Corporate Governance of Banks in Asia

– Volume 2 –

A Study of Indonesia, Republic of Korea, Malaysia, and Thailand

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Preface

This study is about the practice of corporate governance in the banking systems in post-crisis Asia. Corporate governance has been a key area of research in the Asian Development Bank Institute (ADBI). This study follows an ADBI research project completed in 2004 with a publication, *Corporate Governance in Asia: Recent Evidence from Indonesia, Republic of Korea, Malaysia, and Thailand*. While basic corporate governance principles are to be shared by banking institutions as they are by non-financial firms, bank governance has its own uniqueness and challenges. This is mainly due to the nature of banking services and the consequent supervision and financial safety nets provided by the government.

While it is now widely recognized that all the Asian central banks have introduced regulatory reforms to encourage the development of good corporate governance policy in the banking institutions during the post-crisis period, not much is known about the success of these policy reforms. The primary focus of the study was to address the issue of corporate governance practices in the banking institutions of four Asian countries—Indonesia, the Republic of Korea, Malaysia, and Thailand—in the post-crisis period 1998−2003. The two volumes in this study are based on four country studies by country consultants (volume one) and six theme papers mostly by field consultants (volume two). The coverage of the theme papers includes a review of the current issues in corporate governance of banks, board effectiveness, risk management procedures, the role of market discipline, compensation of bank CEOs and directors, and financial safety nets in these countries.

An important contribution of this study is the empirical results from questionnaire surveys on the boards of directors including the opinions of board members on board effectiveness, executive compensation, and risk management practices in the banking institutions in the four countries. These results provide useful insights into the observed behaviors of board members as well as the significance of and progress in other aspects of bank governance in post-crisis Asia. In addition, the ADBI in collaboration with the country consultants collated factual information on the legal and regulatory environment relating to bank supervision and financial safety nets, bank operations and ownership, composition and functions of the boards, and disclosure rules in the banking systems in the four countries. The questionnaire survey covers 63 banks: 26 in Indonesia, 14 in the Republic of Korea, 10 in Malaysia, and 13 in Thailand.

In the process of conducting the research, the ADBI in collaboration with the Center for Economic Institutions at Hitotsubashi University hosted two seminars on the subject in Tokyo in June 2004 and January 2005. We would like to thank Professor Juro Teranishi, Director of the Center, for his strong support in organizing the seminars. The authors of the papers and other contributors and discussants at the seminar guaranteed the success of this study with their time, constructive discussions and confidence in the outcome. We thank all of them for their contributions.

We hope this study will provide an updated and broader perspective of the corporate governance mechanisms and practices of the banking institutions in post-crisis Asia.

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ADB Institute wishes to thank the discussants for their valuable comments and contributions on 10–11 June 2004 and 21–22 January 2005 at the two seminars on Corporate Governance of Banks in Asia, organized in collaboration with the Center for Economic Institutions, Hitotsubashi University in Tokyo.

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Executive Summary

This is the second volume resulting from the study on corporate governance of banks in Asia undertaken by the Asian Development Bank Institute (ADBI). This volume contains six theme papers that were presented at the seminars in Tokyo hosted by the ADBI in collaboration with Hitotsubashi University Center for Economic Institutions in June 2004 and January 2005. The theme papers include a mixture of conceptual and empirical studies chosen to highlight the major corporate governance mechanisms and key institutional factors affecting corporate governance in the banking institutions. The empirical analysis contained in these theme papers are based on survey results conducted in the four Asian countries—Indonesia, the Republic of Korea, Malaysia, and Thailand—and collated by ADBI in collaboration with the country consultants.

The first theme paper by Nam provides the conceptual overview of some of the important issues related to corporate governance of banking institutions. Starting from a discussion of the uniqueness of bank governance, the paper addresses the roles of financial safeguards and prudential regulation and supervision as well as their impact on corporate governance of banks. Also discussed is the potential for banks in developing Asia to be monitored and disciplined by the market—shareholders, depositors, and other creditors. Lastly, the paper touches on the roles and effectiveness of key corporate governance mechanisms for banks, including the board of directors, risk management and internal control, and compensations of bank executives and directors. Each of these issues is more substantially elaborated upon in the other theme papers.

The authors of the theme papers in this volume are leading intellectuals and academics known for their outstanding conceptual and empirical work on corporate governance in the Asian economies. The corporate governance issues pertinent to Asian banks that are addressed in the theme papers are still in constant evolution and are in need of deeper understanding for public policy considerations. This volume is a convenient collection to convey this fact forcefully and to present the connections between conceptual analysis of corporate governance issues and the actual practices of corporate governance in the post-crisis Asian banking systems.

The theme paper by Grenville discusses the nature of financial safety nets—lender of last resort and depositor protection. He concludes that to rely too

much on these safety nets to prevent another crisis would be a serious policy mistake. He emphasizes two fundamental elements of institutional setup. One is developing a resilient financial system that does not need much help from safety nets. His interesting and provocative suggestion is that emerging economies may consider the option of creating differentiated financial institutions, each with different risk characteristics. Then, depositor protection comes through protecting the institution (with the least risk characteristics), not the depositor. This perspective, which does not rely on deposit insurance for consumer protection per se, takes the focus away from depositors and puts it on the financial institutions. The other element of institutional setup Grenville emphasizes is creating a strong and independent prudential supervision that will keep the system sound, identify problems early, and close banks before the owners' equity is depleted. He addresses the question of where prudential supervision should best sit within the structures of the financial sector. Contrary to the current wisdom, he believes that the central bank is probably the best prudential supervisor.

The theme paper by Fan and Yupana analyzes the recent corporate governance structures and the performance of fifty-nine banks in the four Asian countries. Their investigation is based on the results of a comprehensive survey, managed by the ADBI, of banks in the four Asian economies. Their findings confirm that the banks' corporate governance characteristics are generally in line with their ownership and control structures.

Specifically, their results suggest that boards in widely held banks and foreign-controlled banks are likely to be smaller and more independent, consist of fewer politicians, more clearly separate the functions of the chairperson and CEO, and provide more professional bank leadership. In contrast, boards in family-owned banks or the state-controlled banks tend to be larger and less independent, consist of more politicians, less clearly separate the functions of the chairperson and the CEO, and provide less professional leadership. The difference in governance structures between these two groups of banks, according to Fan and Yupana, may be due to their different business models. Widely held and foreign-controlled banks rely more on arm-length transactions and equity markets for external financing, whereas family-owned and state-controlled banks rely on relationship-based banking and depend less on external equity markets for financing needs. The authors' results do not find strong support for the notion that the banks' performance or efficiency is related to their governance structures, which is expected if

the governance structures are endogenously determined by their business environments. The primary policy implication of their findings is that if policymakers make any attempt to change the governance structure in a banking system, they must consider the variety of institutional constraints to which the banks are subject.

The theme paper of Hosono analyses the effectiveness of market discipline in the banking institutions in the four Asian countries. His analysis is based on the results of the ADBI survey on disclosure, deposit protection, and some other institutional factors in these countries as well as bank-specific information. The empirical evidence in his research shows two sets of results. First, his findings confirm that there is a negative relationship between deposit interest rate and bank equity capital, suggesting that depositors could understand bank risk and identify a problem bank. This result is particularly evident in the cases of Indonesia and Republic of Korea. According to Hosono, the sensitivity of the deposit interest rate to bank capital was higher before the crisis, probably reflecting the fact that the deposit guarantee was less generous before the crisis than during and after the crisis.

Second, his findings show a positive relationship between market-valued capital and equity capital, suggesting that the stock market incorporates bank risk and that accounting information was reliable to some degree. This relationship is stronger in Malaysia and Republic of Korea and for the banks that have been rated by an international agency. His findings suggest that the improvement in the sensitivity of market-valued capital to equity capital after the crisis could be a reflection of the improved disclosure and accounting standards in these countries. A key result that emerges from his study is that adequate disclosure and partial deposit protection are of particular importance to enhance market discipline. There is little evidence, however, to suggest that the stock market exerts any market discipline on family-owned banks.

An interesting issue in corporate governance is the relationship between financial incentives or executive compensation and bank performance. The analysis of this issue by Kubo breaks new ground with the application of his empirical research on Asian banks in the four countries. His analysis, based on the ADBI questionnaire surveys of executive compensation, focuses on directors' compensation and CEO turnover in the four countries; his findings reveal that fixed pay constitutes a significant proportion of total cash compensation. He finds the existence of a positive and significant relationship

between stock return and compensation for the CEO, the board of directors, and the executive directors. Also found is a significant relationship between poor return on assets (ROA, current and lagged) and CEO turnover. He feels that the empirical evidence is persuasive enough for him to conclude that bank directors have incentives to improve bank performance. There is little difference in the results across countries.

The theme paper by Parrenas addresses the issue of risk management practices in the banks in the four Asian countries. His analysis, which carefully sorts through a rich source of data from the ADBI survey in these countries, is rather positive about the state of risk management practices in the banks in these countries. The banks conform to internationally accepted standards and requirements and they have sound practices in the areas of credit and market risk management, as well as internal control. While room remains for improvement in the areas of general risk management and operational risk practices in these banks, his conclusion is that banks and their supervisory authorities in these four countries have in general learned valuable lessons from the Asian financial crisis.

With regards to some specifics, the survey results show that domestic and foreign-owned banks did not exhibit significant differences in risk management performance. Family-owned banks generally performed consistently well in all areas of risk management and banks owned by widely held non-financial firms were generally weaker in operational and general risk management practices. Key areas where improvements are needed include robust management of credit risk and better disclosure as a way to strengthen the role of market discipline. Some shades of differences exist in the content of public disclosures among the banks in these countries. Asian banks are indeed taking up the challenge of Basel II. About half of the banks surveyed have either completed or expect to complete their preparations for measuring credit, market, and operational risk according to Basel II requirements before the starting date of its implementation in early 2007. Korean and Malaysian banks are the most enthusiastic adherents of the more risk-sensitive approaches.

A major insight that emerges from the studies in this volume is that each of the corporate governance issues addressed are important links to designing a strong and resilient corporate governance framework in the banking systems in Asia. It is appropriate to conclude that this volume has provided a better understanding of these issues, both from the conceptual and empirical per-

spective as well as regarding the actual practices of corporate governance in the banking systems of Asia.

Sang-Woo Nam and Chee Soon Lum

1 *Corporate Governance of Banks: Review of Issues*

Sang-Woo Nam

1. Introduction

Banks and other financial intermediaries were at the heart of the Asian financial crisis. The deterioration of their asset portfolios–largely due to distorted credit management–was one of the main structural sources of the crisis. To a large extent, this problem was the result of poor corporate governance in the countries' banking institutions and industrial groups. This poor corporate governance, in turn, was very much attributable to the relationships among the government, banks, and big businesses as well as the organizational structure of businesses. In some countries, banks were part of larger family-controlled business groups, and were abused as a tool of maximizing the family interests rather than the interests of all shareholders and other stakeholders. In other cases where private ownership concentration was not allowed, the banks were heavily intervened with and controlled by the government even without any ownership share. Understandably, in either case, corporate governance was very poor. The symbiotic relationships between the government or political circle, banks, and big businesses also contributed to the maintenance of lax prudential regulation, weak bankruptcy codes, and poor corporate governance rules and regulations.

Since the Asian crisis, the major efforts of banking reform have been focused on cleaning up non-performing loans, recapitalization, and consolidating the banking institutions as well as legal and regulatory reforms for efficient bankruptcy procedures and strengthened prudential regulation. As a result of these efforts, the banking sector in the crisis-hit Asian countries now seems to be much more viable. However, relatively little attention has been given to improving the corporate governance of banks. Without significantly enhanced corporate governance, these cleaner banks might suffer again from the same difficulties they faced during the crisis. While financial safety nets and prudential regulation have been much strengthened in the wake of the crisis, they weaken the incentives for shareholders and deposit holders in the market to monitor the banks.

More importantly, drastic changes in the ownership structure of banks in recent years warrant renewed attention to bank ownership and governance issues in Asia. The banking reform in Asia so far seems to have led to fewer banks being controlled by families. Instead, as a result of recapitalization with public funds, many banks are now in the hands of the government. This poses challenging questions regarding the appropriate corporate governance framework for them and the right approaches to turning these banks back to the private sector. Allowing them to be controlled by large family conglomerates may create serious problems due to conflicts of interests. Where banks are to be diffusely owned by minority shareholders, they may suffer from the problems of free-riding and government control. Banks controlled by non-family financial conglomerates or holding companies may face less serious conflicts of interests, but may have to cope with a new set of corporate governance problems.

Corporate governance reform has been one of the priority agendas in post-crisis Asia. As part of this effort, banks in Asia have made some clear progress in putting in place stronger internal corporate governance mechanisms, including a more independent board of directors and heightened attention to risk management. This is understandable, as banks have a dominant position in most financial markets in developing countries. However, governance of banking institutions deserves separate attention for several other reasons.

- First, banks are very vulnerable to shocks due to their highly leveraged balance sheet structure and, more recently, financial deregulation and liberalization. This means that risk management and other internal control are much more important in the banking sector than in other sectors.
- Second, governments usually provide safety nets to banks and heavily regulate them in consideration of the importance of banks and the externality associated with banking sector stability. This practice by the governments reduces incentives for creditors to monitor banks. Also, whether banks should single-mindedly pursue the interests of shareholders is questionable, as taxpayers also have a large stake in banks.
- Third, information asymmetry is much more serious in banking than in non-financial industries due largely to the intertemporal nature (involving a promise to pay in the future) of typical financial contracts and the increasing complexity of financial products. This calls for higher standards of governance including disclosure and transparency.

- Finally, banks can play an important monitoring and governance role for their corporate clients to safeguard their credit against corporate financial distress or bankruptcies. This role cannot be properly played without sound governance of banks, ensuring bank managers to control risk and pursue profits.[1]

Given these characteristics of the banking sector, enhancing corporate governance of banks calls for much broader perspectives than usually required in the case of non-financial corporations. More specifically, adequate attention should be given to the design and workings of financial superstructures, including depositor protection and other safety nets as well as prudential regulation of banks. Governance challenges facing state-owned banks should be addressed as well. Internal corporate governance mechanisms for banks may basically not be very different from those for non-financial firms. Still, it may be wrong for these mechanisms to serve the interests of shareholders only, and particular attention is needed to strengthen risk management and other internal controls.

2. Banks and the Governance Problems

Why are we particularly interested in corporate governance of banks–Are banks different from other corporations in the desired level of corporate governance standards and the scope of stakeholders to which corporate governance mechanisms should be accountable–In fact, banks are considered to be special for several reasons (Macey and O'Hara, 2003).

First, the structure of bank balance sheets is very different from that of non-financial firms. Banks typically have a high debt-equity ratio, since they rely heavily on deposit receipt for the mobilization of funds. Also, banks have a liquidity production function, issuing liquid liabilities while holding illiquid assets. Furthermore, banking critically relies on depositor/creditor confidence. These features of banking business–high leverage, maturity mismatch between both sides of the balance sheet, and reliance on client confidence–make banks very vulnerable to shocks.

Second, banking sector stability has a large positive externality. Banks are

1. *White Paper on Corporate Governance in Asia* (OECD, 2003) identifies improving the regulation and corporate governance of banks as one of the six priorities of reform. It notes that shortcomings in the governance of banks can destabilize the financial system, and that restoring confidence to both the debt and equity markets needs promotion of sound corporate governance practices in the banking sector.

the key institutions maintaining the payment system of an economy that is essential for the stability of the financial sector. Financial sector stability, in turn, has a profound externality for the economy as a whole. Failure of a bank may lead to serious erosion of public confidence in the banking system and cause runs on solvent banks as well as credit crunches, resulting in a great impact on the real economy. Thus, governments usually have a particular interest in the stability of the banking sector.

Third, government deposit guarantees encourage banks' risk taking while reducing depositors' incentive to monitor banks. Most countries have a state deposit insurance or guarantee program, explicit or implicit, for the purpose of limiting the contagion of a bank failure to other solvent banks. This insurance/guarantee or broader safety net function makes the governments (deposit insurance agency or financial regulatory body) an important stakeholder of banking institutions. However, this insurance/guarantee, together with low equity, encourages banks to take a risky business strategy and weakens the incentives for depositors (and shareholders) to monitor banks.[2] Banks themselves are not interested in improving their corporate governance, since they do not need to rely on large uninsured depositors who might have strong incentives to monitor banks.

On the basis of these special characteristics, Macey and O'Hara (2003) argue that the scope of the duties and obligations of bank directors and officers should be expanded to ensure the safety and soundness of banks. This means that their duties should go beyond the shareholders to include depositors/creditors and that they should explicitly and systematically consider solvency risk in their decision-making.[3]

Other factors than the influence of deposit insurance make the corporate governance problem more serious in banks than in non-financial firms (Caprio and Levine, 2002; Davis, 2000). First, banks are very opaque,

2. Excessive risk taking may be mitigated by imposing deposit insurance premiums on the basis of the degree of risk of the bank balance sheet (so that banks would be discouraged to take higher risks at the cost of healthier banks or taxpayers) and/or requiring more capital for high-risk banks (so that shareholders put more of their resources at risk). Managers may not be a perfect agent of shareholders in this aspect of risk taking, since they have made non-diversifiable human capital investment in their firms that will be deteriorated substantially in case of corporate failure as a result of taking a high-risk strategy. It is also argued that risk of fraud and self-dealing is particularly high in the banking sector due to the large portion of their assets held in highly liquid assets (Macey and O'Hara, 2003).

which makes the information asymmetry and the agency problem particularly serious. For example, the quality of a bank's loan portfolio is difficult to evaluate for outsiders and problems can easily be hidden, partly due to the intertemporal nature of banking. Adding to this opacity is the increasing complexity of financial products, resulting from the trends of globalization, universal banking, and the use of new technology. This opaqueness and information asymmetry gives strong incentives to bank insiders to pursue their own interests at the expense of the interests of other stakeholders. Ample examples exist of abuses and systematic looting by bank managers or controlling owners in developing or transforming economies. The board of directors may be easily manipulated or bypassed for any serious evaluation of bank managers, and shareholders may not have adequate information to enable them to meaningfully participate in corporate decision-making.

Second, the banking sector is subject to a host of government regulations designed to safeguard the stability of the financial sector or to pursue other policy objectives. These government regulations and intervention lead various stakeholders of banks to look to the government whenever banks are in trouble.[4] Actually, banks in all countries have access to their governments' safety nets. With the extensive government regulations and the presence of financial safety nets, holding bank managers accountable for the poor performance of banks and making the threat of any legal and bankruptcy procedures credible is difficult. Government regulations typically include prohibition of concentrated ownership. Though various good reasons exist for such restrictions, the resulting diffuse ownership structure is often responsible for continued government intervention and weak governance in private banks,

3. In firms other than banks, the major residual claimants are shareholders. In banks, however, taxpayers (with the government as their agent) have the residual burden of protecting depositors/creditors (after shareholders have done so until the share price becomes zero). As the major residual claimants and residual loss takers, both shareholders and the government, respectively, are to be responsible for monitoring banks. Since the upside claims accrue mainly to shareholders while the downside burden falls largely on taxpayers, these two parties have opposite preferences as to banks' risk taking. While bank shareholders tend to favor high risk taking, the government would discourage a high-risk strategy even though the expected return is high.

4. The Korean government, for example, utilized commercial banks as a tool of its industrial policy, requiring them to extend policy loans or directed lending to specific strategic industries and sectors. When many of these loans went wrong due to depression in these industries or for other reasons, the government was held responsible for the financial distress of concerned enterprises and the accumulation of non-performing loans. The government had to work out a large rescue program to bail out the firms and banks in 1972 and again in the middle of the 1980s.

particularly where the banking sector has long been subject to tight government control.

Third, competition is usually not as keen in the banking sector. This seems to be true in spite of the trend of financial deregulation since the 1980s. To the extent that competition in product markets disciplines the behavior of managers, this may be a weakness for corporate governance of banks. Inadequate competition is largely attributable to various government regulations for the stability of the financial market, such as entry barriers, restriction of services provided, and the government ownership of banks in some countries. Weak competition also characterizes the market for corporate control; hostile takeover activities are largely absent in the banking sector. Consequently, bank managers do not have strong incentives to adopt a good corporate governance system in order to lower their cost of capital or safeguard their management control.

Fourth, the trends of globalization, deregulation, and financial innovation bring about higher risk for financial institutions while potentially weakening the traditional governance processes. Financial institutions are involved in new activities dealing with new clients and increasingly complex financial instruments and they face keener competition in the market. At the same time, within financial institutions, decision-making and risk-taking decisions are increasing delegated from the top (probably because senior management does not have any better expertise). The consequences of these trends are higher risk taking and higher chances of poor decision-making. Financial institutions should cope with these risks by strengthening their risk management and corporate governance. Financial innovation may also weaken traditional governance mechanisms. For example, warrants on equities practically separate voting/control rights from the right on corporate earnings flow.

Lastly, banks play a potentially important role in the governance of other corporate clients. Thus, it may be argued that corporate governance of banks is critical for them to properly play this role. Commercial banks have certain advantages in monitoring their corporate clients: they keep settlement accounts and provide other financial services for client firms, often on a daily basis, and regularly review their creditworthiness whenever their short-term loans mature. On the basis of this accumulated information, banks may intervene in the management and governance of their client corporations if their performance is deteriorating. Banks may be represented on the boards

of directors of these corporations, replace the management, and direct corporate reorganization or restructuring. This contingent governance role played by creditor banks may be viewed as a more efficient alternative to the market for corporate control in the Anglo-American model of corporate governance.[5]

3. Corporate Governance of Banks: Three Essential Elements

Since banks are different from non-financial firms and even non-bank financial institutions in many respects, study of corporate governance of banks should include these respects as well. This means that the study should go beyond addressing the typical principal-agent problem between managers and shareholders, looking further into shareholder rights, the effectiveness of the board of directors, and disclosure and transparency. It should also comprise financial safety nets and prudential regulation with the main focus on how to balance them by enhancing market discipline as well as minimizing moral hazard and political interferences.

Financial Safety Nets, Prudential Regulation and Supervision

Due to the special characteristics of banks and financial institutions in general, every government provides various financial safety nets, including explicit or implicit deposit insurance or guarantees, the lender-of-last-resort function of the central bank, and resolution procedures for insolvent banks. To limit moral hazard behavior abusing these safety nets (and in light of the special characteristics of banks), the governments usually subject banks to extensive regulation and supervision. All these safety nets, prudential regulation, and supervision affect the incentives of private stakeholders to monitor banks or more broadly the corporate governance of banks.

Protection of Depositors

Today, most developed countries and many developing economies have ex-

5. Japanese and German banks are best known for the monitoring and governance role for corporate clients on the basis of close and stable relationships with them. Banks are sometimes substantial shareholders of their client firms and are represented on the board in normal times. For the merits and demerits of "relationship banking" and banks' potential governance role, see Nam (2004a).

plicit or implicit depositor protection in the hope of preventing or mitigating the effects of systemic banking failures. However, in introducing a system of depositor protection particularly in developing economies, it seems that policymakers do not pay enough attention to the effects of this depositor protection on banking behavior and the incentives for their private stakeholders to monitor banks.

Deposit guarantees or insurance tend to reduce the incentives of depositors to monitor banks, and this deposit insurance for small depositors allows banks to rely less on large depositors and other creditors, who are more interested in–and capable of–monitoring banks. As a consequence, banks are encouraged to take excessive risk. In addition to reduced monitoring of banks, the high leverage of banks–attributed to depositor protection to a large extent–also induces banks (owners) to take excessive risk.[6]

Though risk-adjusted insurance premiums would mitigate the moral hazard of insured banks, implementing such insurance schemes is likely to be very difficult politically and administratively, particularly in developing countries. Deposit insurance schemes across the countries vary in terms of such aspects as the maximum coverage, co-insurance portion, the degree to which the premium is risk-based, advance or ex-post funding, and public or private management of the insurance agency. The deposit insurance systems typically limit the coverage to small depositors. Even though these small depositors represent most of the population, the uncovered large depositors account for a significant portion of total deposits. While this feature may be desirable for the purpose of encouraging large depositors to monitor banks vigilantly, such a deposit insurance system would make avoiding a bank run or a banking crisis difficult.

An important question for policymakers is under what circumstances or with what kinds of schemes does deposit insurance work best to control banks' excessive risk-taking and reduce the cost of managing the insurance system. Kane (2000) emphasizes that the efficiency of a deposit insurance system depends on

6. On the other hand, Gropp and Vesala (2004) find that introducing explicit deposit insurance encourages market monitoring and discourages risk taking of banks (with low charter value, more subordinated debt, and for those of smaller size), if implicit guarantees were commonplace prior to the introduction of deposit insurance. It suggests that explicit deposit insurance may serve as a commitment device to limit the scope of safety net and permit monitoring by uninsured debt holders.

- transparency: disclosure of relevant information by financial institutions,
- deterrency: the ability of bank creditors or supervisors to protect themselves on the basis of the disclosed information, and
- accountability of the insurer to taxpayers: easy identification of the actions of involved bureaucrats making them responsible for their actions.

These factors should be given due attention in determining the timing of introducing an insurance system and designing specific features of the system. It may be argued that governments should address the economies' weaknesses in transparency, deterrency, and accountability before adopting explicit deposit insurance. Addressing these weaknesses involves reforms in banking regulation and supervision, the legal system, and accounting and disclosure rules (Demirguc-Kunt and Kane, 2001). Also noted are the dangers of providing deposit guarantees with a view to avoiding or stopping a banking crisis, as the guarantees are likely to prolong the lives and the reckless risk-taking of insolvent banks.

Demirguc-Kunt and Huizinga (2000) explicitly deal with the question of how to provide depositor protection without unduly undermining market discipline by investigating the linkages between market discipline and deposit insurance. Deposit insurance is found to lead to lower required interest rates, but to make interest rates less sensitive to bank risk or liquidity, indicating reduced market discipline. They also find that stronger market discipline is maintained in countries with such features of insurance as co-insurance, private/public joint management of the insurance, and coverage including foreign currency deposits. On the basis of the survey of existing empirical evidence, Demirguc-Kunt and Kane (2001) suggest that the following features of deposit insurance enhance market discipline and reduce moral hazard:

- credibly low/narrow insurance coverage or co-insurance (to provide monitoring incentives to certain parties such as large depositors, subordinated debt-holders, and other banks),
- compulsory membership in the insurance system (to increase the size of the insurance pool and have low-risk institutions in the system),
- ex-post funding (for more explicit recognition of the liabilities incurred by weak and insolvent banks),
- targeting surviving banks to cover losses (for market discipline), and

- private/public joint management of the insurance (to limit moral hazard and maintain stronger incentives to monitor).[7]

Other Financial Safety Nets

In many countries, the governments have often bailed out banks in serious financial distress in order to prevent panic in the market. This practice has resulted in a general perception that the government would not let banks–particularly large ones–fail. In this situation, market participants become insensitive to the soundness of banks and strong incentives do not exist to run banks prudently. Thus, limiting government-funded bail-outs to cases of clear systemic banking failures would be an important improvement. In making this rule credible, political independence and accountability of banking supervisory agencies would certainly help. At the same time, legal and regulatory frameworks should be in place for the efficient exit and restructuring of troubled banks. These frameworks should ensure that the shareholders, subordinated creditors, and depositors of failed banks bear the full extent of losses incurred.

Central banks also serve as a lender of last resort providing liquidity (through discount window or open market operations) to prevent bank runs and consequent financial or economic crises caused by a temporary shortage of liquidity from regular sources. The classic conditions for an effective lender-of-last-resort function include lending freely to illiquid but solvent banks at penalty interest rates. Some, however, argue that a solvent bank cannot be illiquid where interbank markets are efficient (Goodfriend and King, 1988).[8] Thus, the lender-of-last-resort function would be justified only when the central banks have superior or timelier information than did the

7. Of course, the value of deposit insurance cannot be evaluated solely on the basis of its effect on the monitoring incentives of private stakeholders. Also important are its effects on bank stability and financial development and its role in crisis management. However, existing empirical evidence generally indicates that deposit insurance without the features of market discipline does not lead to any positive results in these aspects, particularly in countries with poor institutions. Studies find that the presence of poorly designed explicit deposit insurance tends to increase the likelihood that a country will experience a banking crisis (Demirguc-Kunt and Detragiache, 2000; Barth et al., 2002). It is also found that explicit deposit insurance has a positive impact on financial development only in countries with strong institutions (Cull et al., 2000) and tends to negatively affect development in the non-bank financial markets (Cecchetti and Krause, 2000). Finally, unlimited depositor protection is found to significantly increase the ultimate fiscal costs without accelerating the speed of economic recovery (Honohan and Klingebiel, 2000).

market about the nature of a crisis or the solvency of banks. At the least, the discount window may be replaced by open market operations, which have the additional advantage of better fending off the political pressure associated with the lending of last resort (Flannery, 1996; Kaufman, 1999; Freixas, Parigi and Rochet, 2000).[9]

In reality, it is difficult to tell liquidity shocks from solvency shocks, and the lending of last resort often encourages banks' risk exposures and is used to finance deposit outflows ultimately resulting in larger losses (to the deposit insurance agency). Of course, in consideration of the social cost associated with bank failure/closures, one can argue that the discount window is necessary to keep some troubled banks alive. This indicates that the central banks' lender-of-last-resort function should be closely coordinated with deposit insurance and measures to deal with troubled banks in their roles of maintaining stability in the banking system at the minimum budgetary burden.

Role of Prudential Regulation and Supervision

It should be rational for governments to undertake prudential regulation and supervision over banks given the unique characteristics of banks and the need to limit their excessive risk taking and other moral hazard behavior induced by deposit insurance or guarantees. The monitoring function may be transferred to the state from depositors as a consequence of providing deposit insurance to secure some degree of stability of the banking sector. However, whether the public supervisors are as effective as motivated private-sector monitors is questionable for several reasons.

