors.

***Lesson 3: Put in place incentives for sound corporate finance so as to avoid high leverage ratios and excessive reliance on foreign borrowing.***

The experience in East Asia shows that highly leveraged and vulnerable corporate sectors were a key determinant of the depth of the crisis. Currency devaluation suddenly inflated the size of external debt (measured in terms of the domestic currency) and debt service obligations, and high interest rates also sharply increased domestic debt service obligations of the corporations, thereby both driving the domestic corporations into

financial distress. These vulnerabilities affected the banks with exposures to the corporations. This created a liquidity crunch and deepened the recessionary pressures, which in turn hurt the corporate sector even more. The presence of a corporate sector with sustainable debt-to-equity ratios is thus important to weather exchange rate and interest rate shocks. Several building blocks are essential to an incentive framework for sound corporate finance: clear rules of corporate governance, adequate financial disclosure, and corporate capital markets.

*Corporate governance.* New rules of corporate governance focused on reducing conglomerate structures; that is, concentrated holdings in a few families, corporate groups (a la chaebols), and amalgamated banks, creating a complex web of insider financial flows with minimal due diligence in lending and inadequate corporate oversight. Rules that require good accounting, auditing and information disclosure, protect minority shareholders and strengthen creditor rights can prevent the build up of huge debt positions on narrow capital positions. In addition, external disciplines on enterprises can be strengthened by improving competition policies both in capital markets and in product/services markets and by creating and enforcing bankruptcy legislation.

*Corporate equity and bond markets.* One of the gaps in the financing and governance regime in East Asia was the stunted development of corporate equity and bond markets. Equity markets are an important source of capital, but the reluctance of family owners and insiders to dilute their ownership share often fed their decision to seek easy bank financing, often from banks they controlled. At the same time, the absence of adequate disclosure and other protections for minority shareholders has led many investors to eschew investment in their domestic markets. Similarly, bond markets

provide constant and instant market evaluation of debt value and, hence, provide an essential signaling function to financial agents. In the absence of bond markets, banks had no reason to market their loans to corporations, and corporations had one less reason to alter their performance to become more efficient. Corporations could thus develop unsustainable high debt-equity ratios.

Several policies are necessary to develop corporate equity and bond markets: regulatory capacity to implement full disclosure and contract enforcement, protection of minority shareholder rights and bondholder rights, and neutral tax policies to eliminate any bias in favor of one form of finance over another.

## **2. Managing Crises and Contagion**

Once a country is affected by a crisis or contagion, the policy objective must focus on preventing the crisis/contagion from developing into a more serious economic and social crisis with systemic proportions. Policy options, however, are highly constrained by its initial conditions, including the initial level of public sector debt, fiscal policy headroom, the composition of domestic- and foreign-currency debt held by private financial institutions and corporations, relationships between domestic debtors and domestic and foreign creditors, and the government's relations with domestic and foreign creditors. In general, policies that restore the country's credibility should be pursued.

***Lesson 4: Mobilize timely external liquidity of sufficient magnitude and in a context of sound policies to restore market confidence.***

If there is a crisis or contagion, whether it is due to fundamental or non-fundamental linkages, then governments have no choice but to swiftly seek liquidity to staunch the run on its domestic assets. That liquidity usually comes from the international

financial institutions (IFI)—such as the International Monetary Fund, the World Bank, and the Asian Development Bank. Given the magnitude of capital flows and the clustering of crises, isolated actions of individual governments or institutions are not sufficient to gain the required confidence. Governments of crisis-affected countries could be faulted for not recognizing the seriousness of the crisis or not moving rapidly to bring in the IMF.

The strong spillover effects within a region and across regions call for a regional as well as global response. A coordinated action among governments and the IFIs is necessary to overcome crises and contagion, at both regional and global levels.<sup>18</sup> These international interventions, however, have received criticisms from two different camps. One camp of critics who argue that the IMF should play an international lender of last resort function insists that the amount of international liquidity provided so far has been too small and often too late to contain a crisis or contagion. According to this view, to prevent a liquidity crisis or contagion from evolving into a serious solvency crisis, international liquidity must be provided quickly and abundantly. Another camp of critics who argue that IFI interventions create moral hazard problems argue that the IFIs' packages may create perverse incentives that heighten risk of crisis: for governments to run excessively risky policies and for international investors to underestimate the true risk of investing in emerging markets (see Krugman, 1998a). To minimize potential moral hazard, IFI intervention should be contingent upon considerable private participation so

---

<sup>18</sup> During the 1994–95 crisis in Latin America, the agreements of Argentina and Mexico with the international financial community were well received by the markets. These agreements were signed simultaneously by Argentina and Mexico. At that time, all Latin American countries recovered. The agreement that Argentina signed with the IMF was the most significant policy action taken during Argentina's crisis management. The agreement positively impacted Argentina's market, even after controlling for the regional market performance. See Ganapolsky and Schmukler (1998).

that private international investors share in the costs as penalty for excessive risk taking (a point elaborated below).

