
APPENDICES

Appendix A

Architecture Scorecard

Architectural reform is a crowded field, making it hard to tell the players without a scorecard. This appendix therefore provides a roster of the competing plans. For those most closely resembling that laid out above, it provides an evaluation as well as a description.

National Proposals

The UK Proposal

The UK government proposes creating a new permanent Standing Committee for Global Financial Regulation bringing together the IMF, the World Bank, the Basle Committee, and other regulatory groups (Brown 1998). Its main task would be to establish and implement international standards for financial regulation and supervision. The United Kingdom would push for the mandatory adherence to codes of conduct for fiscal policy, monetary policy, corporate governance, and social policy to be drawn up by the World Bank and the Fund.

The French Proposal

The French government proposes transforming the Interim Committee into a council that would serve as the ultimate decision-making body for the IMF (Government of France 1998). That council, made up of national

finance ministers, would meet regularly in order to vote on matters concerning the IMF's major strategic decisions, including financial commitments.¹ The French government recommends that the IMF work for the adoption of a "Disclosure Charter" for private financial institutions. It urges regulators to adopt rules to rein in the financial activities of offshore centers. It suggests that countries should more slowly and prudently liberalize their capital accounts and recommends, without providing details, the creation of a "financial safeguard clause" for governments to invoke, "in consultation" with the IMF, to protect themselves against destabilizing capital flows.

The US Proposal

The United States recommends the creation of a contingency-finance mechanism "anchored in the International Monetary Fund" to extend credit lines to countries not yet experiencing a full-fledged crisis but whose stability is potentially threatened. This would provide countries with strong policy fundamentals relatively short-term money at high interest rates.

The Canadian Proposal

Canada's six-point plan emphasizes "vigilance on the part of G-7 central banks," the pursuit of strong policies by emerging-market economies, attention to the needs of the poorest countries, steps to strengthen national financial systems and international oversight, development of a specific strategy for prudent liberalization of the capital account, and mechanisms for involving private investors in the resolution of crises, specifically the negotiation of standing credit lines and modification of the terms of bond contracts. It points to the need to consider standstill mechanisms and suggests that countries legislate an "Emergency Standstill Clause" affecting all cross-border financial contracts. This clause would be invoked only if the withdrawal of short-term finance were threatening financial stability (Canada, Department of Finance 1998). Activating it would require the agreement of the IMF Executive Board.

Private Proposals

Soros's Credit Insurance Agency

George Soros has suggested the creation of a public corporation to insure investors against debt defaults (Soros 1997, 1998). Countries would pay

1. An allied proposal, due to Philippe Maystadt, former chairman of the Interim Committee, would allow that committee to create subcommittees to address specific issues of concern.

a fee when floating loans in order to underwrite the cost of insurance. Each country's debts would be limited to a ceiling set by the IMF on the basis of its assessment of the country's macroeconomic and financial condition. Loans in excess of the ceiling would not be insured, and the IMF would not aid countries having difficulty servicing uninsured loans.

Kaufman's International Regulator and Rating Agency

Henry Kaufman (1998a, b) would create a new international institution with supervisory and regulatory responsibilities over financial markets and institutions. It would supervise the investment and position-taking activities not just of traditional financial intermediaries but of nonbank financial-market participants (hedge funds, etc.). It would be empowered to harmonize minimum capital requirements, establish uniform accounting and disclosure standards, and monitor the performance of the financial institutions and markets of its members. Its board would be composed of investment professionals drawn from "all major industrial countries." It would provide public ratings of the credit quality of the market participants under its authority. The IMF would similarly provide ratings of the economic and financial strength of its members and make those credit ratings public.

Raffer's International Bankruptcy Court

Raffer's scheme for an international bankruptcy court is representative of a number of academic proposals along similar lines (Raffer 1990). Raffer would create an international court of arbitration, to be headquartered in a neutral country that is neither an active international lender nor borrower and give it the power to impose a standstill in the event of a crisis and impose settlement terms when debtors and creditors are unable to agree on voluntary restructuring terms.

Meltzer's "True International Lender of Last Resort"

Meltzer (1998) would limit IMF lending to short-term loans at high interest rates to countries following fundamentally sound economic policies and able to put up sound collateral. Central banks could borrow from the Fund only upon presenting internationally traded assets, and the Fund would be barred from making loans without receiving marketable collateral. In some forums he has suggested that the IMF might be closed and that the BIS, as the central bank for central banks, could instead serve in this function.

Calomiris' Rules for IMF Lending

Calomiris (1998b) would replace the Fund and the US Exchange Stabilization Fund with a reformed IMF that would offer a limited discount window lending facility. Loans would be at a “penalty” interest rate and for short periods only. The facility would be available exclusively to IMF members, and membership would require countries to (1) make their banks hold substantial amounts of capital and issue subordinated debt, (2) extend deposit insurance for other bank debt claims, (3) impose a liquidity requirement on their banks requiring them to hold 20 percent of their assets in cash or a close substitute, (4) require banks to hold a further 20 percent of their asset in liquid securities, (5) allow free entry by domestic and foreign institutions into the domestic banking market, (6) limit other government assistance to banks, (7) require banks to offer accounts denominated in both domestic and foreign currencies, (8) require banks to hold additional reserves if the exchange rate is pegged, and (9) require the government to follow certain debt management practices (e.g., limiting the share of short-term debt in total government obligations). IMF members would collateralize their discount window borrowing with government securities. Collateral would be in the amount of 125 percent of the hard currency borrowed, and 25 percent of the total would have to take the form of securities issued by foreign governments.

Garten's Global Central Bank

Jeffrey Garten (1998) would create a global central bank authorized to engage in open-market operations by purchasing the government securities of its members. Its operations would be financed by credit lines from national central banks or a modest tax on international merchandise transactions and/or certain global financial transactions. It would possess oversight powers over banks and other financial institutions and establish uniform standards for lending. It would be accountable to a committee of governors drawn from the G-7 and eight rotating emerging-market members.

Litan's Put Options in Bank Credits

Robert Litan would have countries receiving IMF assistance enact legislation imposing an automatic reduction of the principal of interbank deposits extended to banks in their countries (Litan et al. 1998). To discourage creditors from withdrawing their funds, haircuts would be imposed if creditors withdraw or fail to roll over their claims while an IMF program is in place. Countries that failed to enact this kind of creditor loss-sharing arrangement could be made ineligible for IMF assistance or required to

pay a substantially higher penalty rate. Ideally, the IMF would make enactment of such legislation a condition for the disbursement of its assistance.

Edwards's Specialized Agencies

Sebastian Edwards would replace the IMF with a trio of specialized agencies, each with limited responsibilities (1998c). His Global Information Agency would concentrate on providing timely and uncensored information on countries' financial condition. It would publish public ratings of their financial systems and issue red alerts when countries were not providing it with adequate information. His Contingent Global Financial Facility would provide contingent credit lines for countries following fundamentally sound policies but with temporary liquidity problems that were certified by the Global Information Agency as complying with its standards. His Global Restructuring Agency would have the power to impose a stay of payments (for a "cooling-off period") and would provide official financing, subject to conditionality, for countries that were engaged in good-faith negotiations with their creditors and making a realistic effort to restructure their economies.

Bergsten's Target Zones

C. Fred Bergsten has criticized the G-7's neglect of the role of exchange rate issues in the crisis, arguing that swings in the dollar-yen and dollar-euro rates were critical in destabilizing emerging-market currency pegs. He therefore advocates target zones for exchange rates to prevent this problem from recurring.² Under his plan, G-7 governments would announce limits on the extent of permissible swings between their currencies, starting with plus-or-minus 15 percent around agreed currency mid-points. Long-term disequilibria due to ongoing inflation differentials would be avoided by regularly adjusting the ranges by very small amounts. In the absence of such disequilibria, central banks would defend the bands as necessary by intervening in foreign-exchange markets and, if necessary, adjusting monetary policies. Emerging-market economies would then find it attractive, Bergsten suggests, to similarly establish bands for their currencies, perhaps around a trade-weighted basket of G-7 currencies.

International Proposals

IMF Proposals

The IMF, via speeches by its managing director and elsewhere, has sketched five imperatives to be included on an agenda for reforming

2. See Bergsten (1998a) and, for an earlier incarnation that spells out the proposal in more detail, Bergsten and Henning (1996). Similar ideas have also been advanced by Paul Volcker

the international financial system (e.g., Camdessus 1998c). First, enhance transparency by encouraging governments to provide additional information about their financial affairs, requiring nonfinancial firms to comply with sound accounting and auditing standards, requiring financial institutions to adopt sound risk-management practices and acceptable disclosure standards, and having the IMF agree to release more information of its own. Second, develop standards and codes of good conduct for economies and financial markets. Third, liberalize the capital account, but in an orderly fashion that recognizes the importance of putting in place the necessary preconditions. Fourth, strengthen and reform the financial sector. Fifth and finally, find a way of dealing with the “complicated” problem of bailing in the private sector. To date, IMF officials have provided few concrete details on how these goals might be achieved.

G-7 Proposals

In October 1998, G-7 finance ministers and central bankers issued an extraordinary out-of-cycle declaration on strengthening the international financial system (G-7 1998). While repeating elements of other international declarations, that is, the need for international standards for minimally acceptable financial practices and for increased transparency, it also provided some specific if limited proposals for increasing the involvement of the private sector in crisis resolution.

G-7 ministers pointed to the need for heightened supervision of financial institutions in creditor as well as debtor countries (to be achieved by negotiating disclosure standards for nonbank financial intermediaries as well as banks and by having the IMF monitor its members’ compliance and issuing a Transparency Report); to the need for greater transparency on the part of governments (which should strengthen the SDDS, release timely and accurate information on their international reserves, and comply with the IMF’s Code on Fiscal Transparency and negotiate a companion code on Monetary and Financial Policy); and to the need for more transparency on the part of the IMF (which should release information “except where this might compromise confidentiality” and which should commission additional external evaluation exercises). To bail in the private sector, they embraced the idea of adding collective-action clauses in loan contracts (and for the G-7 countries themselves to consider their use in their own sovereign and quasi-sovereign bond issues), for the IMF to lend into arrears as appropriate, and for emerging economies to negotiate private contingent credit lines with commercial banks in the creditor countries.

(1995). The German government has also tabled a proposal for “the controlled flexibility of exchange rates” as its contribution to the architecture debate.

This declaration said little, however, about how the negotiation of international standards should be organized other than involving the IASC and the Basle Committee in finalizing accounting standards. It said nothing about discouraging excessive bank-to-bank lending or about the need for Chilean-style capital-import taxes to prevent excessive short-term capital inflows. It said nothing about exchange rate policy or IMF advice and conditionality toward it, aside from the need to consider “the elements necessary for the maintenance of sustainable exchange rate regimes in emerging economies.” Other than offering to “consider” incorporating collective-representation clauses into bond covenants, it offered no commitments to solve the prenuptial-agreement problem that prevents emerging markets from unilaterally moving in this direction.

G-22 Proposals

The G-22 issued three reports in October 1998. Because these reports are currently the international community’s definitive statement on reforming the international architecture, and there is considerable overlap with proposals advanced in this book, it is worth considering them in detail.

The Working Group on Transparency and Accountability

This group recommended establishing national standards for the disclosure of private-sector financial affairs and that regulators require banks and firms to adhere to recognized accounting standards. It recommended that countries that do not yet do so presently should report to the BIS data on their cross-border borrowing and lending, that governments should compile and disseminate data on the foreign-exchange position of the public financial and corporate sector, and that a working group should be established to explore the feasibility of gathering and publishing data on the international exposures of noncommercial-bank institutional investors. It urged the IMF to move toward greater transparency and asked national authorities to support the publication of Letters of Intent, background papers to Article IV reports, and Public Information Notices. It recommended that the IMF prepare a “Transparency Report” for each country in conjunction with its regular Article IV consultations.

