

NBER WORKING PAPER SERIES

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SILENT RUNS IN THE ASIAN FINANCIAL CRISIS

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Working Paper 7514
<http://www.nber.org/papers/w7514>

NATIONAL BUREAU OF ECONOMIC RESEARCH
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Cambridge, MA 02138
January 2000

This paper extends and refocuses analysis originally presented in Kane (1998). The author wishes to acknowledge the excellent research assistance of Tara Rice and to thank Pierluigi Balduzzi, Bhagwan Chowdry, and an anonymous referee for helpful comments on previous drafts. The views expressed herein are those of the author and not necessarily those of the National Bureau of Economic Research.

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NBER Working Paper No. 7514
January 2000
JEL No. G2, F3, K2

ABSTRACT

This paper supplies an agency-cost and contestable-markets perspective on the financial policies that triggered the Asian financial crisis. The agency-cost analysis hypothesizes that individual-country regulators knew that politically directed loans had made their banks insolvent, but purposefully gambled that deregulation could allow the insolvent banks to grow their way out of trouble.

The contestable-markets paradigm sets this gamble in the context of offshore innovations in financial technology and regulatory systems that made it progressively easier for worried Asian citizens to move funds to foreign institutions. These perspectives portray the simultaneous breakdown of repressive financial systems as a technology-led victory of market forces over longstanding government efforts to wall out foreign financial competition.

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Furman and Stiglitz (1998, pp. 12) stress that any credible explanation of the East Asian crisis must account simultaneously for the crisis and for the region's precrisis record of growth and stability. Their own explanation (pp. 13-20) roots the crisis in government financial policies and not in the management of foreign-trade regimes, international liquidity, or monetary and fiscal aggregates. Furman and Stiglitz blame East Asian governments for:

1. Undertaking rapid financial and capital-account deregulation without addressing the concomitant need to beef up their supervisory capacity; and
2. Failing to be "aware" of the systemic risk posed by the growing possibility that the massive precrisis inflows of private capital into their countries might fail to earn returns large enough to service the foreign debt being generated.

The explanation tendered in this paper supplies an agency-cost and contestable-markets perspective on these so-called policy mistakes. The agency-cost part of the argument portrays the crisis as the fruit not of blindness, but of time-inconsistent policy gambling. It rejects the hypothesis that East Asian authorities could have truly blinded themselves to the growing vulnerability imposed on their banking systems by booking loans dictated by political pressure at par. Instead, the analysis substitutes the more reasonable hypothesis that authorities had this guilty knowledge and responded to this information myopically by gambling that deregulation would enable their insolvent banks to grow their way out of trouble. The operative strategy had two components: helping to cover up the losses imbedded in bank loan portfolios and enabling their banks to compete more aggressively for domestic savings and foreign funds.

The regulatory-gambling model treats the decision to poorly supervise financial and capital-account liberalization as a purposeful rather than inadvertent move.

Regulators and politicians hoped to preserve the rents earned in the past by directing cheap loans to politically powerful parties and sectors. These hopes were encouraged by high precrisis rates of economic growth and by the obvious difficulty of establishing the purposefulness of their scheme if the strategy failed.

The contestable-markets part of the story sets this gamble in the context of the increasing globalization of financial-services competition. Year by year, offshore innovations in financial technology and regulatory systems have been expanding opportunities and lowering the costs for worried Asian citizens to move their wealth into foreign institutions. Viewed from this Schumpeterian perspective, the successive breakdown in the financial systems of the five Asian crisis countries was less a matter of Kindleberger-Minsky "psychological contagion" than the simultaneous destruction of longstanding government efforts to wall out foreign competition. Advances in information and contracting technology made it easier for foreign firms to surmount barriers to entry in distant markets at the same time that improvements in Western regulatory systems made offshore institutions seem safer to Asian citizens than ever before.

I. Precrisis and Postcrisis Movements of Capital

Beginning in mid-1997, five East Asian countries lapsed into severe financial crisis: Indonesia, Malaysia, the Philippines, South Korea and Thailand. The crises centered both on the value of these countries' currencies and on the solvency of their banking systems (Barth *et al.*, 1998; Garcia, 1998; Schwartz, 1998).

Figure One tracks the relative value in U.S. dollars of each country's currency from April 1, 1997 to April 30, 1999. In all five crisis countries, the period of sharp decline ended by February, 1998. The period of free fall was longest and deepest in Indonesia, which was the only country to experience a political crisis as well. In all countries, currency values have strengthened since early 1998. As with the fall, the recovery has been rockiest in Indonesia, where political uncertainties remain strong. As Mei (1999) documents, political instability makes financial stability hard to maintain.

Malaysia stabilized its currency by imposing controls on capital movements. The other four countries negotiated a series of assistance agreements with international

lending institutions and particular foreign countries. The sources and size of outside assistance are summarized in Table 1. For a country undergoing crisis, the availability of outside aid is largely conditioned on its promise to maintain convertibility, to reform domestic financial regulation, and to strengthen its insolvent banks.

Many observers attribute the precrisis strength and sharp mid-1997 decline observed in East Asian currency values to fluctuations in external short-term capital movements, particularly to capital flows presumed to have been initiated by foreign banks (e.g., Rodrik and Velasco, 1999; Mayer, 1998). Table 2 shows that U.S., Canadian, European, and Japanese banks increased their holdings of crisis-country debt by \$74 billion between yearend 1995 and midyear 1997 and went on to reduce their aggregate position by \$112 billion from this peak. The overall amount of this outflow corresponds almost dollar-for-dollar with the amount of international assistance reported for crisis countries in Table 1. Given the conditions that accompanied the outside aid, the similarity of these two magnitudes supports the cynical hypothesis that international crisis assistance has more to do with helping foreign banks than helping the citizens of crisis countries.

Figure Two shows that Japanese banks (who have themselves been in continual crisis since the early 1990s) amassed the biggest positions and have so far beaten the strongest retreat. The continued insolvency of major Japanese banks suggests that banking policies and conditions in Japan may have contributed to the crisis by creating incentives for Japanese bankers to book extraordinarily high-risk loans at home and abroad (Kane, 1993). Figure Two shows that, even at yearend 1998, the exposure of Japanese banks in Indonesia, South Korea, and Thailand remained high.

The expansion of foreign lending by Japanese banks in crisis countries was bound to squeeze the profit margins of local banks. Local profit margins and economic net-worth were further and steadily undermined by longstanding political pressure for banks to make subsidized loans to selected economic sectors. To restore industry profit margins to a sustainable level, insolvent institutions had to be closed or absorbed into stronger enterprises. Table 3 summarizes the extent of insolvency-resolution activity in the four largest crisis countries during the first nine months of the crisis. By the time exchange rates stabilized, more than half of Thai banks and about a third of Korean and Indonesian

banks had been resolved. In contrast, Malaysia failed to move its program for industry restructuring beyond the planning stage.

The character of banking regulation in any given country is influenced by bureaucratic structures (Wall and Eisenbeis, 1999) and information asymmetries that foster incentive conflict in regulatory decisionmaking. The spread of banking insolvency creates bad incentives not just for bankers, but also for their regulators (Kane, 1998). Regulators come under strong political and career pressure to take actions that extend implicit guarantees to depositors, guarantees that effectively destroy coverage limits that may be formally imbedded in explicit deposit-insurance contracts.

