The Role of Governments and Markets in International Banking Crises: The Case of East Asia

By James R. Barth, R. Dan Brumbaugh, Jr., Lalita Ramesh, and Glenn Yago

Introduction

Throughout the world there have been a large number of significant banking problems in recent years. In East Asia since 1980 there have been varying degrees of banking problems in ten countries: China, Hong Kong, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. No region of the globe, however, appears to have escaped this kind of difficulty. Since 1980 nearly three fourths of the member countries of the International Monetary Fund (IMF) - 133 countries in all - have experienced significant banking problems.¹

To varying degrees these problems have involved the failure of large numbers of banking institutions and the imposition of large costs to resolve the failures. In the highly industrialized United States from 1980 through 1996, for example, 5,207 federally insured banking institutions with $920 billion in assets failed, and cost an estimated $192 billion to resolve.² In developing and transition economies it is reported that banking problems since 1980 have collectively cost $250 billion.³ In some instances the losses as a percentage of GDP were large. Indeed, in Argentina's 1980-1982 crisis, the estimated resolution cost reached 55 percent of GDP.⁴

In many instances, particularly recently in East Asia, the losses associated with bank failures have not been limited to failure resolution costs. Banking problems in some countries have been so disruptive that they have contributed to declines in international reserves, depreciation in foreign exchange rates, and economy-wide downturns.

Our goal is to try to explain what caused the recent difficulties in several countries in East Asia and to suggest ways to prevent future problems. In doing so, we specifically focus on the banking crises in the region and attempt to explain what they have in common with other banking crises around the globe, including those in countries, like the United States, with the most well-developed financial systems in the world. An important element in understanding these issues is assessing the appropriate mix of government intervention and market forces in designing a national financial system in a global marketplace.
Placing National Financial Systems in a Global Framework

The General Framework

There are countless differences in financial systems among the approximately 190 countries in the world. Until very recently in China, for example, all of the banks were state owned. State-owned banks are quite important in many parts of the world. In many countries, moreover, the government directly and indirectly allocates credit through state-owned and privately owned banks. Apart from central banks, state-owned banks are relatively unimportant among the financial systems of most developed countries. In the United States, for example, there are no state-owned banks, although credit is allocated in various ways through government-controlled agencies and government-sponsored enterprises. Nonetheless, all developed nations have elaborate bank and non-bank regulatory structures that directly and indirectly affect banks and the financial system more generally.

Regardless of the differences, however, the two fundamental goals of all financial systems are identical: to facilitate the flow of funds from savers to investors through a credit system and to facilitate payments through a payments mechanism. This relationship is depicted in Figure 1.

![Figure 1: Designing a Financial System](image)

In facilitating the flow of funds from savers to investors and facilitating payments, every nation’s financial system also attempts to address two categories of problems: minimizing transactions costs and resolving certain market failures associated with costly and imperfect information.

The ultimate goal of a financial system is to facilitate the efficient allocation of scarce economic resources in order to promote economic development and growth that improve living standards. Given technological developments there are relatively few physical or technological obstacles to capital flows anywhere in the world. The quality of information has also improved and transaction costs, including those associated with information, have declined.
significantly. Thus, Figure 1 can be seen as a representation of the world financial system in which increasingly savers represent all savers and investors represent all investors in the world.

At the moment, different countries are at different stages of economic development and have adopted different systems of law and regulation. The stage of development, system of law and regulation, and overall institutional framework can greatly affect how well a given country's financial system works, and how well integrated it is with those in the rest of the world. Nonetheless, it is significant that given the appropriate economic, legal, regulatory and institutional development, capital can now flow anywhere in the world.

The center section of Figure 1 illustrates the different institutions and financial instruments that can comprise a financial system. There are many different types of financial intermediaries, including depositories, insurance companies, pension and retirement funds, finance and mortgage companies, mutual funds, security brokers and dealers, real estate investment trusts, and issuers of asset-backed securities. In some countries these intermediaries are separate and distinct firms, whereas in other countries they are part of the same firm.

Each of these intermediaries functions as part of the credit or payments system, or both, and in most countries has historically tended to specialize in particular financial products and services. More recently, however, in many countries the distinctions among these different types of intermediaries have become blurred, as the emphasis by all intermediaries has been increasingly on using a wide range of financial instruments to manage the assets and to manage the risk for customers.

Not only financial intermediaries but also financial markets in equities, bonds, and derivatives, publicly and privately placed, can exist as part of the asset-management and risk-management systems facilitating the flow of funds from savers to investors. Through these markets, saving is transformed into investment. The transformation can also take place in more direct ways, such as a founder's investment in a firm or through angel and venture capital being provided to start-up or younger firms.

Not all countries employ all types of intermediaries and markets in their financial systems. In general, the lesser a given country's economy has developed the narrower and shallower will be the types of intermediaries and markets. The range of financial instruments will necessarily also be more limited. Increasingly, however, less developed countries are able to use the financial systems of more developed countries to facilitate the flow of funds from savers to investors rather than developing more extensive financial systems of their own.

**Economic Obstacles to Matching Savers and Investors: Transactions Costs and Market Failures**

In the process of facilitating the flow of funds from savers to investors, all
financial systems help resolve problems involving transaction costs and
certain types of market failures, predominately involving informational
asymmetries, including moral hazard (hidden action), and adverse selection
(hidden information). For different types of transactions and financial
institutions, attempts can be made to resolve these problems through
private contracts or with government intervention.

All credit market and payment system activities involve transaction costs.
An efficient financial system operates with relatively low transaction costs;
both broadly and narrowly defined. An important form of broad transactions
cost involves the extent to which a broad set of relationships, generally
recognized in a legal system and often the focus of government regulation,
exist within a society. Such well understood relationships provide a societal
basis in which a financial system can operate efficiently.

In this sense, the extent to which illegal activities or the absence of
enforceable property rights divert the efficient flow of resources is a broad
transaction cost.9 Custom and tradition can also involve behavior that from
the perspective of financial markets raise transaction costs. Governments,
Federal and state, can raise transaction costs through inappropriate regulation,
taxation, subsidies, corruption, or in extreme cases limiting individual
economic freedom. Direct government allocation of credit, including that
through state-owned banks, and indirect allocation of credit can also raise
transaction costs. The availability, cost, and reliability of relevant
information, and associated accounting systems may further impede the
efficient flow of resources through an economy.

Narrower transaction costs can also be substantial. The U.S. government,
for example, estimates that the cost is 48 cents for its own paper check
transactions in contrast to two cents for electronic transactions. This is an
example of how technological developments can lower transaction costs.
Economies of scale also exist. Financial institutions can charge lower fees
for larger transactions, thereby lowering transaction costs. A bank or mutual
fund, for example, faces a lower transaction cost if one customer opens an
account for $100,000 in contrast to 100 individuals opening accounts for
$1,000 each.

Potential market failures in the form of information asymmetries exist in all
relationships between investors and savers. Typically, for example, investors
seeking and obtaining funds for specific projects have better information
than lenders. This asymmetric information involving hidden information and
hidden action gives rise to specific kinds of costs. One such cost involves
adverse selection, for example, which refers to distinguishing good from bad
borrowers before a loan is made. Another cost involves moral hazard, for
example, which refers to being certain that the funds provided will be used
as intended after a loan is made. In most cases, these types of market
failures can be dealt with privately through contractual arrangements, which
may include the use of government enforcement powers.

Forms of Government Intervention
Many forms of government intervention have developed over time in various countries. In order to protect against widespread runs on solvent depositories, most countries have established a lender of last resort. These runs can occur because depositors are promised the withdrawal of their funds on demand at par value in a situation in which they have less information than depositories regarding the depositories' financial condition. Deposit insurance can serve as a backstop to a lender of last resort against widespread runs against solvent depositories, making certain that depositors never have an incentive to run and thereby disrupt the credit system or payments mechanism. Deposit insurance, however, creates a need for selected regulation to control moral hazard (as well as closely related principle-agent and adverse-selection problems), which can exacerbate the risk exposure of a deposit-insurance fund.

In most developed countries, the primary regulatory tools to contain risk-taking behavior of depositary institutions are the establishment of minimum capital requirements, requirements for regular consolidated financial reporting, and examination and supervision. Deposit insurance also requires a resolution mechanism in order to prevent excessively costly failures after depositories have become critically undercapitalized and subject to seizure by regulators.

Complicated and extensive restrictions on the activities, ownership, and geographic location of banks have been imposed by law and regulation in some countries. Ostensibly they have been imposed in order to limit potential conflicts of interest and those activities deemed to be excessively risky, thereby increasing the safety and soundness of banks. Some restrictions, of course, may be appropriate under certain circumstances to control the moral-hazard problem that arises with deposit insurance. Others, however, may limit the ability of banks to adapt in a prudent manner to changing market conditions.

Still other types of constraints have evolved in a variety of countries. Some laws and regulations have been enacted to promote competition. In this respect, selected antitrust actions involving bank mergers have been taken over time. Bank regulation is also used to support the provision of merit goods, such as housing, with the effect of allocating credit. Still other government regulations focus on financial issues relating to low-income individuals. Finally, other types of regulation provide protections against identifiable risks to individuals, such as specific forms of discrimination. Regulations also exist that protect banks from competition, which can arise within or from outside a country. The type and degree of constraints vary both over time within individual countries and from one country to another at a point in time.