The benefits of greater transparency are now widely accepted and are embraced in this book as well. However, the G-22 report (1998a) is more sanguine about governments’ ability to gather information about private-sector behavior. It appears to assume, for example, that governments will be able to gather accurate information on the financial affairs of nonbank firms, that is, their foreign financial exposures, an assumption I do not share. It proposes that the Transparency Report should focus on compliance with disclosure standards and does not mention standards for financial supervision and regulation, corporate governance, and insolvency

procedures, which are critical if the promulgation and monitoring of international standards are to make a difference for financial stability.

More generally, this working group says little about how international standards are to be set and enforced. It does not share my emphasis on the need to rely on private-sector resources in developing the relevant standards and to allow the private sector to take the lead wherever possible in monitoring compliance. Nor does it emphasize the need for international action to provide effective incentives for compliance. It does not suggest, as I do, that the IMF should condition its assistance to program countries on their taking specific steps to comply, that it make the interest rate charged on its loans a function of that compliance, or that it make eligibility for any preapproved credit lines a function of compliance status.³

The Working Group on Strengthening Financial Systems

This group endorses the Basle Core Principles for Effective Banking Supervision and points to the need for similar principles in the areas of internal controls, liquidity management, corporate governance, and insolvency procedures (G-22 1998b). In contrast to my conclusions, however, it does not emphasize the role of the private sector in developing internationally recognized principles, instead supporting the related efforts of the Basle Committee and the OECD.⁴ Nor does it embrace the idea that the IMF should monitor compliance with these principles and issue a report evaluating its members' compliance status, reporting that its members are divided on the issue of published compliance ratings. In contrast to my approach, the working group displays more faith in the ability of capital, reserve, and subordinated-debt requirements to deter excessive risk taking in emerging markets and in the capacity of regulators to effectively surveil the funding and investment decisions of banks and to restrain socially counterproductive behavior.⁵ Above all, it says nothing about the need for Chilean-style controls to reinforce prudential supervision and regulation in developing countries or of the need for greater exchange rate flexibility to encourage banks and corporations to hedge their foreign exposures.

3. Although some of these possibilities are raised by the working group concerned with strengthening financial systems.

4. It does acknowledge the need for the official sector to "initiate a dialogue" with the relevant private organizations and professional groups, but mainly with an eye toward determining how the private sector can more effectively utilize information that emerges from standard setting and prudential regulation rather than in how it can take the lead in the process of standard setting itself.

5. The section of the report on "Methods to Ring-Fence the Socialization of Risk and to Limit Forbearance" reiterates that providers of risk capital and subordinated debt should not be bailed out without addressing the political difficulties this presents.

The Working Group on International Financial Crises

This group recommends that lenders and borrowers explore the development of innovative loan contract provisions such as prenegotiated put options to enhance payments flexibility (G-22 1998c). It points to the desirability of incorporating collective-representation, majority action, and sharing clauses into loan contracts. To this end, it recommends that governments engage in “educational efforts” in the major financial centers and that the governments of creditor countries “examine” the use of such clauses in their own sovereign and quasi-sovereign bonds issued in foreign offerings. In contrast to my conclusions, it does not emphasize the need for the IMF to encourage its members to incorporate such provisions into their loan contracts and to key its lending rates and disbursements to their governments’ willingness to do so. It does not stress the need for regulators in the leading creditor countries to make such provisions a condition for the admission of international bonds to trading on their markets. It is uncritical about the scope for introducing new provisions into cross-border bank credits. It does not acknowledge that the only effective way to contain the risks of bank-to-bank lending when the banks in the borrowing country are too big and important to fail is by using inflow taxes to prevent excessive reliance on short-term foreign bank credits in the first place. It fails to acknowledge the need for greater exchange rate flexibility to encourage banks and firms to hedge their foreign exposures and as a deterrent to excessive capital inflows.

To facilitate orderly workouts of sovereign debts, the working group suggests that the international community should signal its willingness to provide the crisis country with conditional financial support, where appropriate, through IMF lending into arrears. However, it does not acknowledge the need for standing committees of creditors to facilitate restructuring negotiations.

Appendix B

How Economists Understand Crises

Proposals for reforming the international financial architecture make sense only if they address the fundamental causes of financial crises. Putting the point less positively, observers find it difficult to agree on reforms to better prevent and contain financial crises because they do not agree about their underlying causes. This appendix therefore lays out the different ways in crises are conceptualized. My ulterior motive, naturally, is to provide theoretical justification for the approach to reform taken in the text, although I try to provide enough detail on the alternative theoretical schools to permit readers to make up their own minds.

Macroeconomic Imbalances

Financial crises are not new. Nor are scholarly studies of the phenomenon. What is new about recent crises, compared to those of the preceding 50 years, is their violence and the damage they do. And what is new about the scholarly studies is the systematic way in which currency and banking panics are modeled and analyzed.

Connoisseurs distinguish three generations of theoretical work on the dynamics of currency crises. (Some, including the present author, less impressed by the novelty of recent contributions, would be more inclined to say two and one-half.) The first and still most influential contribution, Krugman (1979), uses a simple model to show how attempts to defend a fixed exchange rate can collapse in the face of a speculative attack. Krugman shows how a series of persistent balance of payments deficits

can precipitate a run on the authorities' stock of international reserves and destroy their capacity to defend the exchange rate by robbing them of the ability to intervene in the foreign-exchange market. His contribution is to demonstrate how an attack collapsing the exchange rate peg can occur before reserves would have been exhausted otherwise and to pin down its timing.¹

Like all good models, this one is streamlined by the strategic use of simplifying assumptions.² The key assumptions are what lies behind the balance of payments deficits making reserves decline toward the danger point, and what governments can do about it. Krugman assumed that payments imbalances and the currency crises to which they gave rise resulted from the tendency for governments to run excessively expansionary monetary and fiscal policies. Governments ran deficits that they financed by printing money. Investors, not wishing to hold the additional money that the authorities injected into circulation, exchanged it for foreign assets, which the central bank was forced to supply out of its dwindling stock of reserves. The central bank had no ability, again by assumption, to replenish its reserves by borrowing abroad. It followed that reserves marched steadily downward until they approached the danger point where the crisis erupted and the currency collapsed. The leading indicators of a crisis thus were budget deficits, excessive rates of growth of the money supply, and dwindling reserves. As extended by other authors, the model also predicted that countries vulnerable to a speculative attack would show signs of excessive inflation, real exchange rate overvaluation, and rising interest rates.³

These were sensible assumptions for their time, namely, the early 1980s. Governments in many of those countries that succumbed to crises were in fact prone to large budget deficits. It was plausible to attribute their crises to a lack of fiscal discipline. In this inflationary environment and with bond markets in developing countries still at rudimentary stages of development, it was plausible that governments would seek to finance

1. The timing was pinned down by the assumption that the relative rate of return on assets denominated in domestic and foreign currency was simply the expected rate of depreciation of the domestic currency. Because that rate was zero prior to the attack but positive thereafter, maximizing investors would want to trade some share of the assets denominated in domestic currency in their portfolios for foreign assets in the same amount. Once official reserves fell to just that amount, those reserves were wiped out by speculators in one fell swoop as they reconfigured their portfolios.

2. Thus, the assumption that relative rates of return on domestic and foreign assets were simply the expected change in the exchange rate suppressed an independent role for interest rates. Similarly, the assumption that domestic and foreign goods were perfect substitutes and that their prices were governed by purchasing power parity eliminated all role for relative prices.

3. For example, on a role for interest rates see Willman (1988). For a model with inflation and relative prices, see Goldberg (1993).

their deficits by printing money. And with capital markets disinclined to lend after the debt crisis struck, it was plausible that central banks should be unable to replenish their reserves by borrowing abroad.

Economic and Political Fragility

With time, circumstances changed and these assumptions were called into doubt. In the crises that nearly toppled the Exchange Rate Mechanism of the European Monetary System in 1992-93, not all of the afflicted countries displayed large fiscal and current-account deficits; increasingly it seemed that currency crises could occur in the absence of these indicators of excessive demand and external disequilibrium. As capital controls were lifted and international financial markets continued to expand, it became less plausible to assume that central banks could not borrow abroad to replenish their reserves. Above all, assuming that governments were dumb but speculators were smart (that governments made no effort to adjust their policies to circumstances and mindlessly defended the exchange rate until their reserves were exhausted) grated on the refined sensibilities of theorists.

This dissonance motivated the development of a second generation of crisis models.⁴ Second-generation models add the assumption that governments balance the benefits of continuing to defend the currency peg, through the maintenance of tight monetary policies and high interest rates, against the costs of giving up the ghost. Typically, the benefits take the form of enhancing the credibility of the authorities' commitment to defending the currency and to pursuing policies oriented toward the maintenance of price stability. The costs come in the form of the adverse impact of high interest rates on the economy and the financial system. The level of reserves and the authorities' ability to borrow abroad play no role in these calculations.⁵ What matter are the condition and resilience of the domestic economy—whether the interest rate hikes needed to

4. See, for example, Obstfeld (1997) and Ozkan and Sutherland (1998), which were first circulated as working papers in 1991 and 1994.

5. It is possible to introduce channels through which the level of reserves can matter. Imagine a scenario in which a government of a country with a weak economy and a fragile financial sector is not prepared to sharply hike interest rates to defend the currency in response to a speculative attack. If it has sufficient reserves to simply finance capital outflows for a time, putting off the need to raise interest rates, there is the possibility that the economy or the financial system will strengthen sufficiently that interest rate increases, when rendered necessary to defend the currency by the exhaustion of reserves, become more palatable. Knowing that the government is now in a position to use interest rates to defend the currency, the speculative pressure should recede. Note the word "possibility" in this story; it is possible only if there occurs a sufficiently rapid improvement in the domestic economic and financial situation.

defend the currency, by depressing demand, will add to a painfully high unemployment rate, for example; whether raising interest rates, by forcing bank borrowers into default, will aggravate the condition of an already weak banking system; and whether higher interest rates will increase the burden on an already overtaxed government of servicing a large short-term debt. If, for any of these reasons, the costs of defending the currency exceed the benefits, the authorities will cave in. There is no technical reason why they must give up (no exhaustion of reserves that eliminates their capacity to intervene in the foreign-exchange market, as in first-generation models). Rather, they choose to abandon their defense of the currency as a matter of economic and political self-interest.⁶

In the standard first-generation model, the crisis is preceded by evidence of overly expansionary monetary and fiscal policies and the progressive depletion of reserves. Because the timing of the attack is governed by the technical condition that the authorities lack reserves with which to intervene in the foreign-exchange market, the decline of reserves makes its eruption predictable.⁷ In second-generation models, in contrast, susceptibility to crises will depend on subtler, less-easily measured conditions such as the strength of the banking system, the prospects for economic growth, and domestic political support for the government and its policies. The hardest factor of all to measure when gauging the likelihood of a successful attack will be the government's resolve. The success or failure of an attack on the Hong Kong dollar, for example, will depend not just on such obvious indicators as the strength of Hong Kong's banking system and flexibility of its labor market (and thus on the amount of unemployment produced by higher interest rates) but also on how ready the authorities in Hong Kong (and in Beijing) are to defend it.