Because Japanese regulators were slow to resolve banking insolvencies at home, Japanese banks may well have initiated disruptive capital inflows into and out of the crisis countries. However, the paper argues that the precrisis expansion of East Asian debt at European and North American banks may more reasonably be attributed to efforts by residents of the crisis countries to protect themselves from the unacknowledged, but growing insolvency of their domestic banking systems.

Section II explains how sectoral political pressures create incentive conflicts that tempt regulators to adopt policies that generate short-term macroeconomic growth and specific sectoral subsidies at the risk of increasing the likelihood and probable depth of a future banking crisis. Section III explains that the precrisis pattern of regulation adopted in crisis countries was bound to lead to growing bank insolvencies and escalating silent runs. Section IV lays out a general model of the life cycle of a regulation-induced banking crisis. Section V expands the model to provide a role for international competition in regulatory services and shows how regulatory competition can facilitate the development of silent runs on an insolvent banking system. Section VI applies the model to explain the stylized facts of the Asian case. Section VII summarizes the argument and offers some policy advice to the IMF and World Bank.

II. Distortionary Effects of Politically Determined Patterns of Financial Regulation and the Macroeconomy

From a macroeconomic point of view, financial activity collects and allocates aggregate savings. The more efficiently financial institutions accomplish these twin tasks, the higher a country's rate of investment and the more robust is the value of the

capital stock put into place. Conversely, poor financial performance wastes savings by supporting projects for which the subpar returns owners realize upon completion cause the value of the capital stock to decline below its cost of production.

Erecting an array of buildings whose rents can barely begin to service their mortgage debt represents a classic case of bank-facilitated misinvestment. The local economy speeds up during the building stage and slackens when the rents prove inadequate to earn profit for the owners. The ability of individual bankers to challenge borrower projections is often in short supply in developing countries and may be nullified by perverse incentives conveyed by inappropriate financial regulation.

This paper conceives of financial regulation as banking policy: efforts to monitor and influence what bankers do and who bears the consequences of actual and potential bank losses. This simplification means that the analysis applies most directly to countries where banks finance the major portion of a nation's real investment. In such countries, the unreliability of public information simultaneously restrains the expansion of domestic bond and stock markets and taxpayers' ability to hold officials accountable for the adverse consequences of the banking policies they follow.

From a political-economy point of view, banking regulation is a service that produces private and social benefits and generates private and social costs. The benefits lie in three realms: improvements in customer confidence, improvements in customer convenience, and assistance or resistance to bank efforts to accumulate and exercise market power. These regulatory benefits flow in different proportions to different individuals and to different economic sectors.

Because banking regulation is costly to produce, it is possible for authorities to produce it more or less efficiently. Even if the costs of regulation are minimized, the burden of financing these costs must be allocated across society. The present discounted value of the difference between the benefits a sector receives from bank regulation and the costs that banking regulation imposes on that sector may be defined as the sector's net regulatory benefit from banking policy, NRB.

In lobbying for favorable banking policies, we assume that individuals organize themselves by economic interests into n sectors. Competition with other sectors consists of capturing regulatory benefits and shifting the costs of financing these benefits to

parties located in other sectors. We assume that members of every sector seek self-interestedly to push their own NRB as high as they can, irrespective of whether the resulting pattern of regulation may be expected to undermine regulatory efficiency or to have unfavorable long-run macroeconomic effects.

Social controls on the job performance of government regulators responsible for protecting the safety and soundness of financial institutions differ between developed and developing countries. Although institutional mechanisms for promoting politically determined loans differ between these types of countries, poor information flows and incentive conflict in government policymaking lie at the heart of banking crises.

In developed and developing countries alike, financial regulators subject foreign banks and the foreign operations of domestic banks to patterns of regulation that differ importantly from those that apply to strictly domestic banking operations. The consequences of two particular asymmetries are most relevant to the Asian Crisis. First, most developed countries are willing to allow their domestic banks to book a wider range of risks in foreign subsidiaries than they are prepared to tolerate in home-country offices. This is because relationships with internationally active customers are a geographically footloose part of the banking business and because politicians don't expect to confront responsibility for foreign banking losses in domestic political arenas. This creates incentives for offshore banks to "overlend" in foreign markets. Second, barriers to the entry of foreign financial firms into local banking markets customarily exist, but in recent years officials both in developed regions and in many developing countries have been persuaded --by technological change and appropriate side payments-- to relax these barriers (Claessens, Demirgüç-Kunt, and Huizenga, 1997).

III. Banking Subsidies and Silent Runs

Banking environments and patterns of banking regulation vary greatly from country to country. Nevertheless, three strategic elements characterize the banking policies of almost every country in the world today:

1. Politically-Directed Subsidies to Selected Bank Borrowers: The policy framework either requires or rewards banks for making credit available to designated classes of borrowers at a subsidized interest rate;

2. Subsidies to Bank Risk-Taking: The policy framework commits government officials to providing on subsidized terms either explicit or conjectural guarantees to holders of bank liabilities;
3. Defective Monitoring and Control of the Subsidies: The contracting and reporting framework for government officials fails to make them directly accountable for controlling the size of either subsidy.

Taken together, the first two elements in the strategy are standard elements of rent-seeking theory. They explain how short-horized authorities can allow banks to snatch wealth surreptitiously from taxpayers and simultaneously require loan officers to pass some or all of the wealth that is snatched to a politically designated set of favored borrowers. The third element is a new wrinkle emphasized here. It explains what prevents taxpayers from monitoring the joint cost of the first two strategies and from disciplining excess transfers in timely fashion through political action or parliamentary review. Creating an enforceable obligation for regulators to report truthfully to taxpayers and watchdog institutions the size of the dual subsidies would make authorities accountable for explaining whether and how taxpayer benefits generated indirectly by these subsidies might be said to justify the costs that they pass through to taxpayers.

Without side payments from the sectors that receive net benefits, it would be unlikely that a growing flow of subsidies could prove incentive-compatible for top government officials even for short periods. To enlist high-ranking regulators into the benefit-redistribution game, two further conditions must hold. First, taxpayers must be kept from convincingly assessing by indirect means the magnitude of the costs they face in funding the subsidies. Second, regulators themselves must be able to extract laundered incentive compensation from banks and borrowers. Moreover, the compensation offered must be sufficient to balance the risk of damage to the reputations of policymakers and the regulatory bureaus they head if, during their watch on the bridge, the system for covertly financing the subsidy were to break down.

Contradictory policy regimes may be portrayed as accidents waiting to happen. A banking crisis occurs when a sufficient amount of bad luck hits a banking system whose managers have made their institutions vulnerable to this amount and type of bad luck.

