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# Introduction and Overview

## Introduction

On 11 May 1997 the Asian Development Bank released *Emerging Asia: Changes and Challenges*, a study extolling the virtues of the developing countries in Asia and predicting their continued “robust economic growth.” Less than two months later, on 2 July, Thailand abandoned its exchange rate peg to the dollar, igniting a financial turmoil that quickly spread throughout Southeast Asia. The following month the crisis hit South Korea, where on 27 August a high-ranking official of the Ministry of Finance and Economy (MFE) stated, at a Seoul press conference, that the Bank of Korea would defend its “Maginot Line” of 900 won to the US dollar. The Bank had the same success as the French army in 1940, and the level was soon breached. A wise man once observed that history repeats itself—appearing first as tragedy, then as farce—and on 17 November MFE officials solemnly announced that they would defend their new “Maginot Line” of 1,000 won to the US dollar. They spent billions of dollars trying, but the following day the level was once again breached as the Bank of Korea announced it was “temporarily” suspending its defense operations. During the final week of December, the won hit 1,950 to the dollar. By then stock markets throughout developing Asia had lost nearly half of their value within a year.

During the 1990s, Asia has accounted for more than half of world growth, and an Asian slowdown arising from the financial crisis represents a major shock to the global economy, affecting both the global financial system and, through trade links, the performance of countries

inside and outside the region. In this study we analyze the real adjustment induced by the real exchange rate and supply-side shocks arising from the financial turmoil of 1997-98. Our results indicate that the Asian financial crisis will significantly reduce real absorption throughout developing Asia and generate shifts in trade balances on the order of tens of billions of dollars as these countries attempt to export their way out of their crisis. This increase in net exports will be insufficient to offset fully the decline in absorption, and national incomes throughout developing Asia will fall.<sup>1</sup> China thus far has remained relatively immune to the crisis according to our central estimate. It has had a real appreciation that could reduce its trade surplus by more than \$12 billion, thereby complicating its process of economic restructuring. In this case we estimate that a real depreciation of 6 percent would be sufficient for China to reattain its precrisis competitiveness as defined by its precrisis trade balance.<sup>2</sup> However, given the possibility that such a devaluation could ignite another round of financial turmoil, we recommend other policy responses.

The changes in trade balances will reverberate across the world trading system. For the United States, the increase of the trade deficit associated with the crisis could be on the order of \$40-50 billion—and even more in real terms.<sup>3</sup> In absolute terms, the impact could be even larger in Western Europe, and, in percentage terms, Oceania could be hit even harder.<sup>4</sup> Yet the consequences could be quite subtle: while net exports will fall in the developed countries, this decline will be offset by an income effect induced by the terms of trade improvement and increased capital inflow depressing domestic interest rates. While the traded-goods sector contracts, the nontraded sector will actually expand, and thus the overall consequence could be a wash.

In the United States, the rise in trade imbalances will increase trade tensions with Asia, thereby increasing the likelihood of formal trade

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1. In the interests of brevity we will paint with a broad brush: for our purposes “developing Asia” consists of South Korea, Malaysia, Thailand, Indonesia, and the Philippines. Singapore, Taiwan, Japan, and China have been affected by the crisis to a lesser extent and will appear in this narrative separately as relevant. Malaysia, Thailand, Indonesia, and the Philippines will often be referred to as the ASEAN-4.

2. Considerable uncertainty remains as to the ultimate magnitude and persistence of the financial shocks in Asia; in appendix C we present estimates based on alternative assumptions regarding developments elsewhere in Asia. Estimates of the impact on China’s trade balance range from \$4 billion to \$20 billion, and the associated real depreciations necessary to reestablish the status quo range from 2 to 10 percent.

3. Again, this is our central estimate. The sensitivity analyses reported in appendix C indicate that the effects of the crisis on the US trade balance could range from \$15 billion to \$75 billion.

4. These results contrast with statements made by EU monetary affairs officials who have discounted the effects of the Asian financial crisis. See the *Financial Times* (6 January 1998 and 8 January 1998).

## 2 ECONOMIC EFFECTS OF THE ASIAN CURRENCY DEVALUATIONS

actions against Asian countries. At the same time, the growing dependency of these Asian economies on the US market will increase the likelihood that they will comply with US demands.

## Origins and Nature of the Crisis

In this chapter, we make the following argument:

- The Asian “miracle” was and is real. These are strong economies that have performed well—indeed, spectacularly—in the past, and there is every reason to expect them to perform well in the future.
- The financial sectors in the Asian economies, however, did not evolve in parallel with economic performance. In most of these countries, the financial systems have major structural weaknesses—banks that are “captives” of major industries; extensive government involvement in investment allocation decisions; underdeveloped and underregulated stock markets; “crony capitalism” and corruption in bank operations; and a general lack of oversight and transparency in the workings of the financial system. These weaknesses are fundamental and would have, at some point, caused major problems, since they interfere with the ability of the financial system to serve its role as an effective intermediary between savers/investors and producers with profitable investment opportunities and needs for working capital.
- The world capital markets overinvested in the Asian economies for a number of reasons. There were serious domestic problems in Japan, which led to major capital outflows. At the same time, US interest rates fell, making foreign investment more attractive. Exchange rates were favorable for investors. There is also a well-known herd mentality among institutional investors that leads them to behave similarly. Finally, the nature of the investment changed, moving to more short-term, portfolio investments and away from long-term investments in productive capacity.
- The financial institutions in Asia were not capable of effectively and productively intermediating this increased inflow of foreign investment. The increased flows served only to exacerbate the underlying structural weaknesses of these systems.
- A crisis was inevitable. There was panic, and it was not just any panic. Although increasing liquidity is undoubtedly required, reestablishing confidence will require more than that. The Asian crisis is thus different from the Mexican crisis of 1994-95, which was largely a liquidity crisis.
- Adjustment to the crisis will require significant changes over the medium to long run. Major reforms of the financial systems in most

of these countries must occur. There have been, and will continue to be, significant realignments of real exchange rates, which will persist. There have been, and there will be more, changes in real trade balances in these countries, which will affect their trading partners. All these changes will require years of adjustment, and these adjustments will reverberate throughout the world trading system. They will have significant consequences on the developed countries and will affect trade relations, and trade disputes, around the world.

The Asian financial crisis took most observers by surprise, by its virulence, if not by its timing. A variety of explanations have been offered for the crisis after the fact. Our focus is on the impact of the crisis on real exchange rates, trade balances, and changes in the structure of production and trade in the medium run. We distinguish two views.<sup>5</sup> The “fundamentalist” view of the crisis, most commonly associated with Krugman (1997, 1998a); Corsetti, Pesenti, and Roubini (1998); and Goldstein (1998), among others, holds that its origins lie in structural weaknesses in domestic financial institutions in the Asian countries. An alternative perspective, most often associated with Sachs (1997a, 1997b, 1997c) and Stiglitz (1997, 1998a, 1998b), stresses the expectational, “confidence,” or “panic” origins of the crisis. In fairness, for most observers this distinction is a matter of emphasis; few would completely discount the relevance of both “fundamentalist” and “panic” considerations.<sup>6</sup>

This distinction is important for our analysis of the real consequences of the crisis. If the crisis is essentially expectational in nature—a short-term panic—then restoring confidence could lead to a reversal of the asset market declines and a relatively quick and painless return to the previous status quo, with only transitory implications for trade and production for either Asia or the rest of the world.<sup>7</sup> If, however, the origins of the crisis lie more in flawed “fundamentalist” considerations then the shocks to

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5. While Radelet and Sachs (1998) distinguish five intellectual perspectives on the crisis, for our purposes it is sufficient to consider only fundamentalist and panic explanations.

6. Sachs (1997c) probably comes the closest to purity, asserting that “There is no ‘fundamental’ reason for Asia’s financial calamity except financial panic itself.” Krugman (1998b), in contrast, states that “I believe that crony capitalism in general, and moral hazard in [domestic] banking in particular, created a ‘bubble economy’ that had to burst sooner or later. Yet it is hard to deny that there is a strong element of self-fulfilling panic in the Asian crisis.”

7. For example, Stiglitz (1998a) has written, “Restoring growth in East Asia requires restoring confidence. This is as much a matter of perception as of reality. . . .” Sachs (1997a) argued: “Fortunately, in Thailand and elsewhere, little real damage has yet occurred. With prudent adjustments, the large benefits of capital flows to the emerging markets can still be secured without the costs of unnecessary crises.” Writing about South Korea, he (Sachs 1997c) opines, “With appropriate confidence-building measures, [South] Korea could have probably got by with a modest slowdown in growth, no credit crunch, and a realistic time horizon of a few years to complete its needed financial reforms.”

these economies will be more persistent and have greater implications for economic adjustment over the medium to long run.<sup>8</sup> While both sets of explanations certainly contain elements of truth, we believe that the existing evidence lends considerable credence to the “fundamentalist” view, suggesting that the crisis will have persistent real effects.