A corollary of the introduction of self-interested governments is the possibility of self-fulfilling balance of payments crises. In first-generation models, the attack on the currency merely anticipates the inevitable. Devaluation is coming with or without the attack. In second-generation models, in contrast, the speculative attack can itself precipitate a devaluation that would not have occurred in its absence. Consider a government that is tempted to indulge in a more accommodating, inflationary mone-

6. Thus, whereas first-generation models focused exclusively on the determinants of external balance and on technical reasons why a government's ability to defend its currency peg might be undermined, second-generation models shift the focus to the decisions of governments concerned with internal balance and to fundamentally economic reasons why they might be unwilling to mount a sustained defense.

7. More complicated versions of the model (e.g., Krugman and Rotemberg 1990) allow the money supply to evolve stochastically rather than deterministically. While this reintroduces some uncertainty about the exact timing of the crisis and makes both the average rate of growth of the money supply and its variance relevant for predicting crises, the fundamental insights from the model remain intact.

tary policy in the hope of stimulating economic growth but that concludes in its wisdom that the costs of continued monetary austerity, in the form of gloomier prospects for the banking system and employment growth, are dominated by the benefits of the greater credibility of its reputation for pursuing policies of price stability, which hinges in turn on its continued defense of the currency peg. Absent any change in market conditions, the government will maintain the currency peg indefinitely. Imagine now a speculative attack in which investors sell the currency for foreign exchange, draining liquidity from the market and forcing the authorities to raise interest rates. Suddenly, the costs of defending the peg, in the form of additional unemployment and even more damage to the banking system, have risen relative to the benefits. The balance having shifted, it may now make sense for the authorities to abandon their defense of the currency in favor of more accommodating policies where doing so made no sense before. In this setting, a speculative attack can precipitate the collapse of the currency peg (it can succeed, in other words, even if that peg could have been maintained indefinitely in its absence). The attack is self-validating because it can induce a shift in policy in a more accommodating, inflationary direction.

The introduction of high international capital mobility (equivalently, the relaxation of controls) has particularly profound implications in second-generation models. In first-generation models, the only effect of capital controls was to alter the timing of the attack. By making it harder for investors to shift between domestic and foreign assets, controls delayed the day of reckoning, but not indefinitely (see Wyplosz 1986; Sachs and Park 1987). In second-generation models, in contrast, controls can tip the balance between the collapse of a currency peg and its maintenance forever. This is because controls break the link between domestic and foreign interest rates. In the absence of capital-account restrictions, domestic interest rates equal foreign interest rates plus the expected rate of depreciation of the currency over the holding period.⁸ In their presence, domestic rates equal foreign rates plus the expected rate of depreciation *minus* the cost of evading the controls (and shifting from domestic currency into foreign exchange). Lower interest rates will now be needed to leave speculators indifferent between holding domestic and foreign assets and to rebuff the attack. And insofar as the costs of sustaining a defense rise with the level of interest rates, that defense becomes more palatable. An attack that would have neither occurred nor succeeded in the presence of capital controls may do both in their absence.

Academics have endlessly debated the realism of these models. Some disparage the accuracy of the assumptions and warn that tales of self-fulfilling attacks and multiple equilibria are too easily used to absolve

8. Assuming domestic and foreign assets to otherwise be perfect substitutes for one another.

governments of all blame for currency crises, which are more than just runaway trucks flattening innocent bystanders.⁹ Others insist that these models capture the essence of modern currency crises.¹⁰ A reasonable reconciliation is that self-fulfilling crises and multiple equilibria are possible only when the economy has entered a zone of vulnerability.¹¹ When unemployment is high, the banking system is weak, or short-term public debt is large (so that higher interest rates imply a painful increase in debt-servicing costs), the authorities may find themselves unable to bear the pain associated with the need to raise interest rates further. But if unemployment is low, the banking system is robust, and short-term debt is minimal, they may be prepared to defend the currency peg against any and all attacks. In this sense, models of multiple equilibria and self-fulfilling attacks cannot be used to absolve the authorities of responsibility; their policies still determine whether or not the economy strays into the zone of vulnerability. If it does, whether and when an attack occurs then depends on when currency traders decide to test the government's resolve.

Crony Capitalism and Moral Hazard

Asia, having spawned the most recent round of currency crises, has predictably spawned the latest generation of crisis models. Some observers insist that events there are readily explained in familiar first- and second-generation terms. They cite Thailand with its overvalued exchange rate and large current-account deficit as an example of first-generation dynamics, and South Korea with its high and rising levels of short-term debt as an example of the mechanisms highlighted by second-generation models.¹² What is striking about the Asian crisis, though, is that prior to its outbreak few of the stricken countries displayed either the monetary and fiscal excesses and balance of payments problems identified in first-generation models as leading indicators of currency crises or the slow growth and domestic financial problems emphasized by their second-generation counterparts as sources of vulnerability. To the extent that such problems appeared, they did so only after the fact. There is the feeling among observers of the Asian crisis that something more was involved.

That something more is now given the label "crony capitalism and implicit guarantees." As the story is told by Dooley (1997) and Krugman

9. See Krugman (1996) and Dornbusch, Goldfajn, and Valdes (1995) for two such criticisms.

10. See, for example, Obstfeld (1996) and Wyplosz (1998).

11. This is the direction in which the modern literature has moved; see, for example, Sachs, Tornell, and Velasco (1996a, b), Calvo and Mendoza (1996), and Cole and Kehoe (1996).

12. That this was debt of the banking system rather than the government was of little moment, they continue, because the authorities moved quickly to guarantee the obligations of the banking system as soon as the crisis struck.

(1998a), banks were the financial tools used by Asian governments to further their economic development strategies, leading the owners of banks and industrial conglomerates on the one hand and political leaders on the other to develop ties of mutual dependence. Those ties left governments loath to let banks fail. Once the capital account of the balance of payments was opened, the implicit guarantees provided by governments to the banks were an irresistible lure to foreign investors. Normally, those investors would have balanced the high interest rates offered by Asian banks against the risk of losses and invested just to the point where the incentive offered by the former equaled the disincentive posed by the latter. But with governments guaranteeing the banks against failure, the specter of losses was removed. Foreign capital flooded into the economies and banking systems of the region as a consequence of this moral hazard. This is one way of understanding why economies with some of the highest savings rates in the world were such enthusiastic foreign borrowers. McKinnon and Pill (1997) argue that this borrowing was so excessive and that funds were so poorly allocated that the capital inflow may have actually reduced the growth rates of the countries involved.

Eventually, something brought these uncomfortable facts to light, and investors responded by withdrawing their money from the region. Banks being threatened, governments stepped in. To every depositor who now wished to convert his domestic-currency deposits into foreign currency, the government provided foreign exchange. But—and here is the crucial assumption—guarantees could be provided only once. Why is not clear: perhaps by revealing the “I’ll scratch your back if you scratch mine” relationship between the bankers and politicians, guarantees provoked a populist backlash that brought down the crony capitalists. Or, as Dooley (1997) assumes, perhaps the countries concerned damaged their international creditworthiness so seriously that they were rendered unable to borrow abroad, and lacking foreign exchange they now found themselves unable to guarantee the banks’ foreign liabilities. Given that foreign bank deposits were no longer guaranteed, foreigners found it less attractive to hold these now more risky assets. The stock of foreign capital fell once and for all to a lower level. This capital outflow posed wrenching difficulties for the economies of the region, which are still suffering adjustment problems. And among the consequences of that capital outflow and the deteriorating balance of payments has been pressure on the currency. As the authorities leapt to the rescue of the banking system, pumping in additional domestic credit, they were forced to disregard the constraints on liquidity implied by their commitment to peg the exchange rate. Thus, currency collapses were one consequence of the Asian banking crisis. Put another way, this approach shows why banking crises and currency crises go together (see Kaminsky and Reinhart 1996).¹³

13. A detailed theoretical treatment of this connection between banking and currency crises is in Chang and Velasco (1998a). These authors show how lender-of-last-resort intervention

Although certain elements of this story are new and expressly tailored to circumstances in Asia, the model shares key assumptions with those that preceded it. With first-generation models it shares the assumption of myopic governments that follow silly policies. It shares the assumption that once the authorities have expended their international reserves in paying off bank creditors, they are no longer able to defend the banking system or the currency. With second-generation models it shares the assumption that a speculative attack can provoke a change in policies that would have remained constant in its absence. If investors do not take fright, the guarantees do not have to be invoked. So long as they are there to reassure, the level of foreign investment remains high. But if an investor panic does ensue, the guarantees must be activated, after which they are withdrawn once and for all. Foreign investment falls to permanently lower levels, reflecting the change in the policy regime induced by the crisis itself. Thus, the investor panic produces a result that would have not occurred in its absence. This is a classic second-generation result involving multiple equilibria and self-fulfilling crises. As in earlier second-generation models, a crisis can result because the government follows inappropriate policies, in this case by adopting a poorly designed financial safety net (rather than by pursuing unsound monetary and fiscal policies).¹⁴

Implications

Theorists are prone to exaggerate their differences. If they did not claim that their latest article was a fundamental challenge to all that preceded it, they would have that much more trouble publishing it. In fact, their differences are less than meets the eye. What emerges from their competing models and interpretations is a single, synthetic understanding of why crises occur. Crises do not occur randomly. Rather, they afflict countries whose governments set themselves up for the fall. Some have done so by following inconsistent policies, running recklessly expansionary monetary and fiscal policies that are inconsistent with their intention of pegging the exchange rate, or providing implicit guarantees to the banking system that encourage reckless lending and lead to a banking crisis that undermines confidence in the currency and the economy. In these extreme cases, the leading indicators of currency and banking crises are obvious. The writing is on the wall.

to prop up the banking system may avert the danger of self-fulfilling banking panic but at the same time transform the banking panic into a currency crisis.

14. In the end, then, I do not really view the new models developed in response to the Asian crisis as analytically distinct from the first- and second-generation models that preceded them but rather as interesting special cases of those more general frameworks.

More commonly, the evidence of vulnerability is subtler. Growth may be slow, unemployment high. The banking system may be weak. The government may have issued a large amount of short-term debt that must be rolled over at interest rates that are sensitive to the state of market confidence. None of these conditions is necessarily fatal; policymakers successfully navigate these dangerous straits without being blown off course by speculative gales. But if an attack is unleashed, they will be unable to withstand it. Their weak economy, weak banking system, or weak finances may lead them to conclude that the most sensible response is to throw in the towel.

Whether they do depends, first, on whether or not they are attacked and, second, on how energetically they are prepared to defend the currency. Once again it is not hard to point to sources of vulnerability (i.e., weak economy, weak banking system, and weak finances), though their presence does not necessarily imply a crisis, nor do they contain much information about its timing. Such problems imply a crisis only if combined with two additional elements: a loss of investor confidence and inadequate political resolve on the part of the government. Not only are these factors hard to measure—even the most dedicated designer of leading indicators would be hard-pressed to construct numerical indicators of the mental state of the government and the markets—but they can change abruptly. Crises occur for good reasons, but this does not mean that they are predictable.

Appendix C

Understanding Asia's Crisis

A framework for understanding currency and financial crises will convince only if it sheds light on the Asian crisis—"the first financial crisis of the twenty-first century." That crisis illustrates well the difficulty of using simple models to make sense of complex economic events. It shows how counterproductive it is to think of Asia's financial collapse as a single event. The causes and consequences differed across countries. New financial crises unfolded upon old ones; by the spring of 1998, the IMF's managing director, Michel Camdessus, routinely referred to "crises within crises." To be sure, these difficulties were related. But attempting to explain them all in terms of a single set of factors or to use them as turf on which to run a horse race between competing theoretical models is unlikely to be helpful. Rather, the Asian crisis suggests that understanding twenty-first-century crises will require one to weave together strands from different approaches. Correspondingly, proposals for reform must address the problems highlighted by each of the relevant models.