Though intellectual support to transforming the IMF into a limited lender of last resort is strong, provided the potential for moral hazard is to be minimized, the G-7 countries have found it impractical and unrealistic due to the need to dramatically increase the amount of resources available in times of crisis and contagion. The international community instead has taken an incrementalist approach to liquidity enhancement through the creation of the Structural Reform Facility (SRF) and the Contingent Credit Lines (CCL). Given that no country has decided to use the IMF CCL, however, requirements for its use need to be relaxed and its attractiveness increased.

***Lesson 5: Bailing-in private foreign creditors at times of crisis is essential; in those cases when official resources are limited relative to the magnitude of the crisis and private creditors are not amenable to coordination, some involuntary private involvement may be necessary.***

When IFI liquidity support is provided in response to a crisis or contagion, it is essential to involve private foreign creditors by encouraging them to agree on debt restructuring through, for example, suspension of payments on external debt during the “stand-still” period, allowing rollover, extension of maturities, and possibly interest or debt reductions. In the case of commercial bank loans, coordination between a limited number of foreign creditor banks and domestic debtor banks is possible, though often difficult, and can result in agreements to allow rollovers, restructuring or temporary stand-stills on repayments.<sup>19</sup> In the case of emerging country bonds, collective action

---

<sup>19</sup> An example is Korea’s external debt restructuring arrangement at the end of 1997 through the beginning of 1998. The Korean government, representing the interest of Korean commercial banks, negotiated with

clauses that would obligate bondholders to accept restructuring, rollovers, or stand-stills in case of emergencies are particularly important, because coordination with a large number of bondholders would be almost impossible without such clauses. The mechanisms for coordinated action by creditors and debtors can help minimize the risk of moral hazard by requiring both sides to share the burden of losses.

Such processes require private sector burden sharing, both because of limits on the availability of official resources and because of concerns about moral hazard. The risk that private debtors and creditors assume is often based on the expectation that official intervention will reduce the downside risk. As long as official financial intervention is required at times of crises, private creditors and debtors should bear as fully as possible the consequences of the risks that they have voluntarily assumed. Official intervention should not bail them out.

Official stand-still provisions in the form of a temporary suspension of debt payments may be an essential strategic threat needed to limit investors' moral hazard (World Bank, 1998a). In addition, this procedure functions as a floodgate that helps stop the decline in the currency value and enables the authorities to buy time to put in place a credible adjustment program and to organize creditor-debtor negotiations. This arrangement, if combined with appropriate, early debt workout agreements, could result in better outcomes for both the debtor economy as a whole and for the creditors. However, it may be difficult to adopt a rules-based system because of the diversity of

---

international bank creditors to restructure external debt that was due shortly. The Korean government provided guarantees for debt payment, and the governments of major industrialized countries convinced their banks that the restructuring arrangements would be in their best interest. The restructuring agreement restored the confidence not only in the currency market but also in the financial system, providing a basis for the subsequent recovery.



country and market circumstances. Official debt stand-stills must be invoked on a country-by-country basis.

*Controls on Capital Outflows.* An alternative to the internationally agreed debt workout is a unilateral control on capital outflows. Outright suspension of convertibility for capital account transactions is particularly onerous because producers are rather quickly shut off from international sources of working capital finance, hampering exports and domestic productive activities.

Selective controls on outflows are also problematic, and failures outnumber successes (see Dooley, 1996; World Bank, 2000b). Such controls take the form of prohibitions or withholding arrangements on selected types of capital outflows, often capital invested for less than a specified period, and usually have the objective of keeping domestic interest rates lower than they would have otherwise have to be to prevent portfolio shifts abroad. Several studies of outflow restrictions cast doubt on their effectiveness because they can be easy to evade and tend to lose effectiveness over time as financial agents build surreptitious channels around them (Edwards, 1999; Khan and Reinhart, 1994, Edison and Reinhart, 1999). For example, companies importing from subsidiaries abroad can over value imports to withdraw capital and evade controls. Controls on outflows in Malaysia appear to have had a salutary effect in the Malaysian case, mainly because controls are supported by a strong macroeconomic framework, are accompanied by bank and corporate restructuring, are short-lived, and are implemented with credible supervision (see World Bank, 2000a, 2000b, Chapter 3).<sup>20</sup> This experience suggests the IFIs should not reject support of deployment of this instrument categorically,

---

<sup>20</sup> Hood (2000) in his review of Malaysia capital controls concludes: "On balance, it appears that both the benefits and the costs of the controls have been modest."

but rather should evaluate the probabilities of success in a particular country circumstance and proposed policy framework.<sup>21</sup>

***Lesson 6: There is no one size fits all prescription for monetary and fiscal policy stance in response to crisis.***

The effects of monetary and fiscal policy had been at the center of the policy debate during the early phase of the East Asian crises. The debate discussed whether contractionary monetary and fiscal policy could stabilize financial markets or send the economy into a profound collapse in output and financial markets.