## The Fundamentalist Story

The starting point of this argument is that the crises that emerged in Asia, while originating in flawed financial systems, were unlike previous currency crises.<sup>9</sup> Like the French generals of the 1930s preparing to refight World War I, observers tracked the predictors of the last crisis and missed the indicators of the one to come. For the most part, large budget and current account deficits that were central to most previous developing-country currency crises were not in evidence. Nor was there widespread unemployment, which could have tempted monetary authorities to abandon an exchange rate peg or, alternatively, could have induced speculation in anticipation of such abandonment—as occurred in Europe. These were the “miracle” economies that had exhibited stellar performance for decades (World Bank 1993), though even as the miracle unfolded some of their financial practices were disconcerting to the cognoscenti.

Some of the Asian countries were running sizable current account deficits, but they had been running deficits of similar magnitude for much of the 1980s (table 1.1). Below the surface, however, things had begun to change in 1995. Because the exchange rates of most developing Asian currencies were pegged—to a greater or lesser extent—to the US dollar, the dollar’s rise against the yen and major European currencies meant that the Asians were losing competitiveness in what were major export markets.<sup>10</sup> Moreover, the Asian countries’ inflation rates, while low by developing-country standards, were higher than those of most developed countries. These two effects generated modest real effective exchange

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8. McKibbin (1998) explores the empirical importance of this distinction, to which we will return in chapter 2.

9. See Krugman (1979), Flood and Garber (1984), and Obstfeld (1994). Corsetti, Pesenti, and Roubini (1998) have additional references.

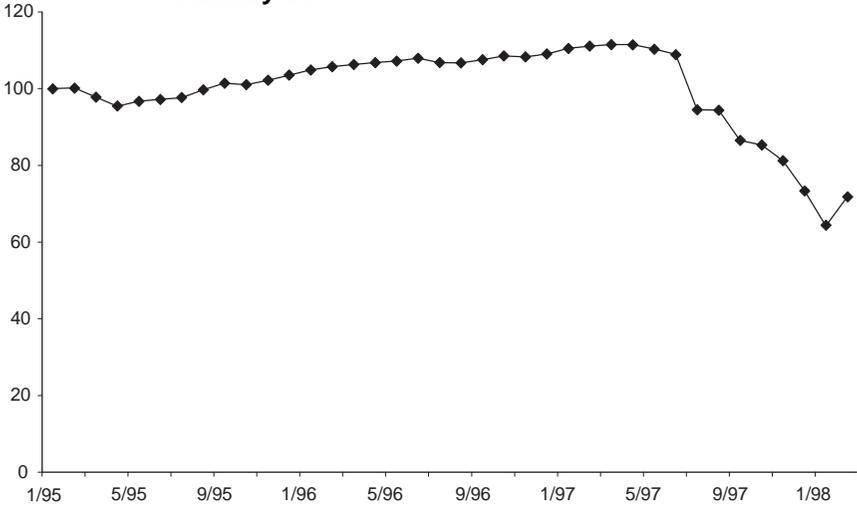
10. During the 1990s, the Thai baht was fixed in a narrow range of 25.2 to 25.6 to the US dollar. The Malaysian ringgit was allowed a bit more flexibility, staying within a 10 percent band of 2.5 to 2.7 ringgit to the US dollar. The Philippine peso moved within a 15 percent band of 24 to 28 to the US dollar until 1995 when it was fixed at 26.2. Indonesia maintained a crawling peg, and the currency was allowed to depreciate in nominal terms from 1,900 rupiah to the US dollar in 1990 to 2,400 rupiah to the US dollar at the beginning of 1997. The South Korean won followed a controlled float, but was held within a narrow range of 770 to 800 won to the US dollar from early 1993 to mid-1996, when it was allowed to depreciate by about 10 percent.

**Table 1.1 Current account deficits as a share of GDP, 1975-97 (percentages)**

	1975-82	1983-89	1990	1991	1992	1993	1994	1995	1996	1997
China	0.7	-1.0	3.4	3.5	1.5	-2.7	1.4	0.2	0.9	2.5
Hong Kong	1.9	8.3	8.9	7.1	5.7	7.4	1.6	-3.9	-1.3	-1.5
Indonesia	-1.2	-3.5	-2.8	-3.4	-2.2	-1.5	-1.7	-3.3	-3.3	-2.9
Japan	0.4	3.0	1.5	2.0	3.0	3.1	2.8	2.2	1.4	2.2
South Korea	-4.6	2.5	-0.9	-3.0	-1.5	0.1	-1.2	-2.0	-4.9	-2.9
Malaysia	-2.0	-0.7	-2.1	-8.8	-3.8	-4.8	-7.8	-10.0	-4.9	-5.8
Philippines	-6.5	-0.3	-6.1	-2.3	-1.6	-5.5	-4.6	-4.4	-4.7	-4.5
Singapore	-8.8	1.8	8.3	11.2	11.3	7.4	17.1	16.9	15.0	14.0
Taiwan	1.6	12.9	6.7	6.7	3.8	3.0	2.6	1.9	5.2	4.2
Thailand	-5.6	-3.2	-8.3	-7.7	-5.6	-5.0	-5.6	-8.0	-7.9	-3.9

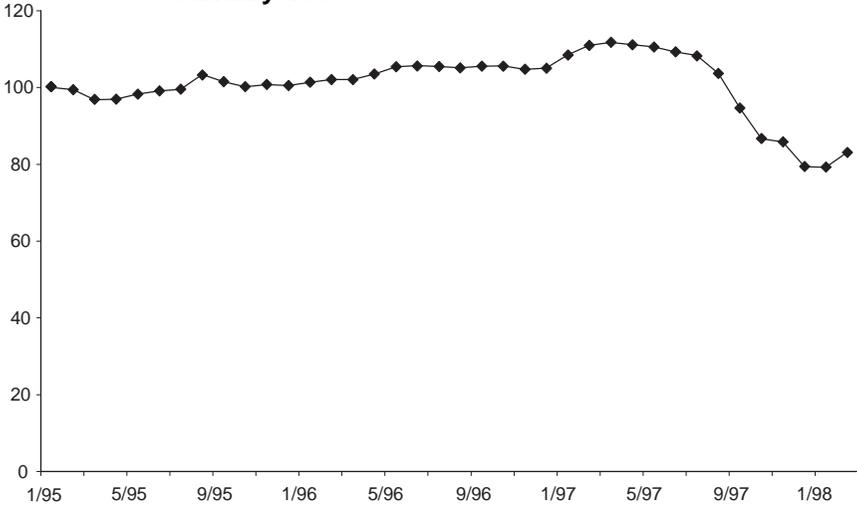
Sources: *International Financial Statistics*, IMF; *Taiwan Statistical Data Book*, Taiwan, Republic of China (various issues).

**Figure 1.1A Thailand's real exchange rate, January 1995- January 1998**



Source: JP Morgan real broad effective exchange rate indices.

**Figure 1.1B Malaysia's real exchange rate, January 1995- January 1998**

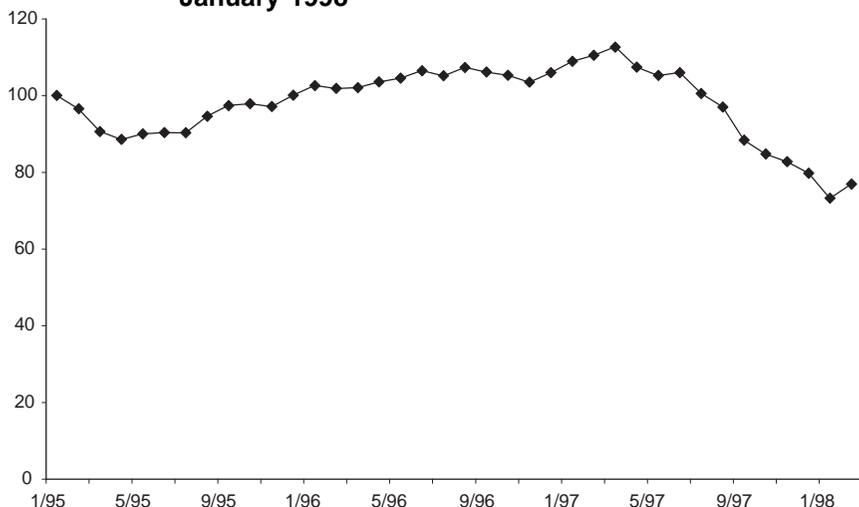


Source: JP Morgan real broad effective exchange rate indices.

rate appreciation (figures 1.1a-e). In 1996 export growth began to slow significantly.