**Why All of This Matters: The World's "Haves" and "Have-Not"**

There have always been "haves" and "have-nots" among the world's countries in terms of financial resources. Today, unlike any other time in history, there are relatively few physical or technological impediments to the
flow of funds from savers anywhere in the world to investors anywhere in the world. Thus, it is possible for the world's "have-nots" to fund a substantial amount of their future development and economic growth with the savings from the "haves" of the world. As a result, the future economic development and growth of the "have-nots" can be much more expansive than it would be if funded only with their own internally generated savings. This is similar to a firm funding its investment projects with both internal funds (for example, through retained earnings) and external funds (for example, through bank loans and the issuance of bonds and stocks) by relying on financial intermediaries and financial markets.

The disparities among countries based on selected indices of overall economic and financial performance are enormous. As one can see in Figure 2, the eleven countries of the G-10 group of countries contained only 12 percent of world population in 1995 (871 million people), but accounted for approximately 74 percent of world gross domestic product (GDP), 79 percent of world bank assets, 83 percent of world equity market capitalization, and 67 percent of world international debt securities.13

By extension, the remaining countries in the world, numbering approximately 180, have 88 percent of the world's population (5.8 billion people) but account for only 26 percent of world GDP, 21 percent of world banking assets, 17 percent of world equity market capitalization, and 33 percent of world international debt securities. As Figure 2 also shows, the world's two most populous nations, China and India, accounted for 37 percent of world population but only 4 percent of world GDP, 3 percent of world bank assets, and 1 percent of world equity market capitalization.

These disparities help elucidate what the longer-term overall goal should be in resolving the East Asian banking crisis. The disparities are also the key to understanding what the goal should be in general regarding lesser-developed countries around the world that have experienced serious banking difficulties. The longer-term overall goal ought to be to help these
countries resolve their banking problems in a way that enhances the efficient and stable flow of private funds from the developed world to these countries.

Most economists have concluded that there is a positive relationship between the depth and breadth of a nation's financial system and the rate of development and growth of the nation's economy. By extension, to the extent that nations with relatively rudimentary financial systems can gain access to private savings from countries with relatively well developed financial systems, it will have a positive effect on their financial infrastructure as well as economic development and growth. If the access to foreign private savings comes in the form of direct investment, it will generally also entail access to skills and knowledge from abroad.

If, instead, the developing and emerging market countries of East Asia and other areas of the world attempt to rely predominantly on their own internal financial resources, or pay only lip service to integrating their financial systems with those of the rest of the world, they can expect to experience far lower paths of economic development and growth than they could otherwise achieve. Indeed, the economic development and growth that they can achieve if they focus on integrating their financial systems with those of the rest of the world could be significant by comparison.

With greater development of global financial markets there are also important potential benefits for the savers in countries with relatively well developed financial markets. To the extent that a greater flow of savings into other countries develops and finances productive investment projects, the greater will be the risk-adjusted return to the savers in the relatively well-developed nations. This follows from the fact that these savers have an expanded range of potentially productive investments over a wider geographical area into which to place their savings.

In order for an efficient and innovative global financial system to evolve, however, individual borrower countries' financial systems need some fundamental compatibility with those of individual lender countries. This is what one should be working toward: compatible and predominantly market-driven financial systems where the wealth of the developed world can find its way anywhere in the world based on market assessments of risk and return.

Lessons from Recent Banking Problems

Financial Assistance from the IMF and Other Trans-National Agencies

Figure 3 provides information on banking problems in selected countries for the period 1980 to the present. The figure shows the time periods of the banking crises for ten of the currently 133 IMF member countries that have experienced banking crises or significant banking problems since 1980, and received IMF financial assistance. The countries include Indonesia, Korea,
and Thailand - the recipients in 1997 of the largest financial assistance pledges in history from the IMF, the World Bank, the Asian Development Bank, and individual or groups of industrial countries.\(^\text{15}\)

**Figure 3**

Bank Crises and IMF Financial Assistance: 1980 to Present

As Figure 3 reveals, among the selected countries that received IMF assistance over the period, there were or are continuing extended banking problems in China, India, Korea, Thailand and Argentina. Some of the countries, moreover, like Indonesia, Korea, Thailand, Argentina, Brazil and Mexico had more than one discreet period of crisis. These countries are a subset of 16 countries that experienced banking crises during the period. In six countries - Hong Kong, Malaysia, Singapore, Taiwan, Japan, and the U.S. - there were significant banking problems but no IMF financial assistance.

Over the 1980-1998 period, the ten countries shown in Figure 3 received separate assistance pledges from the IMF a total 36 times. An issue that arises is what should have been expected of the IMF and other trans-national agencies based upon such extensive involvement in countries experiencing financial problems. This applies to not only the recent crisis in East Asia, but also the crisis in Mexico in 1994 and perhaps even some of the crises that occurred earlier.

Were the IMF and other trans-national agencies caught off guard by both the Mexico crisis and the East Asian crises? Looking merely at Figure 3, has the performance by the IMF been acceptable given so many past problems, including several instances of multiple banking crises and corresponding IMF assistance in such countries as Mexico (1981-1982, and 1995), Argentina (1980-1982, 1989-1990, 1995), Thailand (1983-1987 and 1997), Philippines (1981-1987), and Korea (mid-1980s and 1997). Under the circumstances, would one not reasonably expect the IMF to be aware of the conditions leading to potential problems and to work with the countries to mitigate potential problems? In answering these questions, one must
remember that the IMF lacks the enforcement powers necessary to impose its views on countries. Countries, moreover, may be unpersuaded by or resist entreaties to do what the IMF considers necessary to forestall problems. In view of this situation, should one reasonably expect the IMF to express its views about problems publicly?

A related issue arises in the context of Figure 4, which shows the dollar amount of IMF, and in some instances, related assistance agreed upon for the ten countries in Figure 3. Figure 4 shows, beginning with the Mexican assistance package in 1995, the amount of IMF assistance to recipients has generally increased sharply. The assistance provided to Korea in 1997 was substantially greater than that provided to Mexico, while IMF assistance provided to Thailand, Indonesia, and even Argentina exceeded amounts previously provided other recipients after financial crises.

**Figure 4**

Financial Assistance from the IMF

With substantial experience with so many previous crises, what is the precise role of the IMF when countries experience financial difficulties? This is an important question because Michel Camdessus, IMF Managing Director, has stated that in Thailand, for instance, the costly developments "...were so preventable." (IMF, November 13, 1997) Stanley Fischer, IMF First Deputy Managing Director, has also stated that "...the Asian financial crisis may result in the IMF 'going public' when it has concerns about the economy of certain countries..." (IMF, February 23, 1998) If crises are indeed preventable and the public is not forewarned of impending crises, is the IMF forced by default to engage in forbearance and thereby to provide more financial assistance than would otherwise be necessary? And, if so, is this an
Inherent Difficulties Faced by the IMF

This discussion indicates that the IMF faces inherent difficulties and limitations given that it must deal with sovereign nations, and that it does not have statutory power to impose what it may consider to be appropriate remedies when financial difficulties initially begin to arise. Within a country, when financial difficulties are detected, domestic regulatory agencies have varying degrees of legal authority to impose by force what they consider to be appropriate remedies. The IMF has no such authority over the sovereign nations with which it must deal. As a result of its lack of statutory power, moreover, it cannot behind the scenes enforce changes to prevent or to mitigate financial crises that it might if it had such power. For the same reason, it is limited in its ability to cajole sovereign governments to do what the IMF might want them to do in response to what it perceives as impending difficulties.

The power that the IMF does have involves its ability to provide financial assistance. When it perceives that there are events occurring that may lead to subsequent financial crises, it may be able to effect what it considers to be appropriate remedies by either dangling or threatening to withhold future financial assistance. Even if indeed this is the case, the analysis above suggests that financial crises have nonetheless become more frequent and more costly.

As the East Asian crises highlight, the ability of the IMF to enforce what it considers appropriate remedies occurs to varying degrees after a full-blown crisis develops, when in exchange for a financial assistance pledge, it can make varying demands of sovereign governments. Thus, the ability of the IMF to effect change is largely associated with the conditions that it can negotiate with sovereign countries in return for financial assistance pledges.

It is this role that is often referred to as the IMF’s role as the international lender of last resort. As is well known, however, beginning with the classic work of Bagehot (1873), there are three characteristics that a true lender of last resort possesses: infinite ability to provide liquidity, the ability to discern the difference between solvent and insolvent institutions - so as to lend only to solvent institutions - and the ability to lend at punitive interest rates.

It may be that in many cases the IMF possesses few of these characteristics. First, it certainly is not able to provide infinite liquidity. Second, a domestic lender of last resort assesses the solvency of domestic financial institutions to which it might make liquidity available; the IMF provides liquidity to sovereign governments about which the issue of solvency may not be relevant. Third, the IMF has not charged, though it probably could charge, punitive rates of interest in exchange for liquidity.

It seems inappropriate to describe the IMF as a true lender of last resort. It appears more appropriate to describe it as a trans-national agency with no
statutory power to enforce what it considers to be appropriate remedies on a sovereign government before a financial crisis develops. After a crisis develops, the IMF has a limited ability to negotiate conditions with sovereign countries in exchange for finite financial pledges. Thus, by its very structure the IMF faces severe limitations in its ability to effect what it may consider appropriate remedies before and even after a financial crisis develops.