- Public regulators and supervisors would not be efficient monitors because they do not have personal stakes in banks; the government can always pass the cost of bank failures to tax payers.
- They are not likely to possess the necessary incentives and skills to keep

8. Freixas, Parigi, and Rochet (2003) argue that the efficiency of the interbank market depends on the major sources of moral hazard for banks. If monitoring projects is the most severe problem or the basic role of the interbank market is to provide liquidity insurance, a fully collateralized interbank market allows banks to implement efficient allocation. On the other hand, where project screening or market discipline is the main problem, the interbank market has to be unsecured to give banks the incentive to screen their borrowers.

9. It is also argued that, though high interest rates on lending of last resort would discourage banks' engaging in high-risk lending strategies ex ante, it may not be the case in ex-post perspective (Sleet and Smith, 2000).

pace with rapid innovation and other changes in the market.

- They are likely to be more susceptible to political interference using banks for political objectives, and may be "captured" by powerful banks.

Furthermore, excessively heavy-handed, intrusive regulation and supervision would reduce the incentives of market participants and bank directors/managers to monitor banks, weakening the effectiveness of market discipline and internal corporate governance (APEC, 2002). It may be argued that private-sector monitoring is unlikely to be effective in countries where the institutional environment is weak, necessitating official regulation and supervision to monitor banks. However, it is found out that countries that encourage private monitoring of banks tend to have better performing and more stable banks, and that a larger government role in the regulation, supervision, and ownership of banks is associated with higher government corruption and corrupt ties between firms and banks. Moreover, strong regulatory powers are found to be associated with financial development and lower corruption associated with credit access only in the presence of political openness and effective media (Barth et al., 2002; Beck et al., 2003).

Thus, keeping the balance between supervisory oversight and market principles and letting them complement each other is essential. A particular concern is the political interference and regulatory capture that have been serious in many Asian countries where governments have built up a close symbiotic relationship with large industrial groups. Evidence is that regulatory capture by firms is more widespread in the financial sector than in other industries (Kaufmann, 2002). Adequate compensation for supervisors should be critical. Job rotation, dividing tasks into parts for different supervisors, and some restrictions on post separation employment (such as prohibiting regulators from joining the private banking sector for a certain period) might also help prevent corruption in supervisory tasks. Deferring some portion of salary and making it payable later upon satisfactory performance may be considered (Alexander and Dhumale, 2001). Also essential to the reduction of corruption include improving disclosure, transparency, and accountability; ensuring legal protection for supervisory actions taken in good faith; and explicit anti-corruption provisions and heavy penalties for violation. However, state ownership of banks poses a serious regulatory/supervisory challenge due to role conflict for the government both as the regulator and the owner.

Given that prudential regulation and supervision are inevitable, the most

effective institutional arrangement for this task is a crucial question. The consensus seems to be that the task should be undertaken by independent regulatory agencies–ones both independent from political interference and free from "capture" by the industry. Direct official supervision of banks may actually reduce the allocative efficiency of bank credit (Becker and Stigler, 1974; Levine, 2003). Quintyn and Taylor (2002) distinguish four dimensions of independence.

- Regulatory independence: autonomy in setting (technical) rules and regulations related to their work; this is needed for them to quickly and flexibly respond to the rapidly changing financial environment characterized by globalization and complexity.
- Supervisory independence: safeguarding the integrity of the supervisory function, including on-site inspections, off-site monitoring, and sanctions.[10]
- Institutional independence: being separate from the branches of government with a high degree of independence in the appointment/dismissal of the senior personnel and governance structure.[11]
- Budgetary independence: relying less on the branches of government for the determination of the size and use of the agency's budget.[12]

A practical policy concern is designing efficient institutional arrangements for financial supervisory agencies. Questions include whether or not bank supervision should be an integral part of central banks[13] and whether or not banking supervision should be combined with supervision over the insurance and/or securities markets. Answers to these questions depend very much on the situations of particular countries: among other things, the level and pattern (degrees of multi-functional operation or banking dominance) of

10. They provide four ways of increasing or safeguarding the integrity of the supervisory function: (i) ensuring legal protection against damages generated by their actions as long as they are taken in good faith and in pursuit of the objectives of the supervisory agency, (ii) rules-based system of sanctions and intervention to reduce the scope for discretion, (iii) providing adequate salary and clear career streams for supervisors in order to prevent corruption and attract more qualified and capable people, and (iv) efficient procedures for dealing with appeals by sanctioned banks.

11. An independent regulatory agency is supposed to be less subject to direction given by the related government ministry, less subject to the constraints of the government budget, and better able to attract high-quality staff by paying competitive salaries (Carmichael, 2002b).

financial development and the skills-mix and independence/reputation of existing supervisory agencies. The most powerful reasons for establishing an integrated financial regulatory/supervisory agency seem to be the emergence of financial conglomerates and the trend toward universal banking. Gaps and overlaps in regulation, regulatory arbitrage, and arguments about turf among the agencies would be minimized with an integrated agency, though an alternative approach might be close coordination among separate agencies. Also, smaller emerging economies tend to favor an integrated financial supervision for economies of scale in supervision as well as stronger authority and independence and attracting better qualified staff (Carmichael, 2002a; Mwenda and Fleming, 2001; Trink, 2001; and Taylor and Fleming, 1999).

An important element of prudential regulation and supervision is minimum capital requirements determined according to the risk of banks' portfolios. Increasing attention is also given to internal controls including risk management systems. The emergence of financial conglomerates is a challenge for prudential regulators and supervisors. These conglomerates are more prone to conflicts of interests and are likely to increase the risk of systemic instability due to their size and interconnectedness. To cope with this added risk, regulators and supervisors need new tools and better coordination among

12. However, independence of supervisory agencies should be balanced with political accountability to ensure their proper functioning, which may be achieved through a mix of approaches: legislative/executive oversight, procedural requirements, public participation, and judicial review (Majone, 1993). It is also noted that the independence and integrity of the regulatory/supervisory function depends to a large extent on the prevailing political culture, which is rather weak in many developing countries. The prevailing political culture can be understood in terms of transparency and checks and balances in political processes, the role of the media, and the absence of collusive tie-ups between the government and big businesses (Quintyn and Talyor, 2002). Equally important may be attitudinal independence referring to the willingness of the supervisors to assert independence and act independently in practice. In the absence of independence-promoting culture, they may lack independence in spite of all the formal independence provided (Carmichael, 2002b).

13. Arguments for locating bank supervision function in the central bank include: information on the condition of banks required for monetary policy (safeguarding the payment system) and the lender-of-last-resort function of the central bank; independence from political pressure (owing to the relative autonomy and reputation of the central bank), better quality of staff, and economies of scale in the use of human resources, information, and physical facilities. The main arguments against combining the functions are: potential conflicts of interest between monetary policy and supervisory concerns, and potential damage to the central bank's reputation resulting from the failure of banks (Quintyn and Taylor, 2002).

them, addressing the conglomerates on a consolidated basis. Any prudential regulations and supervision will work best where they are market-compatible and reward the complying banks with positive incentives. Such incentives might include differential capital requirements depending on the quality of internal risk management systems or less intrusive supervision of banks judged to be prudently managed (Bossone and Promisel, 1998).

Disciplining Banks in the Market

Banks in which ownership and control are separated have the typical principal-agent problem faced by any such firms. Agency problems occur in any situations where decision-making responsibility is directly or indirectly delegated from one group to another group of stakeholders with different objectives and complete information needed to control the behavior of the decision-maker is not readily available (Alexander and Dhumale, 2001). Bank managers, in the absence of adequate control mechanisms, may try to maximize their own personal objectives rather than maximizing the interests of shareholders or other stakeholders.

Like any publicly traded companies, banks are monitored in the market by their shareholders, creditors, other clients, rating agencies, and financial analysts. Market discipline can be beneficial as it may reduce the moral hazard incentives of banks, improve their efficiency (by detecting problems earlier and limiting official forbearance and the influence of insider political pressures), and lower the social cost of supervising them (Martinez-Peria and Schmukler, 2001; Llewellyn and Mayes, 2003).[14] However, for the market to be effective in disciplining banks, the market should be competitive and working efficiently and the market participants should have incentives to monitor banks.[15] The exposure of bank owners and creditors to the losses of

14. Studies show that equity or debt market indicators have potential to increase the forecasting power of supervisory rating models relying on accounting information. Even where the market information adds little forecasting ability, it may still be utilized to confirm supervisory judgment, allowing the supervisors to act early when they see a problem.

15. Llewellyn and Mayes (2003) identify necessary conditions for market discipline to work effectively. They include, among other things, (1) relevant and accurate information about the status of banks publicly available on a timely basis, (2) a sufficient number of stakeholder monitors capable of analyzing the information, having clear incentives to monitor the behavior of banks, and responding rationally to relevant information (without herding), and (3) bank managers with incentives and the ability to respond to market signals–requiring effective corporate governance of banks.

bank failures would lead them to limit–in the form of higher funding costs –the risk assumed by their banks (thereby complementing the work of bank supervisors).[16] In many developing countries, however, market discipline is likely to be weak due to the inadequacy of relevant institutions. These inadequacies include underdeveloped capital markets, extensive state ownership of banks, provision of guarantees to market participants, and inadequate disclosure and transparency.

Ownership Structure and Monitoring by Shareholders

Shareholders may not be very effective in forcing their banks to reduce risk, since equity value might increase with more risk taking. However, as the main residual claimants, shareholders have strong interests in monitoring their banks and are likely to react negatively to excessive risk taking. While the expected government's rescue of troubled banks weakened the incentives of creditors to monitor banks, the shareholders of banks should be much more concerned about the possibility of bank failures, as their chance of being "bailed out" is much lower. Also, the equity market is generally more efficient (more liquid with many diverse market players) than other financial markets, with equity prices containing much firm-specific information. Empirical studies show that equity prices are informative in predicting subsequent bank performance and problems (Hall and Miles, 1991; Berger, Davies, and Flannery, 2000; Curry, Elmer, and Fissel, 2001; Krainer and Lopez, 2002).[17]

However, ownership structure matters in determining the vigilance of shareholders in monitoring their firms. Banks in crisis-hit Asian countries have undergone substantial changes in ownership structure. Many of the private banks fell into the hands of the governments as the result of recapitalization with public funds. In some cases, a substantial portion of the shares has been sold to other local banks or foreign strategic investors. The governments also consider privatizing the banks by selling the shares in their stock markets. The quality of corporate governance is likely to be very different

16. However, higher funding costs would not always discourage banks' risk taking at the margin, since the higher costs might be fully compensated by higher return.

17. Other studies find that prices of bank stocks positively affected by capital ratios (Beighley, Boyd and Jacobs, 1975; Shome, Smith and Heggestad, 1986), betas (measure of risk derived from stock prices) affected by capital ratios and other ratios reflecting risk (Pettway, 1976; Brewer and Lee, 1986), and returns on the stocks of failed banks declined relative to simulated returns for surviving banks two years before failure (Pettway, 1980).

depending on the ownership structure of banks.

La Porta et al. (2000) find that state ownership of banks is pervasive around the world, and that greater state ownership of banks is associated with less financial development and lower growth and productivity. They also find that these effects are more pronounced at lower levels of income, with less financial development, and with weaker property rights protection. Other evidence shows that greater state ownership is associated with the level of non-performing loans and policies that restrict bank activities, reduce bank competition, and stymie private sector corporate control of banks (Barth et al., 2002). Some studies also find that greater state ownership of banks increases the probability of banking crisis (Caprio and Martinez-Peria, 2000; and La Porta et al., 2000). On the basis of individual bank data, some find evidence that government banks are less efficient than their private counterparts (Bonin et al. (2003) for transition economies and De (2003) for India), while others do not find such evidence (Altunbas et al. (2001) for Germany).

The problems with government banks mainly represent a governance failure. The bureaucrat managers are usually not given strong incentives to perform, since they operate under soft budget constraints and are subject to other pressures, such as political influence or their own bureaucratic sectoral interests. Outside stakeholders have a similar lack of interest in monitoring the management of state banks. Depositors and other creditors assume that their credits are guaranteed. It can hardly be expected that the government, as both the owner/manager and regulator, would be very serious about supervising state banks (Caprio and Levine, 2002; and World Bank, 2001). Thus, demand for management performance, information disclosure, and monitoring is inevitably weakened, resulting in corruption and inefficiencies.

The relative quality of governance in state banks will depend very much on whether they are subject to the same set of regulations as private banks, the degree of government intervention in banking operation, and the independence and effectiveness of the board of directors to which the bank management should be accountable. Government banks may also have access to sensitive inside information about government policy changes. This, together with the implicit guarantees provided to bank creditors, not only gives state banks an unfair competitive advantage over private banks, but also may cause serious conflicts of interests.[18]

In the case of banks with a diffuse ownership structure, numerous small shareholders have little incentive to monitor their banks due to the free-rider

problem. Even if they have interest, they are likely to lack the expertise and to suffer from large informational asymmetries vis-à-vis bank managers. As a result, these shareholders may not be able to exert much influence on the decision-making in banks in spite of their voting and other rights provided in the laws and regulations. The boards of directors also tend to be captured by managers, hardly playing any significant supervisory and monitoring roles. In this governance vacuum, there is a high possibility that the government will interfere in banking management and governance, particularly in newly privatized banks.[19]

In order to overcome these problems of free-riding and information asymmetries, it is often suggested that there should be large shareholders or strategic investors that have strong incentives to monitor their banks. With a more significant voting share, they may be able to elect their representatives to the board of directors and more effectively negotiate a managerial incentive contract. However, concentrated ownership has its own risks. As have been evidenced in many Asian economies, large shareholders often representing a family may control a bank and pursue their own interests at the expense of minority shareholders or other stakeholders. Where the bank is one of many enterprises under the control of the family, the scope for their exploitation expands. Thus, foreign financial institutions are often the strongest candidates for strategic investors of weak domestic banks, as has been the case in many of the crisis-affected Asian countries and transforming economies.[20]

Monitoring by Bank Creditors

For non-financial firms, there are two distinct types of corporate debt: public

18. Studies show that equity or debt market indicators have potential to increase the In the 1960s and 1970s, however, the "development view" of government ownership of banks was widespread. The proponents of this view argue that government ownership of banks can overcome the imperfections in the financial markets arising from the lack of various institutions, more effectively mobilizing savings and channeling them to more productive industrial projects (Gerschenkron, 1962; Myrdal, 1968). It is also argued that government-owned banks may not be inefficient if there is sufficient competition with private banks (Caves and Christensen, 1980) or that the voting market works as a substitute for the market for corporate control (Mueller, 1989).

19. Republic of Korea is a case in point. Most of the nationwide commercial banks were privatized in the early 1980s as a part of broader financial liberalization efforts. However, there were no controlling shareholders because of the maximum ownership ceiling for any individuals or business groups set at 4% (initially 8%). In this situation, the government kept governing these privatized banks in practice, virtually appointing bank directors and presidents and interfering in major banking decision-making.

debt like corporate bonds and borrowings from financial intermediaries. For banks, debt is mainly in the form of deposits, though for specialized banks in the developing world, the issuance of financial debentures is not uncommon. However, most financial debentures are issued with explicit or implicit guarantees of the government, and any governance role is hardly expected from the purchasers of such debentures.[21]

Small depositors do not have strong incentives to monitor banks due to deposit insurance or guarantees. Their monitoring capacity is also limited owing to the opacity of banks and lack of information and expertise. However, large depositors have potentially strong incentives and better capacity to monitor the health of banks. Thus, any deposit insurance is to be designed not to stifle their incentives. A number of researchers find that measures of bank risk (such as capital ratios, loan loss provision, NPL ratio, concentration of loan portfolios, variance of stock returns, and volatility of returns on assets) affect the interest rates or level/change of large deposits, mainly certificates of deposit (CDs), due to a "flight to quality."[22] If a deposit guarantee was not credible (due to inadequate funding) or costs/delays were incurred for the recovery of insured deposits following a bank failure, even insured depositors would monitor banks (Martinez-Peria and Schmukler, 2001).

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20. There is evidence that foreign banks are more profitable (IMF, 2000; and Bonin et al., 2003) and create a more competitive market environment, inducing the entire banking sector to be more efficient operationally in transition economies (Buch, 2000; Hasan and Marton, 2003; and Drakos, 2002).

21. Corporate bonds are usually issued with covenants about corporate actions limiting the risk of the issuing firms. If these covenants are violated, the bondholders can use their rights, such as repossession of collateral and initiation of bankruptcy or reorganization proceedings. However, it is difficult to effectively coordinate these actions among diffuse bondholders, and the relevant legal system and the bankruptcy and other judicial proceedings are usually not very efficient in most developing countries. Thus, public debt-holders can rarely play a corporate governance role, which is one of the major reasons why the corporate bond market is not well developed in the developing world.

22. See James (1988), Hannan and Hanweck (1988), Elllis and Flannery (1992), Cook and Spellman (1994), and Hall et al. (2002) for the effects on deposit interest rates. For effects on the level or change of deposits, see Goldberg and Hudgins (1996), Calomiris and Wilson (1998), Marino and Bennett (1999), and Calomiris and Powell (2000). See Park and Peristiani (1998) and Martinez-Peria and Schmukler (2001) for both of the above. On the other hand, several studies find that banks turn more to the insured deposit market following a deterioration of financial conditions, weakening the effectiveness of depositor discipline (Billett, Garfinkel and O'Neal, 1998; Jagtiani and Lemieux, 2001; Hall et al., 2002).

It is also often suggested that banks should be subject to the mandatory issuance of subordinated debt. Such debt-holders usually have stronger incentives and expertise to monitor the borrower bank, relieving the government of much of the supervisory burden. The Board of Governors of the Federal Reserve System and the US Department of the Treasury (2000) is a report submitted to the Congress (pursuant to the Gramm-Leach-Bliley Act of 1999) on subordinated debt. The increasing size and complexity of the largest banking institutions, the report recognizes, have made the supervisors' job of protecting the safety and soundness of the banking system more difficult, calling for more market discipline. Though the report suggests that additional evidence is needed before making the issuance of subordinated debt mandatory, it notes several potential benefits, including

- direct market discipline: anticipation of higher funding costs due to increased risk, providing an incentive for the banks to refrain from taking excessive risk,
- indirect market discipline: the signal of secondary market prices of the debt being utilized by supervisors and investors to pressure banks if the yields rise,
- improved transparency and disclosure: purchasers of subordinated debt demanding more information about banks for accurate pricing of the debt, and
- increased financial cushion for the deposit insurer and reduced forbearance for public supervisors, as the debt holders are subordinated to the deposit insurer.

The mandatory issuance of subordinated debt–with its long maturity and junior status–would align the interests of the debt holders with those of the deposit insurer (and taxpayers). By regulating the maximum yields on subordinated debt, the authorities effectively limit the risks banks take on the basis of market signals. There are some pitfalls for the role of subordinated debt, such as the potential for a politically motivated "bailout" of subordinated-debt-holders and overpricing of the debt by bank insiders through their (parent holding company) own purchases. However, these problems might be mitigated with restrictions on the purchasers of such debt (Calomiris, 1997).[23]

Competition and Market for Corporate Control

Competition in product markets is often a very powerful force for disciplin-

ing corporate management to efficiently run their firms, thereby preventing them from pursuing their personal interests at the expense of the firms. More broadly, a competitive market is essential to the effectiveness of the market discipline in bank management. Assessment of banks by various market participants results in constant changes in indicators about individual banks. These indicators include costs of funds (deposit rates, bond yields, etc.), market shares, share prices, credit ratings, remuneration for senior management, liquidity positions, and access to certain financing facilities.

In the banking sector, unlike most other industries, ownership restrictions are prevalent across countries. This might have been motivated by many considerations, including the concern of concentration of economic power or credit, conflicts of interests, and stability of the financial sector. Typically, there is an ownership ceiling for a single entity or a requirement for approval of the financial authorities when the share exceeds certain levels. Sometimes there are separate restrictions on bank ownership for non-financial firms or non-bank financial institutions.[24] Also imposed is a fit and proper test for the ownership or management of banks, checking such factors as their experience and reputation. This practice is justified given the opaqueness of banking and the consequent high incentives for market misconduct.

In addition to restrictions on bank ownership and top management, there usually is a host of regulations on banking activity, which weakens competition in the sector. While many of these regulatory restrictions are geared to prudential regulation, many others are to address social or political concerns, like policy lending to agriculture or small and medium-sized enterprises. Still, other regulations, like restrictions on interest rates, branching, and types of services banks can offer, are supposed to contribute to the stability of the financial market – often at the expense of competition. Aside from regulations, banks (notably in Japan and Germany) often have a close

23. There is substantial evidence that the issuance and secondary-market risk premium on subordinated debt have been correlated with various accounting and market measures of risk in the US at least since around the end of 1980s when the "too-big-to-fail" policies receded (Flannery and Sorescu, 1996; Jagtiani and Lemieux, 2001; Morgan and Stiroh, 2001; Sironi, 2002; Evanoff and Wall, 2002; Jagtiani, Kaufman, and Lemieux, 2002).

24. Barth et al. (2001), on the basis of cross-country data on commercial banking regulation and ownership in more than 60 countries, report no positive effects from restricting non-financial firms from owning and controlling commercial banks (and vice versa) in terms of the degree of industrial competition, financial stability, and the level of financial development.

long-term relationship with their corporate clients. While this helps mitigate information asymmetry and allows efficient monitoring, it often represents an exclusive relationship and a barrier to competition. Weak competitive pressure means banks need stronger corporate governance than other firms.

In the Anglo-American corporate governance model, the market for corporate control through hostile takeovers can play an important corporate governance role. It can be a credible threat for the managers of poorly managed corporations.[25] However, hostile takeovers are rare in most parts of the world, not to mention in developing economies (Prowse, 1997). This phenomenon is more pronounced in the banking sector due to the opacity or poor information about banks as well as the widespread government ownership of banks in many developing countries. Other constraints might include delay in the government approval process and absence of a well-developed bond market that would help finance takeovers.

Disclosure and Transparency: Role of Accounting and Audit Standards

High standards of accounting and audit together with extensive disclosure and transparency very much determine the quantity and quality of information available on banks. Thus, these standards and practices will enhance the incentives and capability of any stakeholders to monitor the banks.

Disclosure and transparency is particularly essential for market-based monitoring. In connection with this, Davis (2000) asks to what extent monitoring by private sector stakeholders, based on disclosure of information by banks, can substitute for monitoring by regulatory authorities. Interested private sector stakeholders may have difficulties in monitoring banks where large information asymmetries remain due to banks' opacity and the inadequate quality of disclosed information. While regulatory authorities may have better access to information about banks, regulatory monitoring is likely to induce reduced efforts by private sector stakeholders and may hold the governments accountable for the consequences of monitoring. Thus, priorities

25. However, the efficacy of takeovers is questioned on several grounds. As the bidder pushes up the share price of the target firm, the bidder's incentives are significantly weakened. Also, takeovers are often attempted not for the purpose of improving the management of the target firms, but for the purpose of empire building. Moreover, the management of the target firms may try hard to thwart hostile takeovers through various measures of anti-takeover defense (Caprio and Levine, 2002).

should be placed on enhancing disclosure and transparency.

The new Basel Accord to be introduced in 2006 proposes a so-called third pillar (in addition to the refined minimum capital requirements and an improved supervisory review process). It emphasizes promotion of market discipline in encouraging safe banking practices by requiring banks to disclose more information on their risks and capital (Basel Committee on Banking Supervision, 2001).

In the aftermath of highly publicized financial scandals and corporate failures, the US Congress enacted the Sarbanes-Oxley Act of 2002. This represents the most dramatic change to federal securities laws since the 1930s, requiring publicly-held corporations to significantly enhance their corporate governance. In the case of banks, non-public FDIC-supervised banks with more than USD 500 million in total assets are also subject to this Act. The Act sets high standards on independence in audit process and financial disclosure.

Independence in Audit Process

External auditors should not be directly or indirectly misled, coerced, manipulated, or fraudulently influenced by the officers or directors of the client firm in the course of the audit. To be considered independent, they:

- cannot provide certain specified non-audit services contemporaneously to the client companies,[26]
- cannot serve the audit function for more than five consecutive years (as the lead audit partners or the concurring partner responsible for reviewing the audit), and
- should not have employed the client's CEO, controller, CFO, chief accounting officer, or equivalent officer for the audit of the client during the one-year period before the current audit.

The audit committee is responsible for the appointment, compensation, and oversight of the work of external auditors, and members

26. They include (i) bookkeeping or other services related to the accounting records or financial statements, (ii) financial information systems design and implementation, (iii) appraisal or valuation service, fairness opinions, or contribution-in-kind reports, (iv) actuarial services, (v) internal audit outsourcing services, (vi) management functions or human resources, (vii) broker or dealer, investment adviser, or investment banking services, and (viii) legal services and expert services unrelated to the audit.

- should all be independent directors and cannot accept any consulting, advisory, or compensatory fee from the company (other than the fee for director service) and
- must establish procedures for processing complaints and confidential, anonymous submissions by employees regarding accounting, internal control, and auditing matters.

Enhanced Financial Disclosure

Publicly-held companies are prohibited from extending loans to any director or executive officers; senior management, directors, and principal stockholders are to disclose changes in securities ownership within two business days.

Financial reports filed with the SEC or annual reports should include:

- all material off-balance sheet transactions and contractual obligations/ arrangements that may entail a material effect on the company (such as guarantees, certain derivative instruments, and material variable interests),
- management assessment of internal controls over financial reporting,
- whether the company has adopted a code of ethics for its principal executive, financial, accounting officers and controller, and
- whether the audit committee includes at least one member who is a "financial expert."

Internal Corporate Governance Mechanisms at Banks

External market mechanisms for disciplining bank managers are likely to be fairly weak in most developing countries in Asia. The takeover market is virtually absent, and any significant monitoring role cannot be expected from the major bank creditors–depositors. Thus, much of the burden of sound corporate governance in banks is on the internal governance mechanisms–mainly the board of directors. Putting in place sound corporate governance mechanisms in government-owned banks is a great challenge. As a way of reducing political or bureaucratic interferences in running banks, the ownership and management may be separated with a performance contract. In any case, government-owned banks should be subject to strong corporate governance structures under clear commercial objectives.

The Basel Committee on Banking Supervision (1999) recognizes that boards

of directors and senior management of banks are primarily responsible for good corporate governance, while noting the roles of other entities in enhancing corporate governance.[27] As a specific tool for aligning the interests of bank managers with those of shareholders, remuneration of senior management and other key personnel is also considered an essential corporate governance mechanism. Moreover, given the nature of the banking industry, being exposed to various risks in a rapidly changing environment, the operation of strong internal control systems deserves separate attention.

Board of Directors

The board of directors is the central governance mechanism charged with the roles of monitoring and providing strategic guidance to management. The Basel Committee (1999) views the following practices (mostly related to the tasks of the board) as critical elements of corporate governance processes.

- Establishing strategic objectives and guiding corporate values: recognizing the importance of preventing corruption and other practices that diminish the quality of corporate governance, such as self-dealing, favors given to related-parties, and other abuse of conflicts of interest.
- Setting and enforcing clear lines of responsibility and accountability throughout the organization.
- Ensuring that board members are qualified, have a clear understanding of their roles in corporate governance, and are not subject to undue influence from management or outside concerns. Bank boards are also advised to have specialized committees including risk management, audit, compensation, and nomination.
- Ensuring that there is appropriate oversight by senior management with respect to line managers in specific business areas and activities.
- Effectively utilizing the work conducted by internal and external auditors in recognition of their important control function.

27. They include government (through laws), securities regulators and stock exchanges (through disclosure and listing requirements), auditors (through audit standards on communications to the boards of directors, senior management, and supervisors), and banking industry associations (through initiatives related to voluntary industry principles on sound practices).

- Ensuring that compensation approaches are consistent with the bank's ethical values, objectives, strategy, and control environment: motivating senior managers and other key personnel to act in the best interests of the bank.
- Conducting corporate governance in a transparent manner: publicly disclosing information on board and senior management structures as well as basic organizational structure, incentive structure of the bank, and transactions with affiliates and related parties.

Regarding the effectiveness of the board of directors, several aspects of the board may be considered: board structure and board independence, functions of the board and the activities of board committees, access to information and general support for independent directors, and director compensation and liability (Nam, 2004).

Too large a board is supposed to be ineffective in productive discussion and suffer from a free-rider problem among directors, while too small a board may fail to bring enough relevant expertise to the board. A bank board should also have the right mix of executive and non-executive or independent directors. While a board should have enough non-executive directors to ensure its independence, this should be properly balanced with the need to have full-time executive directors with required expertise and experience. The separation of the CEO and board chairpersonship should also help to enhance the "checks and balances" function of the board. The roles of the board and the management are to be clearly delineated, while establishing proper mechanisms of interaction between them and the auditors. Active board committees controlled by independent directors with relevant expertise are the key element of effective boards. A particular emphasis is needed on putting in place strong internal control systems including the avoidance of conflicts of interest.

For directors, particularly non-executive or independent directors, to be motivated and able to undertake their tasks, they should be adequately compensated and supported for their service. First of all, they should have full access to relevant information, including the opportunities of meeting with managers and employees, necessary outside professional services, and information related to board meeting agendas. Education and training as well as personnel support may also help directors better play their roles. Remuneration for directors should be adequate and may include stock-based compensation as a way of better aligning their interests with those of shareholders.

At the same time, for the efficiency and effectiveness of senior management and the board, a formal mechanism is desired for the performance evaluation of the CEO and other directors. As bank directors are usually subject to higher levels of fiduciary duties, they may be covered by director insurance for any personal liability at the bank's expense. Nevertheless, the full indemnification is likely to weaken their commitment to the duties as directors.