Formally, the odds of experiencing a bureaucratic breakdown in a financial system's intersectoral cost-shifting process may be modeled as an evolutionary binomial process. We call the two states: continuation and breakdown. The probability of breakdown, p , rises with the extent to which government guarantees (G) are not supported by dedicated reserves. This reserve shortfall corresponds to the cumulative size of taxpayers' hidden responsibility for making good on unfunded guarantees of bank liabilities (T). T may also be interpreted as an index of system fragility (F). When and as T becomes substantial, p also rises with the informativeness of the accounting principles that are in use in a given country (A):

$$p=p[T(F);A] . \quad (1)$$

In any accounting system, the very act of making a subsidized (i.e., below-market) loan creates an unbooked loss for banks. This overvaluation may be conceived as "sabotaging" the reliability of the asset and net-worth values recorded on conventional bank balance sheets. The damage from value-sabotaged lending is monitored by financially sophisticated parties but only begins to become visible to taxpayers when and as the amount of government-directed loans looms larger and larger on bank balance sheets and as shortfalls emerge in the cash flows realized from the maturing investment projects from which the subsidized bank loans must be serviced.

A bank's enterprise-contributed net worth (NW_E) represents the value that the owners could get for the bank if government deposit guarantees did not exist. Sooner or later, savvy large-denomination depositors come to appreciate the unreported hole that value-sabotaged loans imbed in accounting approximations to the opportunity-cost value of their banks' NW_E . As a bank's NW_E declines through zero, it becomes a "zombie" institution. A zombie is an insolvent institution whose ability to renew its deposit funding and its foreign debt depends entirely on the continuing credibility of the explicit and implicit government guarantees that the government's banking policies attach to its obligations. As long as the government guarantees remain credible, its creditors have little reason to force the zombie into a corporate grave.

Systemwide fragility F increases politically with the number of zombies (Z) and economically with the aggregate size of their negative NW_E :

$$F = F[Z, \sum_{j=1}^Z NW_E(j)]. \quad (2)$$

The more zombies there are in play, the more cohesively the industry may be expected to lobby against insolvency resolution. The larger accumulated opportunity-cost losses become, the larger unbooked government debt with which fiscal authorities must contend. What we may call a “silent run” begins not when a bank becomes a zombie, but when the accumulated implicit fiscal deficit from the government’s unbooked loss exposure in zombie banks begins to scare large-denomination depositors. As more and more depositors and investors rationally begin to doubt whether officials can or will continue to support its existence, the silent run on a country’s banking system gathers steam.

Doubts about a government’s willingness or capacity to make taxpayers absorb the unfunded cost of guaranteeing the country’s zombie banks are a function of T. The triggering condition is that the aggregate guarantees G soars so far above dedicated reserves that taxpayer resistance is expected to develop. This political resistance threatens the survivability of the incumbent government and promises to undermine its ability to raise the funds needed to pay the bill T(F) in full. We describe runs by sophisticated large depositors as silent because pressure on a troubled bank from sophisticated large depositors generates far less adverse publicity than a line of panicked small depositors does when a bank is experiencing a conventional run.

What a silent run does generate is a growing increase in each zombie bank’s funding costs. In developing countries, a zombie bank’s first line of defense against a silent run is typically to arrange loans from relatively well-informed foreign banks. Like the sophisticated depositors that zombie bankers manage to retain, foreign banks demand higher interest rates and increased collateralization for their claims. The net outflows of domestic deposits that zombie banks experience are financed by a combination of selected asset sales and high-rate new debt. In consciously deciding to finance a silent run, foreign banks may feel confident that (as in Mexico in 1994) they can successfully lobby the IMF, their host government, and their home governments to protect them against defaults on their holdings of the debt of host-country banks. Foreign banks may

also find it advantageous to speculate against the currency in offshore derivatives markets.

Unless and until bank regulators take steps to increase the credibility of their guarantee system (e.g., by establishing a substantial line of credit with the International Monetary Fund), a silent run on a nation's banking system tends to escalate. This is because zombie banks' asset sales and funding-cost increases make the fragility of the zombies' condition visible to more and more outside observers by causing a deterioration in the accounting values of income and net worth. When a zombie bank sells assets at market value, its unbooked losses on subsidized loans become a larger proportion of its footings. The more liabilities that a zombie bank rolls over at increased interest rates, the more severely its accounting and economic profits and those of its healthier competitors are squeezed.

A silent run increases pressure on regulators to acknowledge that zombie banks are benefiting from deposit insurance and other less-formal government guarantees in ways that stronger banks and general taxpayers must eventually help to pay for. As this realization spreads, it progressively undermines the willingness of taxpayers and stronger banks to tolerate the regulatory status quo. As a silent run unfolds, reduced profit margins spread insolvency to previously sound banks and disturbing information is revealed about the size of T(F). As the run proceeds, net regulatory burdens diverge more and more drastically between zombie and nonzombie banks. The transfer of benefits to zombies from taxpayers and viable banks becomes progressively greater the longer a silent run proceeds. Regulatory efforts to retard the exit of inefficient and insolvent deposit institutions lower the profit margins that strong banks can earn on borrowed funds and push their prospective costs for funding the government's guarantee services above the value of the guarantees that the strong institutions receive.

Our theory of the Asian Crisis may be contrasted with that of authors such as Chang and Velasco (1998) who locate the trigger for the crisis directly in a growing mismatch in the maturity of a country's international assets and liabilities. In our theory, the imbalance in maturity is intensified by insolvency-driven silent runs. A surge in short-term capital inflows is triggered by foreign lenders' increasing concern for being able to unwind the positions they establish in economically insolvent Asian banks. The

short-funding that troubled banks accept can be sustained only as long as their government's guarantees remain highly credible.

Using data specific to the U.S. savings-and-loan insurance mess, Kane and Yu (1995) show how the precrisis evolution of T can be estimated and separated from imbalances in liquidity *per se*. A straightforward testable implication of our safety-net breakdown theory is that financial crises are improbable in countries (such as Singapore and Taiwan) whose banks are short-funded but whose banking regulators keep unbooked taxpayer loss exposures (T) small. Tornell (1999) presents data that accord with this presumption.

Figure Three breaks the evolution of what we may call a regulation-induced banking crisis into six stages. The banking crises that have rolled through Japan, Korea, the Philippines, Malaysia, Indonesia, and Thailand in recent years illustrate the first three and one-half stages of this model. Authorities resist moving beyond stage 4A unless several efforts at partial recapitalization have resulted in renewed crisis. In recent years, only a few crises have passed beyond stage 4A. However, events in the U.S. and Argentina during the 1990s illustrate some of the later stages of this life-cycle.

Rolling and incompletely resolved crises in other countries prior to 1997 taught sophisticated Asian depositors and taxpayers at least three lessons. First, the frequency and geographic extent of banking crises convincingly demonstrated that, around the world, numerous banks had found it reasonable to book potentially ruinous risks. Looking at the period 1977-1995, Caprio and Klingebiel (1996) cite 58 countries in which the net worth of the banking system was almost or entirely eliminated. Second, in country after country, domestic (and sometimes foreign) taxpayers had been billed to bail out banks, depositors, and deposit-insurance funds. Caprio and Klingebiel report that taxpayers' bill for making good on implicit and explicit guarantees typically ran between 1 and 10 percent of GDP. The size of these bailouts established that bankers had often managed to shift a substantial amount of bank risk to taxpayers. Finally, authorities deserved substantial blame for the size of the bills taxpayers had been asked to pay. Officials actively encouraged loss-causing patterns of credit allocation and compounded the damage from credit losses by not resolving individual-bank insolvencies until their situations had deteriorated disastrously. The extent of the losses indicated how

dangerous it was to let politically corrupted risk-taking preferences of high government officials strongly influence the flow of aggregate investment.