Regarding whether the IMF should disclose its view about whether a crisis is likely in the future, according to Mr. Fischer, a difficulty is whether such a warning would "...precipitate a crisis that wouldn't otherwise have happened."\(^{18}\) Perhaps more importantly, Mr. Camdessus states that "The IMF deals with confidential information provided by a member country. It must respect the intentions of that country and cannot, without losing the country's confidence, publish information without the country's consent. The IMF also serves as a discreet advisor, particularly in times of stress. In no circumstances should the desire to disseminate undermine the IMF's relations with its member countries and its ability to help them do the right thing." (IMF, April 27, 1998, p. 125) Apparently, the IMF believes it cannot acknowledge difficulties it knows exist.\(^{19}\)

The Issue of Moral Hazard and IMF Financial Assistance

Previous IMF financial assistance packages, moreover, may have created a serious moral-hazard problem in which the likelihood and severity of financial crises have worsened. The specific moral-hazard problem may be stated as follows. With many past crises, the IMF provided financial assistance. Given that such assistance had become somewhat predictable, it is possible that selected parties formed expectations that in future crises the IMF would once again provide financial assistance that would help bail them out.\(^{20}\) Parties who might form these expectations include domestic lenders and investors in the countries that subsequently received assistance, and foreign lenders and investors. Governments in a situation to receive future IMF financial assistance might also have formed such expectations. As a result, within individual countries in a position to receive future IMF assistance, greater funds flowing into excessively risky activities may have occurred due to inappropriate incentives on the part of all concerned parties.

These incentives may have existed for some time and may have grown in recent years in tandem with the growth in both the IMF's financial resources and the financial assistance it has extended to countries. After all, if effective, the past conditions that have been imposed by the IMF on countries over a lengthy period of time in exchange for previous assistance should have lessened both the likelihood and the severity of future problems, and thereby have lessened both the likelihood and the amount of any future financial assistance. Neither, however, seems to have occurred. In reaction to the most recent crises, the IMF is seeking significant banking reform in selected countries.\(^{21}\) Given the lengthy history of IMF involvement in financial crises around the globe, it seems clear that the reforms now being advocated were apparent earlier, and thus could have been implemented by countries to alleviate, if not prevent, the current crises. If this had been the case, it is unlikely that the IMF would now be seeking
greater financial resources with which to be in a position to respond to even more crises.

The Moral-Hazard Problem and East Asian Bank Lending

Information provided in Figure 5 is relevant to what the IMF knew or could have known before the East Asian crises of 1997, as well as what may have been the growing moral-hazard problem created by previous IMF financial assistance provided to nations experiencing banking crises. For selected countries for the period 1990 to 1996, including all of the countries involved in the East Asian crisis, the figure shows the growth in bank credit to the private sector relative to the growth of GDP. Thus, if a nation's bank credit grew at the same rate as the nation's GDP, the relative growth rate would be zero. In general, if a nation's bank credit grows substantially in excess of the growth of GDP over several years, it is an indication of excessive bank lending presaging future credit-quality problems.

As Figure 5 shows, a significant number of countries had bank credit growth rates that substantially exceeded GDP growth. In particular, Indonesia, the Philippines, Thailand, and Mexico had bank credit growth rates that exceeded the corresponding GDP growth rates by 60 percent or more. These bank credit growth rates are consistent with excessive and thus quite risky lending, and may reflect actions taken in response to incentives consistent with the moral hazard problem. Indonesia, Thailand, and Mexico, for example, were three of the four countries that have received the largest ever assistance pledges from the IMF and others.

Figure 5 also addresses the issue of whether the IMF and others had access to information that would have allowed them to be better prepared to anticipate and to react to crises more appropriately. The IMF and others presumably had access to data on the growth of bank credit to the private sector...
sector for several years before the culmination of the East Asian crisis in 1997. The IMF and others were undoubtedly aware that rapid bank credit growth could be associated with subsequent credit quality problems. The availability of the data indicate that there was enough "transparency" concerning bank credit growth rates, which indeed subsequently led to acknowledged and reported credit quality difficulties and to severe bank problems in several countries.

As shown in Figure 6, for example, in 1995 the reported ratio of bank non-performing loans to total loans in Indonesia was 10.5 percent and in Thailand it was 7.7 percent. Thus, two years before the East Asian banking crises there was evidence not only of rapid increases in bank credit, but presumably also evidence of significant deterioration in reported bank credit quality.

As Figure 7 shows, non-performing loans were a problem in Mexico in both 1994 and 1995. Accompanying the rapid expansion of bank credit discussed above, however, non-performing loans as a percentage of total loans actually grew steadily from approximately 2.5 percent in 1990 to 14.4 percent in 1995. This information on acknowledged poorly performing loans before the crises in Mexico and several East Asian countries are further indications that the IMF and others had sufficient information from which to conclude that significant difficulties might subsequently occur.
Indeed, Figure 8 presents evidence that the bank-lending boom of 1990-1996 contributed to the financial crises in several countries of East Asia in 1997. This figure correlates the growth in lending presented in Figure 5 for 1990-1996 with a crisis index for the period from May to November of 1997, when the full-blown crisis struck East Asia. The crisis index is the sum for each country of the depreciation rate minus the percentage change in international reserves.

Notably, the countries with the highest rates of bank credit growth - Indonesia, Malaysia, the Philippines, and Thailand - had the highest crisis index ratings as well. Although Korea's index was also high, it was not associated with a high rate of growth in bank credit. This, as explained in more detail below, may reflect government-directed lending to a small
number of large firms. Again, however, the government-directed bank lending in Korea as well as the rate of growth in bank credit in other countries was information that was readily available to the IMF and others well before the crises actually occurred.23

These findings suggest that the bank credit growth rates and indices of poorly performing loans were "leading indicators" of subsequent exchange rate and international reserve difficulties in selected countries in East Asia. The findings also suggest that the IMF had relevant information available to it to help anticipate crises that eventually developed. Regardless as to whether the IMF adequately anticipated the crises, it reacted clumsily after they developed.24

The issue of contagion is also addressed by the information provided in Figure 8. It has been argued that the financial crises in East Asia represented in some way a contagion, in which the currency difficulties of one country were like a communicable disease transferred to other countries. The information in Figure 8 is not fully consistent with this argument. All of the countries that suffered the most serious financial difficulties did so because there were real economic difficulties in their countries, associated in large part with excessive bank credit growth and subsequent bank loan and bank insolvency issues.

The Role of Bank Regulatory Issues in Banking Crises

Prevailing Views of the Cause of East Asian Bank Difficulties

If one were to summarize the view most often expressed about how the banks in East Asia reached their current condition, it would be that banks' lending policies reflected lax and inappropriate examination, supervision, and regulation by bank regulatory authorities, including inappropriate resolution policies for insolvent banks. It is also argued frequently that inadequate information, what has become known as a lack of "transparency" on banks' financial condition, is available. It is widely argued by some that a combination of these conditions contributed significantly to the financial difficulties in East Asia.

From this view, the prescription for bank reform that generally follows is to require a bank regulatory regime that generally includes some form of the following components:

- Impose internationally established capital requirements on all banks and pursue "prompt corrective action"25 against troubled banks;
- Require more stringent bank examination and supervision;
- Require consolidated financial reporting with financial statements reviewed by independent auditors; and
- Establish an explicit deposit-insurance system, if one does not exist.
These prescriptions are consistent with the general approach taken by several trans-national agencies well before the outset of the current crisis. The Basle Committee on Banking Supervision, the Bank for International Settlements (BIS) and the IMF have been moving for some time to develop international bank regulatory protocols including the components just mentioned.

In October 1996, for example, Mr. Camdessus said, "There are problems of banking soundness all over the world ...We are doing a lot of work on improving banking systems; this is a big growth area for us." In December 1997, Mr. Camdessus also said, "We all have been troubled by developments in the Thai economy..." Among the problems he noted were "...weak and overextended banking sectors, poor prudential supervision, and substantial short-term borrowing in foreign currency." Even more recently in April 1998, Mr. Fischer said that "...macroeconomic adjustment is not the main element in the programs of Indonesia, Korea, and Thailand; financial sector restructuring and other structural programs lie at the heart of each program. The problems they deal with - weak financial institutions, inadequate bank regulation and supervision, and the complicated and nontransparent relations among governments, banks and corporations - lie at the heart of the economic crisis in each country." (IMF, April 6, 1998, p. 101)

Evidence from Around the World

At issue is whether there is evidence to support the conclusion that the banking crises in East Asia and elsewhere around the world in recent years are due to inadequate regulation and supervision. External audits, global consolidated reporting, and capital adequacy standards based on the Basle accord are required.

As a result, despite Mr. Camdessus' reference to "poor prudential supervision" and Mr. Fischer's reference to inadequate bank regulation and supervision, the Thai bank regulatory system had most of the components that the IMF and other trans-national agencies have been advocating. The difficulties experienced by Thailand, moreover, did not fundamentally stem from inadequate reporting requirements, either domestically or internationally. Indeed, Thailand reported, as depicted in Figure 5, that it had the second highest rate of growth in bank credit relative to GDP in East Asia - over 60 percent in 1990-1996. In addition, Thailand reported a significant ratio of bank non-performing loans to total loans of 7.5 percent in 1994, three years before the Thai financial crisis.

The Thai difficulties stemmed in large part from excessive bank lending that was apparently allowed not only by Thai bank regulatory officials but also tolerated in some manner by the IMF to whom data on bank lending presumably were available. The apparent position of the IMF must be that even if a country has a fairly comprehensive bank regulatory, supervisory, and reporting system - including conveying available information to the IMF - excessive bank lending and associated loan quality problems can still occur.
As Figure 9a indeed shows, fairly comprehensive bank regulatory, supervisory, and reporting systems are the rule rather than the exception in most of the countries that have experienced recent banking difficulties. As Figure 9a shows, the majority of the nations have explicit depositor protection schemes, require external audits, mandate global consolidated reporting, and impose capital adequacy standards based on the Basle accord. Thus, most of the nations already conform generally to the bank regulatory structure that the IMF and other trans-national agencies say is needed.