*Monetary policy: “Your money or your banks.”* Contractionary monetary policy raises domestic interest rates, increases the cost of speculation, and raises the return to local currency-denominated assets, all as a vehicle to encourage capital inflows (or discourage outflows). Moreover, a contractionary monetary policy is a signal to markets of the government’s willingness to defend the exchange rate. However, this creates a dilemma: High interest rates debilitate a weak banking sector and increase the cost of borrowing and debt servicing for indebted corporations.<sup>22</sup>

---

<sup>21</sup> Hong Kong SAR authorities resorted to the unorthodox measure to contain speculative pressures on the Hong Kong dollar in August 1998. That is, in the midst of intense speculation in the currency and stock markets, the Hong Kong SAR authorities intervened in the stock market and purchased HK\$ 118 billion of domestic equities in a period of about two weeks. They intervened in the stock market because speculators shorted the currency and stock markets simultaneously, hoping to profit from the lower stock price that would result from high interest rates to support the exchange rate under the pressure of short selling the Hong Kong dollar. This intervention was also accompanied by a variety of measures to strengthen the currency board, improve transparency and, more importantly, increase the cost of speculation in financial markets (tighter enforcement of rules on short selling and settlement of trades, and higher margin requirements in the futures markets). Aided by an improvement in the external environment, the intervention succeeded in calming markets.

<sup>22</sup> Radelet and Sachs (1998a, 1998b), Furman and Stiglitz (1998), and Stiglitz (1998), among others, discuss this point. Stiglitz, for example, argues that a high interest rate policy causes capital outflows and exchange rate depreciation, instead of capital inflows and currency appreciation, when it increases the probability of bankruptcies in the presence of highly indebted corporations that have large domestic-currency debt servicing obligations. This would weaken domestic banks’ balance sheets because corporations are their major clients.

Empirical results by Kaminsky and Schmukler (1999) provide mixed results in the policy debate. Contractionary monetary policies sometimes trigger dramatic rallies in financial markets and sometimes generate downturns in other episodes. In economies with heavily leveraged corporations and weak banks, tightening monetary policies entails severe tradeoff between maintaining the value of currencies and maintaining the solvency of the real and financial sectors. If corporations are highly indebted in domestic currency (as was the case with Korea), then a high interest rate is detrimental to the corporate sector. If corporations are highly indebted in foreign currency (as was the case with Indonesia), then currency depreciation is detrimental to corporate health. Governments in East Asia under these circumstances vacillated between tightening monetary conditions to protect the exchange rate at the cost of impending systemic bankruptcies and providing liquidity to banks that are stressed at the cost of plummeting exchange rates and inflationary surges.<sup>23</sup>

*Fiscal policy: "Can you finance it?"* Supporters of a tight government budget argue that this generates credibility by signaling to investors a willingness to combat inflation, a reduction in the current account deficit (through deflationary adjustment), and a commitment to mobilize immediately additional public resources to cover any new debt burden that results from guaranteeing deposits and assuming other financial sector liabilities. Others argue that contractionary fiscal policy aggravates the crisis by further reducing aggregate demand in addition to the effects of the devaluation that usually

---

<sup>23</sup> Other governments may be compelled to try to escape this dilemma through unorthodox policies that include closing the capital account, fixing the exchange rate, and even invoking standstills on external debt payments.

accompany crises. Reducing net public spending thus intensifies the vulnerabilities of the banking and corporate sectors, worsening the emerging crisis.<sup>24</sup>

The appropriate policy stance depends on three factors: the cause of the crisis, the fiscal headroom available pre-crisis, and the willingness of the private sector to lend to the government. When the crisis country has a favorable fiscal position pre-crisis, low public sector debt and hence credible headroom for fiscal policy, as well as large domestic savings that can be tapped to finance a budget deficit, the government has the luxury of a more expansive fiscal policy to support aggregate demand and to provide leeway to vulnerable banks. On the other hand, when the cause of the crisis is a large fiscal deficit as in Krugman (1979), fiscal headroom is already exhausted and public debt is high and government credibility low, fiscal contraction probably cannot be avoided to bring confidence to the markets.

This suggests that the best mix of monetary, exchange rate, fiscal, and debt policies depends on the structure of public and private debt, the degree of external support, and, importantly, domestic politics (see Haggard, 2000). There is no single painless policy that will quickly restore investor confidence.

### **3. Resolving the Systemic Consequences of Crises and Contagion**

The final structural focus of policymakers should be to strengthen crisis resolution mechanisms that would create conditions for early resolution of the systemic consequences of a crisis and initiation and acceleration of the recovery process. Such mechanisms include the establishment of resolution frameworks of nonviable banks and

---

<sup>24</sup> See Radelet and Sachs (1998a, 1998b). Stiglitz (1999) argues that fiscal contraction during an East Asian-type of crisis would be a beggar-thyself policy, which is worse than the beggar-thy-neighbor policy of the 1930s. Fiscal contraction causes recession in the domestic economy and, as a result, adversely affects

non-bank financial institutions (NBFIs), the strengthening of domestic corporate insolvency procedures, the development of international debt-resolution arrangements (as mentioned in Lesson 5), and strengthening the social safety net. The basic frameworks of these mechanisms need to be put in place before a systemic crisis occurs (i.e., at normal times) rather than at times of a crisis because their designing and development take time.