IV. Asset Prices and Currency Crisis

For any policymaker, a crisis may be described as a time of upheaval that generates strong pressure for decisive changes in policy strategy. A country's currency undergoes a crisis when foreign and domestic holders of wealth seek to reduce holdings of assets denominated in the target currency and to sell target-currency assets short. A currency crisis inevitably tests the solvency of a country's banks because bank deposits typically form the main portion of liquid assets that are denominated in a country's currency.

It is instructive to frame the evolution of economic crises as resulting in a lagged fashion from a dialectical collision of contradictory forces:

THESIS: UNSUSTAINABLE POLICY MIX

- Expansionary Fiscal Effects of Unbooked Subsidies to Banks vs. Capacity of Reserves to Support Relatively Fixed Exchange Rates (Krugman, 1979)
- Loss-Causing Credit-Allocation Scheme (“government-sabotaged loans”) vs. Poorly Funded Government Guarantees of Bank Liabilities (Dooley, 1997; Kane, 1998)

ANTITHESIS: MARKET DISCIPLINE TESTS GOVERNMENT PROMISES TO SUPPORT EXCHANGE RATE AND BANKING SYSTEM LIABILITIES

- In a Currency Crisis, the Market Test = a Bear Raid
- In a Banking Crisis, the Market Test = a Silent Run or Flight to Quality

SYNTHESIS: CRISIS ARISES WHEN AUTHORITIES LOSE THEIR NERVE AND CREATE SERIOUS DOUBTS ABOUT THEIR WILLINGNESS TO MAINTAIN THE CONTRADICTIONS IN MACROECONOMIC OR BANKING POLICIES.

- Rent seeking is bound to impart to the new policy mix contradictory elements that will conflict with market forces in new ways.

- The probability of crisis rises the longer an unsustainable policy mix stays in place.

The appropriate policy response to currency crisis pressures depends on the nature of the prior contradictions in government or business policy that occasioned the crisis. A particular issue is how extensively the observable run on the currency is compounded --or even occasioned-- by falling prices for risky financial assets. Asset-price meltdowns are most likely to occur when incentives for overlending by offshore zombie banks (e.g., those of Japan) confront a host-country policy regime that offers incentives for overborrowing at domestic firms. In such cases, pressure on asset prices is apt to generate a crisis-intensifying run from claims issued by insolvent domestic corporations and commercial banks.

In the Krugman (1979) model of currency crisis, authorities accommodate explicit domestic overspending by financing a series of unsustainable current-account deficits which draws down the country's foreign-exchange reserves and foreign lines of credit. In such a crisis, central-bank reserves may be rebuilt by shrinking the current-account deficit by allowing the exchange rate to decline and by tightening fiscal and monetary policy.

In the five Asian crisis countries, government overspending was mostly implicit and current-account deficits proved unsustainable because they supported a malinvested transfer of foreign private capital. As long as foreign-initiated capital inflows persisted, the current account had to accommodate the transfer of enough real resources to absorb them. Table 2 shows that a good portion of the precrisis capital inflow took the form of lending by risk-hungry zombie banks from Japan.

In the five crisis countries, besides supporting domestic investment, capital inflows in 1994-1996 financed any depositors who wanted to flee zombie banks and permitted foreign-exchange reserves to increase by over \$35 billion (Institute of International Finance, 1998). Recipient countries ran current-account deficits to absorb these capital inflows and suffered a substantial decline in investment spending when the inflows stopped. Using even the crudest model of aggregate demand, this interruption in resources looking to finance domestic investment projects implied a sizable recession. During this recession, capital and labor had to move out of inefficient activities

(including many of the projects previously subsidized by politically driven schemes for allocating credit) and into efficient ones. The resulting asset revaluations revealed and accentuated hidden losses and deepened the insolvencies of the region's zombie institutions.

It is painful to resolve corporate and banking insolvencies in the midst of a recession. In crisis circumstances, politicians are strongly tempted to reflate demand and either impose strict capital controls (as in Malaysia) or to direct foreign bailout funds to strengthening the resources of the government's system for guaranteeing zombie lending institutions, without doing much to resolve the continuing incentive distortions that undermined banking-system insolvency in the first place. Nevertheless, the gambles made by Japanese authorities support the hypothesis that leaving bank and corporate insolvencies unresolved fosters incentives for further malinvestment and enhances the likelihood that an even deeper crisis will emerge down the line.

The policy mistakes that reversed the 1994-1996 capital inflows were made in the financial, corporate, and government-planning sectors that allowed rent seekers to determine how most of the resources transferred from abroad would be used in each country. It is because these capital inflows were not invested at a satisfactory real rate of return that asset values and bank net worth now have to be written down in recipient countries. Had increasing government loss exposures been financed by taxes and private real asset values either been sustained by an appropriate expansion in productive capacity or written down promptly as unfavorable information surfaced, large-denomination depositors and other prior investors in recipient-country assets would have had no reason to run recipient-country currencies.

V. The Two-Stage Globalization of Regulatory Competition¹

Contemporary theories of industrial organization seek to explain how a product's market structure evolves through time to permit *efficient firms* to discipline or displace relatively less-efficient competitors. The force of these theories is particularly easy to grasp when we focus on hypothetical markets that meet a set of ideal conditions that Baumol, Panzar, and Willig (1986) call "perfect contestability."

¹ This section draws heavily on Kane (1991).

A market is perfectly contestable when entry and exit costs are each zero *and* incumbent firms exit quickly whenever they find themselves faced with negative profits. In perfectly contestable markets, low-cost firms readily displace high-cost firms and incumbent competitors are prevented from setting monopoly prices by the threat of hit-and-run entry by other equally-efficient firms.

This paper deploys an imperfectly contestable-markets perspective on market-structure change to discern two stages of financial deregulation in Asia and elsewhere. The first stage takes the form of de facto deregulation of entry barriers by market forces. The second stage consist of subsequent de jure ratification and regularization of market developments by the financial regulatory establishment.

During the last 30 years, technological change has made banking and other formal and informal financial markets increasingly more contestable. This brought clients that were regulated by regulators from other countries and from other domestic jurisdictions into increasing competition with one another. The second stage of deregulation followed when and as this mutual invasion of traditional markets put increasing pressure on specialized incumbent regulators to re-examine the burdensomeness of their rules.

First Stage: De Facto Market Deregulation

For several decades and particularly in corporate banking markets around the world, technological change steadily lowered entry costs for foreign and non-traditional competitors. Initially, the more-cautious foreign and nontraditional financial firms booked their market-share incursions in innovative ways. They did banking business by making creative use of substitute products, substitute organizational forms, and substitute offshore locations. In most countries, a new entrant's ability to use differently regulated substitute opportunities was facilitated by longstanding and burdensome restrictions on how traditional deposit institutions could compete domestically.