Figure 9a
Bank Activities in Selected Countries

- Depositor Protection Scheme: No 33%, Yes 67%
- Global Consolidated Reporting Required: Yes 86%
- Capital Adequacy Based on Basle Accord: No 13%, Yes 87%
- External Audits Required: Yes 100%

Figure 9b also provides information on the extent to which banks in these countries can engage in securities, insurance, and real estate activities, as well as invest in non-financial firms and vice versa. It may be seen that there is not a close association between bank crises and whether banks are allowed to engage in these particular activities or whether banks are allowed to own or be owned by non-financial firms. This lack of association is important because of the debate in the U.S. and elsewhere over whether to be more or less restrictive in these areas. The IMF apparently provides financial assistance to countries on the condition their banking systems be reformed regardless of whether the reforms are consistent with prevailing practices in the U.S.
It may be that when Mr. Camdessus referred to "poor prudential supervision" in Thailand that he was merely referring to "bad judgment" or "inappropriate implementation" or some other form of human failure. If so, those kinds of deficiencies cannot be addressed systematically over time by the IMF or other trans-national agencies. The fact remains that in East Asia and elsewhere in the world where banking crises have occurred, they did so in countries with fairly elaborate bank regulation and supervision regimes of the types that have been advocated by the IMF and other trans-national agencies for some time.27

The Case of the United States

The recent banking crisis in the United States forms an important backdrop in evaluating the general notion that government regulation and supervision can be effective in preventing banking crises or reducing the severity of such crises when they occur. Even before the 1980s, the United States had one of the most elaborate and restrictive regulatory regimes in the world.28 Yet, throughout the 1980s and into the early 1990s, the United States experienced one of the lengthiest banking crises in the world that involved an unprecedented number of banking institution failures and costly resolutions.

It is common in the U.S. to describe savings and loans at the beginning of the 1980s as among the most highly regulated firms in the United States. Although this is accurate, it does not fully convey the fact that the regulation largely involved a program of specific government-directed lending. Savings and loan institutions, for example, were primarily limited to making home mortgage loans, but essentially forbidden by law from offering adjustable-rate home mortgages. They could not make most loans that commercial banks could make, such as commercial real estate loans,
commercial loans to businesses, and consumer loans. In short, until quite recently, savings and loans were mainly restricted to making long-term, fixed-rate home mortgage loans.²⁹

The government-directed home lending program for the savings and loans was in fact the source of their difficulties. It is an example of how government-directed lending can effectively inhibit regulated firms from adapting to competitive markets in which there is rapid and substantial change.³⁰ At the same time, it is also an example of the way in which government intervention through regulatory forbearance can cause greater problems in the form of moral hazard and adverse selection when an entire industry is struggling to survive with inadequate private owner-contributed equity capital.

The extent of government-directed lending restrictions can vary dramatically. Savings and loans had extensive restrictions on their lending, leading this sector into extreme difficulties beginning in the late 1970s and extending into the early 1990s.³¹ These restrictions can be seen as one point on a continuum in which at one end there are essentially no restrictions, and at the other end there is state ownership of firms. Although the U.S. likes to see itself and advertise itself as a market-based economy, the regulatory intervention in the business affairs of financial institutions - particularly banking institutions - has been so extensive and intrusive for so long that the U.S. moved far closer to the state-ownership end of the continuum than it would like to admit.

The Role of Private Owner-Contributed Equity Capital and Selected Forms of Government Intervention

Another important component of the savings and loan and banking crisis in the U.S. in the 1980s and early 1990s revolved around the role played by private owner-contributed equity capital. As Figure 10 shows, there have been several periods in which there have been noticeable increases or decreases in private owner-contributed bank equity capital relative to total assets. The ratio declined after the adoption of federal deposit insurance, increased from the early 1940s to the early 1960s, and decreased thereafter until rising again in the 1990s.
The most dramatic change followed the adoption of federal deposit insurance in the U.S. in 1933 for commercial banks. The ratio of private owner-contributed bank equity capital-to-total assets fell from 13 percent to less than 6 percent between 1934 and 1945. When federal deposit insurance replaced private owner-contributed equity capital as a buffer against losses to be borne by depositors, government discipline largely supplanted market discipline. Even with the recent increases in bank equity capital relative to assets in the contemporary period, the ratio of private owner-contributed equity capital-to-total assets today is still substantially below the ratio that prevailed before the adoption of the federal deposit-insurance system.

The creation of federal deposit insurance signified that risk bearing was being shifted; after adoption of deposit insurance, taxpayers bore a greater risk and insured depositors bore less risk for the cost of resolving bank failures. Deposit insurance also created incentives that affected both the owners of private owner-contributed equity capital and the deposit-insurance agencies. Deposit insurance simultaneously conveyed a put option to the owners of private owner-contributed equity capital and a call option to the deposit-insurance agencies. In general in the U.S., as the level of private owner-contributed equity capital declines toward zero, the holders of privately contributed capital may put the institution back to the deposit-insurance agency, or the deposit-insurance agency can exercise its call option and seize the institution.

Almost without exception, the relevant deposit-insurance agency should seize a banking institution that has become insolvent, for an appropriate resolution. The reason is in part due to the incentives created by insolvency. In general, as long as the institution is solvent, the put is out of the money and thus the value of the option is zero. When insolvent, however, the put is in the money, and its value is maximized by greater risk-taking as long as
the institution remains open and operating. Private owner-contributed equity capital therefore is an important constraint on risk-taking.

Regulatory authorities can reduce the incentive to take greater risk in a number of ways. Appropriate examination and supervision, for example, can potentially detect and deter greater risk-taking behavior. The fear of subsequent legal enforcement and penalties for imprudent behavior can also deter greater risk-taking. In addition, the ownership form of an institution can affect risk-taking. The incentives to take risk have been found in general to be less in mutual-type versus stock-type institutions, for example. Adequate capital standards, of course, are essential in deterring excessive risk-taking behavior.

With deposit insurance, it is possible to have widespread banking institution insolvencies, and thus incentives to take greater risk, at the same time that a deposit-insurance agency’s resources are insufficient to contain and resolve problems.\footnote{This happened in the U.S. in the 1980s and early 1990s with deposit-insurance agencies for both the savings and loans and commercial banks actually reporting insolvency for some years.} First for the savings and loans and then for the banks, institution insolvencies mounted and their contemplated resolution forced the deposit-insurance agencies to report insolvency.

Under these circumstances, the incentive to take excessive risk on the part of some private owners of bank equity capital can occur when the deposit-insurance agency is unable to adequately supervise troubled institutions and unable to resolve institutions known to be insolvent. If the deposit-insurance agency is either unwilling or unable to obtain adequate funds to resolve insolvent institutions, there will be an incentive to forbear in resolving insolvent institutions, thereby exacerbating an already serious situation.

This occurred in both the savings and loan and banking crises in the U.S. in the 1980s and early 1990s. In the early 1980s, for example, virtually the entire savings and loan industry was insolvent when marked-to-market because rising interest rates had drastically reduced the value of their long-term, fixed-rate home mortgage portfolio. Based on the estimated market value of the industry’s home mortgage portfolio, the industry insolvency was $110 billion in 1981. In the same year, the reported reserves of the deposit-insurance agency were only slightly more than $6 billion.\footnote{At the time there was a "prompt corrective action" regime in place in which savings and loans were required by law and regulation to meet a 5 percent minimum capital requirement. If the capital ratio fell to 3 percent, the institutions were subject to strict supervisory control. If the capital fell to zero or less, institutions were to be seized by the appropriate regulatory authorities.}

Growth in Bank Credit During the Crisis

Nonetheless, during the early 1980s when the savings and loan industry became insolvent, the prompt corrective action mechanism was converted.
to a delay mechanism rather than strictly enforced. Laws and regulations were simply changed so that institutions were subject to lower minimum capital requirements at the same time as there was a liberalization of the items that could count as capital, thereby providing institutions with the ability to grow in size. The overall effect was to allow institutions reporting negative capital on the basis of the stricter Generally Accepted Accounting Principles (GAAP) to remain open and operating. By 1986, for example, when the deposit-insurance agency for savings and loans itself reported insolvency, nearly 500 institutions reporting negative GAAP capital were open and operating. Eventually, the present-value cost of resolving all failed savings and loans from 1980 to 1996 was an estimated $154 billion.36

To deter excessive risk-taking with depleted capital, one would expect growth in assets of savings and loans to be relatively modest during the 1980s. Total assets at all savings and loans, however, doubled from $604 billion in 1980 to $1.2 trillion in 1986, 41 percentage points more than the growth of GDP over the same period. Such rapid growth in overall bank credit, and even more rapid growth by the insolvent institutions, would not have occurred in the absence of federal deposit insurance and in the presence of market discipline. Leaving aside the fact that without government-directed lending and with adequate private owner-contributed capital no industry would have developed with such overwhelming interest-rate risk, once capital was being depleted liability holders would not have tolerated any subsequent explosive growth of further lending.