Background

One sign that the Asian crisis was both complex and distinctive is that the period leading up to it was characterized not by economic difficulties but by robust rates of economic growth. Table C.1 shows that GDP growth rates in 1996 ranged from 8 percent in Indonesia to more than 6 percent in Thailand. This achievement continued a pattern that had held since the early 1980s. Rapid growth was fueled by high rates of saving and

Table C.1 Growth, inflation, equity prices, and current-account balance, 1990-97

	Real GDP		Consumer prices				Equity price index		Current-account balance			
	1990-95	1996	1997	1990-95	1996	1997	1990-95	1996	1997	1990-95	1996	1997
	Annual percentage change				As a percentage of GDP							
Indonesia	7.2	7.8	4.6	8.7	8.0	6.6	5.7	15.0	-76.1	-2.5	-3.7	-2.9
Thailand	8.9	6.4	-0.4	5.0	5.8	5.6	9.1	-45.8	-78.7	-6.7	-7.9	-2.0
South Korea	7.8	7.1	5.5	6.6	4.9	4.4	-0.6	-35.7	-69.8	-1.2	-4.8	-1.9
Malaysia	8.8	8.6	7.8	3.7	3.5	2.7	15.2	17.0	-73.5	-5.9	-4.9	-5.1
Philippines	2.3	5.7	5.1	11.0	8.4	5.1	27.0	14.6	-63.2	-3.8	-4.7	-5.2
Singapore	8.6	6.9	7.8	2.7	1.3	2.0	10.6 ^a	-5.2	-35.0	12.7	15.5	15.2
Hong Kong	5.0	5.0	5.2	9.3	6.0	5.7	37.8	33.5	-20.3	3.3 ^b	-1.7 ^b	-3.8 ^b
China	10.6	9.7	8.8	12.4	8.3	2.8	13.8 ^c	81.5	32.5	0.9	0.9	2.3
Taiwan	6.4	5.7	6.8	3.8	3.1	0.9	-9.2	46.5	-8.3	4.0	4.0	2.7

a. From company reports and stock exchange of Singapore, various issues.

b. Balance of goods and nonfactor services.

c. Average for 1991-95.

Sources: BIS (1998, table III.1); *Emerging Stock Markets Factbook*, International Finance Corporation, World Bank (various years).

investment (as high as 40 percent), sound macroeconomic policies, and outstanding rates of export growth. Government budgets were in surplus, and economies were successfully restructured along export-oriented lines. References to the East Asian “miracle” became commonplace.¹

More than a year after the fact, it is now possible to discern disquieting signs. The growth of export revenues decelerated in 1996, reflecting slower growth of demand in the region’s principal export markets, a slowdown in the global electronics industry, and competition from mainland China.² (The rate of growth of East Asian export markets in the period leading up to the crisis is shown in figure C.1.) Current-account deficits were large in Thailand and Malaysia (refer to table C.1). Equity prices declined, foreshadowing lower profits in the manufacturing sector. Indonesia, South Korea, Thailand, and even Singapore had large amounts of short-term debt relative to foreign-exchange reserves (see table C.2). Legions of financial analysts now justify their livelihood by pointing to these leading indicators of problems that came later. But this is wisdom after the fact.

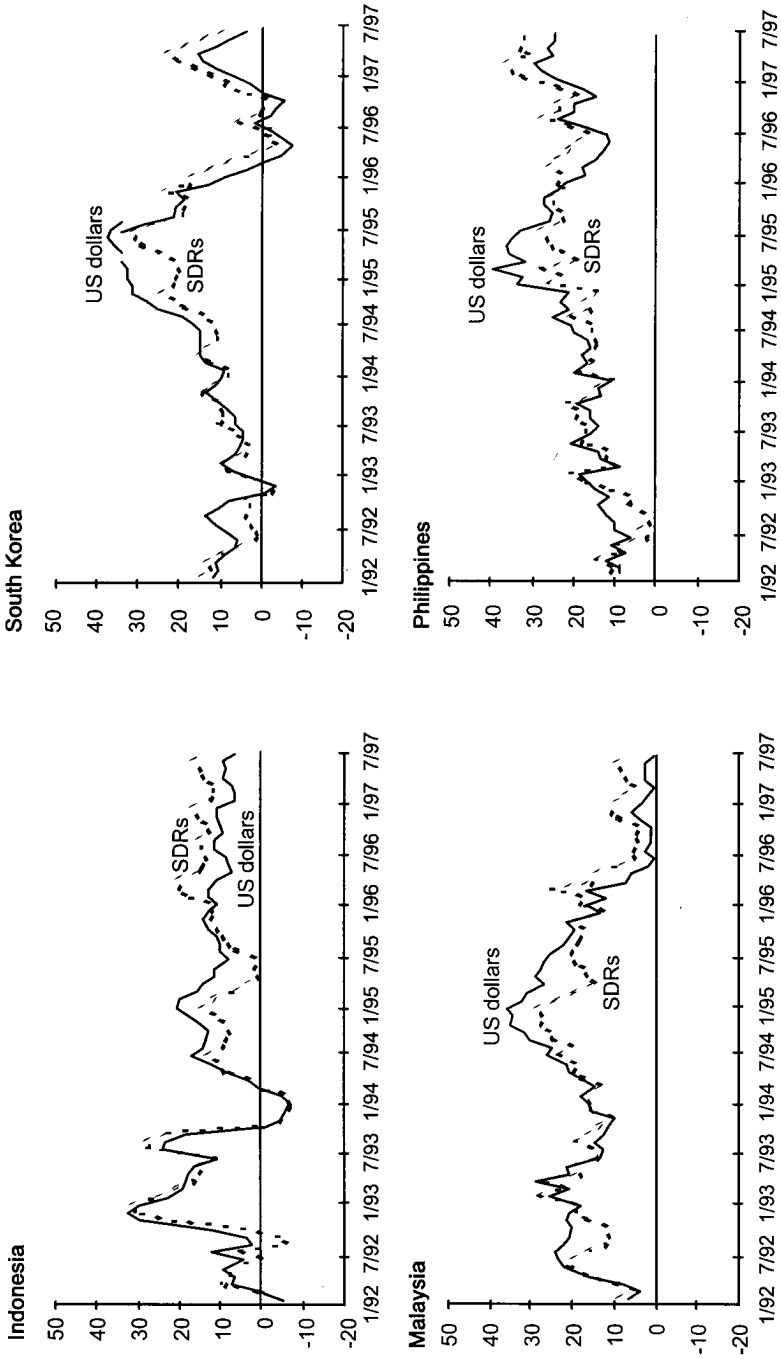
The one exception is Thailand. Not only had Thailand’s current-account deficit risen to an alarming 8 percent of GDP, but its export performance was disappointing. By pegging the baht to a basket with a heavy weight on the US dollar, which was itself strengthening against other major currencies, the Thai authorities allowed their trade-weighted real exchange rate to be pulled up significantly (see figure C.2). While the currency-pegging policy was not limited to Thailand, only there did leading investment analysts expect a sustained slowdown in exports (Radelet and Sachs 1998a; D. Park and Rhee 1998). Reflecting these problems, Thai equity prices trended downward (see figure C.3) and the real estate bubble burst. With the country’s finance companies heavily exposed to the property and stock markets, the decline in asset values posed an obvious threat to their solvency and, in turn, to the government’s commitment to the maintenance of the currency peg.

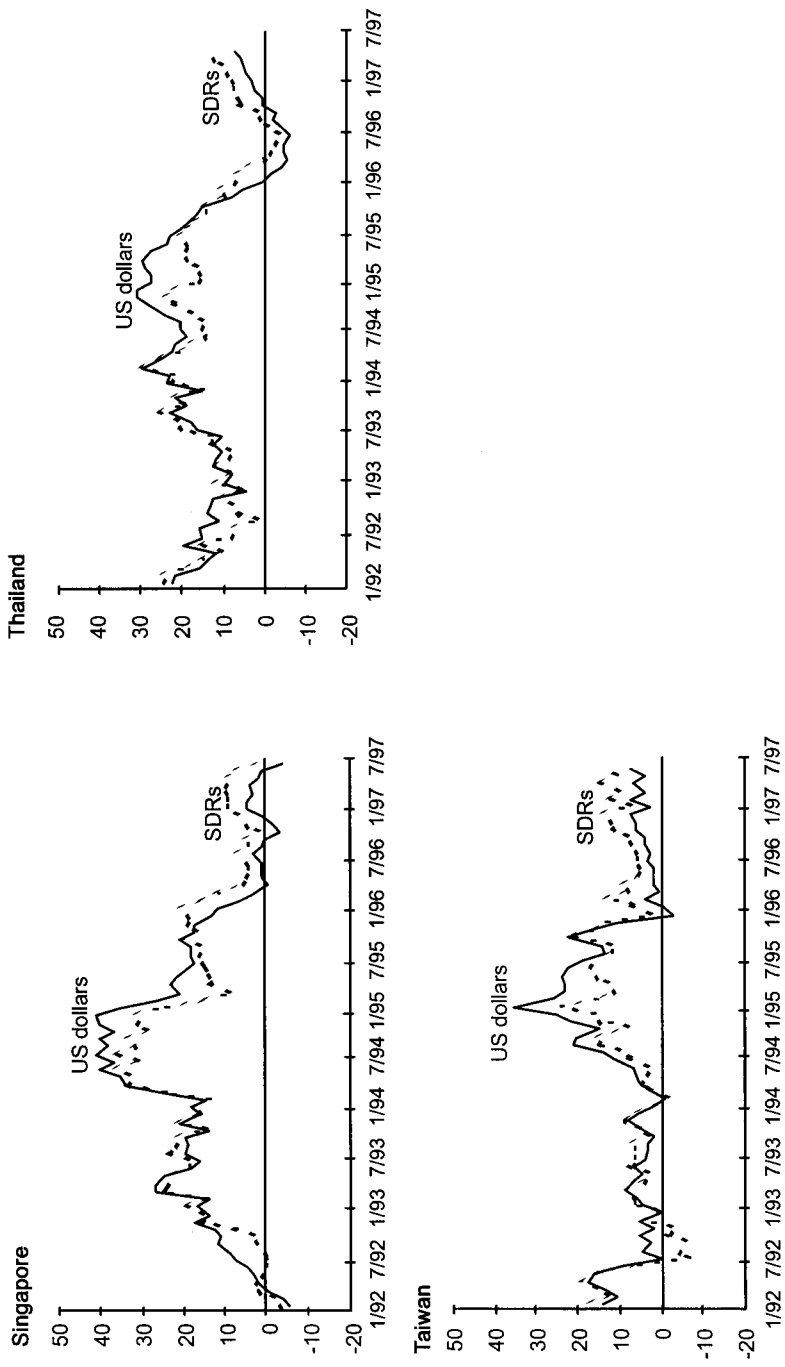
The managing director of the IMF wrote letters of warning to the Thai authorities. IMF officials traveled to Bangkok to convey the message in

1. The classic reference, of course, is World Bank (1993).

2. While some have gone so far as to cite Beijing’s devaluation of the yuan in 1994 as setting the stage for the crisis, most observers agree that not too much weight should be attached to this event: Chinese competition was but one of a number of factors intensifying the pressure on the crisis countries, and devaluation of the yuan was but one of a number of factors contributing to the intensification of Chinese competition. The depreciation of the yuan was largely offset by (and was itself designed to offset) the relatively rapid rise in yuan-denominated export prices. Analysis of these issues is provided by Fernald, Edison, and Loungani (1998). Radelet and Sachs (1998b) emphasize also surging Mexican exports of electronics, apparel, and automotive components to the United States following the North American Free Trade Agreement and the depreciation of the peso in 1995.