Second Stage: De Jure Ratification and Reregularization of Market-Driven Deregulation

The second stage occurred when regulators officially acquiesced in this innovative entry by foreign and non-traditional firms and went on to relax many of the restraints under which their traditional clients had previously operated. As banks' aggregate market share shrank, they pressed politically for their traditional domestic regulators to relax or jettison their most burdensome regulations. At the same time,

foreign and non-traditional entrants into a country's banking markets pressed authorities to offer them charters that could regularize and reduce the circumvention costs occasioned by their creative de facto incursion into that country's banking markets. In Asia and elsewhere, authorities' positive response to these political pressures during the 1980s and 1990s has been labeled *financial deregulation*.

Around the world, governmental and market deregulation has been greater for wholesale and private banking markets than for retail ones. Moreover, the word deregulation is in any case a *misnomer* for the detailed pattern of second-stage or "regularizing" regulatory adjustments that followed. In many countries a deregulation of entry costs was combined with lags in imposing adequate prudential supervision that amounted to a far-from-deregulatory accentuation of regulatory barriers to exit for insolvent domestic deposit-institution competitors. Using the contestable-markets paradigm of market-structure change makes it clear that banking deregulation in most countries initially occurred only on the entry side and that subsequent regulatory efforts to resist the exit of at least some classes of traditional domestic competitors foreshortened some of the increased contestability in specific banking markets that entry relaxation would otherwise have produced. Banking regulators have lowered regulatory entry costs almost to zero, but in adopting or strengthening domestic guarantee systems, many countries turned around and raised incumbent exit barriers thereafter.

It is important to understand that incumbent banks' ability and willingness to run negative profits are a form of exit costs. Exit costs limit a new entrant's ability to penetrate a market. By resisting the exit of its unprofitable clients, a regulator can prevent efficient competitors from being able to earn enough profits to sustain permanent entry. As foreign and nontraditional financial-services competitors have come to appreciate the importance of regulator-financed exit costs in many countries, they have slowed their rate of entry into new banking markets and even reversed some of their past entry.

VI. How Regulatory Competition Influenced the Asian Banking Crises

What Diaz-Alejandro (1985) and the press describe as a "banking crisis" may be more accurately characterized as the surfacing of tensions caused by the continuing

efforts of zombie banks to force the rest of society to accept responsibility for the zombies' unpaid bills for making bad loans. In the five Asian countries, longstanding systems for subsidizing inefficient loans to favored individuals imposed unbooked losses on their banking systems. These situations lasted for years. They turned into banking and currency crises only when doubts began to surface about authorities' willingness and ability to bond the growing liabilities of an economically insolvent banking system. As in the U.S. savings-and-loan mess, crisis pressures were triggered in the face of silent runs by regulatory second thoughts about the wisdom of asking taxpayers to pay the full value of conjectural government guarantees.

Around the world, financial institutions and markets and concomitant regulatory systems show numerous country-specific features (Wilson, 1986; Germides *et al.*, 1991). Differences in patterns of financial regulation parallel differences that exist in the particular economic, political, and bureaucratic deficiencies and inefficiencies that regulation is overtly or covertly expected to correct (Kane, 1999).

However, the survival of differences in regulatory patterns is limited by the tendency of private capital and loan-making opportunities to flow to markets and institutions that offer their customers the best deals. The extent to which net regulatory burdens on financial markets and institutions differ across countries is narrowed by the regulatory arbitrage this deal-flow entails. When and as technological change in information processing and telecommunications lowers the cost of transacting with foreign entities, adverse flows of capital and financial deals should help to persuade a nation's authorities to lower the net burdens that their regulatory framework imposes on the savers, investors, and financial intermediaries that transact in its financial markets.

In recent years, the increased frequency of banking and currency crises traces to two events. First, advances in information and communications technology have globalized banking markets and the market for government guarantees. Second, globalization of markets for banking and guarantee services has made it less costly for domestic corporations and wealthy investors to mount silent runs on a country's zombie banks.

When banking markets are globalized, services that provide regulatory benefits to bank customers are available from foreign as well as domestic suppliers. The greater is

customer access to foreign suppliers, the more easily the struggle for net regulatory benefits in one country can spill outside its national boundaries to involve foreign banks and their home-country suppliers of financial regulation.

The market for regulatory services may be defined as a body of persons that carry on extensive transactions in the specific activity of promulgating, enforcing, and accepting regulatory restrictions. Demand-side adjustments exist in this market because the jurisdictions of individual suppliers are fixed only in the very short run. As a regulatee's horizon lengthens, the voluntariness of its relationships with regulators rises steadily. Switching becomes optimal over any horizon for which the increase in a regulatee's NRB is large enough to overcome the transactions cost of transferring all or part of its regulatory business to a more favorable supplier. Geographic overlaps in the global market for financial regulatory services have expanded as the costs of entering and exiting banking markets have declined around the world. Ongoing downward trends in these entry and exit costs render the margin of regulatory competition --even in developing countries-- increasingly global.

Because regulation is supplied competitively and accepted voluntarily, rules and enforcement systems are continually tested and reshaped by market discipline. Nevertheless, switching costs make the contestability of regulatory markets inherently imperfect. An individual regulatory entity has market power to the extent it can lower the net benefits its operations offer without immediately surrendering its entire market share. Because the market discipline to which labor, capital, and political markets subject individual regulatory officials (including elected politicians) is less than complete, this market power can be used to develop personal and bureaucratic benefits.

The perfectibility of regulatory competition is limited by information asymmetries and other sources of principal-agent conflict inherent in governmental processes. Taxpayers' social contract with governmental entities invests top officials with quasi-monopolistic coercive powers. Although taxpayers want government officials to exercise these powers to promote the "common good," officials may convincingly misrepresent the effects and purposes of their policies. It is not easy for citizens to ascertain the true motives of policymakers or to document side payments that officials choose to conceal.

Even when events turn up evidence that favors were received, it is difficult to prove intent and the political system tends to defend the policies in question.

Regulatory competition provides an economic check on the fairness and efficiency of sectoral NRBs. On the demand side, competition encourages parties that feel overburdened by their government's system of regulation to remedy matters by incurring the switching costs necessary to move their business to the jurisdiction of a cheaper supplier of regulatory services. The new supplier may be a private organization, but is more often a foreign government. Technological trends that lower the switching costs of changing one's regulatory supplier make the demand-side check ever more complete.

On the supply side, the costs to a supplier of entering and exiting a new financial market are substantial. The existence of these costs means that the number of potential new entrants that can economically supply regulatory services to banks in any country is limited in the short run. For private regulators, entry into new markets is limited by the costs of building up sufficient public standing and coercive authority to be perceived as a reliable supplier of regulatory services. Would-be entrants need demonstrable skills and reputational capital. Successful entry into any regulatory market requires both a capacity for raising and distributing funds and a capacity for exercising disciplinary power. An entrant must be able to enforce a system of rewards and punishments sufficient to change the behavior of potential regulatees. Every entrant must be able to promise credibly that it can fairly and truly regulate and is committed to doing this for a long while.