A central issue is whether banking crises would be more or less likely to occur if there were more reliance on private owner-contributed equity capital, and less reliance on government determined minimum capital requirements and associated prompt-corrective-action rules, deposit insurance, regulation of allowable activities, and ownership and organizational restrictions. These regulatory functions were largely designed to overcome problems with various information asymmetries that could disrupt the credit system and payments mechanism, but as the examples above indicate, they create their own set of problems. Indeed, these problems may be of greater magnitude than the problems they were designed to address.37

As the following sections demonstrate, the U.S. banking crisis in the 1980s and early 1990s has much in common with the current crises in East Asia. The central similarities involve government-directed lending and inadequate private owner-contributed equity capital. In both the U.S. crisis and the East Asian banking crises there were different forms of government-directed lending. As with the U.S. case, despite banking institutions experiencing difficulties, there were extraordinary growth rates in bank credit relative to GDP growth in several East Asian countries. Again, as with the banks in the U.S., these growth rates occurred in the absence of adequate private owner-contributed bank equity capital. Neither the bank credit growth rates nor the original targeted bank lending that caused the difficulties would have developed as they did if decisions had been based on the existence of adequate private owner-contributed bank equity capital.
Banking Markets in East Asia

The Role of State-Owned Banks

Although there are many ways in which governments affect banking, it is helpful to understand that to varying degrees the banks in several East Asian countries are state-owned. As shown in Figure 11, in East Asia a significant percentage of banks’ assets are in state-owned banks. Until very recently in China, 100 percent of the banks were state owned. For other East Asian nations the respective percentages are 87 percent for India, 57 percent for Taiwan, 46 percent for Indonesia, 13 percent for Korea, 8 percent of Malaysia, and 7 percent for Thailand. As Figure 12 shows, the respective percentages for nations in Latin America are 48 percent for Brazil, 42 percent for Argentina, 28 percent for Mexico, and 14 percent for Chile.
For state-owned banks over which there is state control, it seems inappropriate to discuss their difficulties as a result of lax or inappropriate regulation and supervision. These banks' lending policies, accounting, disclosure, examination and supervision, and capital levels directly reflect state ownership of equity capital. Prompt corrective action rules for inadequately capitalized banks also reflect direct state involvement in banking. In many countries, moreover, there is interaction between state-owned banks and state-owned or subsidized commercial enterprises.

In these countries, the issue becomes more one of the advisability of state ownership of banks rather than lending determined by market participants in privately owned banks subject to some form of government regulation. Indeed, depending on the extent of state-owned banks in these country's banking sectors and related state involvement in commercial enterprises, the idea of bank regulation as one thinks of it in the U.S. does not apply.

In addition, the incentives of bank directors, officers, and private owners of bank equity capital in privately owned banks are different than those of officials who run state-owned banks with taxpayer contributed capital. In privately owned banks, directors and officers are generally provided incentives to maximize the expected future net cash flows for the benefit of the private owners of equity capital. The owners of bank equity capital also have an incentive to monitor bank performance to be sure that the expected future net cash flows are indeed being maximized.

In contrast, state-owned banks are capitalized, at least in part, by government allocation of tax dollars. Taxpayers do not in general have the same ability to be sure that an adequate risk-adjusted return on their tax dollars is being earned as private owners of equity capital do regarding their private funds. It is also highly unlikely that lawmakers, government officials, or managers of state-owned banks can or even attempt to design remuneration systems that would successfully mimic incentives of private equity capital owners and their agents.

The economic theory of regulation suggests that the outcome would be substantially different. Broadly stated the economic theory of regulation states that there is a demand for regulation by those who would be regulated. Once regulated, regulatees can among other things use the coercive power of government to stifle competition. State-ownership of banks is in a sense the limit case of regulation providing politically well-connected individuals the incentive to gain access to bank funds, to limit or blockade entry of other borrowers, and to limit or blockade exit (in essence to gain forbearance) in the case of difficulties. The economic theory of regulation would suggest that "crony capitalism" - lending to a select number of individuals on favorable terms based at least partly on non-economic criteria - would be the expected result of state-ownership of banks regardless of the form of the government.

The Banking Market in Indonesia
Assets in Indonesian state-owned banks have been declining, and assets in private national banks, joint-venture banks with foreign involvement, and foreign bank assets have been correspondingly rising from approximately 46 percent in 1991 to approximately 57 percent by 1995. This increase is frequently noted, and is an important change. Nonetheless, the Indonesian banking system is one still heavily influenced by state-owned banks. An important nuance, for example, is that the average size of the state-owned banks is approximately double that of private and joint and foreign banks.

In terms of relative efficiency, it is also interesting to compare nonperforming loans and profitability for state-owned banks in Indonesia relative to private banks. Nonperforming loans have been a substantially greater percentage of total credits for state banks relative to other banks in recent years. In 1995, for example, reported nonperforming loans at state-owned banks exceeded 15 percent in contrast to 5 percent for private banks. The return on assets in recent years of foreign banks in particular, but also joint banks, is substantially greater than state-owned banks. In 1996, return on assets for foreign banks exceeded 400 basis points in contrast to state banks reporting less than 100 basis points. This indicates that despite the relative size and special benefits that accrue to state banks, privately owned banks nonetheless have outperformed state-owned banks in Indonesia.

As shown in Figure 13, allowable foreign ownership of banks in the East Asian area is greatly limited. Based on allowable ownership of shares of stock in banks, only Hong Kong allows unlimited ownership, with Indonesia a distant second at 49 percent of shares. Thereafter, no country among India, Malaysia, the Philippines, Singapore, or Thailand allows more than 30 percent of shares to be owned by foreigners. This is an example of how these countries have adopted strategies that sometimes explicitly limit the type of foreign capital flow to their financial systems and the nature of competition.
The recent Indonesian experience suggests that privately owned banks in nations with a heavy influence from state-owned banks may perform better than state-owned banks. This outcome is consistent with the idea that banks in which there is private owner-contributed equity capital are better at determining the allocation of funds than state-owned banks in which the incentives and decision-making processes are likely to be quite different. The outcome is also consistent, for example, with evidence from the U.S. savings and loan crisis of the 1980s in which institutions resembled state-owned banks because of substantial government directed lending. This suggests that privately owned financial institutions are better able to adapt to changing conditions than are state-owned firm or firms subject to substantial government directed lending.42

State Influence on Bank Lending: The Case of Korea

As discussed above, Korea reported only 1.0 and 0.9 percent bank non-performing loans to total loans in 1994 and 1995, respectively, yet ended up requiring a large financial assistance pledge from the IMF. In addition, there are only two state-owned banks in South Korea, neither of which are in the top ten, and they hold only 13 percent of bank assets in Korea. There is, however, far more government involvement in bank and non-bank lending than these figures would indicate.

A recent IMF publication notes the following for Korea. "Explicit government-directed lending (Industrial Rationalization Loans) has given way to directed lending of a different kind - for example, banks are required to allocate a certain proportion of marginal loans to the small and medium-sized enterprise sector - while political influence on lending decisions appears to continue."43 Thus, there is direct government lending in the form of Industrial Rationalization Loans, and although this kind of lending is diminishing, the government has moved to allocating more lending through banks.

A footnote in the same publication referring to the Industrial Rationalization Loans notes that "The commercial banks still had W 4.5 trillion in policy loans (that is Industrial Rationalization Loans) on their books at end-1996, 56 percent of which were nonperforming." This is the outcome in Korea where government intervention in lending has developed without significant state ownership of banks.44

A report issued in November 1997, based upon an earlier internal IMF evaluation of Korea, concluded, "At present, the main risks to the banking system derive from the past practice of government intervention in banks' credit allocation decisions."45 The basic problem is that private sector financial decisions were not being made on the basis of adequate private owner-contributed equity capital being put at risk, something which an appropriate regulatory system or market forces absent the expectation of bailouts would require.46
Composition of Financial Markets in East Asia

Bank Assets, Bond Markets, and Equity Market Capitalization

As well as evaluating the performance of banks and the effect of the banks’ performance on among other things the likelihood of a financial crisis, it is important to evaluate the composition of financial systems. In general the broader and deeper a financial system, the more stable it will be and the more efficient it will be in channeling funds from savers to investors, thereby promoting economic development and growth. With the exception of the Hong Kong, Malaysia, and Singapore equity markets, in all of the East Asian countries the banking sector is larger than either the bond or equity sectors.47

As shown in Figure 14, bank assets as a percentage of GDP in China, Indonesia, Korea, Taiwan, and Thailand are greater and in some cases much greater than the nations' bond markets or capitalization of equity markets. For sake of comparison, as Figure 14 also shows, in the U.S. the banking sector is smaller than the both the bond and equity sectors.

![Figure 14](image)

Relative Position of Bank Assets, Equity, and Bonds, 1995

It is interesting to note that in China, Indonesia, Taiwan, and Thailand, the bond markets are extraordinarily rudimentary. Relative to bank assets and equity market capitalization, bond markets in Hong Kong, Malaysian, and Singapore are also relatively small. In China both the bond market and the capitalization of the equity market are extremely small relative to bank assets. It is also important to note that until relatively recently equity market capitalization in Indonesia was effectively insignificant as well, representing as little as 5.8 percent of GDP as recently as 1991.

Given the extent of relatively recent direct state-ownership of banks in East Asia and Latin America as well as the indirect involvement of governments in banking markets, the size of the banking sector relative to other components of the financial system can be of extreme importance. For a
given level of state ownership of banks, for example, if the banking sector is large relative to the debt and equity sectors, non-bank, market-related financial firms may be at a significant disadvantage relative to state-owned banks. Commercial firms may also have less access to non-bank and non-state-owned bank sources of funds. This is particularly important with respect to the financing of large industrial projects where individual banks are subject to loan-to-one-borrower limitations.