Figure C.1 Growth of export markets of the East Asian economies,^a January 1992-July 1997
(percentages)



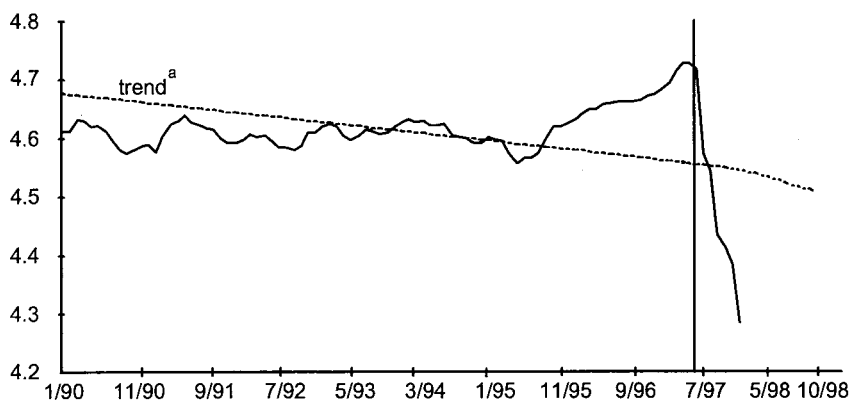


a. Percent change in export revenues from 12 months earlier; 3-month moving averages.

Table C.2 Short-term debt, second quarter of 1997

	Short-term debt	Total reserves	Short-term debt ratio
	Billions of US dollars		As a percentage of total reserves
Indonesia	34.25	20.34	168
South Korea	67.51	34.07	198
Malaysia	11.18	26.59	42
Philippines	7.74	9.78	79
Singapore	175.23	80.66	217
Taiwan	18.87	90.02	21
Thailand	45.57	31.36	145

Sources: BIS (1998); IMF, *International Financial Statistics* (various issues).

Figure C.2 Thai baht real exchange rate, January 1990–October 1998

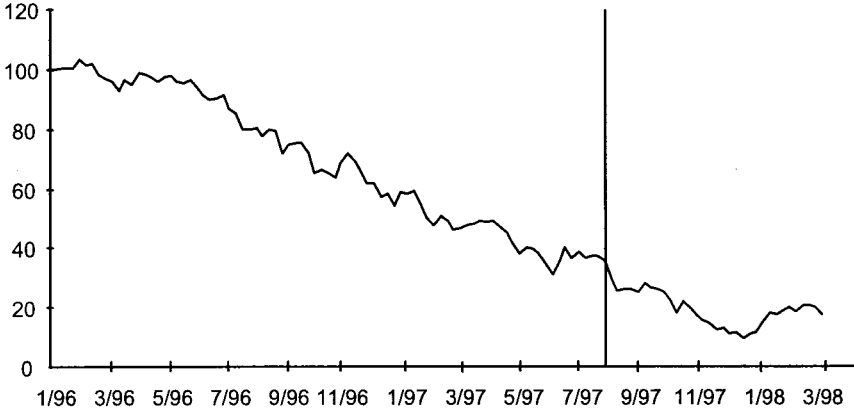
a. Linear trend from January 1979 to June 1997.

Source: Chinn and Dooley (1998).

person. The markets, if not the Thai officials, took heed. One hedge fund manager reported to me that he was first alerted to problems in Thailand by a presentation at the annual meetings of the Fund and the World Bank in September of 1996.³ There was pressure against the baht as early as July of that year following the collapse of the Bangkok Bank of Commerce. In the nine months leading up to its 2 July 1997 devaluation, the baht was hit by three more speculative sell-offs. But even in Thailand, there

3. The other obvious indicator of Thailand's mounting problems, namely, the steady decline of the central bank's foreign reserves, is another example of wisdom after the fact, if only because the country did not release timely information about changes in the extent of its spot- and forward-market positions.

Figure C.3 Thai equity index, January 1996-March 1998



Source: *Emerging Stock Markets Factbook*, International Finance Corporation, World Bank (various issues).

was no indication that the market anticipated the severity of impending problems in the spreads on syndicated bank loans, in the spreads on bond issues on primary and secondary markets, in the sovereign debt ratings issued by Standard & Poor's and Moody's, or in the forecasts of the leading commercial and investment banks.⁴

Course of the Crisis

The crisis opened with Thailand's devaluation on 2 July 1997 and deepened with the spread of difficulties to neighboring countries in Southeast Asia. Although the Thai, Indonesian, Malaysian, and Philippine currencies all depreciated by 25 to 33 percent in the third quarter of 1997, the crisis could still be seen at this time as limited to these countries. This was no longer true starting in October with the devaluation of the Taiwan dollar, which led to a speculative attack on Hong Kong (whose economic structure was similar to Taiwan's and which competed with it in many markets), and with the spread of the crisis to South Korea. The first half of 1998 was dominated by the continued deterioration of economic, financial, and political conditions in Indonesia, with strongly negative impacts on investor confidence and, hence, on the prospects for the other crisis economies. The most recent phase was ignited by the worse-than-expected economic performance of Japan, which came to light in the second quarter

4. Radelet and Sachs (1998a) present and discuss these data. For example, spreads on emerging-market bonds only began to widen *following* the Thai devaluation (Cline and Barnes 1997).

of 1998, and by Russia's default in August and the spread of turmoil to still other emerging markets.

The Trigger

Given the palpable nature of Thailand's difficulties and the subtler problems of its neighbors, it was possible at first to see the devaluation of the baht as an isolated event. The fact that the large international investors (hedge funds, commercial banks, investment banks) with short positions against the baht did not typically also have large short positions against other Southeast Asian currencies is a clear sign that this is how they perceived the situation.⁵ And the fact that the Thai authorities responded to mounting speculative pressure by intervening in the forward market rather than by attempting to correct the fundamentals made the devaluation seem both unavoidable and fully justified.

Following its devaluation, the baht continued to depreciate at an alarming rate. On 29 July the Chavalit government approached the IMF for help. Within two weeks, Japan convened a meeting of supporting countries who agreed to supplement the resources provided by the Fund. But Thailand's weak government was unprepared to take bold measures either to reassure investors or to halt debt-servicing payments and reflate the economy. Increases in gasoline taxes designed to raise revenue for use in recapitalizing the banking system were reversed in response to public protests, heightening uncertainty about the orientation of policy. The finance minister resigned on 19 October. The baht continued to decline, losing nearly 50 percent of its value against the US dollar by the end of the year despite the installation of a new government committed to the terms of the IMF agreement. Only in early 1998, after the new government demonstrated its resolve by moving on the issue of bank restructuring, did the baht begin to recover some of the ground lost previously and did the equity market stabilize.

The Spread

While the fact of Thailand's difficulties hardly came as a surprise to informed observers, the same cannot be said of their extent and, especially, their repercussions in other countries. The stock market fell and pressure against the currency was felt almost immediately in Indonesia, Malaysia, the Philippines, Singapore, and Taiwan. The Philippines responded on 11 July by abolishing its fluctuation band for the peso, and Indonesia widened its band for the rupiah later that same day. Along with Thailand,

5. This is documented in Eichengreen and Mathieson (1998) and Brown, Goetzmann, and Park (1998).

Indonesia was most strongly affected. Its stock prices, currency values, and international reserves fell sharply, and the Suharto government was forced to abandon its defense of the widened fluctuation band for the rupiah after little more than four weeks.

The spread of the crisis to Indonesia was unexpected because the country's growth had been unusually rapid and its macroeconomic fundamentals were strong. More generally, it was hard to see what the countries hit by the contagion had in common other than physical proximity. Levels of income and economic development were disparate. Some, such as Malaysia and Singapore, did modest amounts of business with Thailand, but others, such as Indonesia and Hong Kong, sold virtually nothing there. Some countries depended heavily on exports of primary commodities, while others produced and sold high-tech goods. Their industrial structures ranged from the large industrial groups of Indonesia to the small export-oriented firms of Taiwan. Except with benefit of hindsight, the virulence and scope of the contagion was, in truth, very much a surprise.⁶

With the crash of the Hong Kong stock market in October and the spread of instability to South Korea, the crisis went global. The world's 11th largest economy, South Korea was far larger than those stricken previously. Its banks had extensive investments around the world. Market participants being cognizant of these facts, fears mounted for the stability of currencies as far away as Russia and Brazil.

Just as the spread of the crisis to Indonesia had been a surprise, so too was the virulence with which it infected South Korea. South Korea had been recovering from a slowdown in 1996, when the prices of semiconductors (its single biggest export item) had declined sharply. The government had brought down the current-account deficit from 5 percent of GDP to a more manageable level of 2 percent. But slower growth and depreciated currencies elsewhere now raised questions about whether this progress could be sustained. They heightened fears about the financial difficulties of the country's industrial conglomerates. The Hanbo Group (the 14th largest conglomerate, or *chaebol*) had collapsed in January 1997, taking \$6 billion of domestic bank loans with it. Sammi Steel (the lead firm of the Sammi Group, the 26th largest *chaebol*) failed in March, the Kia Group (the 8th largest *chaebol*) in July. As business failures mounted, concern spread for the viability of the banks to which the *chaebol* were linked. South

6. A representative opinion is Chase Manhattan Bank's research circular dated 1 October 1997 (Chase Manhattan Bank 1997, 8-9), whose analysts concluded that it was unlikely that any of the other countries in the region "faces an imminent financial crisis" and who forecast growth rates for 1998 of 7 percent for Indonesia, 7 percent for Malaysia, and 6 percent for Thailand. Statistical studies support this distinction between Thailand and the other crisis countries: the leading econometric studies of crisis incidence have some success in predicting the Thai crisis, but not so the crisis in other Asian countries (see Berg and Pattillo 1998).

Korean banks thus found it increasingly expensive to fund themselves abroad. Meanwhile, foreign investors suffering losses elsewhere in Asia liquidated their investments in South Korea in order to rebalance their portfolios and raise cash, intensifying the pressure on the financial system.

South Korea's negotiation of an IMF package, an exceptional step for an OECD country, brought only temporary respite. Revelations through the publication of leaked IMF documents that the country's short-term debt was significantly higher than previously thought, combined with the government's reluctance to close troubled banks, undermined confidence among international investors.⁷ Commercial banks refused to renew their maturing short-term loans and took their money out of the country even faster than the IMF and G-7 governments pumped it in. With short-term foreign debt maturing at the rate of \$1 billion a day, it seemed inevitable that South Korea's reserves would be exhausted by the end of December.

The week between Christmas and the New Year saw emergency negotiations between the foreign commercial banks with credits to South Korea and the newly elected government of Kim Dae Jung, under the stewardship of G-7 central banks. Forced to acknowledge their collective-action problem, US, Japanese, and European banks agreed to roll over their short-term loans, giving the government time to negotiate a more comprehensive financial restructuring package. On 28 January, South Korea and the banks reached an agreement on the rescheduling of \$24 billion of debt and on a plan to replace the bank loans with long-term bonds. Inducing investors to take up those bonds required the country to maintain high interest rates, with adverse implications for the economy. The consequences became known in May, when it was announced that the South Korean economy had shrunk by nearly 4 percent in the first quarter of 1998.