Exploitive regulation drives sophisticated depositors, borrowers, and other bank stakeholders to book at least some of their business elsewhere: either abroad or in informal and differently regulated domestic markets. These acts of regulatory arbitrage limit the extent to which markets will tolerate a vector of regulatory burdens that deviates from its optimal long-run path composition. Authorities in countries such as Singapore and Taiwan that aspire to become international financial centers --and indeed in any country whose political environment supports a reasonably long decisionmaking horizon—appear to have grasped this long ago.

The 1997-1998 crises in Korea, Indonesia, Malaysia, the Philippines, and Thailand were hastened by the continuing technologically driven passage in these

countries to a more-globalized market structure in which large depositors could shop for ways to protect themselves against the burdens of unsustainably costly patterns of financial regulation. Globalization put the costs and benefits of host-country banking regulation into closer competition with the Basle-enhanced regulatory systems of offshore financial centers.

Offshore banking competition shortened the crisis-gestation period in two ways. First, even limited entry by outside banks expanded the stock of well-priced domestically available substitutes for deposits that local citizens had previously held in host-country banks. This lowered the cost to Asian depositors of participating in a silent run on local banks. Second, the greater safety of foreign-bank deposit substitutes reflects the greater economic efficiency of the (albeit still-imperfect) performance guarantees written for each offshore entrant by the regulatory systems of its homeland.

Each new crisis constitutes an exit cost that society pays to shrink the domain of a high-cost or inequitable regulator. Crises are triggered by efforts to avoid the inefficiencies and inequities that political maneuvering tends to produce when a government enjoys monopoly power in its domestic “onshore” market for regulatory services. By squeezing the equilibrium rents that short-sighted or corruptible officials can extract in individual countries, offshore regulatory competition has the salutary effect of creating pressure to discipline inefficient regulators and perhaps even to improve public-service contracting in the longer run.

In a perfect world, the normative goal of financial reform would be to induce fair and efficient patterns of regulation and supervision. Regulators should be made accountable not just for producing a stable financial economy, but for providing this stability fairly and at minimum cost to society. In practice, this means establishing incentives that lead authorities to adopt market-mimicking standards of regulatory performance. In the absence of explicit or implicit government guarantees, markets would insist that any bank that experiences opportunity-cost losses do one or more of three things: shrink, raise more capital, or pay higher interest rates for funds. The public-policy problem is to find efficient ways to make it in regulators’ self-interest to invoke “market-mimicking” disciplines when and as a country’s important institutions weaken.

VII. Summary and Policy Implications

This paper seeks to establish a cohesive microeconomic perspective on the financial crises experienced in Asia during 1997-98. The model offered emphasizes how distortions created by faulty banking regulation affect capital allocation, asset prices, and bank solvency. The analysis combines four ideas:

1. Regulatory distortions create ex-ante incentives for capital misallocation. Government guarantees cause banks to allocate capital to unsustainably risky projects that could be financed only at much higher interest rates if government guarantees did not exist. Politically directed credit subsidies put too much capital into favored sectors and too little capital elsewhere.
2. When politically directed loans are made at below-market interest rates, an unbooked opportunity loss is incurred by the lending bank. Government deposit guarantees cannot credibly cover continued growth in these unbooked losses indefinitely without incident. From time to time, a government's ability and willingness to bail out its insolvent banks is bound to be tested by silent runs. A crisis occurs when the accumulated size of banks' opportunity losses becomes both too big to hide and too big to cover over with budget gimmickry.
3. The entry of foreign and better-regulated banks into the domestic market tends to accelerate the demise of insolvent domestic banks. Savers silently shift funds towards foreign banks. Foreign banks, free of credit-allocation pressure, pick off the best customer relationships and new investment projects in the economy.
4. Domestic asset prices fall as the true value of the capital stock is revealed. The decline is reinforced macroeconomically as investment is curtailed and the formerly subsidized domestic firms are denied access to new credit. The losses filter through domestic-bank balance sheets, forcing the banks to realize market-value losses and households to reduce their spending.

Our analysis treats runs on the currencies of crisis countries as insolvency-revealing runs on their banks. Although IMF officials were quick to assist in stabilizing troubled currencies, they found it much harder to address the banking side of each crisis.

The contradictions in regulatory policies that made banks insolvent were too well supported politically to be corrected swiftly.

IMF officials understand that strengthening bank supervision is a critical part of crisis resolution. But the IMF's own political vulnerability supports a reluctance to publicize the particular incentive structures that made a crisis country's supervision weak in the first place. In a crisis atmosphere, it is apt to seem politically destabilizing for the IMF to stress the need for public-service contracting reforms and information-disclosure regimes for banks and regulators that would be strong enough to make tougher supervision in an incentive-conflicted regulator's self-interest.

Still, for any country, the size of sustainable deviations from a fair and efficient distribution of net regulatory burdens falls with declines in the opportunity costs its citizens face in engaging in capital flight. In turn, the net benefit to individuals of engaging in capital flight increases with advances in information technology, with the volatility of the real economy, and with the fluidity of the political environment. Recognizing this creates incentives for the World Bank and the International Monetary Fund to improve the quality of their policy advice in the future. Allan Meltzer (e.g., 1998) has long emphasized that, to avoid subsidizing insolvent banks, IMF loans to crisis countries should be made only to demonstrably solvent banks on good collateral and only at a penalty rate. International institutions might also undertake research to clarify for authorities in developing countries that the global information revolution has unleashed market forces that make it short-sighted to adopt credit-allocation schemes that are bound to decapitalize their banks and increasingly difficult to ask their taxpayers to subsidize weak banks and uneconomic enterprises. Finally, international institutions could reinforce this advice by fostering the development of information-revealing private markets in credit derivatives whose payoffs would be conditioned on the occurrence of observable default events in various developing countries.

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Table 1
Assistance Offered Crisis Countries by the International Community
(in billions of U.S. \$)

Country	Commitments			Total	IMF
	IMF	Multilateral*	Bilateral		Disbursements As of 6/9/99
Indonesia	11.2	10.0	21.1	42.3	9.5
Korea	21.1	14.2	23.1	58.4	19.4
Philippines [†]	1.6 [†]	0	0	1.6 [†]	1.6 [†]
Thailand	4.0	2.7	10.5	17.2	3.2
Total	37.9	26.9	54.7	119.5	33.7

Notes: * World Bank and Asian Development Bank.

[†] As of yearend 1998.

Source: These data were graciously provided by Gillian Garcia of the IMF. They update a table published in Garcia (1998), p. 27.