In addition, a financial system is going to be affected to a greater degree by bank difficulties if the banking sector is large relative to other sectors. Bank failure costs relative to GDP will tend to be higher. The effect of bank failures on economic development and growth will also be greater. Even in the absence of state involvement, a financial system is likely to be less efficient and less stable if it is dominated by one sector. All the sectors are complements, not substitutes, in affecting economic development and growth.

These issues are not limited to any one region of the world or any one stage of economic development. Many Latin American nations have financial systems that are relatively small percentages of GDP. In addition, highly developed nations like Germany and Japan have bank assets that dominate both bond markets and the capitalization of equity markets. Many of these "stylized" facts on the size and composition of financial systems reflect laws, regulations, and taxes, not simply market forces. Such laws, regulations, and taxes, in turn, by affecting financial systems, can enhance or impede economic development and growth.

The Role of Short-Term Foreign Debt in the East Asian Crises

Figures 15 and 16 show short-term foreign currency denominated debt to international reserves for selected East Asian and Latin America countries in 1995. As the figures show, the ratio was 245 percent for Mexico and over 160 percent for Indonesia. These countries are clearly outliers. The next highest ratios were for the Philippines at 85 percent and Argentina at 74 percent. The remainder of the nations had relatively modest ratios ranging from a low of one percent for Brazil to 43 percent for Thailand.
Those nations whose crises resulted in the largest financial assistance pledges from the IMF were those with the most significant ratios of short-term debt to international reserves - Mexico in 1995 and Indonesia, Argentina, and Thailand in 1997. Clearly, those nations with the highest ratios were the ones with the greatest need for financial assistance in order to be able to both help repay the short-term foreign debt as it became due and to help replenish their international reserves.

As discussed above, these nations were also the ones whose bank loan growth relative to GDP was the highest in the 1990-1996 period - Mexico, Indonesia, and Thailand. Again, all of these data were available to the individual governments and the IMF and other trans-national agencies. Again, an issue that arises is whether the IMF essentially engaged in forbearance, thereby increasing the severity of individual country's crises and raising the cost higher than it would have been otherwise.
Another issue is raised by the disparity in risk exposure of lending by banks headquartered in different countries. As Figure 17 shows, only 6 percent of international bank lending came from U.S. banks, while 35 percent came from Japanese banks and 43 percent came from European Union banks. These differences raise an issue about who benefits from the financial assistance being provided to countries with financial crises, and who should ultimately pay for such assistance.

In reaction to the short-term borrowing issue some, most prominently Mr. Fischer, have suggested considering adoption of rules that would limit short-term borrowing from foreigners. The rationale for limiting this particular type of foreign capital flow is based on the view that the current crises could have been lessened significantly if East Asian banks and others had less access to short-term foreign currency loans.48

Size of the Banking Market and Economic Development

In general, the less developed the nation, the more likely the nation's economy is going to be dominated by agricultural production, in contrast to industrial production and the provision of services. In turn, the more a nation relies on agricultural production the less complex will be the financial markets and the larger the banking sector will be relative to the bond market or equity market capitalization.

In that light, it is instructive to view Figure 18. As the figure shows, as recently as 1970, most of the East Asian nations relied heavily on agriculture as a percentage of each nation's GDP. Since then, however, there has been a significant decline in each nation's reliance on agriculture, with offsetting gains distributed in the industrial and services sectors.

The implication is that the bond markets and equity market capitalization of
these countries will tend to increase as this process of development continues with an accompanying greater need for large infrastructure projects and more external funds for larger commercial firms.\textsuperscript{49}

**Figure 18**

For comparison, Figure 18 also shows the percentage of GDP represented by agricultural production in the U.S. at approximately 2 percent. Thus, the U.S. and other fully industrialized nations have both the least amount of GDP represented by agricultural production combined with the most elaborate financial systems.

**A Look Inside the Bond Markets**

Even within the East Asian bond markets there are indications of government involvement that suggests state bond financing of commercial ventures. This can take the form of state enterprise bonds, or state bonds for commercial ventures. As shown in Figure 19, in selected East Asian countries the portion of state enterprise bonds to the sum of corporate bonds plus state enterprise bonds is relatively high. In 1995 there were no corporate bonds in China. In India, Indonesia, and Thailand state enterprise bonds were more than 40 percent of all commercial enterprise bonds. Korea and Malaysia also had substantial state-enterprise bonds as a percent of state-enterprise and corporate bonds in 1995.
Again, the existence of state-enterprise bonds is another example of direct government involvement in the financial systems of the East Asian nations, as well as elsewhere. It is another indication that there are a large number of ways, directly and indirectly, in which governments can influence financial systems primarily through state-owned banks, direct government lending, government-mandated lending through private banks, regulation of products and prices of private banks, and state-sponsored commercial enterprises. In effect, this results in employing public-contributed equity capital rather than private owner-contributed equity capital for financial allocation decisions. This creates incentives in which financial decisions are not based strictly on economic criteria related to risk and return, but also on non-economic criteria based on bureaucratic myopia, corruption, nepotism, cronyism, and more.

Policy Implications and Conclusions

Becker Versus Rubin: The Role of Government Intervention Versus Markets

As the following quotations indicate, there is a fierce rhetorical debate coinciding with the substantive debate. In February, the Nobel Laureate economist Gary Becker (1998, p. 22) was quoted as saying that "...obtrusive regulations and excessive government control over the financial sector are the weakest links in the economic superstructure of Indonesia, Malaysia, Thailand, and South Korea." Their governments, he said, "have regularly steered subsidies and other assistance to favored companies and bailed out those that got into financial difficulties...."

In contrast, at about the same time, the United States' Secretary of the Treasury, Robert Rubin, was reported to have said that "...the Asian crisis demonstrates that markets cannot be trusted to correct their own excesses
and [he] called on governments to step in and 'modernize the architecture' of international finance."

Becker might wish to re-paraphrase the Secretary, saying that the East Asian crisis demonstrates that governments cannot be trusted to correct their own excesses, but in the process of trying to obscure them they can be counted on to blame markets. The analysis presented in this paper, certainly, is not consistent with the hypothesis that the East Asian crisis is the direct result of market forces leading to instability.

In each of the East Asian countries experiencing severe banking problems, to varying degrees the banking sectors are significantly influenced by direct and indirect government intervention, including state ownership of banks. The bond and equity sectors are small relative to the bank sector. Even within the bond sector there is significant government influence on borrowing. In many countries, moreover, non-financial markets are significantly influenced by direct and indirect government intervention.

In such an environment, it appears inappropriate to claim that the recent difficulties have been caused by market forces. Rather individuals within countries experiencing difficulties have responded to a distorted incentive structure, based largely on inadequate private owner-contributed equity capital in banking and other enterprises that would serve as a constraint on risk-taking behavior. Individuals in other countries, moreover, have undoubtedly channeled funds into those countries based in part on the belief that the IMF, and others, would be standing by ready to provide financial assistance when the crisis struck.

It appears equally inappropriate to believe that a central remedy ought to be an attempt to focus more on international capital standards, examination and supervision regimes, activity limitations, ownership restrictions, and explicit deposit-insurance systems regarding the nations' banking sectors. In part this is the case because similar regulatory regimes were generally already in place, but did not prevent the difficulties.

To the degree that bank lending occurs with little or no private owner-contributed equity capital at risk, and hence little or no market evaluation of risk and return, the imposition of such policies can border on meaningless. It is clear that in far too many countries significant government intervention in what are often rudimentary financial systems is the rule rather than the exception.

The Appropriate Role of Government and Markets

Our analysis of the East Asian banking and more general financial crises suggests that the most important issue that needs to be addressed is the widespread and inappropriate intrusion of many of the region's governments directly and indirectly into the financial system. The inappropriate intrusion of government into the financial system has the effect of supplanting the important role played by private owner-contributed equity capital. The outcome is a structure of incentives resulting in widespread financial
decisions being widely divorced from a more market-based analysis of risk and return.

As we have discussed in detail, in many countries government involvement extends to extensive state ownership of banks. It includes direct state involvement in corporate bond markets, state limitations on private and foreign involvement in financial systems, and state direction of lending of non-state owned financial institutions toward state-selected enterprises.

In our view, the remedies that should be emphasized are ones that in various countries to various degrees are already underway, but need to be dramatically accelerated. State ownership of most financial institutions should be phased out. Private and foreign ownership of financial institutions should be encouraged, especially when failed state banks are seized and reorganized. Expansion of what are now often insignificant bond and equity markets should be a primary goal as countries grow and mature.

Foreign investment of all types should be encouraged, not only by specifically encouraging it, but also by lowering huge transactions costs that are now embedded, for example, in corruption (sometimes official), in non-impartial judiciary systems and government civil services, and in inappropriate or non-existent accounting. In our view the emphasis should be on adequate private owner-contributed equity capital as the basis for making most decisions about the allocation of financial and real resources. This should be a central tenet of future IMF and other trans-national proposals regarding international banking and financial crises.

Designing Solutions: Experience in the Developed World

In designing solutions involving banks in developing East Asian economies, it may help to look at the unprecedented number of recent banking crises in developed countries. In some of these countries the difficulties have occurred despite elaborate restrictions on allowable activities, on form of ownership and organizational structure, and on location. Even countries that combined explicit deposit-insurance schemes, minimum capital requirements based upon the Basle accord and prompt corrective action rules, elaborate examination and supervision, and fairly high degrees of transparency did not avoid difficulties.