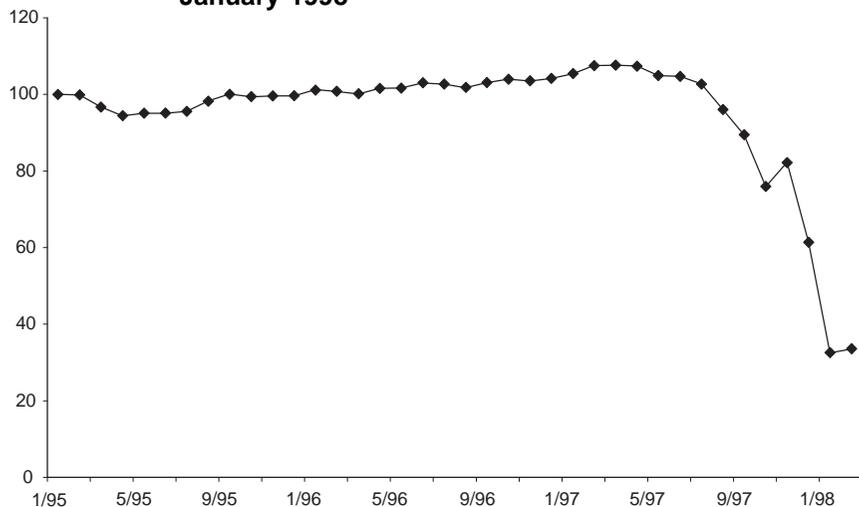
As competitiveness in the traded-goods sector eroded, the composition of capital inflows began to change. While much of the inflow in the 1980s had taken the form of foreign direct investment, the composition of the

**Figure 1.1C The Philippines' real exchange rate, January 1995-January 1998**



Source: JP Morgan real broad effective exchange rate indices.

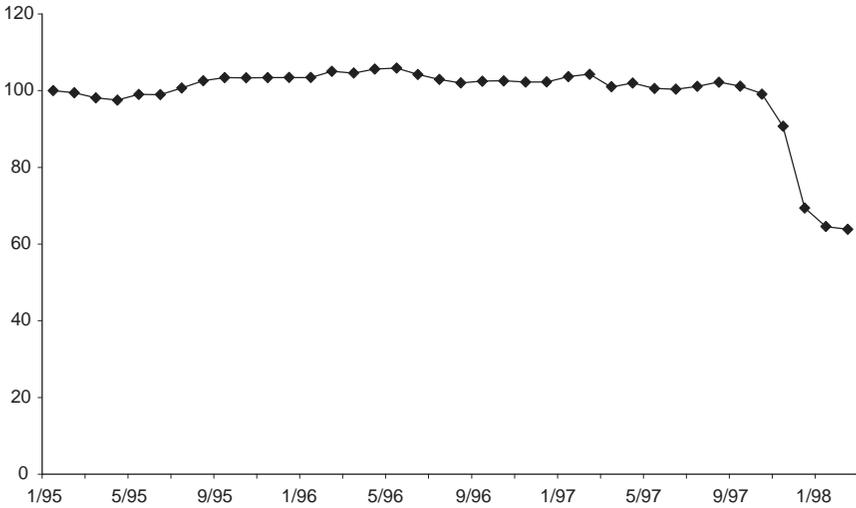
**Figure 1.1D Indonesia's real exchange rate, January 1995-January 1998**



Source: JP Morgan real broad effective exchange rate indices.

capital inflow began shifting toward more liquid portfolio investment in the 1990s. The saving-investment balance corollary to the widening current account deficits was investment booms—with much of the investment concentrated in the nontraded sector. Indeed, much of it was concentrated in assets of relatively fixed supply such as land and real estate (table 1.2).

**Figure 1.1E South Korea's real exchange rate, January 1995- January 1998**



Source: JP Morgan real broad effective exchange rate indices.

These investments were intermediated by local banks and nonbank financial institutions, in the widely held belief that governments would not allow these institutions to fail.<sup>11</sup> Often using the very same land, real estate, and financial assets as collateral, financial institutions lent for property and stock market investments. This set up a self-reinforcing upward spiral—as financial institutions lent into these markets, the value of existing collateral increased, thereby permitting greater lending, which in turn drove asset prices higher. The existence of lower interest rates internationally, together with the existence of long-standing exchange rate pegs, encouraged financial institutions to borrow foreign exchange abroad, convert it into domestic currency, and lend it domestically—assuming the exchange risk. These reckless practices were facilitated by weak prudential supervision and a culture of cronyism.

Such conditions are not indefinitely sustainable. Indeed, the list of real and financial shocks that could reverse such a process is nearly endless, with many possibilities evident from history. Once in reverse, the process feeds on itself: asset prices begin to fall, creating nonperforming loans and eroding the value of collateral. Lending then contracts, which reduces asset prices, creates more bad loans, and destroys more collateral. Foreign

11. For example, it was widely believed that no South Korean bank would be allowed to fail due to the state's intimate involvement with the financial system; indeed, in October 1997, the Korean government nationalized a small bank rather than closing it. A similar argument could be made with respect to the ASEAN-4. This is an area in which "crony capitalism" may well have played an important role in certain economies.

**Table 1.2 Banking system exposure to risk**

	Property exposure	Collateral valuation	Nonperforming loans in 1997	Nonperforming loans in 1998	Capital ratio	Five largest banks' share of deposits or assets (percentage)
South Korea	15-25	80-100	16.0	22.5	6-10	38
Indonesia	25-30	80-100	11.0	20.0	8-10	na
Malaysia	30-40	80-100	7.5	15.0	8-14	35
Philippines	15-20	70-80	5.5	7.0	15-18	na
Singapore	34-40	70-80	2.0	3.5	18-22	39
Thailand	30-40	80-100	15.0	25.0	6-10	60
Hong Kong	40-55	50-70	1.5	3.0	15-20	40

na = not available.

Note: Data for the first five columns are as a percentage of assets at the end of 1997. Data for the last column are as a percentage of deposits or assets for 1996.

Sources: Data for the first five columns are from JP Morgan, *Asia Financial Markets*, January 1998 and Corsetti, Pesenti, and Roubini (1998, table 25). Data for the last column are from Goldstein and Turner (1996, table 5) .

lending dries up, and as stock markets fall, net capital inflow turns negative as both residents and foreigners rush for the exits.

This rush, in turn, puts pressure on the exchange rate peg. The conventional remedy is to raise interest rates, but given the fragile state of the domestic financial system, monetary authorities are forced to choose between maintaining the peg or maintaining the solvency of the domestic financial system. Paradoxically, a rise in the interest rate may well be seen as an indication of financial weakness, which would worsen rather than reduce capital flight. Inevitably, the peg is abandoned, and the currency collapses. For firms with significantly unhedged foreign currency debt, the exchange rate depreciation means insolvency, as the domestic resource cost of debt service skyrockets. Bankruptcies cascade through the financial system. The real and financial sectors contract, and inflation accelerates as the prices of imports increase.<sup>12</sup>

Eventually, resources shift into the exports sector as domestic producers respond to the depreciation (although the structural adjustment is hindered by lack of credit, which, in turn, has real effects on costs and production). The economy begins to export its way back to full employment, suitably defined, recognizing that part of the prior capital investment has been “wasted” and is unlikely ever to achieve expected returns on its installed value.

The Asian financial crisis was a product of large capital inflows into deeply flawed financial sectors. Although the currency crises that occurred in the second half of 1997 were a by-product of domestic financial turbulence rather than a principal cause of the crisis, exchange rate misalignment played an important role in the story.

## The Exchange Rate as a Transmission Mechanism

Without going back to Genesis, one can trace the origins of the crisis to the exchange rate misalignments of the mid-1980s. In February 1985, the Japanese yen began a rapid appreciation against other currencies, particularly the US dollar. As the relative cost of production in Japan rose, Japanese firms responded by moving production offshore, mainly to Taiwan and South Korea, which raised concerns of a “hollowing out” of the Japanese industrial base. Economic growth slowed and the term *endaka*, or high-yen recession, entered the Japanese lexicon. To counteract this phenomenon, Japanese monetary authorities pursued a policy of aggressive monetary expansion, cutting the official discount rate to its then-historical low.<sup>13</sup>

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12. The extent to which this inflation erodes the boost to competitiveness arising from the nominal exchange rate depreciation is an important issue that is discussed in chapter 2.

13. See Balassa and Noland (1988) for a more complete description of Japanese macroeconomic policy during this period.

Rapid monetary growth and low interest rates, together with a still appreciating currency, facilitated the creation of an asset market bubble and an outflow of capital. Between 1985 and 1989, the Japanese money supply grew by 48 percent, the price level *fell* by 11 percent, and the stock market rose by 158 percent. (Indeed, in the late 1980s, the Tokyo stock market had the largest capitalization of any market in the world.) Even larger price increases were experienced in land and real estate markets: Boone and Sachs (1989) calculated that in the late 1980s, the land under the Imperial Palace in Tokyo was worth as much as all of the land in California, all of the land in Canada, or all of the land, factories, and houses in Australia!