***Lesson 7: Move swiftly to establish domestic and international resolution mechanisms for assets and liabilities of nonviable banks and corporations.***

First, experience in East Asia has shown that domestic procedures of banking sector resolution were often inadequate. Resolution of weak banks and NBFIs should involve the following procedures: diagnostic reviews of bank portfolios that are based on internationally accepted classification rules and accounting principles; identification of viable and nonviable banks; resolution of nonviable banks (liquidation, closure, temporary nationalization, merger and acquisition, etc.) with a view to protect depositors, short-term creditors, and viable corporate borrowers; establishment of official asset management companies (AMCs) to carve out non-performing loans (NPLs) from weak or closed financial institutions; and recapitalization of viable banks after full provisioning and revaluation of NPLs at fair market prices and realistic recovery rates. Emerging market economies must introduce such resolution procedures so as to effectively resolve the systematic impacts of a crisis and to accelerate the recovery process.

Second, in East Asia domestic insolvency procedures of corporations were also often inadequate for private creditors and debtors to reach agreements. Insolvency procedures include the establishment of effective bankruptcy, reorganization and

---

the neighboring countries through trade linkages, which feeds back to the domestic economy and magnifies the extent of recession through multiplier effects.

foreclosure laws for creditors wishing to take legal action to recover assets; the elimination of legal and tax impediments to corporate restructuring; the introduction of “London rules” type, voluntary out-of-court frameworks for corporate restructuring; and the empowerment of the official AMCs to dispose of and restructure the acquired assets and/or debtor corporations. The second approach requires providing creditors and debtors with sufficient incentives (sticks and carrots) to implement voluntary workout through eliminating legal, tax, and regulatory impediments to corporate restructuring. The development of deep capital markets is also helpful in facilitating corporate restructuring through securitization of corporate assets and price discovery in the market.

Finally, it is desirable to develop internationally supported arrangements for orderly debt workout to facilitate efficient external-debt resolution in the event that debtors become insolvent or cannot meet debt-servicing obligations to their creditors. These arrangements would *de facto* establish international bankruptcy procedures so as to enable debtors and creditors to share the costs of crisis resolution, rather than leaving borrowers with all of the consequences. Though usually costly and time consuming, these procedures are critical institutional mechanisms to avoid more costly solutions. As long as a country’s private external debt, particularly corporate debt, is not resolved, its banking sector tends to be weak, economic stagnation tends to procrastinate, and the economic recovery is likely delayed. The actual process of external-debt workout must be determined on a case-by-case basis, rather than on a rules-based system, because the specifics of debt conditions are widely different across countries.

***Lesson 8: Cushion the effects of crisis on low-income groups through social policies to ameliorate the inevitable social tensions associated with adjustment.***

The disruption and very large social costs witnessed in the aftermath of economic crises have highlighted the need to address the social vulnerability exposed by the crisis. Without such attention, the consequence of the crisis would be excessively large adjustment costs, especially for the poor and the vulnerable segments of society with long-term, and often irreversible impacts such as the destruction of human capital, of social institutions, and of political stability. Reduction of social costs and an increase in resilience to crisis require a broad approach in developing countries, spanning the creation of market insurance against unemployment, self-insurance (for example, through protections to individual savings of the poor), to self-protection against becoming poor (e.g., health insurance and increased education) (see de Ferranti, et al, 2000 and World Bank, *WDR*, 2000c). The most important step that each developing country can take is to establish an institutional framework to minimize the risks and severity of economic downturns at times of crises, and then respond to the particular needs of the poor during crises.

Policies include:

- Better information on the poor and their exposure to economic risk;
- Targeting of scarce fiscal subsidies on programs for the poor, especially during crisis;
- Improving evaluation of spending programs to ensure a positive pro-poor focus, particularly in education; and
- Automatic programs—such as unemployment insurance or stay in school programs—which provide more predictable institutional responses to economic downturn, regardless of cause.

#### **4. Regional and Global Framework**

Although most attention has focused on the international and domestic policy reforms, developing an effective regional framework can help complement new international policies and strengthen domestic policy reforms. This is particularly the case when economies in a region are increasingly integrated among one another in trade, FDI, and financial flows through formal arrangements or natural market forces. It is thus important to improve a regional, in addition to a global, framework.

***Lesson 9: Improve mechanisms for crisis prevention, management, and resolution at the regional level in a way consistent with improvements in the global framework.***

Because an economic contagion seems to begin with a geographic focus, a regional framework for financial coordination to address crisis prevention, management, and resolution is logical. An efficient cooperative framework for regional financial management is highly recommended to cope with serious currency crises, contagion, and simultaneous economic contraction.<sup>25</sup> At the same time, such a regional framework must be consistent with a global framework in order to secure efficient response to, and management and resolution of, future crises because contagion tends to be also global, particularly in stock markets.