That is certainly true of Spain and Canada, which experienced banking problems from the late 1970s through 1985. Denmark and the U.S. experienced significant banking problems in the period 1987-1992. The savings and loan crisis in the U.S. extended from the early 1980s through the early 1990s. Six countries - Germany France, Italy, Finland, Sweden, and Switzerland - experienced banking problems for some number of years in the period 1987-1995. Finally, Japan has experienced significant banking difficulties since 1992.

Perhaps the best single window through which to examine these issues may be the savings and loan crisis in the U.S. in the 1980s and early 1990s. In 1980 the savings and loans in the U.S. had one of, if not the most,
elaborate regulatory mechanisms in the world imposed on privately owned firms. There was federal deposit-insurance and a prompt-corrective-action mechanism for resolution of troubled and insolvent savings and loans. There was a statutorily mandated, relatively high minimum capital standard that most savings and loans met. There was an elaborate examination and supervisory apparatus. There was, moreover, no issue about an inadequate accounting system or more generally, a lack of transparency. In other words, there were all the regulatory attributes that now much touted by among others the IMF.

At the same time, however, as discussed above the government simultaneously required savings and loans to make fixed-rate, long-term home mortgages financed by shorter-term, more variable rate deposits. The government largely forbade the use of variable-rate mortgages and the use of futures and options markets to hedge interest-rate risk. Then the yield curve inverted, and the entire industry was deeply insolvent in 1981. In response to this dire situation, the Congress - with full knowledge of the extent of the problem - lowered capital standards and jettisoned prompt corrective action measures.

The problem was not the absence of an explicit deposit-insurance system, capital standards, prompt corrective action requirements, restricted activities, government examination and supervision, or a lack of transparency. The problem was that within this structure the government mandated what kind of loans could be made and how to price them. When in response to market forces the government-directed lending program fell apart, the appropriate incentive system was also permitted to fall apart. The government basically spent a decade making the situation worse and blaming others.

Our analysis above suggests that this is a remarkably similar pattern to what has happened in the contemporary East Asian banking and more general financial crises. Much of the deregulation and privatization came too late. And then when private owner-contributed equity capital was inadequate. Despite this situation a credit boom was tolerated, heavily funded with short-term foreign debt.

The Role of the IMF and other Trans-National Agencies

It is certainly true that the IMF and the other trans-national agencies, for example, have called for greater "transparency" through improved accounting and less government secrecy. They have also lauded privatization of banks when it has occurred and encouraged it when it has not occurred. Likewise, they have encouraged increased foreign investment and ownership of banks. Yet, it does not appear that these are the central components of their proposed remedies for banking difficulties in East Asia, or that they are central to their analysis of the East Asian banking difficulties.

In addition to their continued role in providing financial assistance for international banking crises, a central goal of the IMF appears to be the
imposition of international banking protocols, whose design and implementation would be heavily influenced by the IMF.\textsuperscript{51} As the IMF has discussed widely, the banking protocols that are envisioned build upon the Basle accord on required international capital levels and complementary explicit deposit-insurance schemes.\textsuperscript{52} The IMF has stated that banking crises around the globe have resulted because of inappropriate banking practices and regulatory regimes, and that their proposed reforms would help reduce the number and severity of bank crises.

As has been pointed out, however, depending on the degree of state influence in commercial ventures and bank lending, if the lending decisions prove inappropriate, the concept of "adequate regulation" may not apply at all. The banks in this kind of arrangement are instead instruments of government policy which can lead to politically favored lending to selected commercial entities. Likewise, the concept of adequate examination and supervision that in the U.S. applies to privately owned banks, for example, cannot be similarly applied to state-owned banks carrying out state policies.

Government-determined capital levels and decisions of how to handle insolvent state-owned banks cannot be compared to either market-based capital levels and bankruptcy proceedings or required minimum capital levels and prompt corrective action rules adopted by bank regulators in countries like the U.S. This largely describes the nature of the banking markets in some of the East Asian countries in which there has been substantial direct and indirect government intervention in the financial systems.

In the absence of market-driven lending based on a market-evaluation of risk and return with adequate private owner-contributed equity capital as the backstop, such recommendations cannot be viewed as sufficient efforts at financial reform. To the contrary, these countries need assistance in eliminating the state-ownership of banks where it exists. Similarly, these countries need help in reducing, if not, eliminating state direction of lending either through state-owned banks, indirectly through influence on non-state-owned banks or through bond markets. State influence can either go through financial institutions or directly through government sponsorship of commercial ventures. The latter form of state influence can corrupt financial systems to such a degree that banks and non-bank financial institutions can be adversely affected. As a result, countries need help in minimizing these forms of government intervention in financial systems.

Furthermore, these countries need assistance in lowering the sometimes substantial transactions costs associated with among other things corruption, inadequate legal protection and enforcement of property and other legal rights, biased judicial and civil service systems, and flawed accounting systems. These are the kinds of reforms that can establish greater compatibility with the developed world's financial systems.

New Government-Imposed Rules on Selected Types of Activities
As discussed above, some individuals have mentioned the possibility of new rules limiting certain forms of short-term foreign borrowing. The heaviest short-term foreign borrowing relative to international reserves occurred in nations whose financial systems are dominated by state-owned banks, and have significant government direct and indirect influence over financial and non-financial firms. The accumulation of the short-term foreign debt over time appears to have been reported publicly and was therefore known by the relevant governments, the IMF, and other trans-national agencies. Thus, if the accumulation of the short-term foreign debt did not directly reflect government policy, it was tolerated by the respective governments without significant concern expressed by the IMF and other trans-national agencies. This suggests that short-term foreign lending per se was a symptom but not the cause of the difficulties facing certain nations.\textsuperscript{53}

As with the substantial growth rate of bank lending relative to GDP growth in these nations, the accumulation of short-term foreign debt relative to international reserves is relevant to the moral-hazard problem discussed above. The participants in these transactions - foreign lenders, regional banks, and regional governments - were aware of the risks that were being taken. Given the pattern of past IMF financial assistance, it became reasonable to expect future IMF financial assistance would be provided if new financial crises developed, thereby creating an incentive to take excessive risk with short-term debt, as well as with bank lending. The implication is that it may be more appropriate to curtail expectations of future IMF financial assistance in financial crises, rather than establishing rules regarding short-term foreign debt levels.

**The IMF and Bank Regulation**

The IMF would like to play a significant role in designing and implementing international bank regulatory protocols. In an address at the G-7 summit in Lyons in June 1996, for example, Mr. Camdessus said "The dissemination of a clear set of internationally accepted standards could provide the basis for the regulation and supervision of banking systems around the world." He added, "...the IMF, because of its legitimacy and universal responsibility for surveillance, has a role to play in facilitating this globalization of standards for bank supervision developed in Basle and put in practice in the G-10 countries."\textsuperscript{54}

If these efforts are successful, the IMF will have new and expanded powers, potentially becoming a new form of international bank regulator. If so, such a position and the specific regulations that it advocates merit debate, especially given the IMF's history of ineffective and potentially destabilizing actions in the recent crises in East Asia and elsewhere.

**Endnotes**

\textsuperscript{1}See Lindgren, Garcia, and Seal (1996, p. 30).

3See Chote (October 21, 1996, p. 10).

4See Caprio and Klingebiel (1997, p. 80 and 1996, p. 15), who provide the first and most extensive compilation of data on bank insolvencies worldwide.

5For information on bank structure and regulation in the nineteen non-overlapping G-10 and European Union countries, see Barth, Nolle, and Rice (1997).

6Indeed, in a study of 49 countries La Porta, Lopez-de-Silanes, and Shleifer and Vishny (1997, p. 1132) conclude that there is "... strong evidence that the legal environment has large effects on the size and breadth of capital markets across countries." Also, see Levine (1997, 1998), who concludes in the more recent study that "Although changing legal codes and improving the efficiency with which legal systems enforce laws and contracts is difficult, the economic returns to improving the legal environment appear very large." (1998, pp. 21-22)

7See, for example, Barth, Nolle and Rice (1997, Table 6a).

8More generally, modern information technology, by increasing available information and lowering transactions costs, allows for a diverse range of financial products and services without as much need for liquidity and maturity transformation services that have been traditionally provided by financial intermediaries. As a result, the traditional intermediaries are increasingly repositioning themselves as asset managers and risk managers.

9In this regard, according to Borsuk and Casey (April 27, 1998, p. A19), "A new Indonesian court to deal only with bankruptcy cases will open in August. But while foreign bankers applauded the move, it's not certain that the court will give them what they want: an effective legal mechanism to declare debtors bankrupt and deal with selling their assets... Indonesia's lack of a credible and efficient legal mechanism for settling disputes between creditors and debtors is an old problem."

10For the classic statement of the role of such a lender, see Bagehot (1873), and as applied in an international context, see Barth and Keleher (1984). For a good discussion of the general issue of systemic risk, see Kaufman (1995).

11Neither the lender of last resort nor a deposit-insurance system is designed to keep insolvent institutions open. As long as runs cannot spread from insolvent institutions to solvent institutions, the credit system and payment mechanism need not be disrupted when runs occur on the former. In the U.S. savings and loan and banking crisis of the 1980s and early 1990s, deposit-insurance protection was provided to depositors of
institutions left open even though reporting insolvency. The reason was that the deposit-insurance agencies, for a lengthy period of time, did not have and did not request the necessary financial resources to resolve all insolvent institutions at the time of reported insolvency. This was a manifestation of the moral-hazard and principle-agent problems. In the East Asian crisis of 1997 and 1998 in Indonesia, deposit insurance was implemented for depositors of insolvent banks after they had been seized.