The Crisis within the Crisis

Yet the dominant events of the first months of 1998 were not those in South Korea but rather those affecting Indonesia and Japan. The IMF had unveiled a \$23 billion rescue package for Indonesia in October. With the situation there continuing to deteriorate, the Suharto government and the Fund signed a second agreement on economic reform in January. Against

7. In addition, there was the rumor, later shown to be true, that the Bank of Korea had deposited a portion of its reserves with foreign branches of domestic banks, rendering those reserves unusable. Japanese banks were first to call in their short-term debts due to mounting problems in the Japanese financial system, such as the failure of Yamaichi Securities, the fourth largest securities firm in the country, and the bankruptcy of several regional and city banks. Kim and Rhee (1998) suggest that because Japanese banks were thought to be particularly well informed of the South Korean financial situation, their refusal to roll over their short-term credits precipitated similar actions on the part of other banks.

the backdrop of the government's continued indecision regarding the fate of major public-investment projects and insolvent banks, investor doubts rendered IMF loans and conditions less than effective.⁸ The rupiah fell to Rp17,000 to the dollar on 22 January (down more than 80 percent compared to a precrisis level of Rp2,434), before recovering. Indonesian banks and corporations having been left unable to service their foreign-currency debts, the country was forced to suspend debt-service payments. Banks stopped lending, and trade credits evaporated. The economy ground to a halt.

Against this backdrop, evidence of the severity of Japan's economic difficulties had a devastating impact on confidence. Japanese corporate leaders warned at the beginning of April of the gravity of the economic situation. Moody's downgraded Japan's sovereign debt on 3 April. Asia's "locomotive" having stalled, investor confidence in the other crisis countries suffered. Indonesia was hit hardest. A third agreement on economic reform with the IMF had little effect. In early May, the continued deterioration of economic and financial conditions spilled over into street demonstrations, forcing President Suharto's resignation two weeks later. Hopes that this might set the stage for stabilization and recovery were then dashed by more bad news from Japan. On 8 June the yen fell below 140 to the US dollar. On 12 June the government reported that first-quarter GDP had fallen by more than 5 percent at an annual rate. Fears that further weakening of the yen might so aggravate the competitive difficulties of Japan's Asian neighbors that they (and China) would succumb to another round of competitive devaluations prompted US and Japanese intervention in the foreign-exchange market to prop up the Japanese currency.

When the first anniversary of the Asian crisis was "celebrated" on 2 July 1998, there were still few signs of the kind of recovery that had developed in Mexico within six months of the 1994-95 peso crisis. While most Asian currencies had recovered from their early 1998 troughs, there were still few firm indications of economic growth. The IMF forecast renewed growth in South Korea and Thailand in 1999, but even this was far from assured. And it seemed highly unlikely that Indonesia, mired in debt and political problems, would glimpse the light at the end of the tunnel even then. Antigovernment riots continued to flare up, raising questions about the sustainability and direction of future policy.

The Crisis Goes Global

The latest in this series of events was the most dramatic, or at least it had the most far-reaching repercussions. In mid-August, Russia surprised

8. These problems were then compounded by a serious drought and by rumors of President Suharto's ill health.

the markets by devaluing the ruble and at the same time unilaterally suspending payments on most of its debts. The impact on confidence was devastating for investors who had come to see Russia as too big and important to fail. Its default consequently triggered a fundamental reevaluation of the risks of lending to emerging markets and of the price of risk more generally. It ignited a collective scramble out of risky assets in favor of safe havens such as US Treasury securities. Once this flight to quality was under way, investors who had purchased Brady bonds in order to hedge their Russian exposure were forced to liquidate their Latin American holdings in order to raise liquidity and meet margin calls; the crisis thus immediately leapfrogged from Russia and Asia to Latin America. The simultaneous collapse of the prices of virtually all risky assets put institutional investors at risk: it precipitated the collapse of the US hedge fund Long Term Capital Management and created fears for the stability of other hedge funds, hedge fund counterparties, and the very markets in which they had positions.

These events prompted fears of a global recession, or even a depression, eliciting a series of extraordinary policy responses to contain the crisis. The US Federal Reserve Board cut its lending rate three times, including an exceptional reduction between its regularly scheduled meetings; this led other G-7 central banks to follow suit. The IMF provided an unusually large, front-loaded package of financial assistance to Brazil in an attempt to create a firebreak wide enough to prevent the crisis from spreading further. The US Congress finally voted additional funding for the IMF. Japan accelerated its program of banking-sector recapitalization and restructuring and announced additional fiscal stimulus. Together, these measures sufficed to restore calm to financial markets, although not to restore the flow of capital to emerging markets. Whether that calm would endure remained, at the time of writing, very much an open question.

Causes

The Asian crisis that was the trigger for this series of events is best understood as a financial crisis with self-fulfilling features afflicting countries whose governments lacked the economic and political wherewithal to defend their currencies. And the weakness of governments, in turn, reflected three sources of vulnerability.

Macroeconomic Imbalances

Macroeconomic factors contributed to this vulnerability, however strange this might seem for countries where growth was proceeding at 5 to 8 percent a year. The region's rapid growth was sustained in part by capital

inflows that had as by-products increasingly overvalued real exchange rates, accompanied in some cases by ballooning current-account deficits. The appreciation of real exchange rates was not large by the standards of, say, Argentina and Brazil, and the current-account deficit reached truly alarming levels only in Thailand and Malaysia, but both the real appreciation and the current-account deficit were sources of vulnerability. They could be transformed into serious problems if foreign investors decided one morning that the deficit would no longer be financed. Eliminating a large current-account deficit requires the large-scale redeployment of resources from nontraded- to traded-goods sectors, something that can occur smoothly, without a recession, only if it is allowed to take place gradually over time. Eliminating that deficit quickly, in contrast, requires radically compressing demand, disrupting production, and almost certainly inducing a recession. If capital suddenly stops flowing in, bridge financing is required to avoid this, and if foreign reserves are not sufficient to provide capital, attracting it requires high interest rates.

Financial-Sector Weaknesses

This is where Asia's second source of vulnerability came into play, in the form of the weakness of the financial system. Financial systems in the crisis countries were in a delicate condition, and high interest rates only served to compound their problems. In particular, the now higher interest rates needed to attract foreign capital and stabilize the balance of payments threatened to destabilize the banking system. Because banks are in the business of liquidity transformation, higher interest rates raised their funding costs relative to their incomes. And passing on those higher funding costs to their customers precipitated loan defaults that further damaged their balance sheets. Put another way, sustaining capital inflows required draining liquidity from domestic financial markets, but draining domestic liquidity threatened to knock the props out from under the banking system. International investors were understandably skeptical that governments were prepared to stay the course. Rudiger Dornbusch put the point colorfully, as usual (1998, 16): "To keep the money coming in to finance the Ponzi game and hold the exchange rate, interest rates had to go up to reward foreign lenders for the risk, but that made real estate and banks even worse. To keep banks alive, interest rates had to go down. The government could not have it both ways. They cut rates, made it free to speculate against the currency and that is what happened."⁹ After Samprasong Land missed a payment on its foreign debt in February 1997, the Bank of Thailand lent more than \$8 billion to distressed financial

9. This is the theoretical dilemma modeled by Chang and Velasco (1998), as noted above in chapter 2.

Table C.3 Short-term borrowing as a percentage of total capital inflow (percentages)

	Between 6/90 and 6/94	Between 6/94 and 6/97
Indonesia	78.72	56.71
South Korea	78.26	63.79
Malaysia	91.90	53.96
Philippines	12.17	69.50
Thailand	80.92	56.08

Source: Calculations based on data in Chang and Velasco (1998c).

institutions through its Financial Institutions Development Fund, despite mounting pressure on the baht, which it supported by intervening in the foreign-exchange market. Speculators drew the obvious conclusion.

Short Maturity of Debt

This leads to the third element of the story, the short-term nature of Asian banks' and corporations' foreign funding. Between 1990 and 1996, roughly 50 percent of net private portfolio capital inflows into Thailand took the form of short-term borrowing (see Bhattacharya, Claessens, and Hernandez 1997). Sixty-two percent of net capital inflows in South Korea consisted of short-term borrowing in the three years 1994-97, compared with 37 percent in 1990-93 (Y. Park 1998, 14) (see table C.3). Net interbank lending rose from \$14 billion in the five years ending in 1994 to \$43 billion in the subsequent seven quarters. Forty percent was denominated in yen, the rest in dollars. More than two-thirds of these loans matured in less than a year (BIS 1998, 122-23).

Hence, the Asian economies had not just a *flow* problem—a continued need to attract capital *inflows* to finance their current-account deficits—but a *stock* problem as well. They had accumulated large stocks of short-term debt denominated in foreign currency that needed to be rolled over regularly. If confidence were disturbed, it would be necessary to raise interest rates to induce foreign investors to renew their maturing loans. And given the weakness of the banks, there were obvious questions about the willingness and ability of governments to do so. To the contrary, the authorities might feel compelled to guarantee the foreign liabilities of the banks, creating additional claims against their thinly stretched foreign-exchange reserves and ensuring that the banking crisis also provoked a currency crisis.¹⁰

10. Here, then, is where the factors emphasized in "third-generation" models of currency crises, such as Dooley (1997) and Krugman (1998a), came into play.

These three elements—modest macroeconomic imbalances, serious banking-sector problems, and mismanagement of the maturity structure of the debt—placed governments in an untenable position. Painful policies were required to sustain confidence if it were disturbed, but financial systems could not bear the pain. There was nothing inevitable about the crisis, except in Thailand perhaps, in the sense that better luck (and better policies) might have enabled countries to grow out of their current-account deficits, lengthen the maturity structure of their debts, and strengthen their banking systems before a shock to confidence occurred. As it turned out, Thailand's devaluation disturbed investor confidence before its neighbors succeeded in escaping the zone of vulnerability, and the rest, as they say, is history.

Delving Deeper

This interpretation suggests that the turmoil in Asia in 1997 was a self-fulfilling crisis in which countries had entered a zone of vulnerability where governments were unable to sustain a credible defense of their currencies. In particular, the combination of modest macroeconomic imbalances, banking-system weaknesses, and the short maturity of foreign debts resembled problems in Mexico and in other countries that had felt the Tequila effect three years before.¹¹

A deeper question is how the crisis countries allowed themselves to get into this bind in the first place. The obvious answer is that their crucial blunder was failing to upgrade bank supervision and regulation when liberalizing their financial systems, a failure that left them unable to raise interest rates and to mount a sustained defense of the currency (see, e.g., Goldstein 1998). Specifically, the inadequacy of supervision and regulation allowed the banks to rely excessively on high-cost foreign funding, to overcommit to the property market and industry, and to saddle themselves with nonperforming loans. Banks took on excessive short-term debt denominated in foreign currency because they were allowed to continue operating despite a weakened financial condition and the perverse risk-taking incentives it implied.

What remains to be explained is why the authorities were prone to these policy mistakes. Why did they fail to strengthen financial supervision and regulation? Why did bank owners with their own capital at stake fail to manage risks to avert such disastrous outcomes? And why were the markets so inclined to provide the short-term foreign funding that ultimately proved so disastrous?

11. These parallels are emphasized by Tornell (1998).

Banks as Instruments of Industrial Policy

The answer to these questions is that banks enjoyed government guarantees that promised to bail them out of any and all difficulties, which in turn encouraged them to take on excessive risk. Such guarantees were part and parcel of an economic development strategy in which the banks were the instruments of industrial policy. The banks were given franchises—alternative channels of intermediation were suppressed—in return for committing to accept government instructions regarding the allocation of credit.¹² Guarantees were the banks' quid pro quo for allowing themselves to be used as the instrumentality for public policy—as governments' quasi-fiscal agents. In this bank-led financial system, banks were too big and too important to fail. Knowing that they would not be allowed to fail, owners and managers had an incentive to take on additional risk.