Compensation of Bank Executives

The level and composition of executive compensation is considered to be an important tool for determining the incentives of corporate executives. Executives are given compensation and incentives through three different mechanisms: flow compensation including the base salary, bonus, and new equity grants; capital gains on their portfolio of stocks and options; and the market's assessment of their human capital, which is affected by their performance in the current jobs (Antle and Smith, 1986; Jensen and Murphy, 1990). Among these components, equity incentives and stock-based compensation are considered important as a way of aligning the interests of executives with those of shareholders, thereby lowering monitoring cost.

A large increase in the use of stock options for CEO compensation has taken place in the United States and other parts of the world. In fact, some studies find a positive relationship between equity-based compensation and firm performance (Morck et al., 1988; McConnell and Servaes, 1990; and Frye, 2004).[28] However, stock options or other incentive contracts can be abused and inefficient; given the serious information asymmetries in banking, earnings and other short-term performance outcomes can easily be manipulated at the expense of the long-run health of banks. Even stock prices can be manipulated by purposely timing the flow of good or bad news about the firms before the option grant (Yermack, 1997; Aboody and Kasznik, 2000). Also, incentive contracts may be inefficiently designed by poorly motivated boards of directors without adequate attention to the performance of the corporations relative to the industry or market averages.

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28. However, the causality of the relationship may not necessarily run from equity-based compensation to better performance. For example, firms expecting good performance in the future may grant more equity (Yermack, 1997). Furthermore, executive compensation may be designed in an optimal way reflecting the characters of the firms and managers. For instance, higher equity-based compensation for a firm may be due to the difficulty of monitoring the firm. In this case, there will not be any systematic relationship between the degree of equity-based compensation and firm performance.

The need for, and effectiveness of, this form of corporate governance mechanism might depend on the seriousness of the agency problem, the efficacy of other forms of corporate governance, and other corporate governance environments of individual firms. Family-controlled firms, for instance, are not expected to give much stock-based compensation to their executives, since the controlling families would closely monitor them (if they are not family members) or they have other objectives than maximizing shareholder value. Thus, equity-based executive compensation is likely to be more prevalent among firms and banks with dispersed ownership than those with dominating block owners. How are banks compared with corporations in other industries as for the use of this mechanism of corporate governance–It seems that the need for equity-based executive compensation in banking is not as strong as in other industries.[29]

First, if banks are in fact more opaque than other firms with serious information asymmetry and agency problems, one may argue for more equity-based executive compensation or higher pay-performance sensitivity for banks. However, this argument may be weakened by the difficulty of designing the compensation contracts properly, as bank managers would find it easier to manipulate the pay-offs. Second, banks are subject to heavier government regulation and monitoring than other industries because of their unique characteristics. To the extent that the regulation is a substitute for other mechanisms of corporate governance, there may be less need for equity-based executive compensation for banks. Third, the rationale for aligning executive interests with those of shareholders may not be strong for banks because banks mobilize funds more from deposits than from equity. Actually, such alignment may not be desirable, since the shareholders of banks have strong incentives for risk-taking due to the high leverage of banks and deposit insurance/guarantees.[30]

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29. Houston and James (1995) find that bank CEOs tend to hold fewer stock options and receive less options and stocks in their total compensation compared with executives in other industries. John and Qian (2003) also find that the pay-performance sensitivity for bank CEOs is lower than it is for CEOs in manufacturing firms, and that this difference is attributed largely to the difference in debt ratio.

30. In consideration of the risk-shifting incentives of bank executives with highly performance-sensitive compensation, John et al. (2000) propose that this observable incentive feature of bank CEO compensation should be incorporated in the determination of FDIC insurance premium and bank regulation, claiming that this will be more effective than capital regulation in ameliorating risk-shifting incentives.

Internal Control and Risk Management

Together with aligning the interests and goals of top management with those of stakeholders, banks should ensure that these goals are pursued in the design and operation of the internal system for the delegation of decision-making. Internal controls are the responsibility of management that sets the tone of risk-taking and ensures that risk exposure does not threaten the institution given various controls tools as well as the capital adequacy and earnings flow. Various systems of accounting, internal audit, risk management, credit review, and compliance all support internal control by independently monitoring the effectiveness of the control processes.

The Basel Committee on Banking Supervision (1998) evaluates internal control systems for banks and identifies five key areas where control breakdowns occur. They include:

- management oversight and accountability, and development of a strong control culture,
- assessment of the risk of certain banking activities including those off the balance sheet,
- key control activities such as segregation of duties, approval, verification, reconciliation, and reviews of operating performance,
- communication of information between levels of management with the bank, especially in the upward communication of problems, and
- audit programs and other monitoring activities.[31]

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31. In 1995, the Barings Group with a history of over 230 years collapsed as the result of huge losses incurred by one of its subsidiaries from unauthorized trading activities. The British Board of Banking Supervision found out that it was due to the failure of risk management systems and control within the Barings Group. From the investigation of the incident, the board drew the following five lessons for the directors of all financial institutions (Hall, 1995):

    - full understanding of businesses by management teams,

    - responsibility for each business activity clearly established and communicated to all relevant parties,

    - clear segregation of duties (for front and back offices, etc.),

    - establishing relevant internal controls including independent risk management for all business activities, and

    - ensuring quick resolution by top management and the audit committee of any significant weaknesses identified by internal auditor or otherwise.

The British Revised Combined Code on Corporate Governance (2003) states that the board should maintain a sound system of internal control to safeguard shareholders' investment and the company's assets. More specifically, the board is, at least annually, to conduct a review of the effectiveness of the group's system of internal controls and report to shareholders covering all material controls, including financial, operational, and compliance controls and risk management systems. The guidance of the Institute of Chartered Accountants in England & Wales (1999) on this provision says that the board's annual assessment should consider:

- the change in the nature and extent of significant risks, and the company's ability to respond to changes in its business and the external environment,
- the scope and quality of management's ongoing monitoring of risks and of the system of internal control, and the work of its internal audit function and other providers of assurance,
- the extent and frequency of the communication of the results of the monitoring to the board,
- the incidence of significant control failings or weaknesses that have been identified, and the extent to which they have resulted in unforeseen outcomes and contingencies, and
- the effectiveness of the company's public reporting processes.

For financial institutions, risk management has become a critical management process in a new financial environment for their continuity, stability, and prosperity. Risk of financial institutions is being driven by numerous factors including globalization, increasing competition, new technologies, new products, product sophistication, new markets and distribution channels, cultural diversity of staff and clients, and staff turnover, to name just a few.[32] The soundness of banks depends very much on their capacity to identify, measure, monitor, and control various risks related to liquidity, credit, exposure concentration, and interest and exchange rates. Effective risk management is inseparably related to sound corporate governance. Increasingly, governance guidelines are explicit about internal control for risk management.

The Basel Committee on Banking Supervision has issued the principles and sound practices of managing various risks faced by banks that emphasize the following points:[33]

Board and Senior Management Oversight of Risks

- The board of directors should have responsibility for approving and periodically reviewing the strategy and significant policies on managing distinct risks such as credit risk, interest risk, and operational risk.[34]
- Senior management should have responsibilities for implementing these strategies and frameworks and developing policies, processes, and procedures for effective control and limit of these risks.

Adequate Risk Management Policies and Procedures

- Credit risk: Banks should operate under a sound credit granting process including well-defined credit-granting criteria, overall credit limits, clearly-established processes for approving credits at different phases (new credits, amendment, renewals and re-financing of existing credits), and rules on credits to related parties.
- Interest rate risk: Banks should have clearly-defined interest risk policies and procedures that are consistent with the nature and complexity of their

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32. Doerig (2001) presents 12 key principles in risk management which include: (i) risk (uncertainty about future results) being something to be managed rather than to be feared, (ii) systematic mental discipline of an organization: logical sequence starting from strategy to structure, system, systems, safety, and ultimately speed, (iii) clear structure, allocation of responsibility/accountability and discipline as basic preconditions, (iv) rigorous measures in case of non-compliance/breaches, (v) completeness, integrity, and relevance of data/systems/information as a basis, (vi) risk management as a tenacious process, not a program, (vii) risk management as part art, part science, (viii) understanding the limitation of models, (ix) benefit of simplicity in organizations, restructuring, and projects for risk management, (x) understanding that a financial institution is a "knowledge and learning organization," (xi) importance of responsible control/compliance/risk culture, and (xii) human element as THE critical factor of success.

33. See Basel Committee on Banking Supervision (2000, 2003, and 2004) for the principles or sound practices for managing credit risk, operational risk, and interest risk, respectively.

34. Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people, and systems or from external events (Basel Committee on Banking Supervision, 2003). Operational risk event types include: internal or external fraud; employment practices and workplace safety (violation of employee health and safety rules, organized labor activities, etc.); clients, products, and business practices (fiduciary breaches, improper trading activities, sale of unauthorized products, etc.); damage to physical assets; business disruption and system failures; and execution, delivery, and process management (data entry errors, collateral management failures, incomplete legal documentation, etc.).

activities. Risks inherent in new products and activities should be identified and subject to adequate procedures and controls before being introduced or undertaken.

- Operational risk: Banks should address their operational risks as a distinct risk category that needs to be managed. Crucial elements of an operational risk management framework should include a strong operational risk culture and internal control culture, effective internal reporting, and contingent planning.

Risk Measurement, Monitoring and Control

- Credit risk: Banks should have systems in place for monitoring the condition of individual credits, monitoring the overall composition or quality of the credit portfolio, independent and ongoing assessment of the bank's credit risk management process, and early remedial action dealing with deteriorating/problem credits. Banks also need information systems and analytical techniques for measuring credit risk, and are encouraged to develop and utilize an internal risk rating system in managing credit risk.
- Interest rate risk: Banks should have interest rate risk measurement systems that capture all material sources of relevant risk, and measure their vulnerability to loss under stressful market conditions. It is essential that banks establish and enforce operating limits and other practices that contain exposures within tolerable levels, and have adequate information systems for measuring, monitoring, controlling, and reporting interest rate exposures.
- Operational risk: Banks should identify and assess the operational risk inherent in all material products, activities, processes, and systems. Adequate policies, processes, and procedures should be in place to regularly monitor operational risk profiles and exposure to losses and to control/mitigate material operational risks. Also essential are contingent and business continuity plans to ensure operation on an ongoing basis and limit losses in the event of severe business disruption.

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2 *Financial Safety Nets: Their Roles and Effects on Market Discipline of Banks*

Stephen Grenville

1. Introduction

There are two principal elements to a financial system safety net – lender of last resort (LoLR) and depositor protection. Much has been written on these elements, especially on the latter, with many subtle, ingenious and innovative suggestions made.[1] Many of these are covered in the background paper in this volume. The focus here will be different: to explore the issues that have practical application in East Asia, where information is usually scarce, financial markets often shallow, expectations poorly formed and risk premiums generally high. For this paper, the filter through which all ideas should pass is the question: "Would this have made any difference had it been in place in 1997 in East Asia?"

The message that should be taken from this literature and from the experience of bank failure is that incentives and institutions are both important (Douglass North, 1990). The S&L crisis in the USA in the early 1980s, where the S&L management used their protected and subsidised position to make unwise and sometimes illegal loans, illustrated the problems of the combination of generous deposit protection, partial de-regulation, and inadequate prudential supervision. This combination created high intrinsic risk in addition to the incentives and the opportunity for exploiting the deficiencies of the institutional environment. More relevant to East Asia, the high proportion of banks that are state-owned presents intractable problems of governance which overshadow many of the financial safety net issues.

Safety nets are a flawed and imperfect means of preventing a repeat of the hugely expensive bail-outs of the financial sectors in East Asia in 1997 and 1998. Relying too heavily on such safety nets to prevent another crisis would therefore be a serious policy mistake. The main thrust of policy should be towards creating a resilient financial sector that does not need much help from safety nets, as well as strong and independent prudential supervision that will keep the system sound, identify problems early, and close

1. Two useful introductions are Garcia (2000) and MacDonald (1996).

banks before the owners' equity is wiped out. This might seem an unhelpful conclusion, but understanding what *cannot* be done is important. With this in mind, this paper includes a section on the structure of the financial sector and some discussion of where prudential supervision should sit within the organizational structure. First, Sections 2 and 3 present a look at the two specific types of safety nets – lender of last resort and depositor protection.

2. Lender of Last Resort

Lender of last resort is relatively simple in principle, but is tricky in application. It has long been accepted[2] that a central bank should "lend freely" (i.e., liberally) to a bank which is illiquid but not insolvent. The special characteristics of banks make them subject to self-fulfilling runs that can cause the failure of a sound bank and threaten system stability, so the idea of support in these circumstances is widely accepted.[3] The central issue, almost always, is to distinguish between illiquidity and insolvency. The practical issue superimposed on top of this is that the decision has to be made very quickly – in a "next-day" settlement system, the decision whether to support a bank or not could be taken overnight, but now, with real time gross settlement (RTGS), a bank's illiquidity will show up in the RTGS payment queue and may become widely known within a very short period of time.

The second major issue with LoLR is coordination. If a bank's problem turns out to be a case of illiquidity, the central bank quickly recovers its funds and there is no need to involve other parties. Usually, however, there is a serious coordination issue, made more critical by the need for speedy decision-making. The central bank may be privy to some of the signs of crisis, showing up in the payments system and in the short-term money market. However, even earlier that this, the supervisor may have early warning of the potential need for LoLR from monitoring the bank. In any case, the required information to determine whether the bank's problem is one of liquidity or of insolvency certainly requires the sort of information that the

2. See Bagehot (1873).

3. Following the perceived poor performance of Bank Indonesia during the 1997 crisis, its LoLR function was in effect cancelled in the new Bank Indonesia Act of 1998. It was recognised, however, that this was not a viable position and the function has since been restored, although with heavy involvement by the Ministry of Finance for LoLR loans not secured by government paper. While this may be an understandable reaction to the earlier deficiencies, the danger now is that the decision-making process is too cumbersome to handle problems with the speed that will be required.

supervisor has, so close coordination is needed between the supervisor and the central bank.

In practice, illiquidity is often an early sign of insolvency, in which case the coordination issue is more complex still. If an insolvent bank is closed while there is still positive shareholder equity, there is no need for budgetary funds. However, the usual pattern is that either the closure takes place after equity has already been exhausted or, more common still, the bank remains in "open resolution" (i.e., it remains open, usually under the direct control of the supervisor or the central bank). In these cases it is likely that budgetary funds will be needed, so the Ministry of Finance (MoF) needs to be involved in the decision-making.

The central issue, then, is to ensure that there is a system in place (including MoUs, well-based strong legal positions, and a detailed "war book") for rapid decision-making, with agreed upon procedures and time-tables for resolving differences of views, e.g., on whether the bank is illiquid or insolvent, and whether to close it. Given the need for rapid decisions, there may be a case for the task to be delegated to one organization (which would tend to be the central bank, with its first call on funding).

In the textbook view of LoLR, the authorities weigh the moral hazard disadvantages of giving a LoLR loan against the benefits of providing liquidity to the troubled bank. This practice, which might be called the Bagehot formula, implies quite a narrow and restricted role for LoLR. If markets were perfect and the illiquid bank had acceptable security, there would be little case for the central bank to intervene; in a well-developed financial market, the inter-bank market would sort out the problem, providing precisely the sort of assistance that Bagehot envisaged – lending at a penalty rate against good security. In practice, the bank may not have marketable security with a well-established value and its solvency may be in question. Thus, the authorities have to weigh a different set of factors: the possible loss of public funds versus the damage to the financial sector if the bank fails. The question of systemic impact therefore has to be considered. It is not so much a case of "information asymmetry" (i.e., justifying LoLR on the view that the authorities have more information about the troubled bank than the market does), but rather a sharper feeling of responsibility, on the part of the central bank, for systemic threats, and a greater preparedness to accept some risk to shore up the financial system. It may be that the authorities can persuade the market to provide the financing (e.g., with long-term capital management

(LTCM), and as was attempted with Barings), but even here the implicit official support makes the deal possible – the authorities are not simply acting as an honest broker to persuade the other players that it is in their interests to support the illiquid bank.

These issues of systemic knock-on effects are probably the hardest to evaluate in practice. It would be wrong to think that this can be settled simply in terms of size. While "too big to fail" may be clear enough, even failures of small banks can trigger re-appraisals of risk that have strong systemic implications (e.g., the "wake-up call" that Thai banking problems gave to other East Asian banks in 1997, with the resulting contagion, or the closure of sixteen small banks in Jakarta in November 1997). Whether a bank is "systemic" is context-dependent. The LTCM crisis is a reminder, too, that systemic problems may not simply take the form of runs on banks; the imploding of important derivative markets, or even the drying up of the inter-bank market, may be symptoms of systemic problems that would justify action by the authorities. As soon important systemic issues are acknowledged to be at stake, the simple rule of not helping insolvent banks has to be re-assessed; there are times when the cost of saving a bank will be less than the cost of the damage to the financial sector through its collapse. What starts out as a relatively simple idea – providing liquidity to an illiquid but solvent bank that has good security – gets more complicated in practice, and the result is that LoLR has wider application than the original Bagehot concept.

There are, of course, other less difficult technical issues. One issue is what rate of interest to charge on LoLR. The traditional thinking is to charge a penalty rate in order to discourage use of the facility and encourage early repayment. However, in practice this may not be the best course; during the 1997 crisis, when the general level of interest rates was raised significantly, even higher penalty rates further undermined the viability of banks, increasing the accounting cost of the ultimate taxpayer-funded bail-out. Another technical issue is the type of security which the central bank should require when it makes a LoLR loan. While it is obviously desirable that this security be strong, it may be a mistake to write this into laws or regulations, circumstances may arise where loans have to be given without security.[4]

Does the existence of LoLR cause lack of discipline on the part of banks? The problem here is sometimes overstated. No bank manager consciously

4. Republic of Korea handles this issue by allowing the central bank to temporarily redefine what is "acceptable" security.

goes ahead with a business plan based on receiving LoLR. Moral hazard will be kept in close check by the sure knowledge that bank management will be dismissed in those cases where the bank needs LoLR to stay afloat. Additionally, a carefully crafted "constructive ambiguity" is one more assurance that a business plan based on intentional excessive risk-taking will not be fostered by the existence of LoLR. The more serious concern is that LoLR may keep a bank in operation longer than is optimal, but this is the central issue discussed above, of deciding whether a bank is illiquid or insolvent; this concern is not one of moral hazard. The failure of LoLR in Indonesia in 1997 and 1998 was one of implementation (more banks should have been closed and/or the authorities should have "stood astride" the balance sheets of troubled banks much more vigorously and intrusively), not an indictment of LoLR as such. The suggestions that the market can provide the LoLR facility (Goodfriend and King, 1998; Flannery, 1996; Kaufman, 1999; and Freixas, Parigi and Rochet, 2000) would seem appropriate where markets are deep, externalities are minimal, and the general level of information is high, but this is rarely the case in East Asia.

3. Depositor Protection

There is an important *in principle* distinction between partial protection through depositor insurance, which covers only a proportion of the funds in the financial sector, and a blanket guarantee (explicit or implicit) that fully protects depositors. This distinction seems crucial for any discussion of system stability (preventing bank runs), moral hazard, and market discipline, and is central also to the organizational structure of depositor protection. This distinction will therefore be emphasized in this paper, calling partial insurance *deposit insurance* and using the term *deposit guarantee* for the (often implicit) backing by the government of the full deposit.

Deposit Insurance

Depositor insurance does not have much to do with stopping bank runs.[5] The coverage is often low in terms of proportion of deposit *volume* covered (even though the proportion of *depositors* protected is usually high), and the depositors protected are those with the least information about the health of the bank, so they are unlikely to be in the vanguard of a run even if they are uninsured. Even though insurance might discourage them from joining a run already started by better-informed depositors, the fact that a large volume of deposits is held by uninsured depositors will mean that the insurance is of

little help in staunching the run.[6] More forcefully put, unless deposit insurance offers an immediate and trouble-free return of deposit and interest *in full*, then it will be in depositors' interests to "run."

Deposit insurance should be seen as performing two *other* functions not related to stopping runs:

- providing consumer protection for economically weak less-well-informed depositors who for social reasons need to be protected and
- attempting to define ex ante what the authorities will do in the event of bank problems; if policy can define clearly who should be helped *before* the event ("in the cool light of day"), this will limit the budget cost of that help.

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5. In certain circumstances (not relevant to East Asia at present) there was a connection between deposit insurance and weakness in a particular segment of the financial sector. Much of the US interest in this topic (e.g., the many articles of Ed Kane) came out of the experience of the S&L crisis in the early 1980s. The combination of circumstances was four-fold: the substantial size of the insured deposits (which meant that institutions could make these deposits the predominant source of their balance sheet funding), the subsidised nature of the insurance (the premiums were not risk-related), the partial de-regulation of the S&Ls (which had restrictions on their lending interest rates but none on their deposit rates, giving these institutions huge intrinsic interest rate risk when the general level of interest rates rose, as it did in the course of the Volcker deflation of 1979-82), and the woefully inadequate prudential supervision. The expansion of the S&Ls certainly depended on the existence of the subsidised insurance, but this says more about the role of subsidised insurance in inhibiting market discipline (hence the conclusion of Demirguc-Kunt and Kane (2001) that "badly designed deposit insurance curtails market discipline") than it does about the ability of insurance to prevent bank runs. There seems to be agreement in the academic literature that the presence of poorly designed explicit deposit insurance tends to increase the likelihood that a country will experience banking crises, but the corollary is not true – it is not true that a well-designed system will help prevent bank runs. In some of this academic literature, there is a process of setting up a straw man (assuming that the rationale of deposit insurance is to inhibit bank runs) and then knocking it down. Thus we see in Demirguc-Kunt and Kane (2001): "According to the theory, more comprehensive coverage should be a better guarantee against depositor runs, but it would also create more incentives for excessive risk taking," and then the test results show, unsurprisingly, that banking systems with deposit insurance are in fact more fragile.
6. While it may well be that ordinary depositors can exercise a type of discipline on individual financial institutions, it would be a mistake to draw from this that the financial system as a whole will be safer if there is this kind of discipline. Ordinary depositors will not have enough information to assess the viability of a bank (particularly as this requires expert judgements about the value of non-market assets in the loan book). When depositors become alarmed, they do not exercise gentle increasing pressure on a bank to get its assets in order, but instead rapidly and contagiously remove their funding, so that instead of discipline, the result is crisis.

If this starting point is accepted, then the critical issues surrounding deposit insurance are the *specifications* that will allow banks to achieve these two limited aims efficiently, without being confused by any other purported benefits of deposit insurance. This has important implications (examined below) for the institutional arrangements of the deposit insurance.

- Who should be covered? The current policies in East Asia (see the country papers) give quite wide coverage to institutions and creditors of financial institutions, specifying the *size* of deposit rather than *type* of instrument or institution. This has two deficiencies. First, depositors are able to widen the coverage by deposit-splitting in the early stages of a crisis, increasing the cost.[7] Second (and more serious), the coverage is not tightly confined to the target group – consumers whose social status warrants protection. There seems no good reason on consumer protection grounds to insure anything other than basic deposits (with banks, or better still, with savings banks, if such institutions exist).[8] All other creditors should go through the normal bankruptcy or winding up process, without an *a priori* claim on the insurer or the government.
- Covering inter-bank deposits seems very risky, as these will be open to collusion during a crisis. These are, in any case, the most likely place that depositor monitoring will take place, and providing comprehensive insurance for creditors removes this discipline. It would seem better to accept that the inter-bank market is likely to dry up in a crisis and that the central bank will have to redistribute liquidity among banks, using the LoLR.
- Most of the schemes proposed for East Asia involve the depositors paying a premium. It seems to be common practice that the fee is levied on ALL deposits (even the ones that are not protected).[9] Surely it is a distortion to burden deposits with an insurance cost for which there is no benefit. It is surprising that there is not more effort to implement differential premiums for different institutions, with the riskiest institutions paying a higher premium to reflect this.[10] Even where there *are* differential premi-

7. This happened in the S&L crisis, when depositors with deposits larger than the protected limit simply split their deposits so that all their funds were covered.

8. Protection might also be offered (probably from a different insurer) for insurance claimants whose claim is already made, and perhaps for pension funds in the few cases where the private sector provides these to the target group in the community.

9. An argument does exist, of course, that if deposit insurance protects the system from runs, everyone benefits. However, we argue here that this is not true.

ums (e.g., in the USA), there is no real attempt to make the riskiest pay anything close to the true premium (the highest risk premium surcharge is only 27 b.p.). It is, of course, politically difficult to achieve this, but when banks are paying different interest rates to attract deposits (which characteristically might have a differential of as much as 500 b.p.), most of this difference would reflect risk and justify a premium that was a substantial proportion (for example, 50–75 percent) of this differential.[11] Needless to say, this is much higher than anything in practice at present. Of course, the weakest institutions would resist, but they are the least deserving of subsidized insurance.

- The accumulated premiums may not be sufficient to meet the cost of payout. Whether this is borne by the other insured institutions or by the general taxpayers, it will be better if the means of funding this potential shortfall are determined in advance, rather than after the event (when it almost always falls to the taxpayer). Getting the remaining industry survivors to meet the cost of any scheme shortfall seems both unfair and inefficient.[12]
- Should the deposit insurance corporation (DIC) be public or private?

10. This is the key to reducing moral hazard – if there is no subsidy in the insurance, bank management will not have an incentive to overuse it.

11. It might be noted in passing that if the premiums were set at the deposit interest differential, it would then be possible to distinguish between two hypotheses usually confounded in the academic literature. The first hypothesis is that depositors are sensitive to risk and quickly shift out of uninsured deposits, and the second hypothesis is that insured deposits have a hidden subsidy from the insurer, and that depositors favour the subsidised product.

12. But note that this is the opposite of the advice offered in Demirguc-Kunt and Kane (2001), who see the existence of a fund as an invitation to plunder it. They offer the following: "Empirical research supports the hypothesis that the following features enhance market discipline and reduce moral hazard:

    - Credibly low coverage limits per account
    - Narrow coverage (e.g., excluding interbank deposits)
    - Coinsurance (and alternative private loss-sharing arrangements such as subordinated debt and extended stockholder liability)
    - Compulsory membership
    - Ex-post funding
    - Targeting surviving banks to cover losses (although taxpayers may be asked to assist banks in a truly systemic crisis)
    - Private-public joint management."

Even in the USA it is public (in the sense that the government stands behind it, guaranteeing payment). There seems no compelling reason why this is so, if deposit insurance is seen as a strictly limited obligation.[13] Perhaps the justification is that, as crises are rare events, private insurers will try to wriggle out of their obligations (even if this harms their reputations), and the social objective of the insurance will not be achieved. Granting this point, private sector insurance could be used to *supplement* any compulsory scheme. There should be nothing to discourage a small financial institution that does not have a well established and widely accepted risk profile (or which does not have a good one) from obtaining additional insurance from a stronger institution, making its own product more attractive. This kind of "credit enhancement" is commonly used in fund management. Should it not be used in deposit funding?

- Who should arrange resolution when a bank fails? Because deposit insurance is often seen as an instrument for managing bank runs, most current systems have the DIC in charge of bank resolution. This is a curious administrative arrangement. The people who have all the background to the bankruptcy event are the prudential regulators (either the central bank or the universal regulator). If there were a constant stream of small banks failing as a matter of routine (as in the USA), it might be argued that the personnel of the DIC would be expert in the specialized task of closing a bank and resolving its assets, including the payment of the depositors. Even here, only a proportion of these depositors will be "customers" of the DIC, in the sense of being eligible for payment. In the common circumstances of East Asia, where the DIC is less likely to have this continual low-level stream of cases to hone its expertise, it seems particularly anomalous to give the task of bank resolution to the DIC. It is difficult to believe that its personnel will have the experience and expertise to handle these issues well. In addition, to separate resolution from both the LoLR and prudential supervision creates a serious issue of coordination. In many cases, failure is preceded by LoLR. At some point the decision has to be made that a case is not one of illiquidity, but of insolvency. Who makes this decision? The LoLR is clearly the domain of the central bank. When they decide that it is no longer a case for LoLR, does this automatically make it a case for the DIC? If so, the central bank is making the decision that will trigger the DIC's obligations. Will the DIC have the in-

13. Similar guarantees on housing mortgages in Australia are made by private insurers.

centive for quick closure of banks, when this triggers its obligations? The prudential supervisor seems to have the best information on managing an insolvency. There will be needless duplication of monitoring if the DIC resolves bank failures. Moreover, why should the DIC be in charge of an event that not only involves significant depositors *other than* those eligible for protection, but that has significant implications for financial system stability? For all these reasons, the DIC seems the wrong institution to carry out bank resolution. It has a well-defined narrow task of paying out eligible depositors, and it should leave the resolution to the prudential supervisor or the central bank.

- Widespread calls for assistance will be made in the event of a crisis. Very narrow deposit insurance will not be enough, and as this is widened ex-post under political pressure, any value in defining and limiting the claims will be lost. Either the authorities should accept that there will be a different response to a crisis (e.g., temporary introduction of a blanket guarantee), or the insurance coverage needs to be quite wide, to cover all groups who might make a legitimate claim for help in the event of a system-wide crisis.