For further discussion of these issues, see Barth and Brumbaugh (1994).

The G-10 countries include Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the U.K. and the U.S. Switzerland became a full member in 1984, bringing the group to eleven members. Since 1984 the G-10 has included 11 countries.

In a seminal study, King and Levine (1993, p. 540) conclude that "We find support for the core idea advanced in our model: better financial systems stimulate faster productivity and growth in per capita output by funneling society's resources to promising productivity enhancing endeavors." More generally, see Levine (1997) for an excellent survey of this literature.

The total financing committed was $40 billion to Indonesia, $57 billion to Korea, and $17.2 to Thailand. See IMF (January 1998).

The IMF itself admits that "There is neither point nor excuse for the international community to provide financial assistance to a country unless that country takes measures to prevent future such crises" (IMF, April 6, 1998, p. 101).

As Barth and Keleher (1984, p. 66) state, "... the IMF must depend on the limited contributions from member countries for funds to lend. Once the IMF reaches this quota, its funds are exhausted; it cannot create either a world currency or the currencies of its members. Since the ability to create money is the chief feature distinguishing a lender of last resort, the IMF does not qualify fully for that role."


According to Jeffrey Sachs (1997), Director of the Harvard Institute for International Development, "The secrecy...makes it impossible to maintain broad public and professional scrutiny of IMF operations.... In short, the IMF gets away with serious mistakes of judgement that never come to light."

Mr. Camdessus (IMF, March 23, 1998, p. 89), for example, admits that "...it is true that some short-term creditors are being at least partly protected [when the IMF provides financial assistance]."

In particular, according to Philippe Maystadt, Chairman of the Interim Committee of the Board of Governors of the IMF (IMF, April 27, 1998, p. 114), it is the intention of the IMF "To actively encourage members to adopt internationally agreed standards for strengthening banking regulation and supervision."
This definition of crisis is based on Sachs, Tornel, and Velasco (1996).

It is interesting to note that Mexico had a negative crisis index, reflecting the earlier resolution of its crisis. Despite a relatively high growth rate in bank credit, Hong Kong's crisis index was also negative, reflecting perhaps the existence of a currency board and a relatively high level of international reserves.

According to Sanger (1998, p. A1) for example, "A confidential report by the International Monetary Fund on Indonesia's economic crisis acknowledges that an important statement of the IMF's rescue strategy backfired, causing a bank panic that helped set off financial declines in much of Asia". In addition, Sachs (1997) states that "The IMF has not stopped the panic, and arguably has added to it, both by its rhetoric (which underplays the role of panic and overplays the weaknesses in Asia) and by its draconian macroeconomic policy conditions."

The term "prompt corrective action" (PCA), in general refers to increasing regulatory scrutiny and intervention as a banking institution's reported capital declines. For a recent summary of the provisions, see Barth, Nolle, and Rice (1997), Table 13. One recent empirical assessment of prompt corrective action concludes that the "...results raise doubts about whether PCA legislation will reduce BIF losses" (Gilbert 1992, p.20). Alice M. Rivlin, Vice Chair of the Board of Governors of the Federal Reserve System, moreover, states that "Supervisory sanctions under Prompt Corrective Action were to be based on the bank's risk performance as measured by its levels of regulatory capital, in particular its leverage ratio and total risk-based capital ratio under Basle capital standards." (Rivlin, 1996, pp. 5-6) Yet, "These standards now seem well-intentioned but rather outdated." The reason, according to Ms. Rivlin, is that "the scope and complexity of banking activities has proceeded apace during the last two decade or so, and standard capital measures, at least for our very largest and most complex organizations, are no longer adequate measures on which to base supervisory action".


In the case of Indonesia, McLeod (1996, p. 29) states that "Frustration with the central bank's inability to enforce regulations against politically powerful bank shareholders (including the government itself) is resulting in more and more prudential regulation, but little actual progress in improving prudential standards."

The relevant banking laws largely evolved in the U.S. from the early 1930s following the Great Depression and involved government-mandated allocation of a significant proportion of financial services and products among banking institutions. In general, among banking institutions (commercial and mutual savings banks, savings and loans, and credit unions), who could offer what product at what price in which location, for example, was largely determined by the government. Although still heavily regulated, different types of banking institutions are now largely free to
offer many of the same products and services wherever they wish. For more information comparing U.S. banks to banks in other industrial countries, see Barth, Nolle, and Rice (1997).

Studies find that in the 1980s on average savings and loans could not profitably hold fixed-rate home mortgages in portfolio. See, for example, Carron and Brumbaugh (1991) and Passmore (1992). Yet, the first year that federally chartered savings and loans could make commercial loans was 1982. The first year that federally chartered savings and loans could make consumer loans or issue credit cards was 1980. The first year they could make construction or education loans was 1978. For more information on these and other restrictions on the activities of savings and loans, see Barth (1991) and Brumbaugh (1988).

As recently as 1950, 65 percent of the total financial assets in U.S. financial intermediaries were in banking institutions. The percentage has declined steadily to less than 30 percent in 1997. In the process, there has been significant development of less regulated non-bank competition to which the heavily regulated banks have had to adapt.

It is important to note that the problems of savings and loans were not associated with securities and insurance activities or investment in non-financial firms or visa versa.

See Barth, Page, and Brumbaugh (1992) for an analysis of the importance of the put option to savings and loans in the 1980s.

Importantly, in a study of thirty-one episodes of systemic banking crises in developing and developed countries, Demirgç-Kunt and Detragiache (1997, p. 33) report that "Our regressions indicate rather unambiguously that the presence of an explicit deposit insurance scheme tends to increase the probability of systemic banking problems." Furthermore, Cull concludes "...in countries that adopt deposit insurance to stop or delay a crisis (i.e., those with high financial instability), the program has been unsuccessful." (1998, p. 19)

See Barth and Litan (1997).

See Brumbaugh (1988).

See Barth and Litan (1997).

Kaufman (1996, p. 18) states that it can be argued that "...the poor performance of banking experienced in almost all countries in the last two decades reflects primarily regulatory or government failures, rather than market failures." Also, Caprio (1996, p. 18) states that "If owners have more at stake... they can be expected to take greater measures to safeguard their bank than under the present system in most countries with limited liability, modest capital requirements, and some form of deposit guarantee."

39 See IMF (September 1997) and Montgomery (1997).

40 See references in Footnote 34.

41 With respect to the particular type of limitations being discussed, Claessens, Demirgç-Kunt, and Huizinga (1997, p. 18), in an interesting study of banking in 80 countries, find "that the overall welfare implications of foreign bank entry are positive."

42 In a recent study of the financial sectors in East Asia, Claessens and Glaessner (1997, p. 35) state that "to achieve better banking systems, countries must...reconsider the state role in the financial sector."

43 See IMF (November 1997, p. 150).

44 This is not to say that all such intervention is, or has been, inappropriate. Rather, as Korea and other countries develop and grow, greater reliance on market forces becomes crucial.


46 This is consistent with Caprio and Klingebiel's conclusion, based upon a study of banking sector insolvencies in 29 countries, that "...the primary causes of bank insolvency are considered to be deficient management, faulty supervision and regulation, government intervention, or some degree of connected or politically motivated lending."

47 The relative size of the banking sector in the U.S. to the bond market and equity market capitalization largely explains why the banking crisis of the 1980s and early 1990s did not disrupt the U.S. financial system significantly as well as the real economy. Indeed, the estimated resolution cost for the savings and loan crisis was 3.5 percent of GDP (see Barth and Litan (1997).

48 In this regard, Claudio Loser (1998, p. 67), Director of the IMF Western Hemisphere Department, states that "...controls - either on inflows or outflows - have been ineffective at best, if not useless, because such restrictions tend to be easily and quickly circumvented. Nevertheless, in the case of certain countries - Columbia and Chile, for example - the authorities have successfully introduced or maintained certain capital controls on inflows". Sebastian Edwards (1998, p. A19) stresses the limitations and costs of such controls, but states that "during the transition a scheme [of controls on short-term capital flows] similar to that used in Chile may be helpful."

49 Furthermore, Black and Gilson (1998) argue that stock markets are more conducive to entrepreneurial activity and venture capitalists than bank-based financial systems.


51 The IMF (March 26, 1997, p. 156) states that it "...is paying increasing
attention to the quality of banking systems in its surveillance and its technical assistance... [and in] advising its members on banking standards, the IMF will use the Basle Committee's new core principles wherever possible."

52 It is worthwhile pointing out that at the same time within the U.S. under some circumstances official support of deposit insurance may be eroding. Thomas M. Hoenig (1996, p. 11), President of the Federal Reserve Bank of Kansas City, for example, has recently stated that "In light of the costs and difficulties of implementing prudential supervision for larger institutions who are increasingly involved in new activities and industries, the time may have come to sever the link between these institutions and the safety nets making it feasible to significantly scale back regulatory oversight of their operations".

53 Lawrence Summers (1997), U.S. Deputy Treasury Secretary, states that "The speculative activity we saw in the weeks leading to the crisis was the result - not the cause - of Thailand's problems." He adds that he does "...not believe the openness of Thai financial markets was responsible for the crisis."

54 See IMF (1996, p. 236). For a discussion of the role of the IMF as a potential international lender of last resort, see Barth and Keleher (1984). Other proposals for international agencies also exist. Noia (1995, p. 30), for example, states that "The problems of coordinating different countries DIA's (Deposit Insurance Agencies) are so big that they could be solved in various ways..." including "...the creation of a European DIA..." which "...could be something like a regional agency for Europe of an international deposit insurance corporation."

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