At this time the currencies of Taiwan and South Korea were pegged to the US dollar. The real depreciation caused by yen appreciation, combined with the inflow of investment and technology from Japan, created “hyper-competitiveness” and emergent macroeconomic imbalances.<sup>14</sup> Soon, Taiwan and South Korea were experiencing asset bubbles similar to Japan’s: between 1985 and 1989 in Taiwan the money supply increased 117 percent, the price level again *fell* by 9 percent, and the stock market rose a whopping 1,053 percent. During the same period in South Korea, the money supply increased by 105 percent, the price level rose by 3 percent, and the stock market went up by 458 percent. By 1989, the Taiwanese and Korean stock markets were sixth and ninth largest in the world, respectively. Eventually these economies came under both market and political pressure to revalue. As they did, this sparked a second iteration of the process, this time with billions of US dollars of capital flowing from Northeast Asia into Southeast Asia (Noland 1989, table 1.7).

During this period China was making its transition from a centrally planned economy to a market economy, and emerging as a significant participant in regional and global markets. One of China’s policy goals was to develop the institutional mechanisms to reduce macroeconomic instability despite the relative dearth of tools for macroeconomic management. Another key characteristic of the Chinese economy was the growing importance of external trade and financial flows. Beginning in the early 1990s China began to slowly liberalize its foreign exchange regime to accommodate the needs of the increasing number of participants in foreign exchange transactions by establishing a swap market that operated in parallel to the central bank’s foreign exchange window.

As the Chinese rate of inflation had been consistently higher than that of the United States (and its regional neighbors), China could either maintain its nominal peg to the US dollar and accept real exchange rate appreciation, or allow the nominal rate to depreciate to maintain real exchange

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14. See Balassa and Williamson (1990) for details of Korean and Taiwanese macroeconomic performance during this period.

rate stability. In the absence of sufficient nominal depreciation, the official and swap market exchange rates increasingly diverged.

On 1 January 1994 China unified its exchange rate by bringing the official rate into line with the swap market rate, and, indeed, some trace the origins of the current crisis to this action.<sup>15</sup> At the time, the official rate of the renminbi (RMB) was at 5.8 RMB per US dollar versus the 8.7 RMB per dollar at the swap center. The official rate devaluation was nearly 50 percent. The conventional wisdom is that the fall of the renminbi implied a real exchange appreciation for the dollar pegged currencies in Southeast Asia, undercutting their export competitiveness both among themselves and in third markets.

However, reality is a bit more complicated for at least three reasons. First, while it is true that the renminbi depreciated in *nominal* terms, China experienced higher inflation than its trade partners, thereby eroding its *real* depreciation.<sup>16</sup> Second, these calculations are normally done with respect to the renminbi's value against the US dollar. But for the most part, Chinese exports do not compete against US exports in third markets nor even with US domestic production in the US market.<sup>17</sup> The relevant measure of export competitiveness is the real exchange rate defined relative to China's export competitors and weighted by trade shares. Lastly, most analysts implicitly assume that all transactions occurred at the official rate. Yet there is evidence that prior to the unification of the exchange rate in 1994, a considerable share of transactions occurred at the swap rate.<sup>18</sup> Depending on the relative weights one gives official and swap rate

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15. For example, on 17 September 1997 the *Financial Times* editorialized that "A large part of China's recent export success reflects the devaluation that occurred in January 1994," that China continued to pursue "a cheap currency policy," and that this was "one of the factors provoking the crisis in Southeast Asia." Makin (1997, 2) wrote that "China's preemptive devaluation in 1994 was the first of a number of events leading to acute problems in Asian countries that surfaced this year." (In fairness, it should be added that Makin also mentions the reintroduction of fiscal incentives for exporters.) According to the 22 November 1997 issue of *The Economist* (p. 41), the Chinese devaluation of 1994 created an export boom that "may have laid the ground for some of Southeast Asia's woes." Corsetti, Pesenti, and Roubini (1998, 31) write that "The 50% nominal depreciation of the Chinese currency in 1994 led to a significant loss of competitiveness in the rest of the Asian countries." Huh and Kasa (1997) provide evidence that average *dollar* wages in China declined in 1994 (but presumably rose thereafter).

16. China's macroeconomic data, particularly its inflation data, are subject to considerable uncertainty. In the analysis below we accept the figures reported in the IMF *International Financial Statistics* at face value. See Noland (1997a) for a discussion of this issue.

17. See Noland (1998a) for an analysis of this issue.

18. According to IMF studies by Tseng et al. (1994) and Mehran et al. (1996), roughly 20 percent of the transactions took place at the official rate and 80 percent of the transactions took place in the swap market prior to the exchange rate unification. Although this is the conventional wisdom, we are unaware of any estimates derived from transaction volume

transactions, one can obtain considerably different indications of the path of the exchange rate.

Table 1.3 reports export share weighted nominal and real effective exchange rates constructed from the export data of China's major trading partners. Two things are immediately apparent: there are significant differences in the paths of the nominal and real exchange rate, and the relative weights assigned to the official and swap rates are important in assessing cumulative exchange rate movements since the early 1990s. If one assumes that all transactions occurred at the official rate, then both the nominal and real effective exchange rates have depreciated since the early 1990s (although the nominal rate has depreciated far more, much of the real depreciation has been eroded by China's relatively high rate of inflation since 1995). As one increases the importance accorded to transactions at the swap rate prior to 1994, a very different story emerges, which suggests that there has been cumulative appreciation of the real exchange rate since the early 1990s. Indeed, there may even have been cumulative effective nominal appreciation over this period as well. Another study done by Fernald, Edison, and Loungani (1997) also reaches similar conclusions. This fact, together with tremendous uncertainty about the extent of relative productivity increases in China, makes it difficult to ascertain how close China's current exchange rate is to a fundamental equilibrium rate. The bottom line is that although China has emerged as a major competitor in many of the specialized product markets to Southeast Asia, which may have put downward pressure on the relative prices of these goods to the detriment of the region, it is hard to argue that the 1994 unification of exchange markets was a decisive blow.<sup>19</sup>

## Capital Inflows and Financial Fragility

In the mid-1980s, the macroeconomic adjustment to the rapid real appreciation of the Japanese yen generated asset bubbles domestically and large-scale capital outflows principally into South Korea and Taiwan. These large capital inflows contributed to a similar pattern of domestic asset bubbles, followed by large capital outflows, mostly destined for China and Southeast Asia.<sup>20</sup> In Southeast Asia these inflows contributed to an

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data, and even such estimates would not necessarily indicate the correct *marginal* weights. The poor quality and unavailability of China's data remain impediments to comprehensive understanding.

19. Noland (1998a) and Huh and Kasa (1997) provide some evidence on this point. Fernald, Edison, and Loungani (1997) show that the export growth rates of the ASEAN-4 did not slow after 1994 relative to their performance earlier in the decade. The argument that the Chinese exchange market unification was the trigger is even less plausible in the case of South Korea, where the product composition of output differs significantly from China's.

20. These exchange rate issues are discussed more fully in chapter 2 in the context of modeling real exchange rate changes.