Where does this leave the question of moral hazard in relation to deposit insurance? Again the dangers seem to be exaggerated or misunderstood. For any insurance policy, there will be some element of moral hazard; those who carry fire insurance on their houses may be a little less careful with the stove, but they would still regard a fire as a serious event, so will not be subject to much moral hazard. This would be the case also with deposit insurance if the premiums were fully risk-adjusted. The real problem here is that the premiums are rarely adequately risk-adjusted, so there is an implicit subsidy to the most risky banks. It is this problem of *subsidy*, rather than moral hazard, which causes the system to be more risky than it should be. Perhaps the most commonly cited paper supporting the view that deposit insurance creates substantial moral hazard is Demirguc-Kunt and Detragiache (2000), which uses a large data sample from more than sixty countries to show that the presence of deposit insurance raises the probability of a banking crisis. The power of the econometric technique is hard to evaluate (including the instrument variables used to establish direction of causation), but in any case the connection between deposit insurance and moral hazard (and hence to over-extension of risky lending) is only one possible explanation; if deposit insurance premiums are subsidized for the most risky banks (which seems to be universal in practice), this would be enough to explain the over-

expansion (and subsequent failure) of risk-prone banks. Just as banning the wearing of seat-belts would not be the appropriate answer to the moral hazard issue, arguing against deposit insurance on the grounds of moral hazard seems misguided; the answer is to devise forms of insurance which are not overly prone to moral hazard.

Deposit Guarantees

Deposit guarantees are almost always implicit and in quite a few cases there is a strong presumption of full protection for depositors.[14] [In such cases/In the case of deposit guarantees?], all the criticisms usually directed against deposit insurance are relevant.[15] There is never enough pre-arranged funding, and the burden always falls on the taxpayer. There is a large open-ended commitment on the taxpayer's behalf to make good not only the deserving cases, but those who should have known better. There is moral hazard for depositors, management, and shareholders, although the moral hazard element is often exaggerated. Some analysts talk as if bank managers set out to fully exploit the opportunities by embarking on reckless risk. No doubt cases in history exist where this occurred, but the more common form of moral hazard is the "gamble for resurrection." The institutions do not start out with a business plan based on the probability that they will be saved by the government, but rather are run by natural risk-takers who when faced by adverse circumstances, decide that if they are going to go broke anyway, they might as well "throw the dice" for resurrection or spectacular collapse; the presence of the guarantee lets the business stay alive longer and run up bigger debts. Four points might be made here.

- This is a reminder that the main effort ought to be in building a resilient

14. This is solidly based on history in most countries. Argentina seems to be the only recent case where depositors have lost significantly in a systemic collapse.

15. The academic literature is generally quite critical of unlimited deposit guarantees. Honohan and Klengebiel (2000) probably reflect the consensus when they say that these guarantees raise the fiscal cost of crises and are adverse for longer term growth, but it is difficult to see how either of these assertions can be tested in the absence of the counterfactual – either how the particular country would have gone without the guarantee, or a good sample of countries that did, in fact, try to go without a guarantee (e.g., Argentina). It was probably these views that inhibited Indonesia from adopting a blanket guarantee in 1997, and the delay in putting this in place is now generally accepted to have been a serious mistake, which probably made the resolution even more expensive (see Djiwandono (2005) p.120-125). If these guarantees are such a bad idea, one wonders why so many countries do it (Sweden 1992, Japan 1996, Thailand 1997, Malaysia 1988, Indonesia 1998, Turkey 2002).

financial sector and ensuring speedy resolution of problem institutions while they still have positive equity.

- To combat moral hazard, it is legitimate to have ambiguity about when and how the guarantee should be used. However, this should be thought out in advance to avoid chaos. The decisions to use it will be far-reaching and require substantial coordination between the central bank, the prudential regulator, the DIC, and the MoF (which will have to meet most of the funding cost). A detailed "war book," with settled legal positions and agreed upon coordination procedures, seems vital.
- Above all, deposit guarantees should be thought of as a *totally different* system from deposit insurance, with completely different problems and different solutions. A key insight here is that deposit insurance involves little or no discretion on the part of the implementing institution (it is just like any other insurance, such as fire insurance), but implicit deposit guarantees require huge discretion and flexibility when they are implemented. Thus, the methods for control and governance of these two systems will be hugely different.

How to go from a deposit guarantee (blanket guarantee) to a deposit insurance regime? The important point is to recognize that the latter is not a substitute for the former, and whatever the motivation for the former, it has to have sorted itself out before the guarantee is ended. Each of the countries examined here has used, or will use, a staged reduction of the deposit guarantee. To have a progressive reduction in the amount insured, as a quasi transition measure, seems to misunderstand the relationship (or, more accurately, the lack of a relationship) between insurance and guarantees. The issue is whether the removal of the blanket guarantee will cause a run on some banks (e.g., the small ones) that can be seen as "systemic." If the system is strong enough to avoid this sort of run, and prudential supervision is strong enough politically to close individual banks that get into trouble, then the blanket guarantee can be eliminated. In such a case, however, doing staged reduction in coverage seems unnecessary. Once the blanket is gone, the system is vulnerable to a bank run and every time there is a new "stage" of the reduction process, attention will be drawn to the issue. Thinking of deposit insurance (which does not stop bank runs) as a replacement or successor to a blanket guarantee (which does stop bank runs) just confuses the issues.

4. Elements in an Improved Financial System

An essential point that must be considered is that another crisis is likely in East Asia at some stage. Financial systems remain vulnerable because of unreliable commercial information, uncertain legal systems, the huge and destabilizing capital flows that are a part of globalization, the strains brought by deregulation and still-evolving institutional structures, and the likelihood of asset bubbles.

Another essential point is that, in the face of a systemic crisis, depositors are almost always saved (at the expense of the taxpayers).[16] If the goal is to avoid these costly systemic crises in the future, either this almost-universal practice of saving the depositors has to change, or the financial system has to become more robust. Clear thinking about this choice would therefore help us to move in the right direction. The first question to ask is: "Is it realistic to think that bank depositors can be allowed to lose a substantial part of their deposits?" In most countries the answer is "no," no matter how many times the authorities say that they will not save depositors.[17] If the judgment is that depositors will be saved, then the pre-crisis task is two-fold. First, the depositors who will be saved must be limited to as small a group as possible. Second, the financial sector must be made more robust.

We have already explored one tactic for limiting the coverage of the depositors to be saved: doing it through deposit insurance. If this insurance cover is wide enough, it may meet the political need to save depositors. However, consumer protection – the social need to protect the weak and ignorant – is not the only reason why banks are bailed out. The risk of contagion combined with the value of a stable, reliable, and secure financial system is the common motivation for bank bail-outs. Thus, the answer is not to be found in deposit insurance (although that may help), but in a more robust financial system. The key question, then, is whether a financial system can be created that is either robust as a whole or, if this is not feasible, one that has a sufficiently substantial *core of robust institutions* that can survive serious shocks,

16. Argentina in 2002 is the obvious exception, but the cost of this policy was to leave the banking sector seriously scarred, even years later.

17. The Argentine experience may be relevant, with judgements made about whether the long-term damage to the financial system was worthwhile. New Zealand tried hard to create this environment, but as almost all the banks operating in New Zealand are foreign-owned (and protected by the foreign prudential supervisor), this was a rhetorical exercise rather than a test of deposits-at-risk.

and the non-core institutions can fail without this threatening overall financial sector stability.

This perspective takes the focus away from *depositors*, putting it instead on the financial *institutions*. Which ones should be made robust, and how? The core institutions should serve a two-fold purpose: to provide the basic essential services of the financial sector (e.g. the payments system), which need to be maintained during a crisis, and at the same time, these institutions should hold the deposits of those who will be saved on consumer-protection grounds.

This suggests the need for *differentiated* financial institutions, each with different risk characteristics. It might be seen in terms of concentric circles, with "savings banks" (Milton Friedman's "narrow banks") as the safe core. These institutions are safe because they hold government securities as their predominant asset.[18] Weak depositors should keep their deposits in the safe core institutions, and this does away with the need for deposit insurance. The key insight is that depositor protection comes through protecting the *institution, not the depositor*. These savings banks could provide a basic payments system (including the facilitation of foreign trade). Thus, even businesses should keep some funds with saving banks. Protection could be explicit – i.e., guaranteed by the government, as it is costless to guarantee an institution that holds predominantly government securities.

Of course there is more to a financial system than savings banks. A well-functioning economy requires financial intermediation – providing loans to businesses too small to raise funds directly through own-name bond issuance, and provision of basic hedging services. The next ring of the concentric circles – commercial banks – therefore needs to be robust as well. Much more intrusive supervision (and restrictive rules) for such near-core institutions are the key. For example, perhaps they should not be allowed to give FX loans, and their hedging and derivative activities may need close control. Wider concentric circles encompass commercial bond markets, futures markets, mutual funds, pensions and insurance, each with its own risk characteristics and its own specific methods of supervision, with these risk differences well understood by the public.[19]

If this is such a good idea, why is it not a widespread practice? The problem,

18. Of course this balance sheet needs to be managed to avoid interest rate risk.

19. This system has been suggested for Indonesia in Grenville (2004).

for most developed financial markets, is that the dominant institutions had already become conglomerates early in the process of financial deregulation, and those that had not become conglomerates wanted no constraints on their development. The mindset of the deregulation era was that any government interference was bad, including rules that confined certain institutions to certain sectors of the market; the dominant understanding was that "the playing field must be level." This was, of course, inconsistent with what was happening elsewhere in the economy, as rules confining people to particular professions were regarded as acceptable (doctors and plumbers were each required to "stick to their last," and not do each others' work). The time is now too late for the developed countries to change. Using the powerful analogy of Al Wojnilower (1991), the animals have escaped from their cages and cannot be put back. For emerging markets, however, it may not be too late. A strong case can be made for requiring separation of institutions by risk, and enforcing this for the next few decades until deep institutional changes happen in the availability of commercial information, the legal system, and governance in general.

This is a big issue, and leaving the analysis here and waiting for this major change in the evolution of the financial sector may not be realistic. If we accept that this kind of risk rearrangement is not going to occur, then the remaining task is to make prudential supervision very much better than it has been. What are the issues?

- Contrary to the current wisdom, the central bank is probably the best prudential supervisor. It is independent, already has expert staff, and pays good salaries. No newly created universal supervisor will have this degree of independence or be likely to be able to pay the same salary levels. A central bank is more likely to act quickly to protect its overall reputation by closing a weak bank. The concern of conflict between prudential and monetary policy is a misunderstanding of the issues; it is right and proper for the stance of monetary policy to take account of the health of the financial system (see Greenspan's now-lauded efforts to "lean against the wind" in the early 1990s). Obviously, putting prudential supervision, payments supervision, LoLR, and crisis resolution all in the central bank removes many of the coordination problems that arise between institutions in a crisis, although there is still a need for coordination with the MoF.
- Perhaps the greatest misunderstanding that resulted in the popularity of

universal supervisors is the idea that all financial institutions are affected by risk, and that therefore their supervision should be the same. It is now clear (if it was not clear ten years ago) that the balance sheet of an insurance company is totally different from that of a commercial bank, and needs to be managed differently. Managing a mutual fund or fund manager is totally different again, and each type of institution tends to have a certain type of employee.[20] The case for having these different institutions overseen by the same supervisor is no more logical than having the technical work of surgeons and lawyers overseen by the same regulator.

- The main drawback of a universal regulator, from the taxpayers' viewpoint, is that it creates a presumption that if some institutions are saved (and banks always are), then all financial institutions ought to be saved.
- When prudential supervision is carried out by the central bank, there is the possibility of funding the administrative costs from the central bank's budget (often derived largely from seigniorage). With the popularity of stand-alone universal regulators, the common practice is to levy a charge on the supervised institutions, but this tends to leave the regulator with insufficient funds to carry out the intensive supervision that is often required, and may leave the regulator subject to pressures from the regulated institutions. Above all, it does not recognize the substantial externalities that come from good regulations, and the cost to the general taxpayer of poor supervision: there is a strong case for funding the supervisor from the budget.
- Speed of closure is the central issue to protect taxpayers. This makes independence of the regulator paramount. Judging by the experience in East Asia in 1997, the main vulnerability of the taxpayer's purse is from looting by management and owners during a banking crisis.
- State-owned banks have intrinsic governance problems that suggest it is desirable to privatize them as soon as is feasible. (These problems are much less serious with narrow banks, so one step in the right direction would be to transform state commercial banks into savings banks).
- Competition makes banks commercially efficient, but not necessarily safer.
- There are advantages in encouraging foreign banks to set up or take over

20. It might be worth noting that the fashion for "bank assurance" seems to have passed, and some banks that went down this path have attempted to unwind the union.

existing domestic banks. The riskiest tasks in the economy could be given to foreigners, especially ones with deep pockets. These tasks are also the most profitable.

- If family ownership causes problems, a limit could be imposed on shareholding (as is done in many countries). If multi-industry conglomerates and related lending are a problem, non-financial companies could be prevented from also owning banks (as is done in many countries).
- Transparency and disclosure are laudable and desirable attributes, but depositors will never be able to give useful advance warning of problems. For a bank, the critical issue is almost always with the quality of loans, which balance sheets do not reveal in a timely way. Only good supervision will notice the problems in advance.
- Subordinated debt might have a place as an early warning in deep sophisticated markets, but not yet in East Asia. Additionally, it requires control over ownership of this debt.

5. Country Comparisons

This section compares the situations (and the prospective situations) in the four countries under study here. Rather than do this country-by-country (which is done to a large extent in the individual country papers), the comparison will be by characteristic (see Table 1 for cross-country differences in depositor protection).

First, each country has a well-established (and well used) lender of last resort. As is usual, it is administered by the central bank, but in the case of Thailand, the legal institution is the Financial Institutions Development Fund, effectively a division of the central bank but with its own balance sheet and the capacity to issue a range of debt (backed by the Bank of Thailand) and hold equity in the troubled institution. As is normal, the exact circumstances under which the LoLR would be used in these four countries are left ambiguous. Again following convention, the principle is that a bank that is illiquid but not insolvent would be given assistance, but there is enough ambiguity in this (both before and after an event) to make the provision of LoLR less than automatic, which may help reduce the moral hazard aspects. In each of these four countries, however, the LoLR has been used often enough, and in a sufficiently comprehensive manner, to make for a strong presumption that it would be available for any bank experiencing illiquidity. In practice in all four countries, LoLR has been used as a holding operation,

providing temporary liquidity while the authorities were working out what to do with the troubled bank – whether to close, merge, or reorganize it. Even though the central bank is always the formal administering institution, in several cases the funds and the means of resolution came from outside the central bank's balance sheet. Some examples are the resolution of Bank Summa in Indonesia in the early 1990s and the Petronas funding in Malaysia in the 1980s. It might be worth noting that, following the perceived poor performance of Bank Indonesia during the crisis, the LoLR was effectively removed in 1998, but this was recognized to be an error and LoLR capacity was restored in 2004, with a prominent role for the MoF in implementation. As formal deposit insurance schemes are generally a post-crisis phenomenon (except for in Republic of Korea, which introduced a scheme in 1995), and with all but Republic of Korea yet to remove the blanket guarantee, the relationship between LoLR and deposit insurance (each implemented by a different institution) has not yet been tested in any of the countries, so the central issue of coordination remains to be definitively resolved in practice.

The experience of Republic of Korea in removing the blanket guarantee might be of some wider relevance. While there is some evidence of "depositor discipline" (in the sense of withdrawal of funds from the less secure banks), this occurred most noticeably during the period of the crisis, when the blanket guarantee was in place. There are no obvious indications that the depositors reacted to the ending of the blanket guarantee, either by withdrawing deposits in general or by shifting their deposits to stronger banks.

Acknowledging that LoLR and deposit insurance have tended to overlap in the past, we can look ahead at the characteristics of *deposit insurance*, which have been put in place since the crisis. First, let us address the coverage. At present, in three of the four countries, blanket guarantees still exist – a legacy of the 1997 crisis (the exception is Republic of Korea). However, in all of the countries a deposit insurance agency is planned. In all cases it is envisaged that the guarantee will cover only "smaller" deposits (although the cutoff is generally quite high by international standards; in Europe the minimum cover, according to the EC-wide requirement, is approx USD 20,000 and the actual coverage tend to be around USD 40,000, for countries with much larger GDP). This generally gives coverage to the vast majority of depositors (around 90%), but it is important to note that the *percentage of deposits covered* is very much smaller – generally around 25–30 percent. With 70–75 percent of the volume of funds *not* covered, these funds will be subject to withdrawal by depositors who have doubts about the bank. If

a bank lost even a small part of these funds, it would be illiquid. Therefore, the important point to note is that deposit insurance, as planned or implemented in these countries, does not provide much protection against a bank run.

Still on the issue of coverage, it is surprising that deposit insurance in three of the four countries extends beyond commercial banks to cover other financial institutions as well. Grounds may exist for providing some consumer protection to, say, insurance companies, but it would generally have quite different characteristics from bank deposit insurance – it might cover claims made but not yet paid out. To the extent that deposit insurance is mainly aimed at providing consumer protection to weaker depositors, there seems no strong reason to provide it to institutions beyond the core banks, provided the weaker elements in the community know that they should place their deposits with the insured institutions.

None of the deposit insurance institutions will attempt, at least initially, to set different premiums so as to reflect the risk differentials of individual institutions, although Malaysia specifically envisages doing so after two years of experience with the scheme, and the other three countries may do so.

In each of these countries, the deposit insurer is seen as the central institution in resolution of failed/failing banks. If the arguments made above are accepted, this seems a sub-optimal institutional arrangement.

Perhaps the main moral hazard issue arises from the extent of government ownership (either full or partial) of the banking system. It is very difficult to imagine circumstances in which a government would *not* fully protect all depositors in a financial institution in which the government held any significant ownership (even well short of full ownership).

Finally, the issue of coordination seems potentially very difficult. With four separate institutions involved (the central bank, the universal prudential supervisor, the deposit insurance agency, and the Ministry of Finance) the task of coordinating information and decision-making seems particularly challenging. Unless there are clear MoUs and specific plans ("war books"), making a good policy will be difficult in the fraught atmosphere of a financial crisis.

Table 1

Country Comparisons on Depositor Protection

	Indonesia	**Thailand**	**Malaysia**	**Republic of Korea**
Explicit DIC before 1997 crisis?	No	No	No	Yes (1996)
Implicit guarantee by precedent?	Yes	Yes	Yes	Yes
Blanket guarantee during crisis?	Yes (Jan 1998)	Yes (Aug 1997)	Yes (Jan 1998)	Yes (Jan 1998)
Blanket guarantee still?	Yes	Yes	Yes	No
DIC now?	The Deposit Insurance Agency (LPS) to be effective in September 2005	Not yet but planned	Not yet but planned	Yes
Institutional coverage	Commercial Banks	Most financial institutions	Banks and finance companies	Most financial institutions
Depositor coverage (approx. USD)	10,000	25,000	?	40,000
Depositors protected %	90	"protect vast majority"	"protect vast majority"	
Deposits protected %	25	32		

	Indonesia	**Thailand**	**Malaysia**	**Republic of Korea**
Universal prudential supervisor?	Not yet but legislated for 2010	No, but under review		Yes
Will DIC resolve failed banks?	Yes	Yes	Yes, under delegation from BNM	Yes
DIC premium for banks	0.1% of TOTAL deposits	0.4% of TOTAL deposits		0.1% of deposits
Risk-related premiums?	Not yet, but later	Not yet, but later	Later	Not yet, but later
% of financial sector controlled by government	70	30+	Quite high	20

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3 *Bank Ownership and Governance Quality in Four Post-crisis Asian Economies*

Joseph P. H. Fan and Yupana Wiwatanakantang

1. Introduction

The 1997–98 Asian financial crisis has been associated with bank failures in several Asian economies. These bank failures have been viewed by some as a contributing factor of the crisis. Realizing that banks are crucial to economic growth, Asian governments have strived to reform their banking sectors. One potentially important item on the bank reform agenda is corporate governance. How much Asian policymakers have done to alter the governance structures and practices of their banks, and the economic impact of such changes, is not clear.

To investigate how corporate governance of banks has evolved after the crisis and the economic consequences of the changes involved, this paper examines (1) the corporate governance characteristics of 59 banks in four Asian economies (Indonesia, the Republic of Korea, Malaysia, and Thailand) and (2) the roles of corporate governance in the banks' performance and operating efficiency. The period of study is 2000 to 2003, a period shortly after the crisis. The four economies are chosen because they were hard hit by the crisis, and many of their banks have been restructured since then. It is therefore useful to report the current state of these countries' bank governance and discuss whether bank performance can be attributed to the new governance structures.

Based on a comprehensive survey of banks in the four Asian economies, conducted by the Asian Development Bank Institute, this paper provides first-hand evidence on the governance structures of the Asian banks. It examines the characteristics of the boards of directors and the ownership and control structures of the banks. Based on these governance characteristics, a corporate governance score is created to gauge the quality of the banks' governance in terms of the degree of professionalism and protection offered to outside equity investors. The paper examines whether variations in the banks' governance structures and quality can be associated with differences in the banks' ownership and control structures. Finally, the paper

empirically addresses whether the banks' performance and efficiency can be related to their governance structures. The relation between governance and performance is unclear ex ante. On the one hand, governance structures that protect stock investors could enhance share value. This view would suggest a direct relation between governance and firm performance. On the other hand, adopting the more stringent governance structures can be costly, and hence firms may rationally choose a set of governance practices that is not first-best for protecting investors; however, this maximizes the total values of the firms by balancing the cost and the benefit. This alternative view would predict no relation between firm performance and governance (Demsetz and Lehn, 1985).

A few findings are documented in this paper. First, almost 70% of the banks have concentrated ownership and are controlled by families, governments, or foreign entities. Nevertheless, there is a significant (30%) presence of widely held banks. Second, the governance characteristics of the banks as revealed in their board structures do not appear to be of low protection to outside shareholders. Different from western firms though, politicians have significant involvement in the management and the governance of the banks. There are also many banks that are not led or governed by bank professionals. Third, the banks' governance structures are significantly related to the banks' ownership and control structures. Family- or state-controlled banks tend to adopt governance structures that cater to the controlling owners. By contrast, more diffusely owned or foreign-controlled banks tend to adopt governance structures that are more professional and more protective to outside equity holders. Fourth, overall, the banks' performance and efficiency are unrelated to the corporate governance characteristics. Further analysis reveals that significant positive relationships between governance quality and performance exist in sub-samples of countries and/or control types.

The remainder of the paper proceeds as follows. Section 2 describes the sample and the basic characteristics of the banks. Section 3 examines the relation between bank governance and performance. Section 4 concludes the paper and provides policy implications.

2. Basic Characteristics of the Asian Banks

Sample

The Asia Development Bank Institute's survey on the corporate governance of banks compiles governance and financial data of 63 banks in four Asian

economies (Indonesia, the Republic of Korea, Malaysia, and Thailand) hit hard by the 1997–1998 financial crisis. The governance data on bank ownership structure and boards of directors were taken in 2003. The financial information of the banks covers a period of 4 years from 2000 to 2003. Our initial sample consists of 63 banks and 252 bank year observations. However, we remove a few bank year observations whose key governance or financial data are missing. Our final sample consists of 59 banks and 232 bank year observations. Of the 59 banks, 23 are in Indonesia, 14 in the Republic of Korea, 10 in Malaysia, and 12 in Thailand (Table 1).

Basic Bank Characteristics

Table 1 reports the basic characteristics of the sample banks. Panel A focuses on ownership and control structures. Overall, 30% of the banks are controlled by the state. Another 30% of the banks are controlled by foreign entities. Family-controlled banks are less common, accounting for only 12% of the sample. The state, family, and foreign-controlled banks in the four countries account for over 70% of the total. The remaining banks are likely more widely held, as they are not controlled by any of the three types of owners.

Across the four economies, Malaysia has the highest percentage of state-controlled banks (40%), followed by Thailand (33%), the Republic of Korea (28%), and Indonesia (26%). Malaysia also has the highest percentage of family-controlled banks (30%), followed by Thailand (17%), Indonesia (9%), and the Republic of Korea (0%). Except for Malaysia's sample, which does not include foreign-controlled banks,[1] the rest of the economies all have significant percentages of banks controlled by foreign entities with 39% in Indonesia, 36% in the Republic of Korea, and 30% in Thailand.

Significant assets and financial restructuring occurred in Asia's banking sector after the financial crisis. Panel B of Table 1 reports that almost 54% of the 59 banks experienced control change, 58% were recapitalized by their governments, 41% received equity injections by foreign entities, 37% experienced mergers and acquisitions, and 46% engaged in layoff of workers. Korean banks have the highest percentage of control change (86%), while Malaysian banks did not have any change in control nor equity injections by foreign entities since the crisis. Instead, most (90%) of the Malaysian banks

1. Malaysia does have some foreign-owned commercial banks, which are not covered in this study.

were recapitalized by the government, the highest percentage among the four economies under study. Thai banks have experienced the highest rate of layoff (80%), followed by the Republic of Korea (78%), Indonesia (30%), and Malaysia (0%).

Panel C of Table 1 reports the geographical scope of the banks. The basic statistics clearly indicate that most of the banks concentrate on domestic and regional operations. No nationwide bank has substantial (over 30%) international business. Of the regional banks, only 7 percent, or 4 regional banks have substantial (over 30%) out-of-region business.

Panel D of Table 1 shows the scope of services provided by the sample banks. The most significant bank business is credit card (81%) and mutual fund management (71%). Perhaps due to the Republic of Korea's relatively more developed capital market, all of the Korean banks provide fund management and investment advice services. In contrast, only 48% and 26% of Indonesia banks provide fund management and investment advice services, respectively. Moreover, unlike the banks in the other three countries, all banks in Malaysia provide real estate investment, development, and management services.

Bank Governance Characteristics

There is unlikely a one-size-fits-all governance structure. However, it is possible to identify a set of firm characteristics that captures the quality of governance in terms of its extent of protecting shareholders' interests. To measure bank governance quality, we construct a corporate governance score from a few basic governance characteristics of the banks that capture governance quality and do not highly correlate with each other. The corporate governance score is similar to other governance indices such as in Gompers, Ishii, and Metrick (2003), but is simpler in terms of the number of governance characteristics included. Based on the literature as summarized in Shleifer and Vishny (1997), Claessens and Fan (2002), Hermalin and Weisbach (2003) and many others, seven governance dummy variables are identified as important in measuring corporate governance quality and are used to construct the bank governance score:

- independent directors dominating the board,
- chairperson/CEO is non-politically connected,
- chairperson is not the CEO,

- small board,
- auditor is a big-four accounting firm,
- existence of second-largest shareholder, and
- chairperson/CEO is a professional.

We construct each of the variables so that it increases the governance score when its value is higher. Independent directors dominate the board (value equal to 1) when at least 50 percent of the bank's directors are classified as independent, and the value is equal to 0 otherwise. The chairperson/CEO is non-politically connected (value equal to 1) if neither the chairperson nor the CEO is a former or current official of the Ministry of Finance or other financial supervisory agency or elected and non-elected politicians, or else the dummy variable is equal to 0. The dummy variable of a separate chairperson and CEO equals 1 if the chairperson and the CEO are not the same person, and is 0 otherwise. Small board is equal to 1 if the number of directors on the board is less than the median of the 59 banks, and is 0 otherwise. The big-four auditor dummy is equal to 1 if the bank is externally audited by a big-four auditor, and is 0 if the bank is audited by a local auditor. The dummy of existence of a second-largest shareholder is equal to 1 if the bank has a second-largest shareholder with more than or equal to 5 percent of equity ownership, and is 0 otherwise. Last, the dummy of chairperson/CEO professionalism is equal to 1 if both the chairperson and the CEO have educational background in finance and economics, accounting, or law.

To summarize the overall governance characteristics of the banks, the corporate governance score is defined as the sum of the values of the seven dummy variables. The corporate governance score ranges between 0 and 7. Higher scores indicate that the bank's governance structure is more protective to outside equity investors.

Basic Statistics

Table 2A provides the mean values of the governance dummy variables, as well as the summary statistics of the corporate governance score. Overall, 37% of the banks' boards are dominated by independent directors, 66% of the banks have non-politically connected chairpersons and CEOs, 74% of the banks have a separate chairperson and CEO, 78% of the banks appoint big-four auditors, 68% of the banks have a non-controlling second-largest shareholder, and 73% of the banks have chairpersons and CEOs with bank-

ing background.

Lacking a universally optimal governance benchmark, it is difficult to judge the overall governance quality of the banks. However, the governance statistics indeed show cross-country variations in governance quality. Thai banks have the highest fraction (75%) of non-politically connected boards, followed by Indonesia (70%), the Republic of Korea (64%), and Malaysia (50%). Most banks' chairmen and CEOs are not the same person in these four selected countries, except for in the Republic of Korea. Only 21% of the Korean banks have different persons to work as chairperson and CEO. Board size is quite different among the countries. Compared with small boards in 87% of banks in Indonesia and 43% of banks in the Republic of Korea, no bank in Thailand and only 10% of banks in Malaysia have small boards.[2] All Malaysian banks appoint big-four auditors, while only 64% of Korean banks do so. Indonesia and Malaysia have the highest percentage of banks with second-largest shareholders (91% and 80%, respectively), whereas the presence of second-largest shareholders is smaller in the Republic of Korea (50%) and Thailand (33%). Finally, the Republic of Korea has the highest percentage (93%) of banks whose chairpersons or CEOs are bank professionals, followed by Thailand (75%), Indonesia (65%), and Malaysia (60%).

We next turn to the basic statistics of the corporate governance score. The mean and median governance scores for the full sample of banks from the four countries are 4.42 and 4, respectively. There is a cross-sectional variation in the governance score, as the minimum and maximum scores are 2 and 6, respectively. Across the four economies, Indonesia has the highest mean corporate governance score of 5.04, followed by Malaysia (4.3), the Republic of Korea (4.14) and Thailand (3.67).[3]

One potential concern of the corporate governance score is that most of the corporate governance dummy variables can be highly correlated and therefore collectively the score does not provide a comprehensive measure of governance quality. Table 2B reports Spearman correlation coefficients between pairs of the governance variables. In the table, high correlations are

2. Indonesia has a dual board system. The reported board statistics are for the boards of commissioners, which are typically small in size. The statutory minimum size is just two.