A framework for regional financial coordination may include three issues, covering modalities for regional surveillance and monitoring for crisis/contagion prevention, schemes to augment international liquidity in times of crisis, and programs to assist

---

<sup>25</sup> Some countries generate more contagion effects than do other countries. Allocating resources to only one country in the midst of a regional crisis might not be very effective, because other neighboring countries may suffer contagion. Moreover, preventing and containing crises in the countries that generate more spillover is relatively more effective to control regional and global shocks.



crisis-affected countries to resolve the systemic impact of the crisis and accelerate the recovery process.<sup>26</sup>

First, regional consultation and economic surveillance/monitoring is instrumental to crisis prevention at the regional level. The process should include exchanges of macroeconomic policies and structural information such as fiscal positions, monetary and exchange rate policies (including domestic and foreign assets and liabilities of the central banks), capital flows, external debts, financial system conditions, and corporate sector development. With effective consultation mechanisms in place, each economy in the region is expected to be under peer pressure so that it is forced to pursue disciplined macroeconomic and structural policies that are conducive to stable external accounts and currencies.

This consultation process may include efforts toward Intra-regional exchange rate stability for economies that are highly integrated with, or complementary to, one another through trade and FDI. These economies may wish to form a currency union (whether introducing a new common currency or adopting an external currency such as dollarization and a currency board system), establish a formal mechanism for exchange rate stability (such as adopting a formal exchange rate peg to a single external currency or a basket of such currencies), or support an informal arrangement for stable exchange rates (such as the *de facto* currency stabilization to the US dollar with loose inflation targeting).<sup>27</sup>

---

<sup>26</sup> See Box 1: Existing Regional Financial Arrangements in East Asia.

<sup>27</sup> See Kawai and Takagi (2000) for East Asia.

### Box 1: Existing Regional Financial Arrangements in East Asia

Several regional arrangements already existed in East Asia prior to the crisis. They included a network of currency swap arrangements (particularly among the ASEAN countries), bilateral repurchase agreements, the EMEAP (Executives' Meeting of East Asia and Pacific Central Banks), the Four and Six Markets Meetings, and the APEC Finance Ministers Meeting for financial cooperation among finance ministers and/or central bank governors. One of the objectives of these arrangements was to establish a cooperative framework to cope with possible currency crises through frequent exchanges of information and the network of currency swap and repurchase arrangements involving U.S. dollar-denominated foreign exchange reserves. In addition to these, various initiatives for regional financial cooperation emerged following the East Asian currency crisis.

- *Regional participation in rescue packages.* At the time of the baht and rupiah crises, financing by international financial institutions (the IMF, World Bank, and ADB) was supplemented by bilateral financing from the regional economies, including those in emerging East Asia.
- *Asian Monetary Fund.* Japan proposed the idea of creating an Asian Monetary Fund (AMF) soon after the Thai baht crisis in July 1997. But the proposal encountered opposition from the IMF and the US on the ground that it would undermine an international effort to strengthen domestic policy reforms on the part of the borrowing countries due to soft conditionalities associated with AMF financing. The Chinese government also opposed to what was perceived as a Japanese bid for regional financial leadership.
- *Manila Framework Group.* Although the idea of an AMF never materialized, finance ministers and deputies in the Asia-Pacific region agreed in Manila in November 1997 to establish a forum, called the Manila Framework Group Meeting, for cooperative arrangements supplemented by regional surveillance and financing, in a way consistent with the IMF/World Bank framework.
- *The ASEAN Economic Monitoring Process* has also been strengthened since the outbreak of a crisis, supported by the ADB.
- *New Miyazawa Initiative.* In October 1998, Japan pledged \$30 billion to support the economic recovery of the crisis-affected countries under the New Miyazawa Initiative. Half of the pledged amount was to be dedicated to short-term capital needs during the process of implementing economic restructuring and reform, while the rest was earmarked for medium-term and long-term reforms.
- *AGRI.* In November 1998, the United States and Japan announced the Asian Growth and Recovery Initiative (AGRI) to stimulate economic recovery and growth. With support from the World Bank and the ADB, AGRI was to mobilize \$5 billion in bilateral and multilateral support to further corporate restructuring and restore access to capital.
- *Chiang Mai Initiative: ASEAN+3.* In May 2000, the ASEAN countries, Japan, Korea, and China (ASEAN plus 3) agreed to form a network of currency swap arrangements to prevent currency crises in the region. The swap lines are still at a very premature stage and the conditions under which swaps would be activated have yet to be negotiated. The ASEAN+3 arrangements are said to be complementary to the IMF, by providing short-term bridging assistance until an IMF program can be put into place. China's change in approach and its participation poses a question how Japan and China might share leadership responsibilities.

Second, global sources of international liquidity may be delayed in disbursement in times of crisis or contagion, whether because of bureaucratic processes or disagreements over policy conditionality. To avoid long delays and to augment globally available resources, a regional financing facility can help close the gap. A financing facility that can mobilize large amounts of liquidity rapidly to head off currency crises and contagion is an obvious benefit if crises and contagion are most likely to be the result of irrational herd behavior. The regional initiative, however, needs to be consistent with, and complementary to, a global framework to exploit the synergy, ensure international policy coherence, and involve private creditors who are very often financial institutions from outside the region.