**Table 1.3 China's nominal and real effective exchange rate, 1990-97**

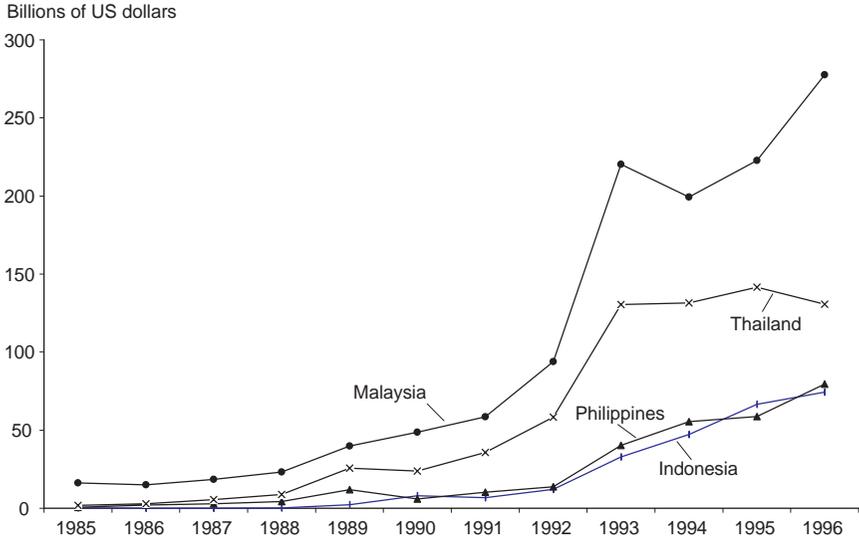
	1990	1991	1992	1993	1994	1995	1996	1997	Cumulative change from 1990
<b>Assumption 1: 100 percent of transaction at official rate</b>									
NEER	100.05	112.79	119.21	126.83	194.70	194.64	185.49	171.45	
REER	100.05	117.72	124.23	118.96	153.71	136.62	125.46	115.89	
Percentage of NEER depreciation (if minus, appreciation)		12.74	5.69	6.39	53.51	-0.03	-4.70	-7.57	66.03
Percentage of REER depreciation (if minus, appreciation)		17.67	5.53	-4.24	29.21	-11.12	-8.17	-7.63	21.25
<b>Assumption 2: 10 percent of transaction at official rate and 90 percent at the swap rate</b>									
NEER	100.05	102.00	104.15	106.49	112.02	111.98	106.72	98.65	
REER	100.05	106.46	108.54	99.89	88.44	78.60	72.18	66.67	
Percentage of NEER depreciation (if minus, appreciation)		1.96	2.10	2.25	5.19	-0.03	-4.70	-7.57	-0.80
Percentage of REER depreciation (if minus, appreciation)		6.41	1.95	-7.97	-11.46	-11.12	-8.17	-7.63	-37.99
<b>Assumption 3: 20 percent of transaction at official rate and 80 percent at the swap rate</b>									
NEER	100.05	102.73	105.16	107.86	117.57	117.53	112.01	103.53	
REER	100.05	107.22	109.59	101.17	92.82	82.50	75.76	69.98	
Percentage of NEER depreciation (if minus, appreciation)		2.68	2.37	2.57	9.00	-0.03	-4.70	-7.57	4.32
Percentage of REER depreciation (if minus, appreciation)		7.17	2.21	-7.69	-8.26	-11.12	-8.17	-7.63	-33.48
<b>Assumption 4: 40 percent of transaction at official rate and 60 percent at the swap rate</b>									
NEER	100.05	104.41	107.51	111.04	130.49	130.45	124.32	114.91	
REER	100.05	108.98	112.04	104.15	103.02	91.57	84.08	77.67	
Percentage of NEER depreciation (if minus, appreciation)		4.37	2.97	3.28	17.52	-0.03	-4.70	-7.57	15.83
Percentage of REER depreciation (if minus, appreciation)		8.93	2.82	-7.05	-1.09	-11.12	-8.17	-7.63	-23.31

NEER = nominal effective exchange rate.  
REER = real effective exchange rate.

Note: Trade weights for 1996 and 1997 are from the year 1995 when data are available. Exchange rates are from the International Monetary Fund's *International Financial Statistics* and the *Financial Times* (various issues).

Source: Authors' calculation.

**Figure 1.2 Stock market capitalization, 1985-1996**



Source: International Finance Corporation (IFC).

investment boom and widening current account deficits, but these were not alarming given the presumably productive and relatively illiquid nature of the investments.

This investment boom represented a significant positive shock to these economies, contributing to asset price increases. This boom was also facilitated by liberalization of internal and external financial controls undertaken during this period.<sup>21</sup> Stock markets rose (figure 1.2), and similar booms occurred in land and real estate. Increases in asset prices facilitated rapid expansion of domestic credit, as banks lent on the basis of rapidly appreciating stock, real estate, and land as collateral. However, as this process evolved, the composition of the capital inflows began to change, with financial capital (portfolio investment) accounting for an increasing share of capital inflow (table 1.4).

Reliance on highly liquid “hot money” inflows leaves the domestic financial system vulnerable to either foreign interest rate spikes or domestic currency depreciation. This vulnerability may be particularly problematic if the domestic currency is pegged to a foreign currency such as the dollar, but in a crisis the peg is abandoned and the domestic currency depreciates. Such problems are exacerbated if there are mismatches in the term structure of borrowing and lending. In Asia, the scale of these mismatches was spectacular, with local institutions intermediating huge

21. See Noland (1989) and Dobson and Jacquet (1998) for a more detailed description of the liberalizations undertaken during this period.

**Table 1.4 Capital inflows by type, 1989-96 (percentage of GDP)**

	1989	1990	1991	1992	1993	1994	1995	1996
<b>Indonesia</b>								
Foreign direct investment	0.96	1.51	1.86	1.94	1.76	1.77	3.28	na
Portfolio (bonds and equities)	-0.24	-0.13	-0.02	-0.10	1.59	3.26	3.09	na
Other (including bank loans)	3.40	4.83	5.30	4.84	1.91	-1.29	1.92	na
<b>South Korea</b>								
Foreign direct investment	0.51	0.31	0.42	0.24	0.18	0.21	0.39	0.50
Portfolio (bonds and equities)	0.00	0.03	0.86	1.59	3.12	1.83	2.45	3.63
Other (including bank loans)	-0.77	2.05	3.70	1.40	-0.71	3.37	4.67	5.10
<b>Malaysia</b>								
Foreign direct investment	4.40	5.44	8.23	9.16	8.19	5.84	4.80	na
Portfolio (bonds and equities)	-0.28	-0.60	0.35	-1.98	-1.16	-2.22	-0.51	na
Other (including bank loans)	-0.68	-0.21	1.02	5.63	12.17	-2.57	3.78	na
<b>Philippines</b>								
Foreign direct investment	1.37	1.38	1.16	0.42	2.33	2.29	2.03	na
Portfolio (bonds and equities)	0.71	-0.13	0.27	0.29	1.69	1.30	3.60	na
Other (including bank loans)	1.24	4.10	4.85	5.46	4.61	5.14	4.18	na
<b>Singapore</b>								
Foreign direct investment	9.22	14.33	10.59	4.48	8.00	11.27	9.59	9.96
Portfolio (bonds and equities)	1.20	1.47	-0.52	2.84	4.89	0.15	0.05	1.33
Other (including bank loans)	23.66	4.28	-6.37	10.37	14.20	7.96	11.43	15.01
<b>Thailand</b>								
Foreign direct investment	2.46	2.82	2.02	1.91	1.46	0.95	1.25	1.28
Portfolio (bonds and equities)	2.06	-0.04	-0.08	0.83	4.40	1.73	2.46	1.97
Other (including bank loans)	5.12	8.07	9.67	5.85	5.44	6.86	11.70	6.52
<b>China</b>								
Foreign direct investment	0.76	0.90	1.08	2.31	4.58	6.25	5.14	5.23
Portfolio (bonds and equities)	0.03	na	0.14	0.08	0.61	0.73	0.10	0.31
Other (including bank loans)	0.34	0.28	1.11	-0.85	-0.10	-0.28	0.73	0.17

na = not available.

Source: *Balance of Payments Statistics*, IMF (various issues).

foreign inflows, borrowing short and lending long (Corsetti, Pesenti, and Roubini 1998).

Such a system is fragile and susceptible to a negative monetary shock. Once thrown into reverse, the economy will go into a self-reinforcing downward spiral as asset values, domestic lending, and real domestic activity contract.

## The Trigger

Having established the conditions for a financial meltdown, one still needs a triggering event. McKibbin (1998) argues that this was an increase in US interest rates in the spring of 1997. However, examination of the data

suggests that conditions in Asia were deteriorating before then. Export growth slowed dramatically in 1996 in part due to real exchange rate appreciation and as the growth rate of domestic absorption slowed in Japan. The result was widening current account deficits, which were financed by increasingly liquid forms of short-term capital inflow.

At the same time, the Asian developing countries experienced significant negative terms-of-trade shocks as world prices of key exports began to fall. Among export commodities, tropical oils, rice, wood, and rubber all experienced significant US dollar price declines of about 20-40 percent in 1997. Prices also weakened for manufactured exports. The price of a 16MB dynamic random access memory (DRAM) chip fell from more than US\$40 in January 1996 to less than US\$10 by the end of 1997. The dollar export price index for South Korea's electronic components fell by nearly 50 percent over the same period. Anecdotal evidence suggests significant price weakening for other key manufactured exports such as automobiles and ships, though the nature of these markets makes documentation difficult.<sup>22</sup>

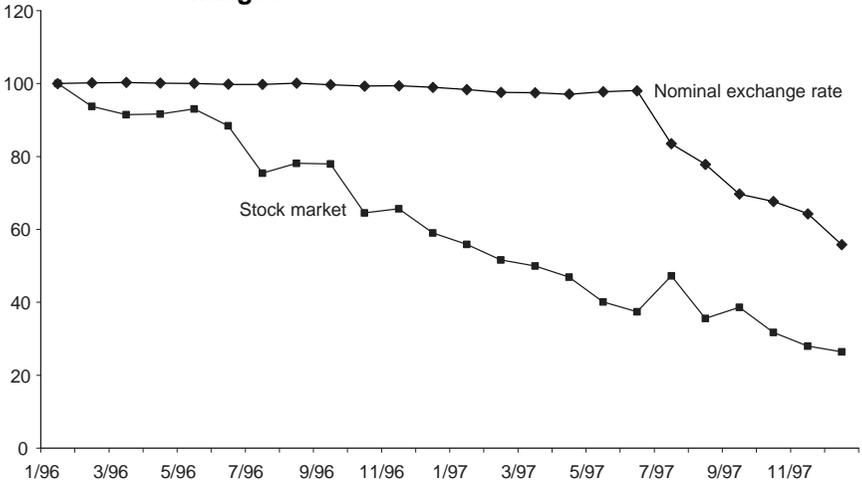
As these terms-of-trade shocks hit, expectations of corporate earnings were downwardly revised, and stock markets began to fall. Nearly all of the stock markets in developing Asia fell by 50 percent in 1997, with the markets of Thailand, Malaysia, and the Philippines falling more or less steadily through 1997, while the markets of Indonesia and South Korea peaked in the first half of the year and fell dramatically through the second half. As can be seen in figures 1.3a-e, which plot stock market indices and indices of the nominal exchange rate, the declines in the stock market significantly preceded the depreciation of the currency in all cases.