3. The higher average score for Indonesian banks is due largely to the dual board system (that separates the CEO from the chair of the board of commissioners) as well as the generally small size of the Indonesian boards of commissioners.

only found between the dummy of board independence and the dummy of non-politically connected chairperson/CEO (correlation coefficient -0.26) and between the dummy of board independence and the dummy of chairperson is not the CEO (-0.43). On the other hand, 5 of the 7 governance dummy variables are highly correlated with the corporate governance score. Since most of the governance dummies are not highly correlated with each other and most of the dummies are highly correlated with the corporate governance score, the corporate governance score reasonably summarizes the overall governance characteristics of the banks.

Governance Characteristics by Control Type

We next examine the governance characteristics of the banks by type of control in Table 3A. We divide our sample into four groups: foreign-controlled, family-controlled, state-controlled, and others (containing mostly widely held banks). The widely held banks have the highest percentage (50%) of banks with boards dominated by independent directors. The remaining control types typically do not have outsider-dominated boards. The foreign-controlled group has the highest percentage (83%) of banks with a non-politically connected chairperson and CEO, followed by the widely held banks (69%), state banks (56%), and family banks (43%). Foreign-controlled banks also have the highest rate (83%) of separate CEO and chairpersonship, followed by state banks (78%), widely held banks (69%), and family-controlled banks (57%). Widely held banks have the highest percentage of small boards (69%), followed by state banks (44%), foreign-controlled banks (33%), and family-controlled banks (28%). The use of big-four auditors is popular among all of the control types. Family and foreign-controlled banks are more likely to have second-largest shareholders (86% and 83%, respectively) than widely held and state banks (62% and 50%, respectively). Widely held and foreign-controlled banks are more likely to have bank professionals as chairperson and CEO (81% and 78%, respectively) than are family and state banks (71% and 61%, respectively).

Overall, the above governance characteristics of the different control types are quite as expected. Widely held or foreign-controlled banks tend to have governance structures that are more aligned with the interests of outside shareholders, whereas family or state banks tend to have governance structures that are more aligned with the interests of controlling shareholders (family or the state). Also interesting, state and family banks tend to be more political while less professional than foreign-controlled and widely

held banks. Consistently, the widely held and foreign-controlled banks have higher corporate governance scores than do the family and state banks. The mean (median) corporate governance score for the widely held banks is 4.88 (5), followed by 4.61 (5) for the foreign-controlled banks and 4 (4) for both the family and state banks.

Table 3B reports Spearman correlation coefficients between the governance variables and the control types. Foreign control is positively correlated with a non-politically connected chairperson/CEO and the existence of the second-largest shareholder. State control is negatively related to the existence of the second-largest shareholder. Widely held banks are associated with small boards. Overall, state and family controls are associated with lower corporate governance scores, while widely held banks and foreign-controlled banks are associated with higher corporate governance scores. The association between control type and corporate governance score is statistically significant for state and widely held banks.

3. Bank Governance and Performance

In this section, we evaluate the performance of the Asian banks and discuss whether the performance is related to the governance structures of the banks.

Bank Performance Statistics

We examine three measures of bank performance and efficiency: (1) return on assets (ROA), (2) interest margin, and (3) non-performing loan ratio. ROA, a profitability measure, is defined as the net profit after tax divided by total assets at year-end. Interest margin or ex-post interest spread is defined as the net interest income (interest income minus interest expense) divided by total assets at year-end. We use interest margin to measure the efficiency of the bank intermediation. Non-performing loan ratio is defined as non-performing loans divided by total loans at year-end. The financial data for constructing the above measures are employed from the Bankscope Database.

Table 4 reports the basic statistics of the performance measures. The dataset includes 59 banks in the four selected countries with 232 bank year observations from 2000 to 2003. The ROA of the Asian banks is generally low. The mean of the pooled data is 0.34%, ranging from -12.13% to 4.79%. Across the four economies, Indonesian and Malaysian banks have higher ROA (0.77% and 0.71%) whereas Korean and Thai banks have lower ROA (0.2% and -0.5%). The banks are generally operated at a 2.25% interest margin.

Consistent with the ROA statistics, Indonesian and Malaysian banks have higher interest margins than do banks in the other two economies. The mean and median non-performing loan ratios are 9% and 5.37%, respectively. Thai banks have the highest mean non-performing loan ratio (12.57%), followed by Indonesian banks (10.10%), Malaysian banks (8.84%), and Korean banks (4.37%). As indicated in the standard deviation and the minimum and maximum statistics, there exist substantial variations in these performance/efficiency ratios across the banks and years.

We include two control variables in our analysis: bank size and bank capitalization ratio. We take the natural log of the banks' total assets in millions of US dollars to proxy for the bank size. As in Panel D, the size of the Korean banks is the largest, followed by the Malaysian banks, the Thai banks, and the Indonesian banks. Bank capitalization ratio is defined as the book value of equity divided by total assets. It measures the degree of bank risk. As in Panel E, the mean (median) capitalization ratio of the full sample is 6.29% (5.48%). Across the economies, Indonesian banks have the highest capitalization ratio (8.74%), followed by Thai banks (5.44%), Malaysian banks (4.64%), and Korean banks (4.33%).

Bank Governance and Performance

In this sub-section we examine the relation between bank governance and performance. Ideally, we would have corporate governance quality in an earlier year than the performance. However, we only have 2003 corporate governance data that we can link with 2000-03 performance. Unless the corporate governance structures remained stable during that period, any relation found in this analysis cannot be confirmed to be causal.

Correlation Analysis

To gain an initial view of the relations between the governance and performance of the banks, we prepared the Spearman rank correlation coefficient matrix between the performance measures and the governance variables in Table 5. The corporate governance score is positively related to ROA and interest margin, as the correlation coefficients (21% and 29%, respectively) are both highly significant. Broken down into elements that comprise the corporate governance score, we find that ROA is significantly positively related to the chairperson-CEO separation dummy, the small board dummy, and the dummy for second-largest shareholder. Interest margin is positively related to the chairperson-CEO separation dummy, the small board dummy,

the big-four auditor dummy, and the dummy for second-largest shareholder, while negatively related to the dummy for professional chairperson/CEO. The non-performing loan ratio is negatively related to the board independence dummy and the small board dummy, while positively related to the chairperson-CEO separation dummy and the big-four auditor dummy.

Table 5 also reports correlations between the performance measures and the different bank control types. ROA is positively related to family control. The non-performing loan ratio is positively related to state control while negatively related to widely held banks. The state-controlled banks may make their loan decisions based on not only commercial risk assessment but also their political agenda. For example, policy loans may be granted by the state-controlled banks to distressed enterprises.

In summary, the correlation coefficients in Table 5 suggest a positive relation between bank performance/efficiency and the coherence of the banks' corporate governance characteristics with stock investors' interests. However, the corporate governance characteristics are also related to the banks' sizes and risk profiles, which call for a more comprehensive regression analysis to better isolate their relations.

Regression Analysis

We next perform a series of regressions to analyze the relation between bank governance and performance. The three performance/efficiency measures are alternatively used as the dependent variable. The independent variables include bank size, bank capitalization, the restructuring dummy, the foreign control dummy, the family control dummy, the state control dummy, and the corporate governance score. To control for fixed effects, we include country and year dummies in the regression model. The regression is initially run on the pooled sample of 232 bank-firm observations.

Table 6A reports the ROA regression results. To evaluate whether our regression results are affected by collinearity issues between the bank control types and the corporate governance score, three model specifications are used. Column (1) reports the results of the first model, which includes the control type variables but leaves out the governance score. Column (2) reports the results of the second model, which includes the corporate governance score but leaves out the control type variables. Column (3) reports the results of the third model, which includes both the control type variables and the governance score.

The results in Table 6A show that ROA is positively related to bank size and bank capitalization, weakly negatively related to foreign control, and unrelated to the corporate governance score. The negative and significant relation between foreign control and ROA is a bit surprising as it appears contrary to prior studies' findings. Claessens et al. (2001) report that foreign banks have higher profitability than domestic banks in developing countries. Bonin, Hasan and Wachtel (2004) find that foreign-owned banks are more cost-efficient than other banks and provide better services. Our result, however, may be due to selection bias, considering that badly performed banks are more likely to be taken over by the foreign investors in the region.

Table 6B reports the country-by-country ROA regression results. Here the country dummy variables are not included. The results show that in Indonesia, family-controlled banks have higher ROA, and higher corporate governance scores are also associated with higher ROA. In Malaysia, state-controlled banks are associated with lower ROA.

Table 6C reports the results of the regressions by bank control type. The independent variables now exclude the control type dummies while including both the country and year dummies. We find that only within the widely held bank sample is ROA positively related to the governance score.

Next we examine the regressions of interest margin. In Table 7A, the pooled regression results show that interest margin is positively related to the governance score. In addition, foreign-controlled banks, family-controlled banks, and state-controlled banks are associated with higher interest margins than are the widely held banks. As expected, bank capitalization is negatively associated with interest margin as interest margin is lower for lower risk banks. Bank size is unrelated to interest margin in this pooled sample.

Table 7B reports the results of the interest margin regression by country. We find that interest margin is significantly positively related to the corporate governance score in Malaysia and Thailand, while it is significantly negatively related to the corporate governance score in the Republic of Korea. The relation is positive but insignificant for the Indonesian sample.

Moreover, the statistics in Table 7B suggest that interest margin varies with control type. Compared with widely held banks, foreign-controlled banks have higher interest margins in Indonesia and Thailand. In Indonesia and Thailand, family banks have higher interest margins than do widely held banks. However, family banks in Malaysia have smaller interest margins

than do widely held banks. State banks have higher interest margins in Indonesia and Thailand, while they have smaller interest margins in the Republic of Korea and Malaysia. These results suggest that banks with a concentrated control enjoy higher interest margins than do widely held banks in Indonesia and Thailand, but the reverse is true in the Republic of Korea and Malaysia. The type of control does not seem to matter much to interest margin.

Interestingly, interest margin is positively related to bank capitalization in the Republic of Korea, but these two are insignificantly related in the other three economies. This is different from the pooled regression results in Table 7A, where interest margin and bank capitalization are negatively related.

Table 7C reports the results of the interest margin regression by control type. Here we find that interest margin is positively related to the corporate governance score within family-controlled banks, but their relations are insignificant in the other three types of control. Interest margin is positively related to bank capitalization for state banks and foreign-controlled banks but these are negatively related in widely held banks. Within family- and state-controlled banks, interest margin is negatively related to the incidence of bank restructuring since 1997.

Table 8A reports the results of the pooled non-performing loan regressions. The non-performing loan ratio is unrelated to the corporate governance score but is positively related to state-controlled banks. Smaller and restructured banks also have higher non-performing loan ratios.

Table 8B reports the non-performing loan regression results country by country. We find that the non-performing loan ratio is significantly negatively related to the corporate governance score in Indonesia. State banks have higher non-performing loan ratios in Indonesia and Malaysia. Family-controlled banks in Thailand have higher non-performing loan ratios. Restructured banks in Indonesia and Thailand have higher non-performing loan ratios. The non-performing loan ratio is negatively related to bank size in Indonesia and Malaysia but these are positively related in Thailand. The non-performing loan ratio is negatively related to bank capitalization in Malaysia and Thailand, and marginally so in the Republic of Korea.

Table 8C reports the non-performing loan regression results by control type. Here we find a positive relation between non-performing loans and the corporate governance score within the family-controlled banks. In addition, non-performing loans are negatively related to bank size for family and

state banks. They are negatively related to bank capitalization for foreign-controlled banks.

In summary, the regression results reported in Tables 6–8 suggest that the performance and efficiency of the banks in the four Asian economies is neither unanimously nor strongly related to the banks' corporate governance characteristics. However, we do find significant relations between governance and performance in some sub-samples by country or control type, and the relations are generally positive with few exceptions.

4. Conclusions and Policy Implications

We have analyzed the recent corporate governance structures and the performance of 59 banks in four Asian economies heavily impacted by the Asian financial crisis. We find that the banks' corporate governance characteristics are generally in line with their ownership and control structures. Widely held banks and foreign-controlled banks are likely to adopt governance structures that are more consistent with those of the US and UK. That is, their boards are more independent, are smaller, consist of fewer politicians, have greater separation between the functions of the chairperson and the CEO, and have more professional bank leadership. By contrast, banks with concentrated control in the hands of family or the state tend to adopt governance structures that are different from the western widely held model. Their boards tend to be less independent, be larger, consist of more politicians, have less separation between the CEO and chairperson, and have less professional leadership. The different governance structures between the widely held/foreign banks and family/state-controlled banks may be due to their different business models; the former are more reliant on arm-length transactions and equity markets for external financing, whereas the latter are more reliant on relationship-based banking and are less dependent on external equity markets for financing needs. We call for more research into these hypotheses.

Overall, we do not find strong support for the notion that the banks' performance or efficiency is related to their governance structures. Assuming that the banks' governance structures are endogenously determined by their business environments, the lack of relation is what we should find. However, we do find relations between bank performance and governance structures in a few sub-samples. This suggests that more analysis should be performed to find out whether these relations are spurious or suggest that governance does matter under certain conditions. It will be also useful to expand the size of

the bank sample so that more robust results can be found.

The primary policy implication of this research is that when reforming a country's bank governance, it is important to realize that the banks in the country are subject to a set of institutional constraints including the quality of the country's laws, regulations, the political system, the tax system, culture, and social norms. To adapt to the institutional environments, the banks will likely adopt policies (including corporate governance) that maximize their overall objective value. Specifically, when a bank is constrained by government interventions such as deposit insurance, policy lending, bailout requirements, or even corruption, bank efficiency or shareholder wealth maximization will be just one (and not necessarily the most important one) of the several objectives of the bank. In this case, we cannot expect the bank to have a governance structure that is similar to an otherwise unconstrained bank. Also, we do not necessary expect that the efficiency of the bank bears any causal relations with the bank's governance structures, because the governance structures are optimally chosen subject to the bank's institutional constraints. Future research and policy-making should therefore focus on identifying the institutional constraints faced by banks, their effects on the banks' incentives and objectives, and hence the banks' governance and other policies.

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Table 1
Bank Characteristics

	Indonesia	Republic of Korea	Malaysia	Thailand	Total
Number of Banks	23	14	10	12	59
Panel A: Who controls the banks? (in percentage of total number of banks)					
State	26.09	28.57	40.00	33.33	30.51
Family	8.70	0.00	30.00	16.67	11.86
Foreigner	39.13	35.71	0.00	33.33	30.51
Others	26.08	35.72	30.00	16.67	27.12
Panel B: Extent of restructuring after the Asian crisis (in percentage of total number of banks)					
Control change	56.52	85.71	0.00	58.33	54.24
Recapitalized by government	52.17	42.86	90.00	58.33	57.63
New equity injection by foreigners	47.83	42.86	0.00	58.33	40.68
Mergers and acquisitions	17.39	35.71	100.00	25.00	37.29
Layoff	30.43	78.57	0.00	80.00	45.61
Panel C: Geographical scope (in percentage of total number of banks)					
Nationwide with substantial (over 30%) international business	0.00	0.00	0.00	0.00	0.00
Nationwide with international business below 30%	78.26	57.14	100.00	100.00	81.36
Regional with substantial (over 30%) business outside of the region	17.39	0.00	0.00	0.00	6.78
Regional with out-of-the-region business below 30%	4.35	42.86	0.00	0.00	11.86
Panel D: Scope of services provided (in percentage of total number of banks)					
Credit card	56.52	100.00	100.00	91.67	81.36
Insurance	52.17	100.00	60.00	66.67	67.80
Securities underwriting	52.17	42.86	100.00	75.00	62.07
Securities brokerage	56.52	14.29	77.78	25.00	43.10
Fund management	47.83	100.00	90.00	66.67	71.19
Investment advice	26.09	100.00	90.00	91.67	67.80
Real estate investment, development & management	0.00	7.14	100.00	8.33	20.34

Table 2A

Governance Characteristics of Banks in Asia

	Indonesia	Republic of Korea	Malaysia	Thailand	Total
Number of Banks	23	14	10	12	59
(1) Independent Directors Dominating the Board					
	17.39	78.57	60.00	8.33	37.29
(2) Chairman/CEO being Non-politically Connected					
	69.57	64.29	50.00	75.00	66.10
(3) Chairman not being the CEO					
	100.00	21.43	70.00	91.67	74.58
(4) Small Board					
	86.96	42.86	10.00	0.00	45.76
(5) Auditor being a Big-four Firm					
	73.91	64.29	100.00	83.33	77.97
(6) Existence of Second-largest Shareholder					
	91.30	50.00	80.00	33.33	67.80
(7) Chairman/CEO being a Professional					
	65.22	92.86	60.00	75.00	72.88
Corporate Governance Score (sum of (1) through (7))					
Mean	5.04	4.14	4.3	3.67	4.42
Standard Deviation	0.71	1.23	0.82	1.07	1.07
Median	5.00	4.00	4.00	4.00	4.00
Minimum	4.00	2.00	3.00	2.00	2.00
Maximum	6.00	6.00	6.00	5.00	6.00

Table 2B

Spearman Correlation Coefficients between Governance Characteristics of Asian Banks

Asterisks denote the levels of statistic significance: *** 1%; ** 5%; * 10%

	Independent Directors Dominate the Board	Chairman/ CEO being Non-politically Connected	Chairman not being the CEO	Small Board	Auditor being a Big-Four Firm	Existence of Second-largest Shareholder
Independent Directors Dominating the Board	1					
Chairman/CEO being Non-politically Connected	-0.262**	1				
Chairman not being the CEO	-0.435***	-0.089	1			
Small Board	-0.005	0.011	0.068	1		
Auditor being a Big-four Firm	-0.097	0.051	0.065	-0.086	1	
Existence of Second-largest Shareholder	-0.144	-0.034	0.181	0.123	0.159	1
Chairman/CEO being a Professional	0.076	0.046	-0.269**	-0.052	-0.048	-0.094
Corporate Governance Score	0.109	0.340***	0.190	0.529***	0.329**	0.464***

Table 3A

Governance Characteristics of Banks in Asia by Control Type

		Foreign controlled	Family-controlled	State-controlled	Others
	Number of Banks	18	7	18	16
(1)	Independent Directors Dominating the Board	27.28	28.57	38.89	50.00
(2)	Chairman/CEO being Non-politically Connected	83.33	42.86	55.56	68.75
(3)	Chairman not being the CEO	83.33	57.14	77.78	68.75
(4)	Small Board	33.33	28.57	44.44	68.75
(5)	Auditor being a Big-four Firm	72.22	85.71	72.22	87.50
(6)	Existence of Second-largest Shareholder	83.33	85.71	50.00	62.50
(7)	Chairman/CEO being a Professional	77.78	71.43	61.11	81.25
Corporate Governance Score (sum of (1) through (7))					
	Mean	4.61	4.00	4.00	4.88
	Standard Deviation	0.92	0.58	1.28	0.96
	Median	5.00	4.00	4.00	5.00
	Minimum	2.00	3.00	2.00	3.00
	Maximum	6.00	5.00	6.00	6.00

Table 3B

Spearman Correlation Coefficients between Governance and Performance Characteristics of Asian Banks by Control Type

Asterisks denote the levels of statistic significance: *** 1%; ** 5%; * 10%

		Foreign controlled	Family-controlled	State-controlled	Others
	Number of Banks	18	7	18	16
(1)	Independent Directors Dominating the Board	–0.130	–0.066	0.022	0.160
(2)	Chairman/CEO being Non-politically Connected	0.241*	–0.180	–0.148	0.034
(3)	Chairman not being the CEO	0.133	–0.147	0.049	–0.082
(4)	Small Board	–0.165	–0.127	–0.018	0.281**
(5)	Auditor being a Big-four Firm	–0.092	0.069	–0.092	0.140
(6)	Existence of Second-largest Shareholder	0.220*	0.141	–0.252*	–0.069
(7)	Chairman/CEO being a Professional	0.073	–0.012	–0.175	0.115
Corporate Governance Score		0.129	–0.201	–0.224*	0.245*

Table 4

Summary Statistics: Size, Capitalization, and Performanace of Banks in Asia (2000-2003)

	Number of Observations	Mean	Standard Deviation	Median	Minimum	Maximum
Panel A: ROA						
Indonesia	88	0.0077	0.0253	0.0110	–0.1213	0.0402
Republic of Korea	56	0.0019	0.0116	0.0067	–0.0436	0.0142
Malaysia	40	0.0071	0.0093	0.0080	–0.0370	0.0230
Thailand	48	–0.0059	0.0262	0.0016	–0.1213	0.0479
Total	232	0.0034	0.0214	0.0069	–0.1213	0.0479
Panel B: Interest Margin						
Indonesia	88	0.0265	0.0328	0.0293	–0.0742	0.0905
Republic of Korea	56	0.0195	0.0070	0.0196	–0.0013	0.0310
Malaysia	40	0.0233	0.0035	0.0230	0.0170	0.0322
Thailand	48	0.0178	0.0109	0.0187	–0.0074	0.0527
Total	232	0.0225	0.0213	0.0224	–0.0742	0.0905
Panel C: Non-performing Loan Ratio						
Indonesia	88	0.1010	0.1552	0.0417	0.0023	0.7223
Republic of Korea	56	0.0437	0.0401	0.0277	0.0084	0.1741
Malaysia	40	0.0884	0.0582	0.0720	0.0132	0.2587
Thailand	48	0.1257	0.1034	0.1187	0.0023	0.5859
Total	232	0.0901	0.1141	0.0537	0.0023	0.7223

Table 5

Spearman Correlation Coefficients between Governance and Performance Characteristics of Asian Banks

Asterisks denote the levels of statistic significance: *** 1%; ** 5%; * 10%

	ROA	Interest Margin	Non-Performing Loan
Independent Directors Dominating the Board	–0.069	–0.019	–0.110*
Chairman/CEO being Non-politically Connected	–0.046	–0.008	0.102
Chairman not being the CEO	0.124*	0.204***	0.164**
Small Board	0.277***	0.263***	–0.270***
Auditor being a Big-four Firm	0.076	0.139**	0.125*
Existence of Second-largest Shareholder	0.170***	0.253***	–0.078
Chairman/CEO being a Professional	–0.095	–0.157**	0.020
Corporate Governance Score	0.207***	0.292***	–0.066
Foreign-controlled Banks	–0.079	0.028	–0.095
Family-controlled Banks	0.120*	0.017	0.104
State-controlled Banks	–0.005	–0.067	0.134**
Widely Held Banks	0.001	0.029	–0.117*

Table 6A

Results of Ordinary Least Squared Regressions of ROA on Bank Ownership and Governance Characteristics

	(1)	(2)	(3)
Intercept	-0.0379***	-0.0338***	-0.0394***
	(-3.52)	(-2.88)	(-3.24)
Bank Size	0.0034***	0.0027***	0.0033***
	(3.40)	(2.86)	(3.35)
Bank Capitalization	0.1574***	0.1556***	0.1585***
	(4.47)	(4.37)	(4.46)
Restructured after 1997	0.0009	-0.0037	0.0009
	(0.22)	(-1.00)	(0.21)
Foreign-controlled	-0.0076**		-0.0075*
	(-2.01)		(-1.94)
Family-controlled	0.0045		0.0049
	(0.97)		(1.01)
State-controlled	-0.0057		-0.0053
	(-1.58)		(-1.37)
Corporate Governance Score		0.0006	0.0004
		(0.44)	(0.28)
Indonesia	0.0152***	0.0119***	0.0146***
	(3.73)	(2.64)	(3.13)
Republic of Korea	0.0071*	0.0064	0.0070*
	(1.77)	(1.60)	(1.74)
Malaysia	0.0113***	0.0141***	0.0110**
	(2.60)	(3.29)	(2.47)
Year dummies (not reported)			
F-value	5.44	5.62	5.01
Adjusted R-square	0.187	0.167	0.1840
Observations	232	232	232

Table 6B

Results of Ordinary Least Squared Regressions of ROA on Bank Ownership and Governance Characteristics by Country

	Indonesia	Republic of Korea	Malaysia	Thailand
Intercept	-0.0726***	-0.0169	-0.0438	0.0762
	(-2.93)	(-1.28)	(-1.40)	(0.60)
Bank Size	0.0038*	0.0000	0.0053*	-0.0040
	(1.98)	(-0.03)	(2.04)	(-0.39)
Bank Capitalization	0.1934***	0.6373***	0.0909	0.4295*
	(3.84)	(3.93)	(1.18)	(1.77)
Restructured after 1997	-0.0007	-0.0063	—	-0.0056
	(-0.10)	(-1.40)	—	(-0.23)
Foreign-controlled	-0.0077	0.0023	—	-0.0425
	(-0.94)	(0.60)	—	(-1.31)
Family-controlled	0.0190*	—	0.0051	-0.0318
	(1.76)	—	(1.41)	(-1.44)
State-controlled	-0.0108	0.0030	-0.0067*	-0.0340
	(-1.33)	(0.65)	(-1.84)	(-1.04)
Corporate Governance Score	0.0092**	-0.0012	0.0008	-0.0086
	(2.26)	(-0.89)	(0.35)	(-0.82)
Year dummies (not reported)				
F-value	2.45	4.20	1.80	2.05
Adjusted R-square	0.143	0.344	0.141	0.182
Observations	88	56	40	48

Table 6C

Results of Ordinary Least Squared Regressions of ROA on Bank Ownership and Governance Characteristics by Control Type

	Foreign controlled	Family-controlled	State-controlled	Others
Intercept	-0.0832*** (-3.48)	-0.0452 (-0.85)	-0.0176 (-0.60)	-0.0404*** (-3.03)
Bank Size	0.0034 (1.62)	0.0068 (1.30)	0.0043* (1.78)	0.0034*** (3.51)
Bank Capitalization	0.5744*** (7.19)	0.3369 (1.10)	0.2047** (2.38)	-0.0001 (0.00)
Restructured after 1997	—	-0.0032 (-0.39)	-0.0160 (-1.48)	-0.0029 (-1.09)
Corporate Governance Score	0.0020 (0.62)	-0.0110 (-1.19)	-0.0058 (-1.32)	0.0028** (2.18)
Country dummies (not reported)				
Year dummies (not reported)				
F-value	8.71	2.56	2.52	3.66
Adjusted R-square	0.472	0.3510	0.177	0.301
Observations	70	27	72	63

Table 7A

Results of Ordinary Least Squared Regressions of Interest Margin on Bank Ownership and Governance Characteristics

	(1)	(2)	(3)
Intercept	0.0174	0.0102	0.0029
	(1.50)	(0.82)	(0.22)
Bank Size	0.0008	0.0010	0.0005
	(0.71)	(0.96)	(0.47)
Bank Capitalization	-0.0747**	-0.0753**	-0.0640*
	(-1.98)	(-1.99)	(-1.70)
Restructured after 1997	-0.0034	-0.0013	-0.0037
	(-0.76)	(-0.33)	(-0.84)
Foreign-controlled	0.0068*		0.0083**
	(1.66)		(2.03)
Family-controlled	0.0087*		0.0121**
	(1.74)		(2.36)
State-controlled	0.0051		0.0087**
	(1.33)		(2.13)
Corporate Governance Score		0.0024	0.0039**
		(1.61)	(2.41)
Indonesia	0.0125***	0.0093*	0.0068
	(2.86)	(1.95)	(1.37)
Rupublic of Korea	0.0015	-0.0013	0.0007
	(0.35)	(-0.30)	(0.17)
Malaysia	0.0060	0.0035	0.0035
	(1.28)	(0.77)	(0.73)
Year dummies (not reported)			
F-value	2.23	2.50	2.56
Adjusted R-square	0.060	0.061	0.081
Observations	232	232	232

Table 7B

Results of Ordinary Least Squared Regressions of Interest Margin on Bank Ownership and Governance Characteristics by Country

	Indonesia	Republic of Korea	Malaysia	Thailand
Intercept	0.0007	0.0291***	0.0147	-0.1183***
	(0.02)	(3.38)	(1.67)	(-2.83)
Bank Size	-0.0005	-0.0002	0.0004	0.0097***
	(-0.22)	(-0.23)	(0.58)	(2.86)
Bank Capitalization	-0.0661	0.2174**	-0.0097	0.0024
	(-1.01)	(2.06)	(-0.45)	(0.03)
Restructured after 1997	-0.0080	-0.0037	—	-0.0043
	(-0.89)	(-1.26)	—	(-0.54)
Foreign-controlled	0.0212**	-0.0024	—	0.0335***
	(2.00)	(-0.94)	—	(3.14)
Family-controlled	0.0374***	—	-0.0045***	0.0166**
	(2.66)	—	(-4.41)	(2.27)
State-controlled	0.0291***	-0.0077**	-0.0034***	0.0227**
	(2.75)	(-2.60)	(-3.30)	(2.10)
Corporate Governance Score	0.0060	-0.0023**	0.0014**	0.0100***
	(1.13)	(-2.60)	(2.23)	(2.89)
Year dummies (not reported)				
F-value	2.38	2.78	5.90	5.40
Adjusted R-square	0.137	0.225	0.501	0.483
Observations	88	56	40	48

Table 7C

Results of Ordinary Least Squared Regressions of Interest Margin on Bank Ownership and Governance Characteristics by Control Type