One can see how this provided opportunities for crony capitalism. It was devilishly hard to determine whether the decision to extend credit to a particular industry or enterprise reflected the priorities of the economics ministry or the self-interests of political leaders' extended families. So long as there was an abundance of high-return projects waiting to be financed, the distinction was of little moment. But once high-return investments had been exhausted and the period of extraordinarily rapid growth drew to a close, that distinction became critically important, for now the extension of preferential credits in disregard of market signals placed the solvency of the banks at risk. This may not have been exactly what the Malaysian Prime Minister Mahathir Mohammad meant when he said that rapid growth, like high water, submerges rocks that can otherwise punch holes in the sturdiest boats, but the comment could not have been more apposite.

And when the water began to recede, revealing the rocks below, the banks navigated the shoals by borrowing abroad and only ending up in whiter water. Governments consorted in this decision to roll the dice. The Thai and South Korean governments liberalized the capital account exactly backwards. South Korea maintained stringent controls on FDI inflows into the country and limited opportunities for foreigners to purchase bonds and equities issued by South Korean corporations. It restricted the ability of those corporations to borrow on international markets.¹³ The banks, meanwhile, were freed to borrow abroad, rendering the *chaebol* dependent on their debt. This policy was not one of incompe-

12. Other means of enhancing franchise values included interest rate ceilings on deposits and restraints in interbank competition in the loan market. In return, banks were subject to regulations requiring them to allocate certain portions of their loan portfolios to particular industrial sectors (Reisen 1998, 24).

13. With the exception of certain short-term trade-related credits.

Table C.4 Foreign liabilities of the banking system, 1990-96
(as a percentage of GDP)

	1990	1991	1992	1993	1994	1995	1996
Indonesia	6.5	5.2	6.2	6.2	6.5	6.0	5.6
Thailand	5.0	4.9	5.9	11.1	21.6	28.4	26.8
South Korea	4.1	4.9	4.8	4.5	5.5	6.9	9.3
Malaysia	7.0	9.1	12.7	19.5	9.2	7.4	9.2
Philippines	6.2	4.4	5.6	5.5	6.7	8.8	17.2

Source: Radelet and Sachs (1998a).

tence, as sometimes suggested; it was a logical outgrowth of the government's cultivation of a bank-centered financial system. Similarly, this is the only way to understand the decision of the Thai government to promote the growth of the Bangkok International Banking Facility (BIBF), which permitted Thai banks to borrow offshore and onloan the receipts to domestic customers in the form of loans denominated in foreign currency.¹⁴ Thus, the foreign liabilities of the South Korean banking system more than doubled between 1993 and mid-1997, reaching nearly 10 percent of GDP. In Thailand, following the establishment of the BIBF, this ratio reached a remarkable 28 percent of GDP in 1995 (Radelet and Sachs 1998b, 25) (see table C.4).¹⁵

Accommodating Global Credit Conditions

It takes two to tango. These Asian policies would not have had such powerful effects had they not coincided with global conditions encourag-

14. The original intention had been to promote the development of Bangkok as an international financial center by financing "out-out" transactions in which Thai banks borrowed offshore and onlent only to offshore customers. Soon, however, the binding restrictions on domestic onlending were relaxed. Foreign banks were encouraged to abet this process by official intimations that the enthusiasm with which they helped to fund Thai banks' loans would affect their chances of eventually receiving a license permitting them to set up shop domestically.

15. Malaysia is a revealing comparison. In contrast to these other countries, its central bank sought to limit short-term foreign inflows through the banking system starting in 1994 by limiting banks' holdings of foreign funds, raising the cost of holding foreign deposits, and imposing ceilings on the net external liabilities of domestic banks. For details, see Glick and Moreno (1995). The foreign liabilities of deposit-money banks thus fell from a high of nearly 20 percent of GDP in 1993 to less than half that in 1996. While Malaysia hardly escaped the crisis unscathed, the fact that the initial impact was milder than in Thailand is plausibly ascribed to these policies. Indonesia provides another case where the authorities imposed quantitative controls on offshore borrowing by banks in 1991 as well as tightening limits on their open foreign-exchange positions and limiting their foreign-exchange swap positions as a percentage of capital. In this case, however, these restrictions merely caused offshore borrowing to be rerouted from the banking system to the corporate sector. And finally there is the Chilean case, considered in chapter 4 above.

ing US, European, and Japanese banks to lend. The consequences of Asian financial weaknesses could be contained so long as intermediaries there had limited access to funding. What changed in the mid-1990s was not just the relaxation of regulatory limits on their borrowing abroad but also structural and macroeconomic changes in the rest of the world that allowed Asian banks to freely indulge their appetites for foreign funding.

Financial deregulation in Europe was one of these changes: it encouraged bank lending to Asia by squeezing domestic margins, which encouraged European banks to seek higher yields in other parts of the world, and by removing regulatory limits on the ability of European commercial and investment banks to branch into new lines of business, notably in emerging markets. More important, low interest rates and yields in the major money centers encouraged institutional investors to borrow in the United States or Japan in order to purchase higher-yielding bank deposits or fixed-income securities in middle-income Asia.¹⁶ The appearance of this “carry trade” in Malaysia in 1991-92 coincided with the US Federal Reserve Board’s policy of low interest rates to stimulate the recovery of the US economy from its early-1990s recession and to strengthen the US banking system.¹⁷ It was fueled by the decline of money-market rates to unprecedentedly low levels in Japan as that country descended into its mid-1990s economic funk.¹⁸

Understanding the flow of capital to East Asia does not require invoking technical terms such as “the carry trade” when one observes that there was an incentive to borrow where interest rates were low and invest where they were high so long as the exchange rate was pegged. Capital flows reflected the tendency toward interest parity, a condition that should hold in an environment of high capital mobility. An implication of this high capital mobility was that the authorities in capital-importing countries had little ability to restrain the growth of domestic credit once the US Federal Reserve Board opted for a more expansionary monetary policy to revive the US banking system (table C.5). Because exchange rates were

16. In addition, some critics suggest that the US- and IMF-led rescue of Mexico in 1995 was an important source of moral hazard, which, by allowing foreign investors to get out whole, encouraged them to rush back to emerging markets, including those of Asia. It is hard to know how much weight to attach to this explanation given the number of other forces also at work.

17. The carry trade is described in IMF (1998a).

18. In addition, the strength of the yen over much of this period stimulated investment both by making East Asian exports more competitive relative to those of Japan and by encouraging Japanese investment in the region (Y. Park 1998, 6; BIS 1998, 118). The rapid rise of stock markets in the United States and many European countries, itself a concomitant of the low level of interest rates, further encouraged investors in the advanced industrial countries to search for higher-yielding assets in middle-income Asia. Given their limited access to domestic securities markets, they funneled their cash through Asian banks.

**Table C.5 Bank credit to the private sector,
1981-97^a**

	Annual rate of expansion ^b (in percent)		As a percentage of GDP
	1981-89	1990-97 ^c	1997 ^c
Indonesia	22	18	57
Thailand	15	18	105
South Korea	13	12	64
Malaysia	11	16	95
Philippines	-5	18	52
Singapore	10	12	97
Hong Kong	13	8	157
Taiwan	15	13	138

a. Annual average.

b. Deflated by consumer prices.

c. 1997 data are preliminary.

Source: Bank for International Settlements (1998, table VII.1).

linked, monetary policies were linked. As David Hale (1997, 1) has put it, "As a result of the exchange rate link which east Asia had to the US dollar, America's expansionary monetary policy helped to encourage rapid credit growth in countries such as Thailand, Malaysia, Indonesia and the Philippines."

Thus, the exchange rate is a key part of the story. The operation of exchange rate bands and governments' stated commitment to their maintenance meant that there was little perceived exchange rate risk to deter capital inflows. Larger capital inflows meant larger current-account deficits, given the difficulty of sterilizing those inflows, and more real exchange rate appreciation. Both the deficits and the large real appreciation were sources of vulnerability when financial-market conditions were disturbed. Moreover, the absence of exchange rate variability left nothing to insulate money and credit conditions from those prevailing abroad. The loose monetary policies appropriate for a US economy recovering from a banking crisis and a Japanese economy still mired in one were not appropriate for Asian economies in which the problem was instead the risk of overheating. There, higher real interest rates were needed because there existed many attractive investment projects that could not all be undertaken at once. High interest rates were the rationing mechanism to force the market to choose among them. But the pegged exchange rate made it all but impossible to keep interest rates at a sufficient premium over foreign levels. Excessive credit expansion and an unsustainable real estate boom were the inevitable results.

To be sure, pegging the currency was not the only option for Thailand, Malaysia, Indonesia, the Philippines, and South Korea. By the time the

crisis struck, South Korea had already moved cautiously in the direction of greater flexibility, and Indonesia, Malaysia, and the Philippines, as we have seen, did so soon after Thailand's devaluation. But limiting the flexibility of the exchange rate vis-à-vis the country's principal export markets was a logical policy for governments whose economic development strategies had been predicated on the promotion of exports. It was part of the bargain with export-oriented industries. Pegging to the dollar was also seen as a way of facilitating external financing of domestic investment projects (see Corsetti, Pesenti, and Roubini 1998). It was another legacy of Asia's development strategy that had outlived its usefulness.

Long-Term Historical Forces and Short-Term Financial Policies

Thus, Asia's crisis can only be understood in terms of a conjuncture of long-standing historical forces and short-term financial policies. Ultimately, the explanation for the crisis lies in the region's history and economic development trajectory, which relied on bank-centered financial systems, the use of the banks as instruments of industrial policy, and close connections between banks and politicians, all of which were designed to sustain high rates of investment and rapid economic growth. This was not a formula that could work forever: by the second half of the 1990s it had been in place for several decades and was showing growing signs of strain. At another level, the explanation lies in financial errors committed in the mid-1990s. Growth may have been slowing, but the day of reckoning was delayed by the selective liberalization of capital accounts to facilitate short-term financial flows, aided and abetted by the low level of interest rates in the major money centers and by the migration of US and European investment banks to middle-income Asia. These developments on the borrowing and lending sides enabled the newly industrializing countries to borrow their way out of their difficulties for a time. In the end, however, this only set them up for a harder fall.

Why Was the Crisis So Severe?

While these insights help one to understand the speculative attacks, they do not explain the full-blown economic and financial meltdown that followed. Something more is needed to account for the exceptional severity and scope of the crisis.

Unhedged Foreign Exposure

One factor, surely, was the extent of the foreign-currency exposure of the banking and corporate sectors. Mexico had foreign exposure as well,

in the form of the notorious *tesobonos*, but these were liabilities of the government, not of firms and banks. When the peso began to decline, this created financial problems first and foremost for the Mexican government. In Asia, in contrast, the gravest problems were those created for the private sector. With so many banks and firms involved, the absence of an effective mechanism for coordinating debtor-creditor negotiations was a more serious problem than when there had been only the government on the debtor's side of the table. In comparison with Mexico, investors could look forward to a much longer period during which the debt overhang would continue to discourage potential lenders.

Critically, the foreign debts of Asian banks and firms were unhedged. The exchange rate having been pegged for so long, borrowers saw little reason to insure themselves against its depreciation by purchasing relatively expensive currency futures and forwards. Ironically, Asian governments' very success at pegging their exchange rates was one factor behind the severity of the crisis, for it lulled domestic banks and corporations into a false sense of security. And when the exchange rate began to move, it threw the banks and firms with the heaviest foreign exposures into bankruptcy.