As the markets declined, investors in Southeast Asia began moving funds offshore in search of higher returns. Although foreign speculators are often blamed for the net capital outflow, anecdotal evidence suggests that in these crises (and in most currency crises) domestic residents led the way for the exits—they had better appreciation of domestic conditions, and with a greater share of their portfolios in domestic assets they had greater incentive to flee. In South Korea, capital controls prevented domestic investors from moving their money offshore, and the net capital outflow was manifested by reduced rollover rates by foreign banks' creditors. Many of these were Japanese banks that had their own domestic problems. This net capital outflow drained official reserves in the countries with strictly pegged exchange rates and put downward pressure on the countries with limited floating, ultimately with the same result. Fixed exchange rates are important to the Asian story because nominal exchange rate

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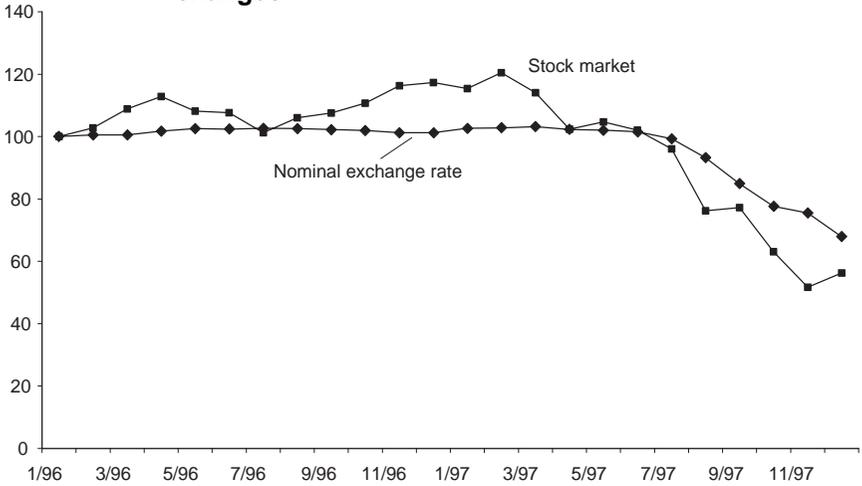
22. Price changes for both automobiles and ships are difficult to document because of the differentiated nature of the products. Moreover, industry sources indicate that measured prices may not accurately reflect actual transaction prices due to rebates and other sales incentives, which reportedly were aggressively employed during this period.

**Figure 1.3A Thailand's nominal exchange rate and stock market changes**



Source: International Financial Statistics.

**Figure 1.3B Malaysia's nominal exchange rate and stock market changes**

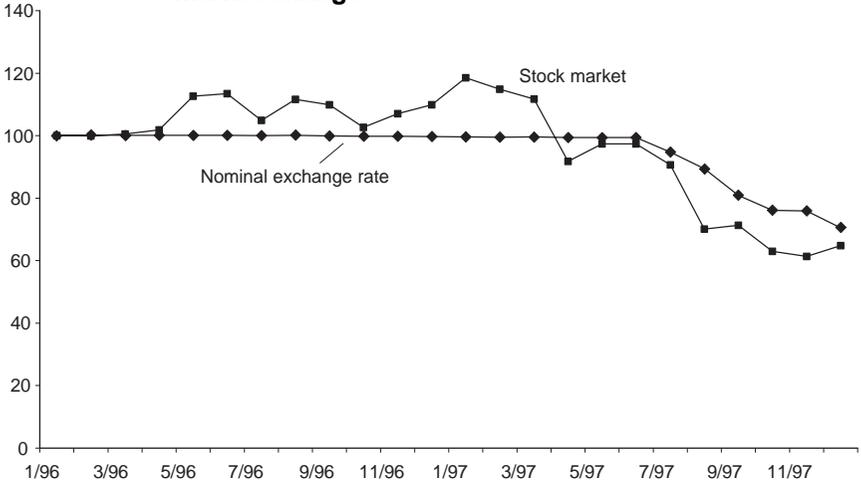


Source: International Financial Statistics.

rigidity impeded adjustment of the real exchange rate to these terms of trade shocks, and, hence, supported increasingly inappropriate sectoral structures of trade and production.

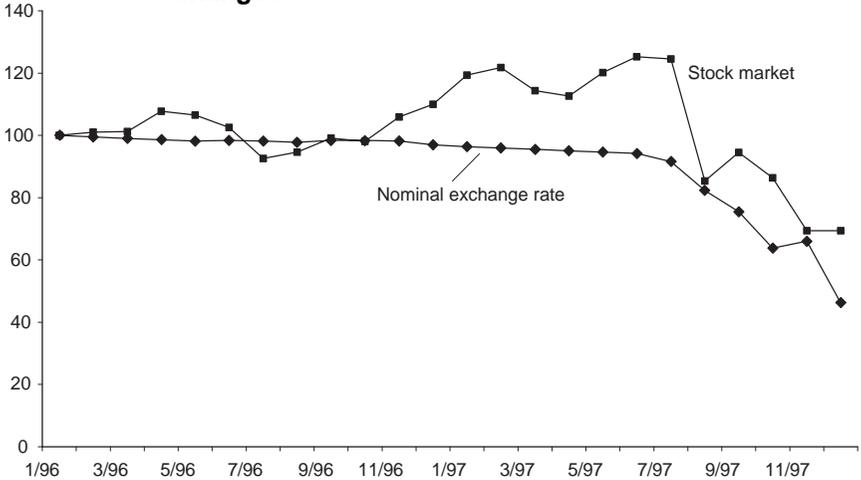
There was feedback between the foreign exchange market and the domestic financial system. As the exchange rates collapsed, financial and nonfinancial firms with unhedged foreign denominated debt found them-

**Figure 1.3C The Philippines' nominal exchange rate and stock market changes**



Source: International Financial Statistics.

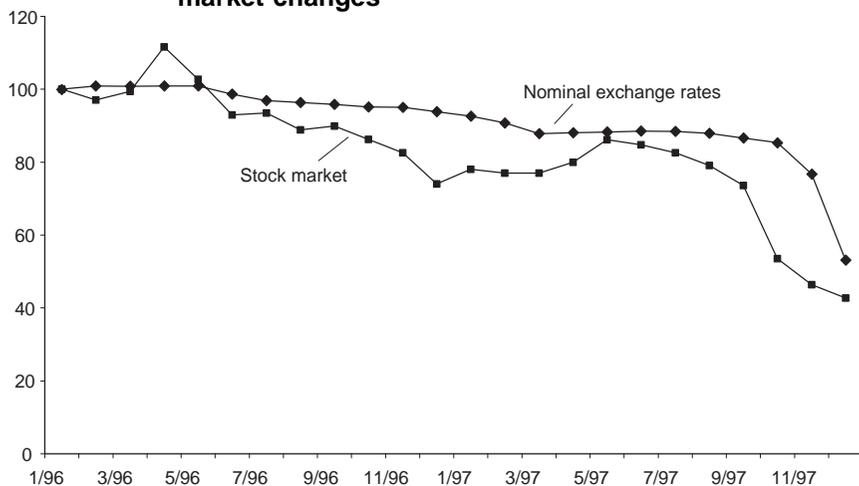
**Figure 1.3D Indonesia's nominal exchange rate and stock market changes**



Source: International Financial Statistics.

selves crushed by a mounting debt burden in terms of domestic resources. This debt burden was the justification for subsequent IMF policy recommendations to raise interest rates to stabilize exchange rates in order to stabilize the domestic resource burden of outstanding foreign debt—a recommendation that may have backfired as investors correctly saw the policy as a futile attempt to plug the hole in the dike.