	Foreign controlled	Family-controlled	State-controlled	Others
Intercept	0.0238 (1.11)	-0.0554* (-1.93)	0.0311* (1.92)	-0.002 (-0.04)
Bank Size	-0.0001 (-0.06)	-0.0007 (-0.25)	0.0002 (0.15)	0.0036 (1.23)
Bank Capitalization	0.17338** (2.43)	0.2516 (1.52)	0.2187*** (4.57)	-0.2962*** (-4.29)
Restructured after 1997	— —	-0.0238*** (-5.36)	-0.0211*** (-3.53)	-0.0041 (-0.51)
Corporate Governance Score	-0.0009 (-0.32)	0.0220*** (4.41)	-0.0036 (-1.45)	0.0003 (0.08)
Country dummies (not reported)				
Year dummies (not reported)				
F-value	2.00	30.3	9.14	3.25
Adjusted R-square	0.104	0.910	0.5340	0.266
Observations	70	27	72	63

Table 8A

Results of Ordinary Least Squared Regressions of Non-Performing Loan Ratio on Bank Ownership and Governance Characteristics

	(1)	(2)	(3)
Intercept	0.1354**	0.1578**	0.1333*
	(2.26)	(2.39)	(1.96)
Bank Size	-0.0106*	-0.0070	-0.0106*
	(-1.92)	(-1.30)	(-1.91)
Bank Capitalization	0.0533	0.0373	0.0549
	(0.27)	(0.19)	(0.28)
Restructured after 1997	0.0488**	0.0409*	0.0488**
	(2.13)	(1.95)	(2.12)
Foreign-controlled	-0.0123		-0.0121
	(-0.58)		(-0.56)
Family-controlled	0.0273		0.0279
	(1.05)		(1.03)
State-controlled	0.0494**		0.0499**
	(2.47)		(2.32)
Corporate Governance Score		-0.0082	0.0006
		(-1.04)	(0.07)
Indonesia	-0.0308	-0.0195	-0.0316
	(-1.35)	(-0.77)	(-1.22)
Republic of Korea	-0.0613***	-0.0687***	-0.0615***
	(-2.74)	(-3.05)	(-2.73)
Malaysia	-0.0516**	-0.0349	-0.0520**
	(-2.13)	(-1.45)	(-2.09)
Year dummies (not reported)			
F-value	3.46	2.95	3.18
Adjusted R-square	0.113	0.078	0.109
Observations	232	232	232

Table 8B

Results of Ordinary Least Squared Regressions of Non-performing Loan Ratio on Bank Ownership and Governance Characteristics by Country

	Indonesia	Republic of Korea	Malaysia	Thailand
Intercept	0.5653***	0.0036	0.7464***	-0.4079
	(4.50)	(0.09)	(4.62)	(-0.92)
Bank Size	-0.0358***	0.0018	-0.0645***	0.0745**
	(-3.72)	(0.53)	(-4.80)	(2.07)
Bank Capitalization	-0.2288	-0.7693	-1.0297**	-3.2316***
	(-0.90)	(-1.63)	(-2.59)	(-3.80)
Restructured after 1997	0.0741**	0.0151	—	0.1727**
	(2.10)	(1.15)	—	(2.07)
Foreign-controlled	0.0621	0.0013	—	0.1061
	(1.51)	(0.12)	—	(0.94)
Family-controlled	-0.0744	—	-0.0071	0.1508*
	(-1.35)	—	(-0.37)	1.94
State-controlled	0.2288***	-0.0084	0.0502**	-0.0798
	(5.54)	(-0.64)	(2.69)	(-0.69)
Corporate Governance Score	-0.0702***	0.0058	-0.0099	-0.0364
	(-3.40)	(1.50)	(-0.89)	(-0.99)
Year dummies (not reported)				
F-value	7.17	8.03	4.33 3.59	
Adjusted R-square	0.415	0.535	0.406	0.355
Observations	88	56	40	48

Table 8C

Results of Ordinary Least Squared Regressions of Non-performing Loan Ratio on Bank Ownership and Governance Characteristics by Control Type

	Foreign controlled	Family-controlled	State-controlled	Others
Intercept	0.0774	0.9133***	0.6438***	0.2527***
	(0.74)	(6.86)	(4.26)	(3.14)
Bank Size	0.0093	-0.1006***	-0.0619***	-0.0100
	(1.01)	(-7.65)	(-4.99)	(-1.69)
Bank Capitalization	-0.9210**	-0.3476	-0.2474	0.1677
	(-2.64)	(-0.45)	(-0.55)	(1.21)
Restructured after 1997	—	-0.0021	0.0996*	0.0234
	—	(-0.10)	(1.78)	(1.46)
Corporate Governance Score	-0.0086	0.0752***	-0.0239	-0.0027
	(-0.62)	(3.25)	(-1.04)	(-0.35)
Country dummies (not reported)				
Year dummies (not reported)				
F-value	2.43	27.69	7.66	6.40
Adjusted R-square	0.142	0.902	0.484	0.466
Observations	70	27	72	63

4 *Market Discipline of Banks in Indonesia, Republic of Korea, Malaysia, and Thailand*

Kaoru Hosono

1. Introduction

Frequent banking crises over the last two decades around the world reminded us how important it was to promote safe management of banks. Among various disciplining devices, the ability of private agents to control bank risk-taking, i.e., market discipline, is attracting more and more attention by both policymakers and economists. Depositors may withdraw deposits from risky banks or require high deposit interests of such banks. Bondholders and shareholders may also require a risk premium. If banks recognize that deposit withdrawal or high funding costs reduce their value or even endanger their survival, they will avoid excessive risk-taking and engage in prudential management. In addition, bank supervisors can make use of security prices to identify problem institutions and shorten the time lag to take corrective actions (Flannery, 1988). Market discipline is expected to complement the government's regulation and supervision. Basel (2003) designates market discipline as one of the three pillars on which future financial regulation should be based. (The other two pillars are minimum capital standards and supervisory review of capital adequacy.)

Growing complexity of banking activities and resulting limitations of government supervision partly account for why policymakers are trying to rely more on market discipline than they did before. In addition, the fact that traditional government regulations, including capital requirements, do not seem to have performed as well as they were expected to perform has also contributed to the growing emphasis on market discipline (see, e.g., Calomiris, 1999).

Despite its growing importance, there is still scarce literature on the effectiveness of market discipline outside the US. This paper aims at investigating the effectiveness of market discipline in the four Asian countries hardest hit by the Asian economic crisis of 1997: Indonesia, Republic of Korea, Malaysia, and Thailand. These countries adopted either an explicit or implicit blanket guarantee to deposits during the crisis. After the crisis, foreign-

owned banks appeared as a consequence of deregulation and the asset share of state-owned banks increased due to public recapitalization of banks. Disclosed financial information was broadened after the crisis for these countries. All these changes are likely to have affected the effectiveness of market discipline. Thorough examination of these countries will help us understand how to enhance the effectiveness of market discipline and thereby ensure financial stability.

The next section provides an overview of the institutional factors, including disclosure and deposit protection, that are likely to influence the effectiveness of market discipline. The overview is based on the surveys conducted by Asian Development Bank Institute. Section 3 presents estimation results on market monitoring. Section 4 concludes the paper, reviewing the significance of the results and giving some indications for future study.

2. Institutional Background

Investors and depositors tend to monitor banks intensively if they are provided with adequate information on bank financial conditions and little protection from the government or deposit insurance (See, e.g., Demirguc-Kunt and Huizinga, 2004 and Hosono, Tsuru, and Iwaki, 2004). In this section, I briefly describe institutional backgrounds that may influence market discipline in the four Asian countries studied here. This section owes much to country papers written by Kameyama et al. (2004) for Indonesia, Park (2004) for Republic of Korea, Lum and Koh (2005) for Malaysia, and Polsiri (2004) for Thailand. Based on the responses to surveys by the country paper authors, I together with Sang-Woo Nam constructed a private monitoring index and some other institutional variables. The details of these indexes and variables are described in the Appendix.

Disclosure and Availability of Market Signals

Disclosure of financial conditions and the availability of market signals including share prices and bond yields are essential for depositors and investors to identify a risky bank.

In Indonesia, banks have gradually improved the extent and quality of their disclosure since the crisis. For example, no banks disclosed risk management policy to the public before 1997, some banks did so during the period 1998–99, and most banks have disclosed it since 2000. In addition, publication of bank financial statements has been more strongly scrutinized since

the crisis than it was in the pre-crisis period. The availability of market signals also improved to some extent after the crisis. For example, the number of banks among the top 10 banks whose shares were actively traded in the stock exchange increased from 8 banks in 1997 to 10 banks in 2003.

In Republic of Korea, bank disclosure improved in the middle of the 1990s. Consolidated financial statements and risk management policies have been disclosed since 1994. On the other hand, the availability of market signals has been limited after the crisis partly because the number of listed banks has decreased and also because the trading volume of subordinated bonds has been insignificant. It is notable, however, that all of the top 10 banks have been rated by international credit rating agencies since 2002.

In Malaysia, bank disclosure improved after the crisis. In particular, Bank Negara Malaysia revised the guidelines on the specimen financial statements for the banking industry (GP8) in 2001 that had been first introduced in 1988. GP8 is a set of regulatory guidelines pertaining to disclosure requirements. The recent revisions reflect the improvements in the accounting standards, including the fair value based on the criteria used by the International Accounting Standard (IAS). Risk management policy has also been disclosed by some banks since 1998.

In Thailand, bank disclosure improved after the crisis. For example, risk management policies have been disclosed since 1998. On the other hand, the availability of market signals of bank financial conditions still seems to be limited. The turnover ratio of bank stocks has been lower than other industries' stocks in the Thai stock market, reflecting a high concentration of control and ownership stakes in the banking sector.

Table 1 depicts two kinds of private monitoring indexes, both of which indicate the degree of disclosure and availability of market signals (see Appendix A for details).

- *Private Monitoring Index 1* is constructed according to the definition of Barth et al. (2004). The average of all of the four Asian countries takes the value of 5 for this index in 1999, while that of the 68 countries around the world is 4.8 and that of the OECD countries is 5.3 (the authors' estimates based on the database of Barth et al., 2001).
- Depicted in Figure 1 is *Private Monitoring Index 2*, which adds some information on subordinated debt and stock markets to *Private Monitoring Index 1*. Both indexes improved in the middle of the 1990s for Republic

of Korea and Thailand and at the end of the 1990s for Indonesia and Malaysia. Notably, Republic of Korea displayed an increase in these indexes again in 2002. Comparing across the countries, we see that Republic of Korea and Indonesia have recently outperformed Malaysia and Thailand in the potential of private monitoring.

Deposit Protection and Forbearance Policy

The degree of deposit protection influences depositors' monitoring incentive. It should be noted, however, that a blanket guarantee may not necessarily eliminate the monitoring incentives of depositors and other investors, because there is a time lag between the claim and the payment of deposits when a bank is closed. In addition, the government protection policy may not be trusted fully if there is no sufficient fund. To what extent deposit protection reduces depositors' monitoring incentive is an important empirical issue.

In Indonesia, a limited deposit guarantee was applied when a bank failed at the beginning of 1990, but after that there were no bank closures until 1997. When the banking crisis occurred, a blanket guarantee that covered both depositors and creditors was issued in January 1998 and is still in effect. In addition, Bank of Indonesia provided abundant liquidity support to problem banks in the face of the banking crisis. Explicit deposit insurance is planned but has not yet been established.

In Republic of Korea, depositors were implicitly guaranteed by the government until 1995. Explicit deposit insurance was first introduced in 1996 and the Korean Deposit Insurance Corporation (KDIC) was established in 1996. At that time, the insurance coverage was limited to 20 million won per individual depositor. When the crisis occurred in 1997, the coverage was extended to blanket coverage in December. As the financial market stabilized, the partial protection system was reinstated with the limit of 50 million won per individual financial institution in 2001.

In Malaysia, the government has always provided some form of implicit deposit insurance. The central bank has acted as the lender of last resort in a crisis. In addition, depositors are given the priority payments in the event of bank insolvency. An explicit deposit insurance system was proposed by Bank Negara Malaysia in 2003 but has not yet been established.

In Thailand, the government had often rescued and provided financial support to troubled banks and always reimbursed depositors and sometimes

creditors up to the crisis of 1997. When the crisis occurred, the government introduced a blanket guarantee for all depositors and non-subordinated creditors of domestic and foreign financial institutions operating in Thailand. In November 2003, creditors were excluded from the blanket guarantee, but bank depositors are still fully protected. The introduction of an explicit, limited deposit insurance system is now under discussion.

To compare the degree of deposit protection across the countries and time, I constructed the *Deposit Protection Index* based on the survey concerning types and extent of deposit protection and information on the most recent major bank failures (see Appendix B.1 for details). Panel A of Table 2 shows that though both Thailand and Republic of Korea had the most generous deposit protection schemes during the crisis among the four countries, Thailand now has the most generous one.

In addition to deposit protection schemes, government forbearance policy and bailout policy are also likely to influence market discipline. I constructed the *Supervisory Forbearance Policy Index* according to Barth et al. (2004) (see Appendix B.2 for details). Panel B of Table 2 shows that Thailand has a weaker commitment to the prudential regulation than do the other three countries. Panel C of Table 2 shows some variables pertaining to bank bailout policy. Looking at these variables, we see that public money injections to recapitalize banks were sizable in all the countries. Accumulated amounts of public money injected as a proportion of GDP range from about 5 to 7% for Republic of Korea, Malaysia, and Thailand. In Indonesia, the accumulated bonds issued to recapitalize banks amounted to about 58% of GDP. As a consequence, in Indonesia, assets of banks that were recapitalized by the government and survived represented more than half of the assets of all banks in 2000, though assets of failed banks were as large as 12% of the assets of all banks in 1999.

Ownership Structure and Concentration

Ownership structure and concentration in the banking sector have changed significantly through the restructuring of banks in the four Asian countries. How these industrial organizational factors influence market discipline has not yet been made clear theoretically or empirically. It is conceivable, though, that industrial structure affects the stability of the industry and thereby influences depositors' and other investors' monitoring incentives.

Government-owned banks in Asian countries were often under strong gov-

ernment pressure to lend money to high-risk or politically related firms at low interest rates, especially before the crisis. This was the case for the pre-crisis Indonesian state-owned banks, in particular. After the crisis, however, many private banks in the Asian countries were nationalized as part of the government recapitalization and restructuring process. Panel A of Table 3 shows that a large proportion of the big banks were owned by the government after the crisis, though recently the number of state-owned banks has begun to decrease. Most of these new state-owned banks seem to operate under strict prudential regulations.

Foreign-owned banks began to operate in Indonesia, Republic of Korea, and Thailand after the crisis. They are often subject to regulations by the home country's government and tend to lend to large companies with good credit ratings. Panel B of Table 3 shows that the number of foreign-owned banks displayed a sharp increase after the crisis in all of the four countries except for Malaysia.

Other domestic private banks include various types of banks, such as business group banks, which tend to lend to companies within the same group, and small independent banks.

Panel C of Table 3 shows that there is a clear trend towards concentration in Republic of Korea after the crisis, while there is no such a clear trend in the other three countries.

3. Empirical Analyses

Hypotheses and Estimation Method

To investigate whether depositors and stockholders monitor banks and respond to the change in bank risk, I estimate the following three equations:

$$Depo\ Rate_{i,j,t} = \beta_1 ROA_{i,t} + \beta_2 Overhead_{i,t} + \beta_3 Equity_{i,t} + \beta_4 Log(Asset_{i,t}) + \beta_5 Disc\ Rate_{j,t} + Year_t + f_i + \varepsilon_{i,t} \quad (1)$$

$$Depo\ Growth_{i,j,t} = \beta_1 ROA_{i,t} + \beta_2 Overhead_{i,t} + \beta_3 Equity_{i,t} + \beta_4 Log(Asset_{i,t}) + \beta_5 Inflation_{j,t} + \beta_6 GDP\ Growth_{j,t} + Year_t + f_i + \varepsilon_{i,t} \quad (2)$$

$$Market\ Capital_{i,j,t} = \beta_1 ROA_{i,t} + \beta_2 Overhead_{i,t} + \beta_3 Equity + \beta_4 Log(Asset_{i,t}) + Year_t + f_i + \varepsilon_{i,t} \quad (3)$$

Subscripts *i*, *j*, and *t* denote bank, country, and year, respectively. In Equation (1), the dependent variable is the average interest rate on domestic currency deposits (*Depo Rate*). The explanatory variables are bank fundamental variable, macroeconomic variables of the country where a bank is located, year dummies, and bank-fixed effect dummies. As bank risk measures, I choose operating income (*ROA*) and equity capital (*Equity*), both as a proportion to total assets. If depositors monitor bank risk intensively, they require high interest rates on deposits to risky banks. If this is the case, we expect that the coefficients of *ROA* and *Equity* are both negative. To control for other bank characteristics, I include overhead costs as a proportion to total costs (*Overhead*) and the logarithm of total assets in terms of millions of US dollars (*Log(Asset)*). If depositors regard high overhead costs as representing inefficient management and signals of high bank risk, they may require high interest rates on deposits. On the other hand, if banks provide depositors with various financial services at high overhead costs, depositors may require low interest rates on deposits. *Log(Asset)* is negatively correlated with *Depo Rate* if depositors regard a large bank as a safe one due to its ability to diversify loan portfolios or if depositors anticipate the government's too-big-to-fail policy. If, on the other hand, an expansion of total assets is involved with riskier loan portfolios including loans for real asset investment, bank size is expected to be positively correlated with the deposit interest rates. To control for a macroeconomic shock in each country, I include the central bank discount rate (*Disc Rate*) in the explanatory variables. Year dummies are also included to control for common macroeconomics shocks across the countries in the sample.

In Equation (2), the dependent variable is the growth rate of total deposits. Bank characteristics variables are the same as in Equation (1). The expected signs of the coefficients are opposite to those in Equation (1). For example, the coefficients of *ROA* and *Equity* are expected to be positive, because depositors are expected to withdraw deposits from risky banks. As for macroeconomic variables, I include the inflation rate (*Inflation*) and GDP growth rate (*GDP*).

In Equation (3), the dependent variable is the market-valued capital ratio (*Market Capital*). Market-valued capital is the share prices as of year end multiplied by the number of stocks outstanding. Market-valued capital ratio is the ratio of market-valued capital to the sum of book-valued debt and market-valued capital. Bank characteristics variables are the same as in Equation (1). As long as equity capital is adequately reported and the stock

market incorporates bank financial conditions accurately, *Market Capital* and *Equity* will be strongly and positively correlated. If their correlations are found to be weak, there are some possible explanations. One possibility is that the stock market may not incorporate bank financial conditions, while another possibility is that equity is not accurately reported due to inadequate accounting practices. In addition, due to limited liability, stock prices may increase when poorly capitalized banks take excessive risk.

I estimate fixed bank effect models, Equations (1)–(3), first using all the bank data for the four countries, then dividing the sample by period, bank ownership, and country.

Data

Data on bank financial variables and macroeconomic variables are collected by Kameyama et al. (2004), Park (2004), Lum and Koh (2005), and Polsiri (2004). Sample banks consist of 26 Indonesian banks, 14 Korean banks, 10 Malaysian banks, and 18 Thai banks. The sample period covers the years 1990–2003. For Malaysian banks, average deposit interest rate data are available only for 1998–2003. In the case of mergers, I regard a new bank as different from the old ones that were merged. I define the deposit growth rate of a new bank by the change of deposits from the total deposits of old banks that were merged, except for in the case of Indonesian banks. For Indonesian bank mergers, I simply omit the bank-year observations from the sample because I cannot obtain the data of deposits of old banks that were merged. When I estimate the deposit growth rate equation, I exclude the bank-year observations that display more than 100% deposit growth rate to avoid outliers. The data is an unbalanced panel. Descriptive sample statistics are shown in Table 4.

Estimation Results

Average interest rate on domestic currency deposits

Baseline estimation

First, I estimate Equation (1) using pooled data of all the four Asian countries (Table 5, Panel A). Given a relatively small number of sample banks, using pooled data seems to be a reasonable way to obtain precise estimates despite differences in safety nets and disclosure across the countries. Column 1 shows that the coefficient on *Equity* is significantly negative, suggest-

ing that depositors require a high interest rate on deposits to a poorly capitalized bank. On the other hand, *ROA* is not significant. Among the control bank variables, *Overhead* is significantly negative while *Log(Asset)* is not significant. *Disc Rate* is significantly positive. In Column 2, I replace *Equity* with the BIS capital adequacy ratio and again obtain a significantly negative coefficient on it. In Column 3, I add the ratio of liquidity assets to total assets (*Liquidity*) to the bank risk variables. The coefficient on *Liquidity* is negative but insignificant, while the coefficient on *Equity* is again negative and significant. In Column 4, I add *Credit Rating*, which ranges from 1 for AAA to 16 for B3 or B-, increasing as the rating becomes worse. The coefficient on *Credit Rating* is positive and significant, suggesting that depositors require high interest rates to deposits if the bank is low-rated, while the coefficient on *Equity* becomes significantly positive and the coefficient on *ROA* becomes significantly negative in this case.

In Columns 5 and 6, I add *NPL* Ratio and *Net NPL Ratio*, respectively, to the bank risk characteristics variables. *NPL Ratio* is non-performing loans as a proportion of total loans, and *Net NPL Ratio* is the difference between non-performing loans and loan loss provisions as a proportion of total loans. Though the coefficients of *NPL Ratio* and *Net NPL Ratio* were expected to be positive, the estimates show that both coefficients are negative and significant. The reason may be that banks have room to manipulate the true value of non-performing loans. In this case, a financially weak bank may underreport non-performing loans. The coefficient on *ROA* as well as *Equity* is significantly negative in Column 5.

Estimation by period

Second, I estimate Equation (1) by dividing the sample period into the pre-crisis (1989–96), crisis (1997–99), and post-crisis (2000–03) periods. Banks' financial conditions worsened during the crisis period and improved during the post-crisis period. While deposit protection became more generous during the crisis period than it had been in the pre-crisis period, disclosure and accounting standards improved during the post-crisis period. These changes might influence depositors' monitoring incentive and ability. Estimation results (Table 5, Panel B) show that the coefficient on *Equity* is negative and significant for the pre-crisis period, while it is negative but insignificant for the crisis period and significantly positive for the post-crisis period. A significantly negative coefficient on *Equity* during the pre-crisis period may suggest that depositors' monitoring incentive was strong when the deposit

guarantee was not as generous as during the crisis and the post-crisis periods. On the other hand, the coefficient on *ROA* is significantly negative during the post-crisis period.

Estimation by ownership

Third, I estimate Equation (1) by dividing the sample banks by four types of the largest shareholders: state or public agency, foreign investors, family, and others. Other shareholders include widely held financial institutions, widely held non-financial firms, and other miscellaneous private agents. Because ownership changed significantly among the Asian countries after the crisis, I use year-by-year ownership data (Table 5, Panel C).

For state-owned or public agency-owned banks and family-owned banks, neither the coefficient on *Equity* nor *ROA* is significant. Depositors seem to be indifferent to the risk of these banks. On the other hand, for foreign-owned banks, the coefficient on *ROA* is significantly negative, suggesting that depositors monitor foreign-owned banks. For other banks, the result is mixed: the coefficient on *Equity* is significantly negative while that on *ROA* is significantly positive.

Estimation by country

Finally, I estimate Equation (1) by dividing the sample banks by country (Table 5, Panel D). The estimation results show shat the coefficients on *Equity* are negative and significant for Indonesian and Korean banks, with the absolute value higher for Indonesian banks. The coefficient on *ROA* is significantly negative only in Republic of Korea. On the other hand, the coefficients on *Equity* are negative but insignificant for Malaysian and Thai banks, though it should be noted that the numbers of sample banks are small for these two countries.

I also analyze whether the coefficients on *Equity* changed across the pre-crisis, crisis, and post-crisis periods for Indonesia, Republic of Korea, and Thailand. The lower panel of Panel D shows that in Indonesia, the sensitivity of deposit interest rate to Equity was highest during the crisis period, while in Republic of Korea, it was highest during the pre-crisis period.

Growth rate of total deposits

Baseline estimation

I estimate Equation (2) using the sample banks from the four Asian countries. The results (Table 6, Panel A) show that the coefficients of bank risk measures – *Equity, ROA, Liquidity, Credit Rating, and NPL* – are not significant. It might be difficult to extract depositors' responses to bank risk from the deposit growth rate, which is influenced by many other factors including the restructuring of the banking industry. Among the control bank variables, the coefficient on *Overhead* is significantly negative while the coefficient on *Log(Asset)* is significantly positive. Larger banks tended to attract more deposits than did smaller banks. Among the macroeconomic variables, the coefficients on *Inflation* and *GDP Growth* are significantly positive, as expected.

Estimation by period

Sub-period estimation results (Table 6, Panel B) show that the coefficients on *ROA* are positive and significant during the pre-crisis and the post-crisis periods but significantly negative during the crisis period. The results for the pre-crisis and the post-crisis periods are consistent with the hypothesis of depositor monitoring but the result for the crisis period is not. On the other hand, the coefficient on *Equity* is negative and marginally significant during the post-crisis period, which is again inconsistent with the hypothesis of depositor monitoring.

Estimation by ownership

Estimation results by bank ownership (Table 6, Panel C) show that the coefficient on *ROA* is significantly positive only for family-owned banks. On the other hand, the coefficients on *Equity* are not significant for any types of ownership.

Estimation by country

Estimation results by country (Table 6, Panel D) show that neither the coefficients on the *ROA* nor those on *Equity* are significant for any countries. The coefficients on *Log(Asset)* are significantly positive for Indonesian and Malaysian banks.

The result for Korean banks seems to be inconsistent with the "eyeball tests"

of Park (2004), supporting the view that depositors removed deposits from weaker banks. To check his view, I estimated Equation (2) using the BIS capital adequacy ratio for the three sub-sample periods and found that the coefficient on the BIS capital adequacy ratio is significantly positive only for the crisis period, 1997–99 (Table Appendix). Considering that he classifies banks into four groups based on the BIS capital adequacy ratios as of 1997 and examines the deposit growth rate for each group, our result is consistent with his observation, both suggesting that Korean depositors shifted deposits based on bank risk for the crisis period.

Market-valued capital ratio

Baseline estimation

I estimate Equation (3) using all the sample banks for which stock price data are available (Table 7, Panel A). Column 1 shows that *Market Capital* is significantly correlated with *Equity*, suggesting that the stock market incorporates bank financial conditions and that equity capital is adequately reported. Column 2 shows that *Market Capital* is positively correlated also with the BIS capital adequacy ratio. Hosono and Sakuragawa (2003) report that among major Japanese banks, the BIS capital adequacy ratios were hardly correlated with market-valued capital ratios in 1997, suggesting that the BIS capital adequacy ratios were subject to managerial discretion and could be inflated by underreporting of NPLs and double-gearing of subordinated debts within the same business group. The accounting practices of the four Asian banks considered here might be better than the Japanese banks in the late 1990s.

Column 3 shows the estimation results when *Liquidity* is added to the explanatory variables. *Equity* is still significantly positive, while *Liquidity* is insignificant.

Furthermore, I estimate Equation (3) by adding *Credit Rating* to the explanatory variables and using the sample banks that have credit ratings. The estimation result shows that the coefficient on *Credit Rating* is not significant. It should be noted, however, that the coefficient on *Equity* is much higher than the coefficient in the case of the whole sample (Column 1). Using all the sample banks, I consider whether the correlation between *Market Capital* and *Equity* is different between the banks that have international ratings and those that do not have ratings. I construct the *Credit Rating Dummy*, which takes the value of one if a bank is rated and is zero otherwise and add the

interaction term of this dummy and *Equity* to the explanatory variables. Column 5 shows that the interaction term of *Credit Rating Dummy* and *Equity* is significantly positive, suggesting that the correlation between *Market Capital* and *Equity* is actually higher for the banks with ratings than for those without them. Banks that are rated are likely to disclose financial conditions adequately and hence to be subject to stock market discipline to a greater degree than are banks that are not rated.

In Column 6, I add *NPL* to the explanatory variables, finding that *NPL* is significantly positive. There are two possible reasons for this result. One is that the amounts of non-performing loans are not truly reported, as is suggested by the deposit interest rate estimation. The other is that because shareholders are protected by limited liability, they are likely to prefer excessive risk-taking and hence put high values on risky, high *NPL* banks. The result for *Net NPL* (Column 7) is similar to that for *NPL*.

Estimation by period

Panel B of Table 7 shows the estimation results for the sub-periods. I find that the coefficients on Equity are significantly positive for all the sub-periods, with the largest value for the post-crisis period, followed by the pre-crisis period and the crisis-period. Improved disclosure and accounting standards seem to have contributed to enhancing the effectiveness of stock market discipline after the crisis.

Estimation by ownership

Panel C of Table 7 shows the estimation results for each ownership type of banks. The coefficients on *Equity* are significantly positive for state-owned or public agency-owned banks and other banks, while the coefficient on *Equity* is significantly negative for family-owned banks. The stock market does not seem to play a disciplinary role for family-owned banks. The coefficient on *Equity* is positive but not significant for foreign-owned banks.

Estimation by country

Panel D of Table 7 shows the estimation results for each country. The coefficients on *Equity* are significant for Malaysia and Republic of Korea, while they are not significant for Indonesia and Thailand. There are several possible reasons why *Market Capital* and *Equity* are not correlated in Indonesia and Thailand. One possibility is that the stock market may not have incorporated bank financial conditions due to limited liquidity of the stock market

or poor disclosure. Another possibility is that even though the stock market adequately incorporated bank risk, equity was not accurately reported due to inadequate accounting practices. Yet another possibility is that stock prices tended to increase when poorly capitalized banks took excessive risk because shareholders prefer risky portfolios under limited liability.

I add *NPL* to the explanatory variables and obtain similar coefficients on *Equity* (lower panel of Panel D). The coefficient on *NPL* is significantly positive in Indonesia, suggesting either that non-performing loans were underreported for risky banks or that shareholders preferred risky portfolios in Indonesia.