One of the classic preconditions for a contractionary devaluation is the existence of a stock of foreign-currency denominated debt, the service on which grows heavier as the exchange rate declines.¹⁹ The operation of this mechanism is clearly evident in Asia. As the exchange rate fell, debt denominated in foreign currency became more expensive in domestic currency terms, leaving domestic residents poorer. Firms, facing a heavier burden, invested less. Banks, facing a heavier burden, lent less. And as demand fell, there was downward pressure on output. Meanwhile, more domestic output had to be devoted to servicing the same external debt. This meant freeing up a larger share of domestic resources for debt-servicing purposes, which required using policy to restrict demand still further. But this only depressed output still more, in turn putting further downward pressure on the exchange rate and further elevating debt servicing costs in a vicious spiral.²⁰

The Scramble for Cover

In addition, banks and firms that had previously left their foreign exposures unhedged scrambled for cover when the exchange rate began to

19. See Krugman and Taylor (1978) for a theoretical exposition.

20. Those who emphasize the depressing effects of the high interest rates applied by Asian central banks (and required by the IMF as a condition for its assistance) and argue that these may have depressed rather than strengthening currencies presumably have in mind something along these lines (see, e.g., Radelet and Sachs 1998a; Furman and Stiglitz 1998).

move. Not only did they find it more costly to purchase the foreign exchange needed to meet their current obligations, but they also scrambled after additional foreign exchange to protect themselves against the possibility of future exchange rate depreciation, pushing the exchange rate down in a self-fulfilling prophecy. Once it became clear that governments' stated commitments to stabilize exchange rates were worthless, banks and firms with debts denominated in foreign currency sought cover at any price.²¹

Other Sources of Positive Market Feedback

The scramble for cover was not the only reason why the initial decline in Asian exchange rates and asset prices fed on itself. The collapse of East Asian asset values and the fall of the Nikkei tightened the screws on already distressed Japanese banks, which responded by calling in their loans. And once asset prices began to fall, hedge funds and other investors who had purchased emerging-market securities on margin were forced to raise cash to pay back their borrowed funds. The dynamics of margin calls forced them to sell into a falling market, and the further the market fell the more frequent the margin calls became.

In addition, when Moody's downgraded Thailand, South Korea, and Indonesia's sovereign debts in December to below-investment-grade status, many portfolio managers were required to liquidate their holdings of those securities. The assumption that the debts of corporate and financial issuers cannot have a better credit rating than the sovereign (the "sovereign ceiling") meant that these other securities became junk bonds as well. Finally, a number of bond contracts contained acceleration provisions allowing creditors to call for immediate repayment in the event that the issue was downgraded (Radelet and Sachs 1998a, 13). The existence of these options was not well known to other investors or, for that matter, to officials.

Cascading Defaults

Another factor contributing to the severity of the crisis was the absence in most Asian countries of adequate bankruptcy and insolvency procedures and independent judiciaries. Anticipating that the firms to which they had lent would experience serious financial problems and lacking

21. As Alan Greenspan (1998, 4) put it, "The belief that local currencies could, virtually without risk of loss, be converted into dollars at any time was shattered. Investors, both domestic and foreign, endeavored en masse to convert dollars, as confidence in the ability of the local economy to earn dollars to meet their fixed obligations diminished. Local exchange rates fell against the dollar, inducing still further declines."

confidence that they would be treated fairly under Asian countries' insolvency codes, creditors scrambled to liquidate their claims in an asset grab race, illustrating a phenomenon described in chapter 3. Even where forbearance was in their collective interest, they had an incentive to scramble for the enterprise's remaining assets before these were stripped by insiders and other more politically influential claimants. And when borrowers began to default, the inability of lenders to repossess collateral produced a cascade effect where the debtor's nonperformance threatened to force its creditors into default. Where those creditors included banks, banking panics were the result. Specialists suggest that the dangers posed by inadequate bankruptcy procedures may not be apparent in periods of rapid growth when few firms experience financial distress, but that they will surface with a vengeance if and when growth slows (see, e.g., LaPorta and Lopez-de-Silanes 1998). Asia's experience is consistent with this view.²²

The Contagion

Yet another factor contributing to the severity of the crisis was the speed and extent of the contagion. Exporting its way out of the crisis may have been possible for one stricken country, but it was not possible for an entire group of crisis economies, all of which could not significantly boost their exports to one another and to the same third markets. This suggests that one channel for contagion was competitive devaluation operating through bilateral and third-country trade linkages (for evidence, see Eichengreen and Rose 1998; Glick and Rose 1998). Thailand may have exported little to Indonesia and Malaysia, but these countries all sold into the same markets in other parts of the world. Thailand's devaluation therefore worsened the balance of payments prospects of all its neighbors and competitors.

That said, trade links seem insufficient to explain the speed and virulence with which the crisis spread. And the contagion seems to have infected countries that exported primary commodities and high-tech products equally, without discriminating between them.

This points to the operation of other channels, notably the generalized revision of expectations prompted by the devaluation of the baht and reinforced by the spread of financial upheavals to Indonesia and Malay-

22. Thus, authors such as Sachs (1994b) argue the need for an international bankruptcy court, or its equivalent, with the power to impose an automatic stay or standstill to halt the creditor grab race. Asia's experience suggests that the institutional lacuna giving rise to this socially counterproductive behavior was as much at the national as the international level. I discuss this point in chapter 6.

sia.²³ Not only did the Thai devaluation reveal that promises regarding Asian exchange rate pegs could not be taken at face value, but it alerted investors to the existence of deeper problems. Morris Goldstein (1998, 18) refers to this as the “wake-up-call” hypothesis. The term is both evocative and revealing of the limits of the interpretation. Rarely is an effort made to explain why this particular wake-up call was so loud and startling. As commonly invoked, this explanation for the contagion simply begs the question.

Guillermo Calvo (1997) suggests that globalization itself explains why investors were sleeping so soundly. Globalization makes it possible to diversify investment portfolios internationally. But diversification reduces the incentive for each investor to sink the costs of learning about conditions in each national economy, because investments there now account for only a small fraction of his or her portfolio. Lacking information, investors are more likely to draw inferences from the actions of other investors—that is, to run with the herd.²⁴ Unfortunately, it is not clear why investors would not solve this problem by turning to mutual funds and other collective investment vehicles that are in the business of acting as delegated monitors because of the existence of information costs. Nor is it clear why the Thai devaluation should have been regarded by investors with stakes in other Asian countries as having such important information content.

A more compelling potential explanation goes back to the bank-based nature of Asia’s financial system.²⁵ The region had developed few financial *markets* on which information was impounded into the prices of exchange-traded financial assets. Rather, this business was done by banks possessing relatively favorable access to information on their customers’ financial position. Those banks were understandably reluctant to share their proprietary knowledge with their competitors. They were entrusted, for better or for worse, to act as delegated monitors and generated few price signals such as those provided in other economies by bond and equity markets. Because there was little independent information on the quality of loans, bad news served to discredit them as a group.

Moreover, the lack of transparency of bank balance sheets, reflecting the failure of supervisors to require banks to follow rigorous auditing and accounting practices, heightened the difficulty of distinguishing good

23. An additional factor was the rebalancing of portfolios by commercial and investment banks and other institutional investors when the crisis struck. Losses on Thai investments encouraged them to sell off holdings in other Asian countries in order to rebalance their portfolios and to raise cash. The loan clauses described above provided one mechanism for doing so.

24. Bacchetta and van Wincoop (1998) show how herding behavior that amplifies market volatility can result from incomplete information.

25. This is the explanation suggested by Yellen (1998).

credit risks from bad ones, most obviously in Thailand but in South Korea as well. Lengthy delays were allowed to occur before banks revealed information about their nonperforming loans.²⁶ Information on individual banks and loans being lacking, the revision of confidence was general. And in this information-impacted environment, bank runs could lead to systemic banking crises and spill contagiously across countries.

Japan's Deepening Slump

If these are not enough explanations for the singular severity and scope of the crisis, finally there was the role of Japan. In 1994-95, when Mexico experienced its crisis, its principal trading partner, the United States, was growing strongly. In 1992-93, when much of Europe was in crisis, demand in Germany was strong, reflecting the effects of German unification. But in 1997-98, the opposite was true of the relevant regional power, Japan, which traded more than any other G-7 member with the crisis countries and which was growing, as it had for the whole of the 1990s, more slowly than any other G-7 economy. This further limited the ability of the crisis countries to export their way out of their difficulties and had obvious adverse impacts on investor confidence.

Similarly, the weakness of Japanese financial institutions left them little margin for error when their East Asian investments stopped performing. Japanese banks short of capital and required to meet the Basle Standards responded to problems in Thailand and Indonesia by liquidating their assets in other Asian countries, opening another channel for contagion.

Implications

This interpretation of the crisis has five lessons, all closely related to one another. First, large current-account deficits are not benign. Deficits have to be financed, placing a country at the mercy of its creditors. However admirable the uses to which foreign funds are put, the returns need to be balanced against risks in the form of a sudden curtailment of foreign lending and the need to eliminate that deficit overnight. Those of us who live in California appreciate the advantages of earthquake insurance. Policymakers need to similarly appreciate the importance of insuring themselves against financial tremors by avoiding excessive deficits.

Second, how the current account is financed is not a matter of indifference. Dependence on short-term funding, and short-term funding denomi-

26. And before regulators reclassified those assets as nonperforming.

nated in foreign currency in particular, is risky business.²⁷ If investors lose confidence for any reason and hesitate to roll over their short-term claims, the issuer's solvency can be cast into doubt. If those short-term foreign claims are claims on the financial system, macroeconomic stability will be threatened. And if those claims are denominated in foreign currency (or if the exchange rate is pegged), there will little that the government and the central bank can do about it.

Third, banks are a special source of vulnerability. Banks are particularly important in developing countries as a source of financial intermediation services. The securitized markets that are the modern alternative have more demanding information requirements and, historically, are later to develop. This dependence means that banks will be regarded as too big and important to fail. The knowledge that the government stands ready to run to their rescue is in turn a source of moral hazard that encourages excessive foreign funding of domestic banks. This provides a rationale on classic second-best grounds for policies to offset this distortion—for relating bank capital requirements to the source of their funding as well as the riskiness of their loans and more generally for regulating the flow of short-term foreign funds into the banking system. Regrettably, this is precisely the opposite of what Asian governments, seeking to use the banks as instruments of industrial policy and conduits for the transfer of foreign funds, did in the years leading up to their crisis.

Fourth, developing countries, with few exceptions, should move toward greater exchange rate flexibility.²⁸ A more flexible exchange rate gives banks and corporations an incentive to hedge their foreign exposures, which better positions them to cope with financial turbulence if and when it occurs. In Asia, currency depreciation was painful because it came all at once and banks and corporations were unprepared. Had governments allowed the exchange rate to exhibit more flexibility in the period while capital was still flowing in, banks and corporations would have hedged more of their exposure, and the subsequent sharp depreciation would not have been so disruptive. Asia is not evidence that greater exchange rate flexibility is undesirable, but it provides a graphic example of the importance of initiating that transition before problems arise.

Finally, it will not always be possible to prevent or predict financial crises. While investments in crisis prevention have a high payoff, there will be always financial surprises, implying the need for better mechanisms for

27. A corollary is that the absence of an external deficit does not mean the absence of a crisis; past deficits, if financed recklessly, continue to confer that danger long after they have been eliminated.

28. Those few exceptions are smaller, more open economies with strong reasons for wishing to put monetary policy on autopilot. A currency board may be attractive to these exceptional few. But the number of countries for which this alternative is viable is likely to be small. This is a point developed in chapter 7.

containing them. Unfortunately, the two options currently available for responding to crises—extending ever-bigger bailouts and standing aside and letting nature run its course—are equally unacceptable. This is why it is essential to create a third alternative.