Third, in the face of a systemic crisis in the banking, corporate and social sectors, mobilizing fiscal resources is essential to quickly resolving the crisis. Fiscal resources that are needed to recapitalize weak banks, facilitate corporate debt restructuring, and increase social safety net spending may be limited due to the lack of fiscal headroom or constraints to external financing on market terms. Given that the resources from the multilateral development banks (such as the World Bank and the ADB) are also limited, regionally concerted action to mobilize such resources, particularly from the core countries in a region, would contribute greatly to crisis resolution, if done consistently with global frameworks.

### Box 2: Global Initiatives to Improve the International Financial System

Initiatives now under consideration as part of the international financial architecture discussions have the potential to improve the global framework and policy response. Areas under discussion include:

- Information and transparency: The World Bank and IMF among others have been working on new standards for disseminating data on reserves and external debt and on new codes of good practices in fiscal, monetary, and financial disclosure.
- Banking and supervision: Work is ongoing to strengthen Basle core principles. The World Bank and IMF are conducting joint assessments of financial systems to ascertain compliance with new international norms and detect extant weaknesses.
- Securities markets: The International Organization of Securities Commissions has prepared principles and standards for disclosure.
- Accounting and auditing: The International Accounting Standards Committee is reviewing principles with the objective of having uniform standards by 2002.
- Bankruptcy and governance: The U.N. Commission on International Trade Law has disseminated a new model law of cross-border insolvency, and the Organization for Economic Cooperation and Development Task Force is working on internationally applicable principles of corporate governance.
- Private sector involvement: The IMF and its Board, among others, have been working on general principles to elicit greater private participation in financing packages, in part because IMF resources are limited and in part to discourage the “moral hazard” that could be associated with bail outs.

## References

- ADB (Asian Development Bank). 1998. *Asian Development Outlook*. New York: Oxford University Press.
- ADB (Asian Development Bank) and World Bank. 1998. *Managing Global Financial Integration In Asia: Emerging Lessons and Prospective Challenges*. Manila. Processed.
- Ariyoshi, Akira, Karl Habermeier, Bernard Laurens, Inci Otker-Robe, Jorge Ivan Canales-Kriljenko, and Andrei Kirilenko. 2000. "Capital Controls: Country Experiences with Their Use and Liberalization." Occasional Paper 190. International Monetary Fund, Washington, D.C.
- Bhattacharya, Amarendra, and Masahiro Kawai. 2000. *International Financial Architecture: Lessons from the Asian Crisis*. Washington, D.C.: World Bank.
- Calvo, Guillermo. 1998. "Capital Market Contagion and Recession: An Explanation of the Russian Virus." University of Maryland, College Park. Processed.
- Calvo, Guillermo, and Enrique Mendoza. 1999. *Rational Contagion and the Globalization of Securities Markets*. <http://www.bsos.umd.edu/econ/ciecrp6.pdf>.
- Claessens, Constantijn, Simeon Djankov, and Larry Lang. 1998. "Corporate Growth, Financing, and Risks in the Decade before East Asia's Financial Crisis." World Bank Policy Research Paper No.2017. Washington, D.C.
- Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. 1998. "What Caused the Asian Currency and Financial Crises? A Macroeconomic Overview." Processed (September). New York University.

- De Ferranti, David, Guillermo Perry, Indermit Gill, and Luis Servén. 2000. *Securing Our Future in a Global Economy*. Washington: World Bank
- Diamond, Douglas W., and Philip H. Dybvig. 1983. "Bank Runs, Deposit Insurance, and Liquidity." *Journal of Political Economy* 91: 401–19.
- Dooley, Michael. 1996. "A Survey of Literature on Controls Over International Capital Transactions." *IMF Staff Papers* 43(4):639–87.
- Dornbusch, Rudiger, Yung Chul Park, and Stijn Claessens. 2000. "Contagion: Understanding How It Spreads." *The World Bank Research Observer*, 15(2):177-97.
- Edison, Hali, and Carmen Reinhart. 1999. "Stopping Hot Money."  
<http://www.puaf.umd.edu/papers/reinhart.htm>.
- Edwards, Sebastian. 1999. "How Effective Are Capital Controls?" *Journal of Economic Perspectives* 13(4):65–84.
- Eichengreen, Barry, and Donald Mathieson. 1998. "Hedge Funds and Financial Market Dynamics." *Occasional Paper* 181, International Monetary Fund, Washington, D.C.
- Furman, Jason, and Joseph E. Stiglitz. 1998. "Economic Crises: Evidence and Insights from East Asia." *Brookings Papers on Economic Activity* 2:1–135.
- Gallego, Francisco, Leonardo Hernandez, and Klaus Schmidt-Bebbel. 1999. "Capital Controls in Chile: Effective?" Central Bank of Chile Working Paper 59, Santiago.
- Ganapolsky, Eduardo, and Sergio Schmukler 1998. "Crisis Management in Argentina During the 1994–95 Mexican Crisis." Policy Research Working Paper 1951, World Bank, Washington, D.C.
- Guidotti, Pablo. 1999. "Currency Reserves and Debt." Speech to World Bank Conference on Recent Trends in Reserves Management. Washington D. C.