4. Conclusion

I analyzed the effectiveness of market discipline of banks in Indonesia, Republic of Korea, Malaysia, and Thailand for the period 1990–2003. First I overviewed the institutional backgrounds of these countries against which market discipline could work. Disclosure, accounting standards, and the availability of market signals have improved in these countries especially after the crisis. Though the degree of deposit protection differed across the countries before the crisis, all these countries adopted a blanket guarantee, either explicitly or implicitly, on deposits and some other bank liabilities during the crisis. Only Republic of Korea reintroduced a partial deposit protection after the crisis. Faced with the banking crises, governments injected huge amounts of public money to recapitalize banks, ranging from about 5 to 7% of GDP for Republic of Korea, Malaysia, and Thailand to about 58% of GDP for Indonesia. As a consequence of the restructuring in banking industries, triggered by the crisis and government recapitalization, ownership structure changed drastically after the crisis. In particular, the number of foreign-owned banks increased after the crisis in all of the four countries, except for Malaysia.

Based on the overview of the institutional backgrounds, I analyzed market discipline of banks using three aspects: the deposit interest rate, the deposit growth rate, and the market value of capital.

First, I estimated the deposit interest rate to analyze whether depositors adequately demand a risk premium on deposits at risky banks. The estimation results show that the deposit interest rate was negatively correlated with bank equity capital and ROA, though the results for ROA were not as robust as those for equity capital. These results suggest that depositors could under-

stand bank risk and identify a problem bank. The sensitivity of the deposit interest rate to bank capital was higher before the crisis, probably reflecting the fact that blanket guarantee was in effect during the crisis and bank health was restored after the crisis. By dividing sample banks by bank ownership, we found that the deposit interest rate was not correlated with bank equity capital or ROA for state-owned or public agency-owned banks and family-owned banks. In addition, by dividing sample banks by country, we found that the deposit interest rate was significantly correlated with bank equity capital for Indonesian and Korean banks.

Next, I estimated the deposit growth rate to examine whether depositors shifted deposits from risky banks to safer banks or other financial instruments. I could not find such a "flight-to-quality" phenomenon, possibly because the deposit growth rate depended upon various factors other than depositors' behavior – especially when large-scale restructuring of banking sectors were underway.

Finally, I analyzed the stock market monitoring in each country by estimating the market-valued capital ratio. The estimation results show that the market-valued capital ratio was positively correlated with the equity capital ratio, suggesting that the stock market incorporated bank risk and that accounting practices were reliable to some degree. This tendency was stronger for Malaysia and Republic of Korea, for state-owned or public agency-owned banks, and for the banks that had international ratings. The sensitivity of market-valued capital to equity capital improved after the crisis, possibly due to improved disclosure and accounting standards. Though these results generally suggest that stock market participants monitor bank risk, some exceptions seem to exist. In particular, we find that the correlation between the market-valued capital ratio and the equity capital ratio is significantly negative for family-owned banks. This result suggests that the stock market does not play a disciplinary role for family-owned banks.

I may summarize the estimation results that market discipline of banks generally worked to some degree either through the deposit interest rate, the stock price, or both, though there are some exceptions as described above. Though I have not formally analyzed the effect of institutional arrangements on market discipline given the relatively small number of sample countries, disclosure and deposit protection seem to be of particular importance. For example, I cannot find significant evidence of market discipline in Thailand either through the deposit interest rate or stock prices. Thailand displays low

values of both the *Private Monitoring Indexes* and the *Deposit Protection Index*, suggesting that disclosure and availability of market signals is poor and deposit protection is generous in Thailand as compared with the other three Asian countries.

There are some limitations to this paper. First, though I found that deposit interest rate was positively correlated with bank risk measures, I did not address the issue of what sorts of information on bank risk depositors actually accessed and responded to. It may be costly and time-consuming for depositors to access the bank capital ratios and other risk measures that I used in this paper. Even though the information that depositors accessed was not exactly the same as that I used in this paper, we could claim that depositor monitoring worked effectively if we found that depositors' choices were based on some information that was correlated with bank fundamentals. However, if we know exactly on what information depositors choose banks, it would be very useful to enhance the effectiveness of market discipline. Some survey evidence would be necessary to tackle this issue. Also, I analyzed depositor monitoring and stock market monitoring but could not analyze monitoring by bondholders because bond price data were not available. Though markets for bank bonds, including subordinated bonds and debentures, have not yet developed well in Asian countries, bond markets are expected to monitor banks because bondholders are concerned with downside risk just as are depositors and regulators.

Another limitation was that I focused on market monitoring and could not analyze the responses of banks to the market warning. A great matter of concern is whether and how bank managers respond to the increases in the deposit interest rate and the bond yield or the decrease in the stock prices in order to counteract adverse changes in bank condition. These are all left for future works.

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Appendix

Private Monitoring Indexes and Other Institutional Indexes Based on the Survey

This appendix describes the survey designed jointly by the author with Sang-Woo Nam and conducted by Kameyama et al.; Park, Lum, and Koh; and Polsiri. It also shows how the private monitoring index and other institutional indexes were constructed based on the survey.

A. Private Monitoring Indexes

Private monitoring indexes are slightly modified from the Index used by Barth, Capiro and Levine (2001). Private Monitoring Index 1 is defined as the sum of 1-a, 1-b, 1-c, 2-a, 2-b, 2-c, and 3-a described below. Private Monitoring Index 2 is the sum of Private Index 1, 3-b, and 3-c.

1. Adequacy of disclosed financial information

a. Accrued, but unpaid interest enters the income statement while the loan is still non-performing (0: all or most banks; 0.5: some banks; 1: virtually none).

b. Off-balance sheet items disclosed to the public (1: all/most; 0.5: some; 0: none)

c. Consolidated financial statements (if they have non-bank affiliates or subsidiaries) available to the public (1: all/most; 0.5: some; 0: none)

2. Mechanisms ensuring the accuracy of information and sound risk management

a. A licensed/certified external audit required to certify the accuracy of the financial statements of a bank (1: yes; 0: no)

b. Bank directors legally liable in cases of disclosure of erroneous or misleading information (1: yes; 0: no)

c. Risk management policy and procedures disclosed to the public (1: all/

most; 0.5: some; 0: none)

3. Availability of market signals

a. Number of banks (among the top 10 banks in terms of total assets) rated by international credit rating agencies (1: all; 0 otherwise)

b. Subordinated debt issued by the top 10 banks: 1 (issued and traded actively by all or most of them); 0.7 (issued and traded by some of them, or issued by most of them but rarely traded); 0.3 (issued by some of them and rarely traded); 0 (not issued by most of them)

c. Number of banks (among the top 10 banks) whose shares are actively traded in the stock exchange; number of banks/10

d. Stock market capitalization as a proportion of GDP

B. Depositor Protection and Forbearance Policy Indexes

1. Depositor protection index

The Depositor Protection Index is defined by the following scoring scheme table.

a. Types and extent of deposit protection

(A1) Explicit partial (e.g., ceiling) deposit insurance

(A2) Implicit full depositor protection

(A3) Explicit blanket guarantee

b. Credibility of the scheme: information on the most recent major bank failure

- Extent of depositor protection:

(B1) substantial loss for some (large) depositors, (B2) almost full, (B3) full

- Number of months of average delay in compensating the depositors: (C1) longer than 6 months, (C2) 3–6 months, (C3) within 3 months

Scoring Scheme: Degree of Depositor Protection

	A1	A2	A3
B1	3.00	2.00 (unlikely)	0.50 (C1) 0.25 (C2) 0.00 (C3)
B2	2.50 (C1) 2.25 (C2-3)	1.50 (C1) 1.25 (C2-3)	
B3	2.25 (C1) 2.00 (C2-3)	1.25 (C1) 1.00 (C2-3)	

2. Forbearance policy indexes

(1) Supervisory Forbearance Policy Index: sum of a to d below (refer to Barth et al., 2001)

a. Regarding bank restructuring and reorganization, can the supervisory authorities or any other government agency forbear certain prudential regulations? (1 for yes, and 0 for no)

b. Are there pre-determined levels of solvency deterioration that force automatic actions, such as intervention? (1 for no, and 0 for yes)

c. Must infractions of any prudential regulations be reported? (1 for no, and 0 for yes)

d. With respect to c), are there any mandatory actions to be taken in these cases? (1 for no, and 0 for yes)

(2) Bank Bailout Policy Variables

a. Amounts of public money injected to recapitalize banks as a proportion of GDP (%)

b. Accumulated amounts of public money injected to recapitalize banks as a proportion of accumulated non-performing loans (NPLs) (%) For Korean banks, accumulated NPLs are calculated assuming that there were no write-offs until the end of 1996. For Korean banks, NPLs are based on the Forward Looking Criteria (FLC) from 1999. Also, there has been a strengthening of loan classification standard following the adoption of the FLC since 1999. According to the previous loan classification standard, the amount of NPLs as of the end of 1999 was 14.5 trillion won rather than 27.4 trillion won based on the new standard. For Thai banks, there were no write-offs until Q3 of 1999s because there

was no write-off data available before then.

c. Assets of failed banks as a proportion of total bank assets (%)

d. Assets of banks that were recapitalized by the government and survived (as a proportion of assets of all banks, %)

e. Assets of banks that were merged or acquired for rescuing them under government guidance (as a proportion of assets of all banks, %)

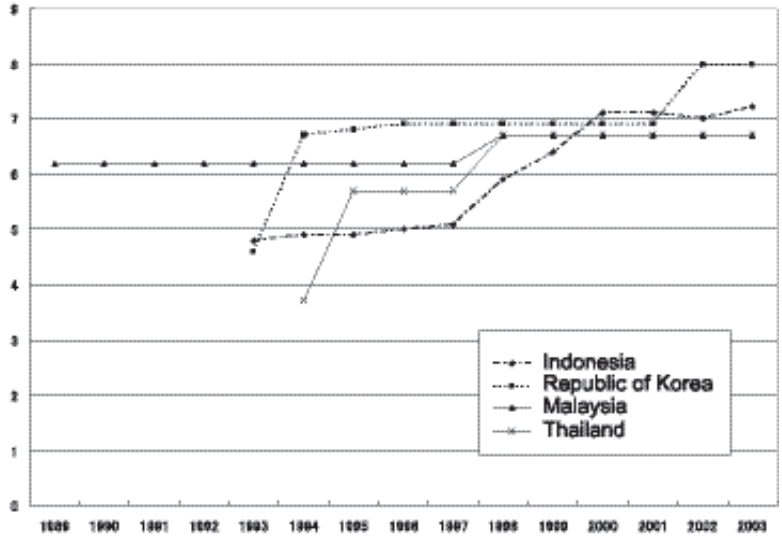
C. Ownership and Concentration

a. Number of banks (among the top 10 banks) whose largest shareholders are the government (including public enterprises)

b. Number of banks (among the top 10 banks) whose largest shareholders are foreign financial institutions

c. Asset share (%) of the top three banks among the top 10 banks

Figure 1
Private Monitoring Index 2



Note: Higher values indicate superior disclosure and better availability of market signals. See Appendix A for details.

Table 1

Private Monitoring Indexes

	Indonesia	Republic of Korea	Malaysia	Thailand
Panel A: Private Monitoring Index 1				
1989	4.0	3.0	4.5	2.0
1990	4.0	3.0	4.5	2.0
1991	4.0	3.0	4.5	2.0
1992	4.0	3.0	4.5	2.0
1993	4.0	3.0	4.5	2.0
1994	4.0	5.0	4.5	2.0
1995	4.0	5.0	4.5	4.0
1996	4.0	5.0	4.5	4.0
1997	4.0	5.0	4.5	4.0
1998	4.5	5.0	5.0	5.0
1999	5.0	5.0	5.0	5.0
2000	5.5	5.0	5.0	5.0
2001	5.5	5.0	5.0	5.0
2002	5.5	6.0	5.0	5.0
2003	5.5	6.0	5.0	5.0
Panel B: Private Monitoring Index 2				
1989–92			6.2	
1993	4.8	4.6	6.2	
1994	4.9	6.7	6.2	3.7
1995	4.9	6.8	6.2	5.7
1996	5.0	6.9	6.2	5.7
1997	5.1	6.9	6.2	5.7
1998	5.9	6.9	6.7	6.7
1999	6.4	6.9	6.7	6.7
2000	7.1	6.9	6.7	6.7
2001	7.1	6.9	6.7	6.7
2002	7.0	8.0	6.7	6.7
2003	7.2	8.0	6.7	6.7

Note: Higher values indicate superior disclosure and availability of market signals. See Appendix A for details. The average of Private Index 1 across 68 countries whose data are available is 4.8, while the average across the 19 OECD countries whose data are available is 5.3.

Table 2

Deposit Protection and Forbearance Policy

	Indonesia	Republic of Korea	Malaysia	Thailand
Panel A: Deposit Protection Index				
1989–96			2	1
1997	1	0	2	0
1998	1	0	2	0
1999	1	0	2	0
2000	1	0	2	0
2001	1	2	2	0
2002	1	2	2	0
2003	1	2	2	0
Note: Lower values indicate more generous deposit protection. See Appendix for details.				
Panel B: Supervisory Forbearance Policy Index				
1989			1	2
1990–98	1		1	2
1999	1	1	1	2
2000	1	1	1	2
2001	1	1	1	2
2002	1	1	1	2
2003	1	1	1	2
Note: Higher value – more discretion – means a weaker commitment to the prudential regulation. See Appendix for details. The average for 50 sample countries is 1.6, while the average for 24 OECD countries is 1.9.				
Panel C: Bank Bailout Policy Variables				
a. Amounts of public money injected to recapitalize banks (as % of GDP)				
1998	N/A	2.6	2.2	6.3
1999	45.2	3.2	2.4	0.0
2000	12.4	0.9	0.0	0.0
2001	0.4	0.6	0.0	0.0
2002	0.0	0.0	0.0	0.0

2003	0.0	0.0	0.0	0.0
Note: For Indonesia, amounts of bond issued for recapitalization program.				
b. Accumulated amounts of public money injected to recapitalize banks (as % of accumulated NPLs)				
1998	N/A	43.0	N/A	N/A
1999	N/A	86.0	N/A	11.5
2000	N/A	77.0	N/A	9.7
2001	N/A	67.5	N/A	8.6
2002	N/A	61.0	N/A	7.1
2003	N/A	52.3	N/A	6.6
Note: See Appendix B.2 for the estimation of accumulated NPLs.				
c. Assets of failed banks (as % of assets of all banks)				
1997	8.9	7.3	0.0	0.0
1998	9.3	0.0	13.9	2.5
1999	12.3	0.0	0.0	0.0
2000	N/A	0.0	0.0	0.0
2001	N/A	0.0	0.0	0.0
2002	N/A	0.0	0.0	0.0
2003	N/A	0.0	0.0	0.0
d. Assets of banks that were recapitalized by the government and survived. (as % of assets of all banks)				
1997	N/A	0.0	0.0	0.0
1998	N/A	32.7	76.2	8.3
1999	N/A	32.7	0.0	7.9
2000	57.7	29.8	0.0	7.6
2001	56.3	29.5	0.0	8.6
2002	54.9	30.5	0.0	0.0
2003	53.8	30.8	0.0	0.0
e. Assets of banks that were merged or acquired for rescuing them under government guidance (as % of assets of all banks)				
1997	N/A	0.0	0.0	0.0
1998	N/A	28.7	23.8	6.9

1999	30.7	32.1	0.0	0.0
2000	32.9	31.3	0.0	0.0
2001	28.9	31.0	0.0	0.0
2002	29.6	35.1	0.0	8.4
2003	28.2	34.3	0.0	7.7

Table 3

Ownership Structure and Concentration

	Indonesia	**Republic of Korea**	**Malaysia**	**Thailand**
Panel A: Number of state-owned banks among the top 10 banks				
1989		0	4	
1990	3	0	4	
1991	3	0	4	
1992	4	0	4	2
1993	5	0	4	2
1994	5	0	4	2
1995	4	0	4	3
1996	4	0	4	2
1997	4	0	4	2
1998	5	7	4	3
1999	7	4	3	4
2000	9	4	3	4
2001	9	4	3	4
2002	7	4	3	3
2003	5	2	3	3
Panel B: Number of foreign-owned banks among the top 10 banks				
1992–97	0	0	0	0
1998	0	1	0	1
1999	1	4	0	4
2000	0	5	0	4
2001	0	4	0	5

2002	3	3	0	6
2003	5	3	0	6
Panel C: Asset share of the top three banks (among the top 10 banks, %)				
1989		43.4		
1990	77.1	44.8		60.2
1991	75.8	44.5		59.7
1992	74.5	44.1		57.7
1993	69.2	42.8		57.2
1994	65.6	41.4		56.7
1995	64.4	38.3		54.7
1996	61.1	38.2		54.2
1997	62.4	37.0	60.9	54.6
1998	62.3	46.9	62.0	57.4
1999	75.3	43.2	67.6	55.9
2000	67.3	45.0	63.5	56.6
2001	68.2	55.3	60.6	55.1
2002	65.3	56.2	59.2	54.6
2003	65.0	55.0	59.0	55.6

Table 4

Descriptive Sample Statistics

Variable	Obs.	Mean	Std. Dev
Average Interest Rate on Domestic Currency Deposits (%)	648	10.214	7.111
Growth Rate of Total Deposits (%)	659	22.736	51.506
Market-valued Capital Ratio	538	0.108	0.111
Operating Income (net) / Total Assets (%)	666	-0.311	8.028
Overhead Costs /Total Costs (%)	538	13.264	13.387
Equity Capital / Total assets (%)	725	6.357	10.736
BIS Capital Adequacy Ratio (%)	528	12.535	15.371
Liquidity Assets / Total Assets (%)	393	23.902	18.217
Credit Rating	122	9.012	3.402

Credit Rating Dummy	852	0.143	0.350
NPL Ratio (to total Loans) (%)	404	12.778	16.887
Net NPL Ratio	399	4.765	13.880
Log (Asset in USD million)	727	8.283	1.697
Discount Rate (%)	852	9.454	6.231
GDP Growth Rate (%)	828	5.107	5.157
Inflation Rate (%)	828	7.025	11.171

Notes:

1. Market-value capital is the multiple of the share price and the number of shares outstanding. Market-value capital ratio is the ratio of market-value capital to the sum of book-value debt and market-value capital.
2. Net NPL Ratio is the difference between NPL ratio and loan loss reserve ratio.
3. Credit rating dummy takes the value of one if the bank has a rating and zero otherwise.
4. Inflation rate is the rate of change in GDP deflator.

Table 5

Average Interest Rate on Domestic Currency Deposits

Panel A: Whole Sample Estimates

Equation Number	**1**	**2**	**3**	**4**
Operating Income / Total Assets	0.025 (0.030)	-0.026 (0.029)	0.032 (0.039)	-0.214 ** (0.070)
Overhead Costs / Total Costs	-0.067 ** (0.026)	-0.075 ** (0.028)	-0.051 (0.032)	0.048 (0.046)
Equity Capital / Total Assets	-0.080 ** (0.021)		-0.080 ** (0.027)	0.263 ** (0.109)
BIS Capital Adequacy Ratio		-0.049 ** (0.015)		
Liquidity Assets / Total Assets			-0.006 (0.020)	
Credit Rating				0.213 ** (0.107)

Log (Asset)	0.729 (0.495)	0.982 * (0.568)	0.638 (0.677)	0.586 (0.778)
Discount Rate	0.566 ** (0.042)	0.609 ** (0.047)	0.604 ** (0.097)	0.500 ** (0.123)
No. of Observation No. of Banks Adjusted R-squared	506 61 0.732	418 61 0.768	317 47 0.754	111 30 0.834
Equation Number	**5**	**6**		
Operating Income / Total Assets	-0.074 * (0.040)	-0.025 (0.038)		
Overhead Costs / Total Costs	-0.116 ** (0.038)	-0.120 ** (0.037)		
Equity Capital / Total Assets	-0.073 ** (0.024)	-0.070 ** (0.024)		
NPL Ratio	-0.105 ** (0.017)			
Net NPL Ratio		-0.111 ** (0.016)		
Log (Asset)	-0.682 (0.764)	1.004 (0.761)		
Discount Rate	0.666 ** (0.060)	0.647 ** (0.057)		
No. of Observation No. of Banks Adjusted R-squared	332 61 0.758	332 61 0.767		

Table 5

Average Interest Rate on Domestic Currency Deposits

Panel B: Sub-sample Estimates by Period

Period	1989–1996	1997–1999	2000–2003	
Operating Income / Total Assets	0.027 (0.081)	-0.010 (0.076)	-0.177** (0.070)	
Overhead Costs / Total Costs	0.001 (0.031)	-0.187* (0.101)	-0.032 (0.035)	
Equity Capital / Total Assets	-0.081* (0.046)	-0.077 (0.051)	0.179** (0.084)	
Log (Asset)	0.765 (1.192)	4.312 (2.820)	1.647* (0.989)	
Discount Rate	0.693** (0.119)	0.542** (0.107)	0.321** (0.080)	
No. of Observation	162	113	231	
No. of Banks	29	42	61	
Adjusted R-squared	0.510	0.652	0.411	

Panel C: Sub-sample Estimates by Bank Ownership

The Largest Shareholder	State or Public Agency	Foreign Investor	Family	Others
Operating Income / Total Assets	0.034 (0.043)	-0.446* (0.226)	-0.090 (0.204)	0.308** (0.050)
Overhead Costs / Total Costs	-0.048 (0.039)	0.179 (0.111)	-0.327** (0.131)	-0.009 (0.055)
Equity Capital / Total Assets	-0.020 (0.032)	0.462 (0.315)	-0.166 (0.207)	-0.238** (0.031)
Log (Asset)	-0.330 (1.130)	4.521 (3.911)	-1.286 (3.824)	-0.319 (0.822)
Discount Rate	0.822** (0.104)	1.097** (0.170)	0.319 (0.211)	0.523** (0.065)
No. of Observation	118	38	84	157
No. of Banks	28	14	18	33
Adjusted R-squared	0.862	0.978	0.647	0.850

Table 5

Average Interest Rate on Domestic Currency Deposits

Panel D: Sub-sample Estimates by Country

Country	Indonesia	Republic of Korea	Malaysia	Thailand
Operating Income / Total Assets	0.039 (0.045)	-0.130 ** (0.036)	-0.157 (0.106)	0.033 (0.064)
Overhead Costs / Total Costs	-0.041 (0.039)	0.012 (0.080)	-0.064 * (0.034)	-0.641 ** (0.236)
Equity Capital / Total Assets	-0.075 ** (0.031)	-0.032 * (0.018)	-0.010 (0.073)	-0.058 (0.076)
Log (Asset)	0.750 (0.794)	0.115 (0.389)	-1.298 * (0.677)	-1.540 (1.667)
Discount Rate	0.723 ** (0.067)	0.592 ** (0.099)		1.220 ** (0.085)
No. of Observation	217	187	33	69
No. of Banks	25	14	9	13
Adjusted R-squared	0.759	0.872	0.644	0.947
Operating Income / Total Assets	0.044 (0.046)	-0.142 ** (0.037)		0.069 (0.083)
Overhead Costs / Total Costs	-0.043 (0.039)	0.036 (0.081)		-0.688 ** (0.254)
Equity Capital / Total Assets	0.111 (0.181)	-0.033 * (0.018)		0.075 (0.846)
Crisis Period * Equity Capital / Total Assets	-0.189 (0.181)	0.115 (0.082)		-0.180 (0.840)
Postcrisis Period* Equity Capital / Total Assets	-0.157 (0.210)	0.142 (0.128)		-0.073 (0.857)
Log (Asset)	0.776 (0.823)	0.242 (0.398)		-1.542 (1.696)
Discount Rate	0.869 ** (0.071)	0.725 ** (0.152)		1.100 ** (0.127)

(Equity Capital / Total Assets) x (1 + Crisis Period)	-0.078 ** [6.19]	0.082 [0.97]		-0.105 [1.04]
(Equity Capital / Total Assets) x (1 + Postcrisis Period)	-0.046 [0.13]	0.109 [0.71]		0.003 [0.00]
No. of Observation	217	187		69
No. of Banks	25	14		13
Adjusted R-squared	0.761	0.874		0.948

Notes:

1. Year dummies are included in explanatory variables.
2. Numbers in the parentheses are standard errors, while numbers in the squared brackets are F-values.
3. Fixed-effect model is estimated.
4. Net NPL Ratio is the difference between NPL ratio and loan loss reserve ratio.
5. Pre-crisis, crisis, and post-crisis periods represent years before 1997, 1997–1999, 2000–2003, respectively.

Table 6

Growth Rate of Total Deposits

Panel A: Whole Sample Estimates

Equation Number	**1**	**2**	**3**	**4**
Operating Income / Total Assets	0.250 (0.198)	0.152 (0.203)	0.130 (0.174)	0.616 (1.242)
Overhead Costs / Total Costs	-0.396 ** (0.171)	-0.403 ** (0.193)	-0.443 ** (0.216)	0.490 (0.844)
Equity Capital / Total Assets	-0.081 (0.123)			
BIS Capital Adequacy Ratio		0.025 (0.094)		

Liquidity Assets / Total Assets			-0.076 (0.121)	
Credit Rating				0.618 (1.874)
Log (Asset)	13.026 ** (3.291)	13.807 ** (3.749)	10.848 ** (4.601)	25.532 * (13.658)
Inflation Rate	0.359 ** (0.119)	0.304 ** (0.136)	0.340 (0.210)	-0.585 (0.930)
GDP Growth Rate	2.352 ** (0.444)	2.265 ** (0.501)	1.531 * (0.804)	1.046 (0.693)
No. of Observation No. of Banks Adjusted R-squared	473 62 0.236	402 62 0.223	295 48 0.215	108 30 0.253
Equation Number	**5**	**6**		
Operating Income / Total Assets	0.406 (0.254)	0.348 (0.248)		
Overhead Costs / Total Costs	-0.284 (0.239)	-0.259 (0.238)		
Equity Capital / Total Assets	0.012 (0.153)	0.005 (0.154)		
NPL Ratio	0.118 (0.113)			
Net NPL Ratio		0.040 (0.102)		
Log (Asset)	22.624 ** (5.041)	21.826 ** (5.175)		
Inflation Rate	0.286 (0.175)	0.318 * (0.175)		
GDP Growth Rate	2.326 ** (0.524)	2.292 ** (0.526)		
No. of Observation No. of Banks Adjusted R-squared	317 62 0.322	316 62 0.320		

Table 6

Growth Rate of Total Deposits

Panel B: Sub-sample Estimates by Period

Period	1989–1996	1997–1999	2000–2003	
Operating Income / Total Assets	2.265 **	-0.644 **	2.108 **	
	(0.671)	(0.302)	(0.709)	
Overhead Costs / Total Costs	-1.040 **	2.016	-0.386	
	(0.265)	(1.439)	(0.310)	
Equity Capital / Total Assets	-0.250	0.095	-1.601 *	
	(0.370)	(0.181)	(0.941)	
Log (Asset)	16.843	56.413 **	29.326 **	
	(10.422)	(13.815)	(10.078)	
Inflation Rate	1.891 *	0.609 **	0.901	
	(1.078)	(0.213)	(0.621)	
GDP Growth Rate	2.852	0.384	1.558 **	
	(1.823)	(1.513)	(0.564)	
No. of Observation	148	102	223	
No. of Banks	28	40	62	
Adjusted R-squared	0.351	0.528	0.311	

Panel C: Sub-sample Estimates by Bank Ownership

Largest Shareholder	State or Public Agency	Foreign Investor	Family	Others
Operating Income / Total Assets	0.556	-2.150	1.808 **	-0.658
	(0.411)	(2.352)	(0.697)	(0.428)
Overhead Costs / Total Costs	-0.273	0.925	-0.473	-0.472
	(0.423)	(1.182)	(0.358)	(0.546)
Equity Capital / Total Assets	-0.251	8.427	-1.024	0.375
	(0.278)	(4.812)	(0.729)	(0.256)
Log (Asset)	15.852	121.974 **	22.303 **	17.052
	(11.546)	(43.826)	(10.926)	(10.801)
Inflation Rate	0.980 **	3.236 *	0.130	0.339
	(0.416)	(1.679)	(0.237)	(0.279)
GDP Growth Rate	2.007 *	-1.306	-0.025	2.861 **
	(1.205)	(3.353)	(1.009)	(1.136)

No. of Observation	114	38	85	139
No. of Banks	28	14	19	33
Adjusted R-squared	0.313	0.663	0.469	0.235

Table 6

Growth Rate of Total Deposits

Panel D: Sub-sample Estimates by Country

Country	**Indonesia**	**Republic of Korea**	**Malaysia**	**Thailand**
Operating Income / Total Assets	0.164 (0.279)	0.906 (0.549)	-2.037 (8.622)	0.584 (0.684)
Overhead Costs / Total Costs	-0.414 * (0.248)	-0.816 (1.220)	2.636 (2.813)	-6.179 ** (2.457)
Equity Capital / Total Assets	-0.045 (0.170)	-0.138 (0.279)	-3.618 (5.924)	-0.578 (0.819)
Log (Asset)	10.815 ** (5.214)	8.534 (6.288)	109.002 * (55.117)	22.960 (17.567)
No. of Observation	199	175	31	67
No. of Banks	26	14	9	13
Adjusted R-squared	0.219	0.476	0.372	0.460

Notes:

1. Year dummies are included in explanatory variables.
2. Numbers in the parentheses are standard errors.
3. Fixed-effect model is estimated.
4. Banks that saw more than 100% growth rate of total deposits are excluded from the sample.
5. Net NPL Ratio is the difference between NPL ratio and loan loss reserve ratio.