Table 2**International Claims of BIS Reporting Banks on Countries outside
the Reporting Area (in millions U.S. \$)****End-December 1995** **Claims by Banks in Country:**

	Japan	U.S.	Germany	UK	Other Europe and Canada	All Other*	GRAND TOTAL
Claims on:							
Indonesia	21,297	2,778	3,893	2,727	8,758	5,390	44,843
South Korea	21,309	7,590	7,318	3,861	13,291	24,023	77,392
Malaysia	7,289	1,523	2,249	1,158	2,918	1,622	16,759
Philippines	987	2,946	711	631	2,413	637	8,325
Thailand	37,056	4,097	4,977	2,822	7,886	6,156	62,994
TOTAL	87,938	18,934	19,148	11,199	35,266	37,828	210,313

End-June 1996 **Claims by Banks in Country:**

	Japan	U.S.	Germany	UK	Other Europe and Canada	All Other*	GRAND TOTAL
Claims on:							
Indonesia	21,947	3,551	4,843	3,260	10,385	5,645	49,306
South Korea	22,368	9,582	8,529	4,140	15,059	28,205	88,027
Malaysia	8,102	1,896	3,195	1,218	3,536	2,124	20,100
Philippines	1,397	3,351	1,475	782	2,864	921	10,795
Thailand	37,777	4,433	6,381	3,070	9,664	8,309	69,409
TOTAL	91,591	22,813	24,423	12,470	41,508	45,204	237,637

End-December 1996 **Claims by Banks in Country:**

	Japan	U.S.	Germany	UK	Other Europe and Canada	All Other*	GRAND TOTAL
Claims on:							
Indonesia	22,035	5,279	5,508	3,834	12,258	6,609	55,523
South Korea	24,324	9,355	9,977	5,643	19,554	31,100	99,953
Malaysia	8,210	2,337	3,857	1,417	4,067	2,346	22,234
Philippines	1,558	3,902	1,820	1,173	3,751	1,085	13,289
Thailand	37,525	5,049	6,914	3,128	10,210	7,321	70,147
TOTAL	93,652	25,922	28,076	15,195	49,840	48,461	261,146

End-June 1997**Claims by Banks in Country:**

	Japan	U.S.	Germany	UK	Other Europe and Canada	All Other*	GRAND TOTAL
Claims on:							
Indonesia	23,153	4,591	5,610	4,332	13,377	7,663	58,726
South Korea	23,732	9,964	10,794	6,064	20,781	32,097	103,432
Malaysia	10,489	2,400	5,716	2,011	5,211	2,993	28,820
Philippines	2,109	2,816	1,991	1,076	4,230	1,893	14,115
Thailand	37,749	4,008	7,557	2,818	10,442	6,808	69,382
TOTAL	97,232	23,779	31,668	16,301	54,041	51,454	274,475

End-December 1997**Claims by Banks in Country:**

	Japan	U.S.	Germany	UK	Other Europe and Canada	All Other*	GRAND TOTAL
Claims on:							
Indonesia	22,018	4,898	6,174	4,492	13,520	7,286	58,388
South Korea	20,278	9,533	9,616	6,924	18,883	28,946	94,180
Malaysia	8,551	1,786	7,197	2,014	5,061	2,919	27,528
Philippines	2,624	3,224	2,999	1,607	6,240	3,038	19,732
Thailand	33,180	2,533	6,028	2,361	9,554	5,179	58,835
TOTAL	86,651	21,974	32,014	17,398	53,258	47,368	258,663

End-June 1998**Claims by Banks in Country:**

	Japan	U.S.	Germany	UK	Other Europe and Canada	All Other*	GRAND TOTAL
Claims on:							
Indonesia	19,030	3,226	5,876	3,967	12,773	5,396	50,268
South Korea	18,934	7,409	8,400	5,634	15,687	16,380	72,444
Malaysia	7,905	1,149	5,160	1,613	4,394	2,803	23,024
Philippines	2,308	3,025	2,161	1,775	7,152	1,382	17,803
Thailand	26,120	1,757	5,286	2,088	8,567	2,983	46,801
TOTAL	74,297	16,566	26,883	15,077	48,573	28,944	210,340

End-December 1998 **Claims by Banks in Country:**

	Japan	U.S.	Germany	UK	Other Europe and Canada	All Other*	GRAND TOTAL
Claims on:							
Indonesia	16,402	3,537	5,638	3,814	10,567	4,869	44,827
South Korea	16,925	6,291	8,250	5,551	13,905	14,371	65,293
Malaysia	6,623	858	4,618	2,040	4,370	2,317	20,826
Philippines	2,324	2,657	2,304	1,844	5,452	1,579	16,160
Thailand	22,437	1,358	4,687	1,775	8,150	2,342	40,749
TOTAL	64,711	14,701	25,497	15,024	42,444	25,478	187,855

Source: "The Maturity, Sectoral and Nationality Distribution of International Bank Lending," Bank for International Settlements, various years.

* "All Other" Claims include claims of affiliates and branches of banks which have their head-offices outside of the BIS reporting area and "residual" claims.

Denmark, Sweden, Norway, and Ireland have no exposure to the selected Asian countries.

Table 3
Number of Bank Insolvencies Resolved or Scheduled to be Resolved in the Four Largest Asian Crisis Countries During the First Nine Months of the East Asian Crisis

	July, 1997 Number of Banks and Finance Companies	Closed/Suspended	Nationalized/ Administered by Restructuring Agency	Planning to Merge	Foreign-Bought (majority stake)
Thailand	108	56	4	0	4
Malaysia	60	0	0	41	0
Indonesia	228	16	56	11	0
South Korea	56	16	2	0	0

Source: The Economist, (April 4, 1998), as printed in De Bonis, Guistiniani, and Gomel (1999).

Figure One
Comparative Exchange Rates Relative to the U.S. Dollar
April 1, 1997 - April 30, 1999
(April 1, 1997 = 100)