**Figure 1.3E South Korea's nominal exchange rate and stock market changes**



Source: International Financial Statistics.

## The Panic Story

The discussion thus far has focused on the policies and practices of the borrowing countries and institutions. Yet for every borrower there is a lender, and the question could rightly be asked: “Why were foreigners lending into such environments?” Moreover, the “fundamentalist” explanation for a financial meltdown in a single country seems less persuasive for a regional domino-like pattern of crises in successive countries. Expectational issues are central to both issues. The “panic” view posits that in mid-1997 the economic “fundamentals” in Asia were essentially sound and that the crisis was largely a product of abrupt expectational changes by domestic and foreign economic agents. A relatively minor disturbance in Thailand was turned into a regional financial panic by international investors’ irrational behavior on the one hand and hamfisted policies by the IMF on the other. The result was to increase the risk premium associated with investment in these countries, and reverse international capital flows. A variant of this view places moral hazard considerations associated with previous international rescues—most notably the Mexican bailout of 1995—at the center of the story.

## Lender Behavior

Oceans of ink have been spilled over the issue of moral hazard and its relevance to the Asian financial crisis.<sup>23</sup> The argument is typically made

23. See, for example, Calomis (1998), Lindsey (1998), and Meltzer (1998).

that the Mexican bailout reduced international investors' appraisal of the riskiness of lending in emerging markets—if conditions turned sour, international financial institutions such as the IMF together with national governments would act to forestall a default or other crisis. The result was capital inflows on terms that did not reflect true underlying risk.

The logic of this argument is unassailable. What is questionable is its relevance. First, the class of investors subject to such moral hazard appears to be relatively narrow. Equity investors, foreign and domestic, have taken enormous hits, as documented in figures 1.3a-e. Similar arguments could be made for investors in fixed income assets. With respect to direct lending, bank managers have probably been harmed professionally, if not financially, by their role in the debacle. That leaves equity investors and bond holders in foreign banks. Presumably these are the beneficiaries of bailouts. It is hard, though not impossible, to imagine that these investors were swayed by moral hazard considerations when making their investment decisions.<sup>24</sup> Even so, one must still link the decisions of these principals and the behavior of their agents, the managers.

On this point, one can examine three sorts of evidence, none of which appears to support the significance of moral hazard considerations. The first is that economic forecasters did not appear to have had an inkling that an upheaval was imminent. To illustrate, the forecast of the 1998 change in the US-South Korean bilateral real exchange rate of the *Blue Chip* consensus is shown in figure 1.4. As late as November 1997, the *Blue Chip* consensus was for the 1998 real appreciation of the won. By January 1998, the consensus was for a 35 percent depreciation—a 36 percent forecast revision in two months. As for GDP growth, from February until November 1997, the consensus forecast for South Korean growth remained between 5.8 percent and 6.3 percent. Significant downward revisions were made in the December 1997 and January 1998 forecasts. Many forecasters made similar abrupt, across-the-board revisions for other Asian countries.<sup>25</sup>

These revisions do not establish that agents were not subject to moral hazard considerations, just that the forecasters in retrospect appear to have been incredibly myopic. They would probably argue that the Asian crisis was a “peso problem”-phenomenon—an important though unlikely event—and that their forecasts were accurate in discounting its likelihood in any particular forecast period. But moving closer to the markets does not appear to strengthen the moral hazard case.

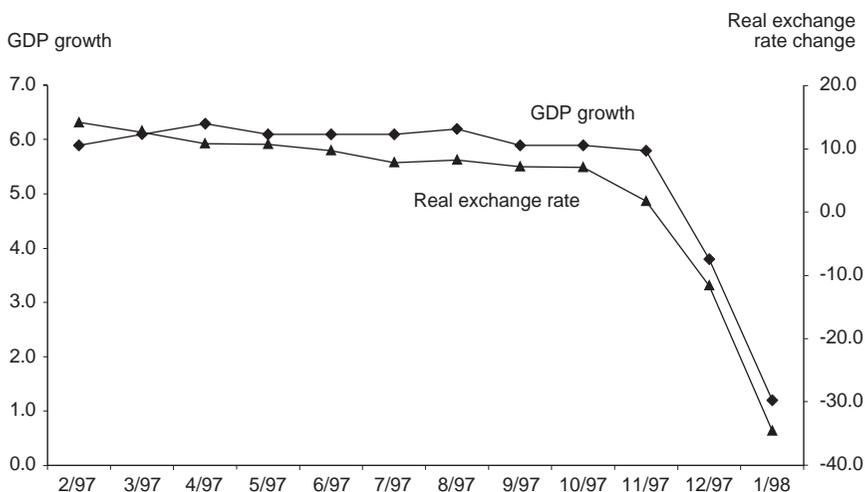
If moral hazard considerations were motivating risk assessments, one would expect to see this reflected in the ratings of international private

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24. *Tesebono* investors in Mexico probably did know, and certainly should have known, the risks of their investment. They may well have expected, correctly as it turns out, to benefit from the bailout loan guarantees (DeLong, DeLong, and Robinson 1996).

25. This point is discussed further in chapter 2 in the context of modeling the crisis.

**Figure 1.4 South Korea's real GDP growth and real exchange rate change forecasts**



Source: Blue Chip Economic Indicators (February 1997-January 1998).

ratings agencies such as Moody's, Standard and Poor's, and Fitch IBCA. However, these firms' ratings of Asian debt did not improve after the Mexican bailout, as one would expect if there had been a systemic reduction in risk faced by private investors. Rather, these firms' ratings did not change in 1996 and were lagging indicators of the unfolding crisis in 1997. Presumably the difficulty the ratings agencies encountered spotting the emerging crises was partially due to the lack of transparency noted earlier.<sup>26</sup>

What about actual market transactions? If the moral hazard hypothesis was motivating behavior, one would expect to observe a decline in spreads after the Mexican bailout in 1995. Instead, the spreads show little trend at all even controlling for underlying fundamentals (Cline and Barnes 1997, appendix table D-1).<sup>27</sup>

While the logic of the moral hazard argument is valid, the evidence suggests that it was not empirically significant. However, while rejecting the moral hazard view, the same evidence just cited—lack of forecasts of

26. However, one study found that ratings agencies generally are lagging indicators of developments (Larrain, Reisen, and von Maltzan 1997).

27. Cline and Barnes (1997) analyzed changes in spreads and concluded that the general narrowing of emerging market spreads between 1995 and 1997 could not be fully explained by economic fundamentals, which would be consistent with either moral hazard or "irrational exuberance." These results are completely conditional on their statistical model (it is possible that one could specify an econometric model in which the fundamentals could more than explain the narrowing of spreads), and this analysis does not provide compelling evidence on the source of the divergence between fundamentals and spreads.

a crisis, lack of warning signals from the ratings agencies, and lack of movement in market spreads—could be used to argue that the crisis was a product of simple panic.<sup>28</sup>

## Transmission

Rejecting the moral hazard argument, one still has to address the issue of why the crisis took on regional rather than country dimensions. Direct links among the Southeast Asian countries do not appear particularly strong. Thailand absorbs less than 4 percent of the exports of any of the other Asian countries, and with the exception of Japan, and possibly South Korea, the financial links (as distinct from product market links) among the affected Asian countries are not large either (table 1.5). So the scope for direct macroeconomic spillovers does not appear to be large.

These countries could be indirectly linked through their competition in third country markets. So, for example, when Thailand devalued by 35 percent, this put pressure on countries in the region since they export similar products to third markets such as the United States, Japan, and the European Union. Even so, such effects could not cause depreciations of the magnitude actually observed—the real linkages are simply not that strong.

Some have attributed the Asian financial crisis to contagion—spillovers not associated with direct or indirect product or financial market links. One explanation is herd behavior, which argues that as global investment opportunities increase, investors' direct knowledge of local situations decreases. As a consequence, investors are forced to rely more on their observations of other investors (who may have better or inside knowledge of local conditions) rather than on their own observation of local fundamentals. Hence, once an investor follows a particular path, the "herd" will follow (Calvo and Mendoza 1998). Another contagion scenario is that investors consider members of a group of imperfectly observed countries similar. Events in one are attributed to all, transmitting a shock throughout the group, independent of their economic linkages (Drazen 1997).

Krugman (1997) argues that agents such as pension fund managers are risk averse with respect to their own income. Since their compensation is often determined relative to the performance of others, they tend to follow the herd.<sup>29</sup>

Then, of course, there is also pure irrational panic.

Lastly, it is possible that the markets are being manipulated. According to Krugman (1997) this transmission mechanism could be motivated by

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28. Stiglitz (1998b) and Radelet and Sachs (1998) review evidence similar to what has been cited and make precisely this argument.

29. Krugman argues that asymmetries also affect managers: they may face greater scrutiny for staying in markets when others are fleeing even if they are right, while their rewards are less lucrative for being right than are the penalties for being distinctively wrong.