- Haggard, Stephan. 2000. *The Political Economy of the East Asia Crisis*. Washington, D.C.: Washington Institute for International Economics.
- Hood, Ronald. 2000. "Malaysian Capital Controls." World Bank, Washington, D.C. Processed.
- IMF (International Monetary Fund). 1997. *International Capital Markets: Development, Prospects, and Key Policy Issues*. Washington, D.C.
- IMF (International Monetary Fund). 1998a. *International Capital Markets: Development, Prospects, and Key Policy Issues*. Washington, D.C.
- IMF (International Monetary Fund). 1998b. *World Economic Outlook*. Washington, D.C.
- Kaminsky, Graciela, Rich Lyons, and Sergio Schmukler. Forthcoming. "Mutual Fund Investment in Emerging Markets: An Overview." New York: Academic.
- Kaminsky, Graciela, and Carmen M. Reinhart. 1999. "The Twin Crises: The Causes of Banking and Balance-of-Payments Problems." *American Economic Review* 89:473–500.
- Kaminsky, Graciela, and Carmen M. Reinhart. 2000. "On Crises, Contagion, and Confusion." *Journal of International Economics* 51:1145–68.
- Kaminsky, Graciela, and Sergio Schmukler. 1999. "What Triggers Market Jitters? A Chronicle of the Asian Crisis." *Journal of International Money and Finance* 18:537–60.
- Kawai, Masahiro. 1998a. "The East Asian Currency Crisis: Causes and Lessons." *Contemporary Economic Policy* 14:157–72.
- Kawai, Masahiro. 1998b. "Evolving Patterns of Capital Flows and the East Asian Crisis." EAP Working Paper Series 98-04, World Bank, Washington, D.C.

- Kawai, Masahiro, and Kentaro Iwatsubo. 1998. "The Thai Financial System and the Baht Crisis: Processes, Causes, and Lessons." *Asia Pacific Journal of Finance* 1:235–61.
- Kawai, Masahiro, and Shinji Takagi. 2000. "Proposed Strategy for a Regional Exchange Rate Arrangement in Post-crisis East Asia." Policy Research Working Paper 2503 (December). World Bank, Washington, D.C.
- Kenward, Lloyd. 1999. "From the Trenches: The First Year of Indonesia's Crisis of 1997/98 as Seen from the World Bank Offices in Jakarta." World Bank, Washington, D.C. Processed.
- Khan, Mohsin S., and Carmen M. Reinhart. 1994. "Macro-Economic Management in Maturing Economies: The Response to Capital Inflows." International Monetary Fund Issues Paper. Washington, D.C.
- Kodres, Laura., and Matthew Pritsker. 1998. "A Rational Expectations Model of Financial Contagion." Board of Governors of the Federal Reserve System, Washington, D.C. Processed.
- Krugman, Paul. 1979. "A Model of Balance-of-Payments Crises." *Journal of Money, Credit, and Banking* 11:311–25.
- Krugman, Paul. 1998a. "What Happened to Asia?" Massachusetts Institute of Technology, Cambridge, Mass. Processed.
- Krugman, Paul. 1998b. "Saving Asia: It's Time to Get Radical." *Fortune Investor* 7 :33–8.
- Krugman, Paul. 1999. "Balance Sheets, the Transfer Problem, and Financial Crises." Massachusetts of Institute of Technology, Cambridge, Mass. Processed.



- Lee, Hiro, and David W. Roland-Holst, eds. 1998. *Economic Development and Cooperation in the Pacific Basin: Trade, Investment, and Environmental Issues*. New York: Cambridge University Press.
- McKinnon, Ronald I., and Huw Pill. 1996. "Credible Liberalizations and International Capital Flows: The 'Overborrowing Syndrome.'" In Takatoshi Ito and Anne O. Krueger, eds., *Financial Deregulation and Integration in East Asia*. Chicago: University of Chicago Press.
- Montes, Manuel F. 1998. *The Currency Crisis in Southeast Asia*. Singapore: Institute of Southeast Asian Studies.
- Obstfeld, Maurice. 1986. "Rational and Self-Fulfilling Balance of Payments Crises." *American Economic Review* 76:72–81.
- Perry, Guillermo, and Daniel Lederman. 1998. *Financial Vulnerability, Spillover Effects and Contagion: Lessons from the Asian Crises for Latin America*. Washington, D.C.: World Bank.
- Radelet, Steven, and Jeffrey D. Sachs. 1998a. "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects." *Brookings Papers on Economic Activity* 1: 1–90.
- Radelet, Steven, and Jeffrey D. Sachs. 1998b. "The Onset of the East Asian Financial Crises." NBER Working Paper 6680.
- Radelet, Steven, and Jeffrey Sachs. 1999. "What Have We Learned, So Far, From the Asian Financial Crisis?" Harvard University, Cambridge, Mass. Processed.
- Stiglitz, Joseph. 1998. "Knowledge for Development: Economic Science, Economic Policy and Economic Advice." Tenth Annual Bank Conference on Development Economics (ABCDE), World Bank.