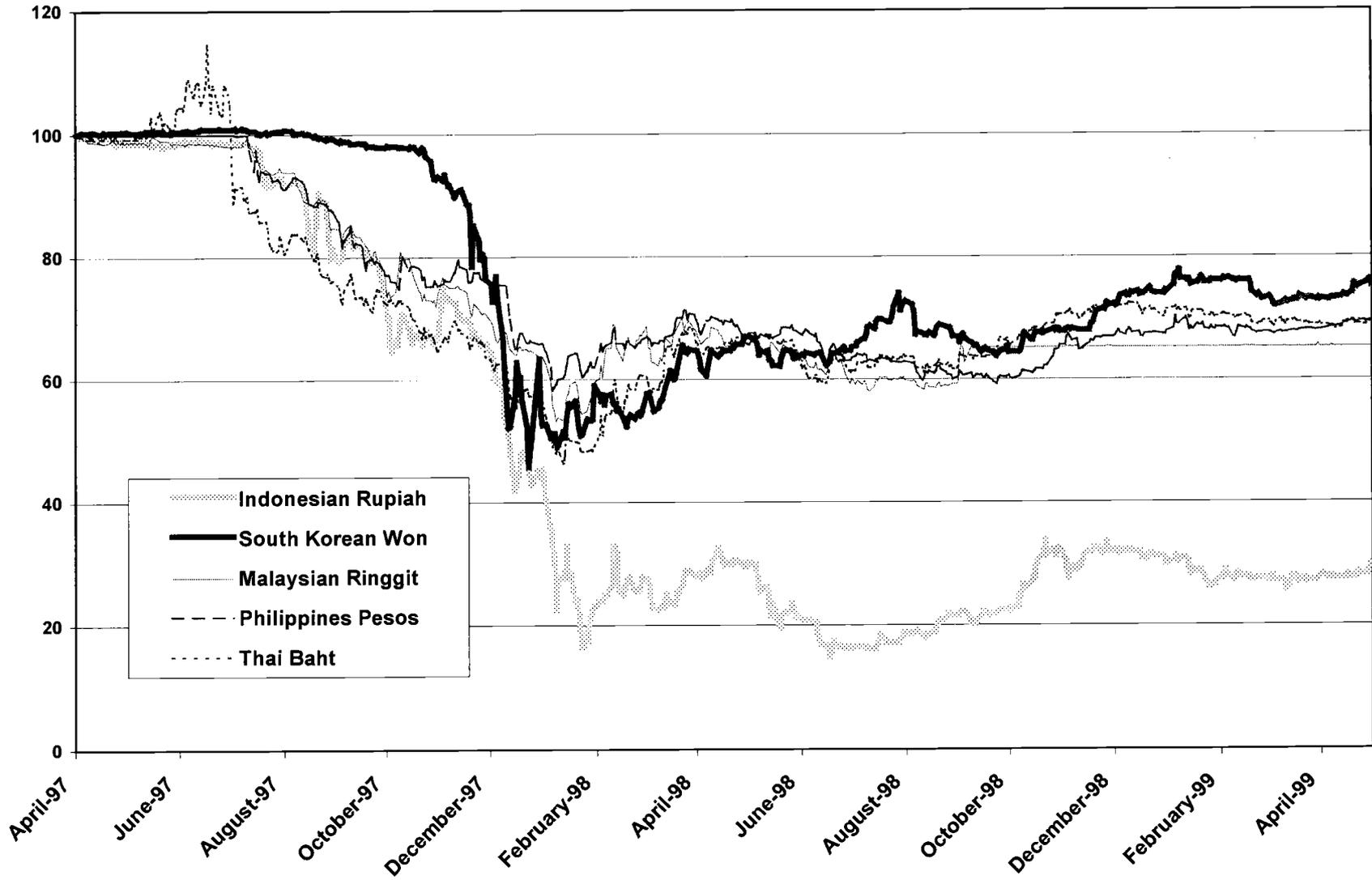
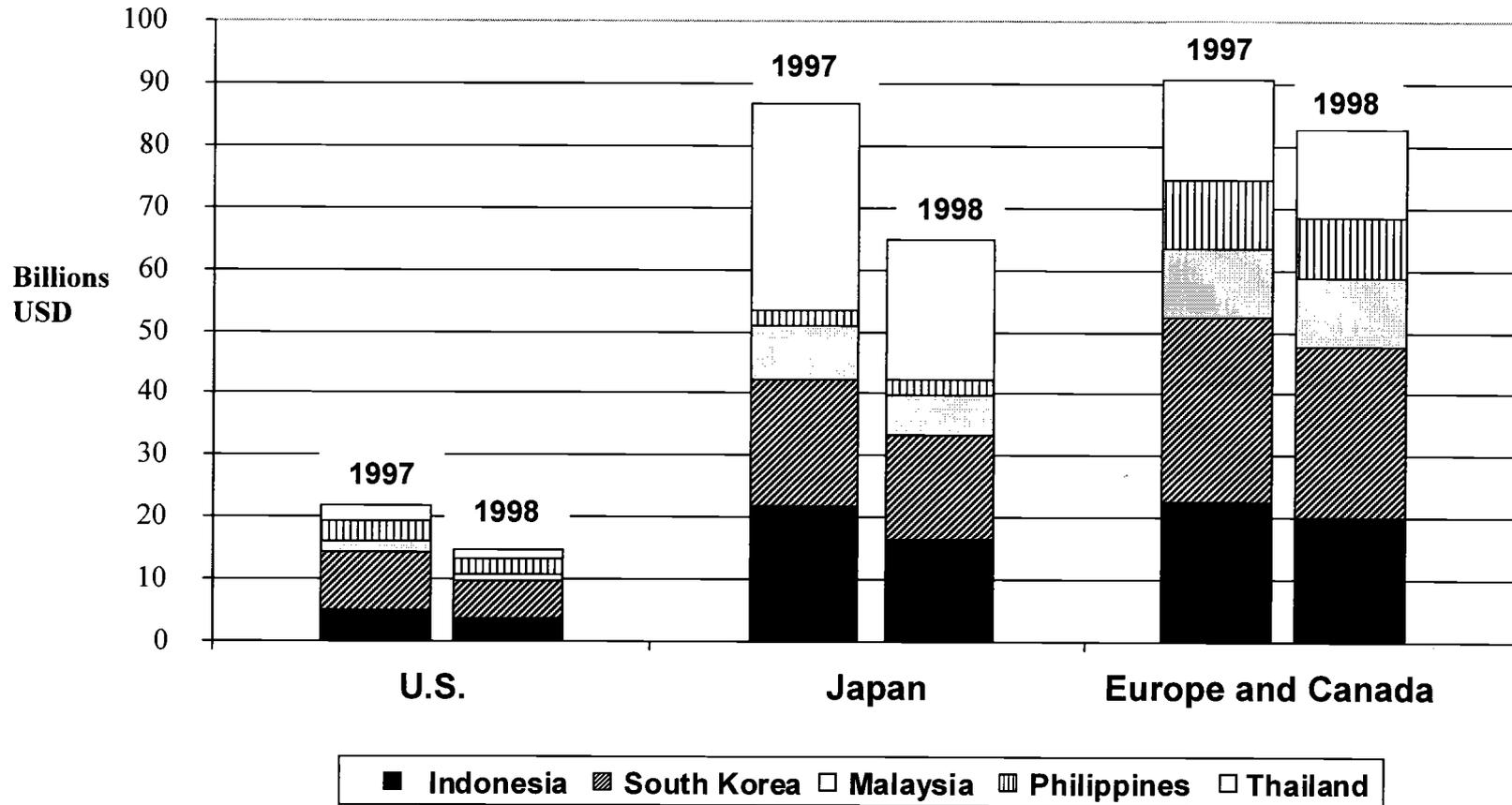


Figure Two
International Claims of U.S., Japanese and European Banks on
the Five Asian Crisis Countries, Yearend 1997 and 1998



Source: Bank for International Settlements, May 1998 and May 1999.

Figure Three
Six Stages of a Regulation-Induced Banking Crisis

1. Generation of Multiple Zombies
 - Transition Via Government-Directed Lending and Subsidies to Risk Taking
 - Transition to Zombieness is Apt to Be Particularly Rapid at State-Owned Banks
2. Escalating Silent Runs Driven by Size of Unbooked Losses Test Strength of Government Commitment to Support Zombies
 - Regulatory Reliance on Disinformation and Coverup
 - Difficulty for Banks of Weathering Runs Rises Over Time
3. Palpable Bureaucratic Breakdown in Government's Guarantee Support Mechanisms
4. Recapitalization of Government Stabilization Funds
 - A. Stopgap Partial Recapitalization: Back to Stage 2
 - B. Full Taxpayer Bailout or Explicit Nationalization
5. Clean-Up of Zombie Institutions
6. Blame Distribution and Substantial Change in the Banking-Policy Regime