**Table 1.5 Export markets for Asian competitors, 1995** (percentage of each country's exports)

	<b>USA</b>	<b>WEU</b>	<b>Japan</b>	<b>China</b>	<b>South Korea</b>	<b>Taiwan</b>	<b>Indonesia</b>	<b>Thailand</b>	<b>Philippines</b>	<b>Malaysia</b>
China	24.74	23.81	19.14	-	3.52	2.61	0.96	1.30	0.84	1.06
South Korea	18.41	12.99	19.67	13.20	-	3.00	2.25	1.92	1.12	1.97
Taiwan	23.45	14.18	13.26	24.10	2.17	-	1.46	2.73	1.03	3.01
Indonesia	14.12	16.51	26.69	6.54	6.28	3.50	-	1.45	1.28	2.05
Thailand	17.61	18.14	20.43	6.60	1.72	2.32	1.46	-	0.73	2.48
Philippines	28.14	21.12	20.58	4.31	2.71	1.52	0.95	2.51	-	1.83
Malaysia	20.77	14.57	13.75	6.48	2.99	2.89	1.01	3.66	0.89	-

WEU = Western Europe.

Source: *GTAP-4 Prerelease* (Hertel 1997).

investor George Soros's 1992 attack on the British pound: if a currency peg appears vulnerable, an investor—in this case it is essential that it be a very large investor—could take a short position in the currency and then through some public action trigger a crisis.<sup>30</sup> Paradoxically, a currency should collapse as soon as this possibility appears.<sup>31</sup> However, if the currency has collapsed, then it cannot be manipulated. Perhaps this is why we do not often observe these types of manipulations.

## Credibility

Beyond the issue of whether real or expectational factors were the principal drivers behind the crises, the final factors affecting the depth and spread of the crisis have been political uncertainty and lack of credibility (often associated with a lack of transparency). When the crisis broke, Thailand had a weak and corrupt government and was in the midst of revising its constitution. In Indonesia, questions arose as to whether aging President Suharto would seek another term in office—which he did. With Suharto apparently unwilling or unable to come to grips with the crisis, two IMF agreements collapsed, high-ranking economic technocrats were purged, and an economic nationalist was appointed vice president. The president carried out an on-again off-again romance with the notion of establishing a currency board, which under the conditions of the time would have amounted to a mechanism for capital flight for the politically connected and exacerbated the country's economic ills. Suharto was later forced to resign in the midst of a political crisis. In both South Korea and the Philippines, the crisis became entangled with electoral cycles.<sup>32</sup> And in Malaysia, there was no election, but political factors, this time in the form of the public rants of Prime Minister Mahathir Mohamad, exacerbated the economic problems.<sup>33</sup>

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30. On 24 July, 10 days after the central bank had abandoned the defense of the currency, Malaysian Prime Minister Mahathir Mohamad blamed "rogue speculators" for the ringgit's problems. Two days later he publicly fingered investor George Soros, whom he was later to brand a "moron," as the source of Malaysia's difficulties, and would subsequently expand his circle of conspirators to include an international Jewish cabal. (Soros, not without reason, would eventually describe Mahathir as "a menace to his own country" and assert that "[Mahathir] couldn't get away with it if he and his ideas were subject to the discipline of an independent media inside Malaysia.")

31. This is analogous to the argument that if the takeover and breakup of a firm is profitable then it should have already occurred.

32. See Noland (1998b) for a more detailed discussion of the role of politics in the South Korean financial crisis.

33. The Mahathir-Soros war of words took a turn for the worse at the joint World Bank-IMF meetings held in Hong Kong, when Prime Minister Mahathir, on 20 September, stated that "currency trading is unnecessary, unproductive, and immoral" and should be "stopped" and "made illegal." He reaffirmed these views in an opinion piece in the *South China Morning*

Beyond these political developments, the Asian governments initially released inaccurate data, though it is unclear whether this was the result of incompetence or malevolence. For example, South Korea constantly revised its foreign debt figures upward; the Bank of Thailand did not indicate that a substantial share of its foreign reserves were committed to forward market transactions. Lack of transparency in financial reporting coupled with lack of confidence in the quality of policymaking exacerbated the crisis.

## Summary

The Asian financial crisis has proved to be a major shock to the world economy. There were, and still are, major structural weaknesses in the financial systems of many of these countries—with implications for their abilities to adjust their structures of production. Whatever its origins, the crisis revealed these structural problems, and simply restoring market confidence will not lead to a quick rebound.

While expectational factors have surely been important in determining how events have unfolded, the evidence reviewed in this chapter suggests that the crisis had its origins in bad policy decisions over an extended period and in the structural weaknesses of many Asian financial institutions. Restructuring takes time, and the crisis will have significant, persistent effects in the Asian countries, and these effects will be transmitted to others outside the region.

This study uses a computable general equilibrium (CGE) model to analyze the global pattern of real adjustment implied by this episode. Considerable uncertainty exists regarding how much of the nominal exchange depreciations that have occurred since July 1997 will translate into real exchange rate depreciation. Likewise, it is unclear how large a real-side supply shock has been caused by the financial turmoil. In light of these uncertainties, we present alternative scenarios regarding the magnitude of these shocks in our work.

For the ASEAN-4 and South Korea, our qualitative results are robust. All of these countries have experienced considerable real exchange rate depreciations that will be accompanied by significant supply-side contractions. Our results indicate that these five countries experience a large fall in domestic absorption. Net exports increase primarily through a compression of imports and only secondarily through an expansion of exports. All five experience a positive increase in their bilateral balances with the United States.

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*Post* the following day. These remarks sparked a financial panic, pushing the ringgit to a new low—an event that was repeated on 30 September when Mahathir called for tighter regulation or a total ban on foreign exchange trading.

For Singapore, Taiwan, and Japan, the results are more subtle because, though they have experienced nominal and real depreciations vis-à-vis the United States and Western Europe, they have appreciated against the ASEAN-4 and South Korea. The three countries tend to increase their trade surpluses with the United States and Western Europe but this is offset by decreases in trade balances with the ASEAN-4 and South Korea. Which effect will predominate depends critically on the size of real depreciations and supply-side contractions in the ASEAN-4 and South Korea. It is certainly questionable whether all three countries, which were in surplus at the time of the crisis, should increase their external balances further.

Thus far China has been relatively immune to the crisis, though it also faces significant financial and real adjustment problems. The obvious temptation would be for China to devalue in an attempt to maintain aggregate demand while restructuring its economy. Our results indicate, however, that the direct impact of the crisis on China will be relatively modest. Given the likelihood that a significant Chinese devaluation would spark another round of competitive devaluations, caution is warranted. Rather than devalue, China should develop better alternative tools of macroeconomic management.

In Western Europe, Oceania, and the United States, the most notable characteristic of the crisis is how it will differentially affect the traded- and nontraded-goods sectors. In the United States, we estimate that the crisis will mean an increase of \$40-50 billion in the US trade balance. This result is relatively invariant to Chinese actions—a Chinese devaluation would in part merely reallocate the pattern of US bilateral balances across trade partners. At the same time, the income effect of the real appreciation and the terms-of-trade improvement should boost the nontraded-goods sector, and we estimate that the net impact on gross domestic product (GDP) is a wash.<sup>34</sup> Similar adjustments occur in Western Europe and Oceania—with the impact on Western Europe larger in absolute terms, and the impact on Oceania larger in relative terms.

The negative impact of the crisis on bilateral trade balances of the United States with its Asian partners will likely increase trade tensions and increase the likelihood of formal trade actions (see chapter 3). At the same time, the increased dependence of the Asian countries on the US market will probably increase US negotiating leverage.

However, the US policy response is likely to be mitigated by two considerations. First, these trade disputes will arise in the context of financial crises. Agencies concerned with financial, political, and security issues may fear that trade frictions could be destabilizing and mobilize bureau-

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34. McKibbin (1998) obtains similar results in which the capital inflow associated with the increase of the trade deficit puts downward pressure on domestic interest rates that lead to the same sectoral pattern of adjustment and slight increase in GDP.

cratically to temper US trade pressure. Second, the formation of the World Trade Organization (WTO) and its dispute settlement mechanism (DSM) significantly constrains US unilateralism. On the import side, the prognosis is for an increase in antidumping cases that are WTO-consistent and more immune to bureaucratic politics. On the export side, the United States may find itself in the position of making even greater use of the WTO and its improved DSM to forestall trade policy backsliding by Asian countries as they adjust.

How this plays out may ultimately depend on the cyclical state of the US economy. The United States entered the Asian financial crisis in the midst of an unprecedented economic expansion. If the US economy remains healthy, the pressure on trade policy may not be great. However, if the US economy were to weaken, a backlash on trade policy could occur. Were this to happen, US actions would likely be emulated around the world.