- Stiglitz, Joseph E., and Amarendra Bhattacharya. 1999. "Under-Pinnings for a Stable and Equitable Global Financial System: From Old Debates to a New Paradigm." In *Annual Bank Conference on Development Economics*. Washington, D.C.: World Bank
- Summers, Lawrence H. 1999. "Roots of the Asian Crises and the Road to a Stronger Global Financial System." Remarks made at the Institute of International Finance.
- World Bank. 1998a. *East Asia: The Road to Recovery*. Washington, D.C.: World Bank.
- World Bank. 1998b. *Global Economic Perspectives*. Washington, D.C.: World Bank.
- World Bank. 2000a. *East Asia: Recovery and Beyond*. Washington, D.C.: World Bank.
- World Bank. 2000b. *Global Development Finance 2000*. Washington, D.C.: World Bank.
- World Bank, 2000c. *World Development Report 2000/2001*. Washington, D.C.: World Bank.

**Policy Research Working Paper Series**

	<b>Title</b>	<b>Author</b>	<b>Date</b>	<b>Contact for paper</b>
WPS2589	Implementing the Market Approach to Enterprise Support: An Evaluation of Ten Matching Grant Schemes	David A. Phillips	April 2001	S. Torres 39012
WPS2590	Household Welfare and Poverty Dynamics in Burkina Faso: Empirical Evidence from Household Surveys	Hippolyte Fofack Célestin Monga Hasan Tuluy	April 2001	N. Nouviale 34514
WPS2591	Hirschmanian Themes of Social Learning and Change	David Ellerman	April 2001	B. Mekuria 82756
WPS2592	Management of Oil Windfalls in Mexico: Historical Experience and Policy Options for the Future	Stephen Everhart Robert Duval-Hernandez	April 2001	M. Kam-Cheong 39618
WPS2593	Changing Trade Patterns after Conflict Resolution in the South Caucasus	Evgeny Polyakov	April 2001	Z. Nekaiien-Nowrouz 39057
WPS2594	Committing to Civil Service Reform: The Performance of Pre-Shipment Inspection under Different Institutional Regimes	Noel Johnson	April 2001	L. Barbone 32556
WPS2595	Unrestricted Market Access for Sub-Saharan Africa: How Much Is It Worth and Who Pays?	Elena Ianchovichina Aaditya Mattoo Marcelo Olarreaga	April 2001	L. Tabada 36896
WPS2596	Shaping Future GATS Rules for Trade in Services	Aaditya Mattoo	April 2001	L. Tabada 36896
WPS2597	Measuring the Impact of Minimum Wages: Evidence from Latin America	William F. Maloney Jairo Nuñez	April 2001	A. Pillay 88046
WPS2598	Weightless Machines and Costless Knowledge: An Empirical Analysis of Trade and Technology Diffusion	Giorgio Barba Navaretti Isidro Soloaga	May 2001	L. Tabada 36896
WPS2599	State Ownership and Labor Redundancy: Estimates Based on Enterprise-Level Data from Vietnam	Patrick Belser Martín Rama	May 2001	H. Sladovich 37698
WPS2600	Rent-Sharing, Hold-Up, and Manufacturing Wages in Côte d' Ivoire	Jean-Paul Azam Catherine Ris	May 2001	H. Sladovich 37698
WPS2601	The WTO Agreement and Telecommunications Policy Reform	Peter Cowhey Mikhail M. Klimenko	May 2001	L. Tabada 36896

### Policy Research Working Paper Series

	<b>Title</b>	<b>Author</b>	<b>Date</b>	<b>Contact for paper</b>
WPS2602	Sugar Policy and Reform	Donald F. Larson Brent Borrell	May 2001	P. Kokila 33716
WPS2603	How the Quality of Institutions Affects Technological Deepening in Developing Countries	George R. G. Clarke	May 2001	P. Sintim-Aboagy 38526
WPS2604	Eliminating Excessive Tariffs on Exports of Least Developed Countries	Bernard Hoekman Francis Ng Marcelo Olarreaga	May 2001	L. Tabada 36896
WPS2605	The Macroeconomic Impact of Bank Bank Capital Requirements in Emerging Economies: Past Evidence to Assess the Future	Maria Concetta Chiuri Giovanni Ferri Giovanni Majnoni	May 2001	E. Mekhova 85984
WPS2606	Exchange Rate Risk Management: Evidence from East Asia	George Allayannis Gregory W. Brown Leora F. Klapper	May 2001	A. Yaptenco 31823
WPS2607	The Economical Control of Infectious Disease	Mark Gersovitz Jeffrey S. Hammer	May 2001	H. Sladovich 37698
WPS2608	Financial Development and International Trade: Is There a Link?	Thorsten Beck	May 2001	A. Yaptenco 38526
WPS2609	Financial Dependence and International Trade	Thorsten Beck	May 2001	A. Yaptenco 38526