Table 7

Market-valued Capital Ratio

Panel A: Whole Sample Estimates

Equation Number	**1**	**2**	**3**	**4**
Operating Income / Total Assets	-0.001 (0.001)	-0.004 ** (0.001)	0.000 (0.002)	-0.004 (0.003)
Overhead Costs / Total Costs	0.002 (0.001)	0.001 (0.001)	0.003 ** (0.001)	-0.001 (0.002)
Equity Capital / Total Assets	0.002 ** (0.001)		0.002 * (0.001)	0.016 ** (0.004)
BIS Capital Adequacy Ratio		0.005 ** (0.001)		
Liquidity Assets / Total Assets			0.000 (0.001)	
Credit Rating				0.000 (0.004)
Log (Asset)	-0.120 ** (0.020)	-0.124 ** (0.022)	-0.121 ** (0.033)	0.042 (0.026)
No. of Observation	407	355	242	109
No. of Banks	62	62	48	30
Adjusted R-squared	0.238	0.347	0.245	0.372
Equation Number	**5**	**6**	**7**	
Operating Income / Total Assets	-0.001 (0.001)	0.001 (0.002)	-0.001 (0.002)	
Overhead Costs / Total Costs	0.002 * (0.001)	0.002 (0.001)	0.002 * (0.001)	
Equity Capital / Total Assets	0.002 ** (0.001)	0.002 ** (0.001)	0.002 * (0.001)	
Credit Rating Dummy * Equity Capital / Total Assets	0.005 ** (0.002)			
NPL Ratio		0.003 ** (0.001)		
Net NPL Ratio			0.003 ** (0.001)	

Log (Asset)	-0.121 **	-0.079 **	-0.125 **	
	(0.019)	(0.027)	(0.028)	
No. of Observation	407	303	302	
No. of Banks	62	62	62	
Adjusted R-squared	0.247	0.331	0.317	

Table 7

Market-valued Capital Ratio

Panel B: Sub-sample Estimates by Period

Period	**1989–1996**	**1997–1999**	**2000–2003**	
Operating Income / Total Assets	0.006 **	-0.001	-0.003	
	(0.003)	(0.002)	(0.002)	
Overhead Costs / Total Costs	-0.001 *	-0.011 **	0.000	
	(0.001)	(0.004)	(0.001)	
Equity Capital / Total Assets	0.006 **	0.003 **	0.012 **	
	(0.001)	(0.001)	(0.003)	
Log (Asset)	-0.016	-0.117	-0.016	
	(0.048)	(0.075)	(0.032)	
No. of Observation	98	90	219	
No. of Banks	22	34	62	
Adjusted R-squared	0.762	0.203	0.193	

Panel C: Sub-sample Estimates by Bank Ownership

The Largest Shareholder	**State or Public Agency**	**Foreign Investor**	**Family**	**Others**
Operating Income / Total Assets	-0.008 **	0.003	0.026 **	0.000
	(0.004)	(0.003)	(0.009)	(0.001)
Overhead Costs / Total Costs	0.001	-0.001	0.004	-0.002
	(0.002)	(0.001)	(0.003)	(0.001)
Equity Capital / Total Assets	0.010 **	0.001	-0.034 **	0.001 **
	(0.004)	(0.003)	(0.006)	(0.001)
Log (Asset)	-0.080	-0.067	-0.135	-0.063 *
	(0.078)	(0.049)	(0.118)	(0.033)

No. of Observation	100	36	61	120
No. of Banks	29	13	16	32
Adjusted R-squared	0.601	0.721	0.653	0.405

Table 7

Market-valued Capital Ratio

Panel D: Sub-sample Estimates by Country

Country	**Indonesia**	**Republic of Korea**	**Malaysia**	**Thailand**
Operating Income / Total Assets	0.001 (0.002)	0.000 (0.001)	-0.019 (0.014)	0.000 (0.001)
Overhead Costs / Total Costs	0.004** (0.002)	0.005** (0.002)	-0.010** (0.005)	-0.003 (0.009)
Equity Capital / Total Assets	0.002 (0.001)	0.007** (0.000)	0.031** (0.010)	0.000 (0.002)
Log (Asset)	-0.128** (0.050)	0.018** (0.009)	-0.105 (0.092)	0.015 (0.053)
No. of Observation.	140	163	33	71
No. of Banks	26	14	9	13
Adjusted R-squared	0.289	0.939	0.547	0.381
Country	**Indonesia**	**Republic of Korea**	**Malaysia**	**Thailand**
Operating Income / Total Assets	0.003 (0.004)	-0.001 (0.001)	-0.013 (0.015)	-0.001 (0.002)
Overhead Costs / Total Costs	0.002 (0.002)	0.005 (0.004)	-0.004 (0.006)	0.000 (0.010)
Equity Capital / Total Assets	0.002 (0.002)	0.009** (0.001)	0.028* (0.013)	0.001 (0.002)
Log (Asset)	-0.094 (0.061)	0.027* (0.015)	-0.100 (0.095)	0.014 (0.054)
NPL ratio	0.005** (0.001)	0.000 (0.001)	-0.004 (0.004)	-0.001 (0.001)

No. of Observation	105	99	30	69
No. of Banks	26	14	9	13
Adjusted R-squared	0.532	0.805	0.480	0.291

Notes:

1. Market-value capital is the multiple of the share price and the number of shares outstanding. Market-value Equity Capital / Total Assets is the ratio of market-value capital to the sum of book-value debt and market-valued capital.
2. Year dummies are included in explanatory variables.
3. Numbers in the parentheses are standard errors.
4. Fixed-effect model is estimated.
5. Net NPL ratio is the difference between NPL ratio and loan loss reserve ratio.
6. Credit rating dummy takes the value of one if the bank has a rating and zero otherwise.

Table Appendix

Growth Rate of Total Deposits

Republic of Korea

Period	**1989–2003**	**1989–1996**	**1997–1999**	**2000–2003**
Operating Income / Total Assets	0.986 (0.661)	3.335 (2.148)	-4.192 ** (1.223)	3.548 ** (0.864)
Overhead Costs / Total Costs	3.555 (3.267)	7.101 (6.131)	-2.289 (7.993)	8.067 (9.668)
BIS Capital Adequacy Ratio	-0.239 (0.337)	0.061 (0.471)	3.518 ** (1.454)	-1.286 (1.967)
Log (Asset)	24.317 ** (10.224)	31.964 (23.840)	122.663 ** (52.842)	102.550 ** (27.308)
Inflation Rate	-2.004 ** (0.671)	2.703 (2.450)	9.559 (8.204)	-11.063 ** (3.812)

GDP Growth Rate	-1.159 ** (0.345)	-3.505 (3.047)	3.016 (2.765)	2.868 * (1.533)
No. of Observation	117	40	28	49
No. of Banks	14	8	10	14
Adjusted R-squared	0.547	0.337	0.888	0.606

Notes:

1. Year dummies are included in explanatory variables.
2. Numbers in the parentheses are standard errors.
3. Fixed-effect model is estimated.
4. Banks that saw more than 100% growth rate of total deposits are excluded from the sample.

5 *Financial Incentive of Bank Directors: Evidence from East Asia*[1]

Katsuyuki Kubo

1. Introduction

This paper examines determinants of bank directors' pay and CEO turnover in Indonesia, Republic of Korea, Malaysia, and Thailand. Comparing executive compensation in these countries is important for several reasons. To start with, there has been relatively few international comparison of top executive compensation (Abowd and Bognanno, 1995; Conyon and Murphy, 2000; Kaplan, 1994) while international differences in corporate governance practices have received increasing attention since the 1990s. In particular, many scholars have focused on the differences in ownership structure and monitoring mechanisms.[2]

Secondly, recent literature emphasizes the complementarities between executive compensation and the various monitoring mechanisms. By establishing stylized facts on international differences, we will be able to understand the interaction between institutions and the financial incentives of top managers. The third reason that this comparison is important is the globalization of the managerial labor market. Increasingly, foreign born directors in Asia have attracted both academic and practitioner interest regarding international comparison in executive compensation. East Asia is ideal for analyzing managerial incentives because of its diversity in economic conditions. Recent studies on incentives stress the importance of a contractual environment in designing an optimal incentive contract. This study will contribute to this debate by providing information on the financial incentives of bank managers.

Our results can be summarized as follows. A significant proportion of cash

1. We thank Nam Sang-Woo, Andreas Moerke, and participants at the Corporate Governance of Banks in Asia conference organized by ADBI and Hitotsubashi University in June 2004 and January 2005.

2. See Allen and Gale (2000), Barca and Becht (2002), La Porta et al. (1999), and Shleifer and Vishny (1997) among others. For corporate governance in Asia, see Nam and Nam (2004).

payment is fixed and not related to performance. There is a positive and significant relationship between stock return and compensation for CEOs, boards of directors, and executive directors. As directors' compensation depends on stock return, they have a financial incentive to maximize stock return. We also examine the determinants of CEO turnover. It is shown that the effect of return on assets (ROA) on CEO turnover is negative and significant. In addition, coefficients for lagged ROA are also negative and significant. Coefficients for stock return are negative, as predicted, although they are not significant. In other words, bank managers, including CEOs, boards of directors, and executive directors, have incentives to improve bank performance.

The remainder of this paper is organized as follows. In the next section, we begin by reviewing previous literature on executive compensation. In Section 3, we describe our data and descriptive statistics. Section 4 examines the association between managers' cash compensation and bank performance. Pay-performance sensitivity is estimated for CEOs, boards of directors, and all executive directors. In Section 5, the incentive generated by the threat of dismissal is shown. A summary and conclusion is provided in Section 6.

2. Financial Incentive of Bank Directors

A large number of studies have been concerned with CEO pay in the US and other countries.[3] Many of these studies focus on pay-performance sensitivity for CEOs. For example, Hall and Liebman (1998) show that CEO wealth changes by millions in accordance with modest changes in firm value. CEOs typically received USD 5 million if the stock return was 20.5%, while they received USD 1 million for the –7.0% annual return. In other words, CEOs' wealth increased by almost USD 4 million when firms' performance increased from –7.0% to 20.5%. As a result, CEOs in large US firms have a strong incentive to maximize their firms' stock market performance.

Most previous studies on directors' compensation referred to the principal-agent theory. As a principal, shareholders try to motivate the top manager to work towards higher shareholders' return. However, managers have their own goals and want to pursue their own interest in managing the company.

3. Hall and Liebman (1998), Jensen and Murphy (1990) examine CEOs in the US. For studies in Asia, see Kato (1997) and Kato and Kubo (forthcoming), for example. Abowd and Kaplan (1999), Murphy (1999), and Core, Guay, and Larcker (2003) provide excellent surveys.

Although shareholders want to monitor the top directors, shareholders do not have enough information or knowledge for doing this. Therefore, shareholders may link executive compensation with shareholders' returns. As directors' compensation depends on the stock market performance, they are motivated to work hard to improve the bank performance. If this is the case, there is a positive relationship between performance and executive compensation.

Recently, more attention has been paid to the financial incentive of bank directors (Barro and Barro, 1990, Brickley and James, 1987, Crawford et al., 1995, Houston and James, 1995, Hubbard and Palia, 1995, Anderson et al., 2004, John and Qian, 2003). Focusing on the banking industry is important for several reasons. Firstly, banks are regulated to a higher degree than are other industrial firms. Secondly, the contractual environment for bank managers is different from the contractual environment for managers in other industries. In the banking industry, depositors are small and have neither the incentive nor the knowledge to monitor bank managers. It is important to incorporate these features in designing incentive packages for bank directors. For example, strengthening the link between stock return and compensation may not be optimal because bank directors would have an incentive to invest in profitable but highly risky projects. From the viewpoint of depositors, it may not be optimal for CEOs to undertake high-risk projects.

3. Data

Our sample comprises an unbalanced panel of 63 banks for the period 2000–2003.

- As for CEO compensation, we have 80 observations for 27 banks: 24 observations for 8 Indonesian banks, 24 observations for 8 banks in Republic of Korea, 29 observations for 10 Malaysian banks, and 3 observations for 1 bank in Thailand.
- For compensation of board of directors, we have 133 observations for 45 banks: 37 observations for 13 Indonesian banks, 27 observations for 9 Korean banks, 30 observations for 10 Malaysian banks, and 39 observations for 13 banks in Thailand.
- For compensation for executive directors, we have 127 observations for 43 banks: 34 observations for 12 Indonesian banks, 24 observations for 8 Korean banks, 30 observations for 10 Malaysian banks, and 39 observations for 13 banks in Thailand.

Panels A–C of Table 1 present descriptive statistics of presidents' compensation, including their stock holdings in 2003. Compensation has been converted into US million dollars. Panel A of Table 1 shows CEOs' total direct pay, fixed pay annual bonus, other cash compensation, and amount of other perquisites. Other compensation includes long-term incentive plans, for example. One of the most important features in this table is that fixed pay constitutes a significant proportion of cash compensation. In other words, a significant proportion of cash pay is not performance-related. Total direct pay is calculated as the sum of fixed pay, annual bonus, and other cash compensation and perquisites. In 2003, CEOs received USD 0.3035 million. The CEOs' mean fixed pay was USD 0.249 million. The highest paid CEO received USD 0.88 million as fixed pay while the lowest received only USD 0.02 million. The mean annual bonus was USD 0.016 million, quite small compared with fixed pay.[4]

CEOs' salary does not seem to reflect fluctuations in bank performance. The highest annual bonus is USD 0.277 million. The highest amount of other cash compensation is USD 0.176 million, also suggesting that some firms use other financial incentive devices such as long-term incentive plans. It is also shown that perquisite constitutes only a small proportion of directors' financial incentive. Panel A of Table 1 also exhibits summary statistics of the total amount of salary paid to all board members and the total amount of salary paid to all executive directors. For both the boards of directors and executive directors, the proportion of compensation related to performance is not large.

Panel B of Table 1 shows total direct pay, fixed pay, annual bonus, other cash compensation, and amount of other perquisites for each country. As we do not have enough observations for each country, it is not easy to compare these figures. It is shown that bank CEOs in Indonesia receive the lowest compensation among these countries. In Indonesia, a CEO typically receives USD 0.236 million while bank CEOs in Republic of Korea, Malaysia, and Thailand receive USD 0.276 million, USD 0.376 million, and USD 0.326 million, respectively.

Panel C of Table 1 presents information on inside ownership. If bank managers own a considerable proportion of bank shares, they have a strong

4. It should be noted that we have only limited information for some banks. For example, we know the total cash compensation, including the amount of total cash pay and fixed salary, but we do not have information of annual bonus for bank A.

incentive to maximize their banks' market value. A CEO typically owns 0.055% of their bank's total shares. The total amount of shares owned by all executive directors is around 0.086%. In other words, bank managers do not own a considerable proportion of their banks, so they may not have a strong incentive to maximize market value. Panel C also shows that some directors come from controlling families. For example, the largest proportion of shares owned by a CEO is 0.3%, while it is 26.6% when we include shares owned by the CEO's family. They may want to work hard to maximize their family wealth. It is also suggested that some banks are managed as "family banks." Panel C suggests that stock options are not popular among bankers. Less than 10% of CEOs receive stock options.

Panel A of Table 2 provides information about the characteristics of CEOs. The variable "turnover" shows whether there was a CEO turnover or not. It is set to 1 if there is CEO turnover. It is shown that 23% of CEOs were replaced in 2003. Typically, CEOs are 53.6 years old and have been in the position for 5.7 years. As their length of service in the bank is 10.6 years, many of them may not be promoted from their current employment. However, the maximum length of service in the bank is 38 years, implying that some CEOs spend quite long years at the bank.

Panel A also shows responses to questions such as "Are there any specific performance objectives?" and "Is there any clear link between CEO compensation and performance measures?" Their answers are coded as 1 if they answer "yes" and 0 if "no." Almost all the CEOs (97.5%) say that there is a specific performance objective; 76% of them reported that there is a clear link between CEO pay and performance. It is also shown that 70% of banks have a compensation committee. The average employees' wage is calculated by dividing total staff cost by the number of employees. On average, employees receive USD 0.019 million as wages. As the mean value for total CEO compensation is USD 0.48 million, a CEO typically receives a salary 25 times higher than that of their employees. Panel A also shows summary statistics by country. It is shown that there are little differences in CEO/firm characteristics among these four countries.

Panel B of Table 2 exhibits summary statistics of return on assets (ROA), stock return, asset and market value. On average, banks' ROA is 0.869%, its market value is USD 1,955 million, and its asset is USD 15,167 million. It is shown that Indonesian banks have the highest ROA of 1.47%. Korean banks are largest in terms of market value and assets. Panel B also shows that the

mean value of stock returns is 78.53%, suggesting that there is a huge fluctuation in stock market.

4. Incentive Generated by Cash Compensation

In this section, we examine financial incentive in terms of direct salary for bank directors by estimating the determinants of compensation. Agency theory predicts a positive relationship between bank performance and managers' compensation. If this is the case, CEOs have incentives to maximize bank performance. Tables 3–5 summarize estimates of the association between change in bank managers' cash compensation and bank performance measured by the ROA and stock return, respectively. The dependent variable of the regression equation is represented by the change in total direct pay,[5] which is a sum of fixed pay, annual bonus, other cash compensation, and perquisites. Table 3, Table 4, and Table 5 show the results of regressions on CEO compensation, board compensation, and compensations for all executive directors, respectively. These tables are based on the following regression.

$$\Delta Compensation_t = a + b_1 Performance_t + b_2 Size + b_3 CountryDummies + b_4 CountryDummies * Performance_t + b_5 CC + b_6 CC * Performance_t + \varepsilon,$$

where CC represents the compensation committee dummy, which takes the value of 1 if the bank has such a committee. Performance is measured by ROA and stock return (ROR). We expect the coefficients for performance to be positive and significant. If coefficients are positive and significant, directors are considered to have incentives to maximize bank performance. We use ln (asset) to control for size. Country dummies are included to capture any country difference in change in compensation. Interaction variables between country dummies and performance are also included to examine the difference in pay-performance sensitivity among the countries. If the coefficient for this variable for country A is negative, then pay-performance sensitivity is smaller. In other words, top managers in country A have less incentive to improve performance. According to agency theory, pay-performance sensitivity varies depending on the contracting environment, including

5. We hoped to try each component of compensation, i.e., fixed pay, annual bonus, etc., as a dependent variable. However, we do not have enough observations to run each regression. Therefore, we report results using change in total direct pay as the dependent variable.

the bank's risk and regulation. We also include a compensation committee dummy and an interaction between compensation committee dummy and performance. The compensation committee dummy is set to 1 if the bank has a compensation committee and is set to 0 if it does not. The interaction dummy will be positive if pay-performance sensitivity is higher in a bank with the committee.

We estimated the above equation using robust regression method. Robust regression is used because there is relatively large fluctuation in the independent variables.

The dependent variable in Table 3 is change in the CEO's direct cash compensation, which includes fixed pay, annual bonus, other cash pay, and perquisites. An important result in Table 3 is that the coefficient for stock return is positive and significant, as shown in column 2. The coefficient in column 2 shows that a 1% increase in stock return is associated with a USD 0.01 million increase in the CEO's direct cash compensation. In other words, presidents receive 0.01 million dollars for a 1 % increase in shareholders' value. As CEOs' compensation depends on stock return, they have financial incentive to maximize stock return. The coefficient for ROA is also significant in columns 1 and 5. Column 1 shows that a 1% increase in ROA is associated with a USD 0.027 million increase in the CEO's direct cash compensation. In other words, the CEO receives 0.027 million dollars for each 1 % increase in ROA. The coefficients for the compensation committee dummies and the interaction terms between the compensation committee and performance are not significant. In other words, there is no difference in pay-performance sensitivity between banks with and without such committees.

Table 3 also examines the country effect on pay-performance sensitivity. Country dummies are not significant, indicating that there is no tendency for bank directors in any country to increase their cash compensation more than those in other countries. In addition, interaction terms between country dummies and bank performance are not significant. There are few differences in pay-performance sensitivity across these countries.

Table 4 shows the results of regressions on board compensation. The dependent variable is change in the amount of compensation for all directors. Although the coefficient for stock return in column 2 is positive and significant as predicted, all the coefficients for ROA are not significant. An interesting feature in this table is that the coefficients for the interaction term between the compensation committee and stock return is positive and significant. In

column 4, the dependent variable is the change in direct pay for the board of directors (in millions of US dollars). The coefficient for ROR (stock return) is .001 and that for CC*ROR is .032. These coefficients show that a 1% increase in stock return is associated with a USD 0.042 million (.01 + 0.032) increase in direct pay for the board of directors in a firm with a compensation committee. Those in firms without such a committee receive USD 0.01 million. In other words, boards of directors in banks with compensation committees have financial incentives to pursue bank performance. This result is consistent with the idea that one of the key roles of the compensation committees is to strengthen the tie between compensation and performance. Another interesting result is that the coefficients for some country dummies and the interaction between country and performance are significant. In other words, there is a different pattern in pay-performance sensitivity for boards of directors across the four countries. Table 5 shows the results of similar regressions for executive directors. As in Table 4, the coefficients for profitability are not significant. There are some country differences.

Results in Tables 3–5 can be summarized as follows. Bank CEOs have incentives to maximize bank performance, in particular stock return. In contrast, executive directors have little of such incentives. Boards of directors in bank with compensation committees have stronger pay-performance sensitivity.

The sensitivity of our results can be gauged by the robust pattern of coefficient estimate using different estimation methods. We estimate Equations 1 and 2 in Table 3 with different estimation methods: OLS and the random-effect panel regression model. The coefficients for ROA are .027 (robust regression), .031 (OLS), and .031 (panel regression). These coefficients are significant at 5% level significance. The coefficients for ROR are .01(robust regression), .009 (OLS), and .009 (panel regression). The coefficient by robust regression is significant at the 1% level, while those with OLS and panel regression are significant at the 5% level. These results suggest that results shown in Tables 3–5 are relatively robust.

5. Incentives Generated by Threat of Dismissal

Previous studies on top executive turnover show that poor firm performance increases the likelihood of management turnover (Coughlan and Schmidt, 1985; Kaplan, 1994; Kang and Shivdasani, 1995; Mikkelson and Partch, 1997). If there is a negative association between turnover and performance,

managers are supposed to work hard to avoid being replaced. We estimate the following equation to calculate the financial incentives generated by threat of dismissal.

$$Pr(turnover_t) = f(Performance_t, Performance_{t-1}, Size, CountryDummies, CountryDummies * Performance_t)$$

The dependent variable is the probability of CEO turnover. It is set to 1 if the CEO is replaced. The independent variables include performance (current and lagged), country dummies, and the interaction term between country dummy and performance. We include ln (asset) to control for size. As performance variables, we use ROA and stock return. We use the panel logit model to estimate the above equation.

Table 6 summarizes the results of the determinants of CEO turnover. The most important results in this table are the coefficients for ROA, which are negative and significant. In addition, the coefficients for lagged ROA are also negative and significant. The coefficients for stock return are negative, as predicted, although they are not significant. There are few differences across countries in turnover-performance sensitivity. The results in Table 6 show that there is a negative relationship between CEO turnover and banks' profitability. In other words, bank CEOs have an incentive to improve banks' ROA to keep their jobs.

6. Conclusion

We estimated determinants of executive compensation and CEO turnover of bank managers in four East Asian countries, with particular interest in the difference across countries. Our results can be summarized as follows. Firstly, a considerable proportion of cash compensation for bank managers is fixed pay. The proportion of performance-related components, such as annual bonus, is not large. In 2003, CEOs received on average USD 0.3 million in total, while their mean fixed pay was USD 0.249 million. Bank CEOs in Indonesia receive the lowest compensation among these countries. A CEO typically owns 0.055% of their bank shares. In other words, bank managers do not own a considerable proportion of their banks. Typically, CEOs are 53 years old and have been in the position for 5.7 years.

Our regression shows that there is a positive link between banks' profitability and their cash compensation. The coefficients of stock return are positive

and significant for CEOs, boards of directors, and executive directors. As directors' compensation depends on stock return, they have financial incentives to maximize stock returns. The coefficient for ROA is also significant for CEOs, but not for boards of directors and executive directors. There are few differences in pay-performance sensitivity across these countries.

We also examined the determinants of CEO turnover. It was shown that the coefficient for ROA is negative and significant. In addition, the coefficients for lagged ROA are also negative and significant. The coefficients for stock return are negative, as predicted, although they are not significant. In other words, bank managers, including CEOs, boards of directors, and executive directors, have financial incentives to improve stock return and bank profitability. This result is consistent with the opinion survey responses by bank directors. Most respondents say that there is a link between performance and compensation. In addition, there is a significant association between poor profitability and CEO turnover.

There are several possible limitations in this study. Firstly, our estimation is based on a small sample. One setback of using a small sample is that the magnitude of the coefficients is not stable. Obtaining correct coefficients is important because this magnitude shows how much compensation bank managers receive for a 1% improvement in the ROA. Secondly, we cannot control several factors that may affect the financial incentives of directors, such as risk and regulatory environment.[6]

6. We tried to include CEOs' personal characteristics, such as age and length of service, as independent variables but could not obtain significant results.

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Table 1. Basic Statistics: Panel A
Compensation of CEO, Board of Directors and All Executive Directors

(USD million)

	Direct Compensation for CEO				
	Obs	Mean	Std. Dev.	Min	Max
Total Salary	27	0.3035	0.1916	0.0268	0.8861
Fixed Pay	27	0.2491	0.1873	0.0230	0.8861
Bonus	63	0.0163	0.0550	0	0.2767
Other	63	0.0048	0.0245	0	0.1761
Perks	63	0.0024	0.0179	0	0.1418
	Direct Compensation for Board of Directors				
	Obs	Mean	Std. Dev.	Min	Max
Total Salary	45	0.9245	1.2388	0.0198	6.9413
Fixed Pay	37	0.5428	0.6931	0	3.1897
Bonus	63	0.1265	0.4876	0	3.7516
Other	63	0.0564	0.2289	0	1.7368
Perks	63	0.0175	0.1265	0	1.0000
	Direct Compensation for Executive Directors				
	Obs	Mean	Std. Dev.	Min	Max
Total Salary	43	1.3325	1.2970	0.0828	7.6327
Fixed Pay	33	0.5860	0.5195	0.0769	2.5574
Bonus	63	0.1089	0.2847	0	1.3824
Other	63	0.0290	0.1137	0	0.6537
Perks	63	0.0159	0.1260	0	1.0000

Note: Total directors' salary is a sum of fixed pay, annual bonus, other cash compensation, and perquisites (in USD million).

Table 1. Basic Statistics: Panel B

Total Compensation of CEO, Board of Directors and All Executive Directors by Country

(USD million)

		Obs	Mean	Std.
All	CEO	27	0.304	0.192
	Board of Directors	45	0.925	1.239
	Executive Directors	43	1.333	1.297
Indonesia	CEO	8	0.236	0.141
	Board of Directors	13	0.958	1.836
	Executive Directors	12	1.146	0.776
Republic of Korea	CEO	8	0.276	0.172
	Board of Directors	9	1.534	1.122
	Executive Directors	8	1.322	1.049
Malaysia	CEO	10	0.376	0.238
	Board of Directors	10	0.979	0.992
	Executive Directors	10	0.695	0.675
Thailand	CEO	1	0.326	.
	Board of Directors	13	0.425	0.351
	Executive Directors	13	2.000	1.869

Table 1. Basic Statistics: Panel C

Stock Holding and Stock Option Grant for CEO, Board of Directors, and All Executive Directors

	Inside Ownership (%)				
	Obs	Mean	Std. Dev.	Min	Max
CEO	31	0.055	0.099	0	0.30
CEO and Their Family	22	1.401	5.683	0	26.64
Board of Directors	32	0.176	0.267	0	0.95
Board and Family	24	1.323	5.440	0	26.65
Executive Directors	32	0.086	0.148	0	0.50
Executive and Family	24	1.302	5.443	0	26.65
	Stock Option Grant (Yes=1, and No=0)				
	Obs	Mean	Std. Dev.	Min	Max
CEO Option	63	0.095	0.295	0	1
Board Option	63	0.111	0.316	0	1
Executive Option	63	0.142	0.352	0	1

Table 2. Basic Statistics: Panel A

CEO and Bank Characteristics

		Obs	Mean	Std.	Min	Max
All Countries	Turnover[1]	52	0.230	0.425	0	1
	CEO age	42	53.57	6.57	35	63
	Tenure as CEO (years)	43	5.709	4.815	1	21
	Tenure on board	38	7.947	7.311	0	29
	Tenure in the bank	36	10.560	9.995	1	38
	Performance objective[2]	41	0.975	0.156	0	1
	Link between performance and compensation[3]	38	0.763	0.430	0	1
	Compensation committee	57	0.702	0.462	0	1
	Employee's wage (USD million)	54	0.019	0.016	0.003	0.052
Indonesia	Turnover[1]	17	0.176	0.392	0	1
	CEO age	14	52.42	6.96	41	62
	Tenure as CEO (years)	17	4.794	4.008	1.5	18
	Tenure on board	13	6.153	5.080	0	18
	Tenure in the bank	15	8.966	7.322	1.5	22
	Performance objective[2]	12	0.916	0.288	0	1

	Link between performance and compensation[3]	13	0.692	0.480	0	1
	Compensation committee	22	0.5	0.512	0	1
	Employee's wage (USD million)	23	0.008	0.006	0.003	0.037
Republic of Korea	Turnover[1]	13	0.307	0.480	0	1
	CEO age	10	57.90	3.18	54	63
	Tenure as CEO (years)	7	3.142	2.193	1	7
	Tenure on board	6	6.333	8.286	1	23
	Tenure in the bank	6	11.500	12.810	3	34
	Performance objective[2]	12	1	0	1	1
	Link between performance and compensation[3]	11	1	0	1	1
	Compensation committee	14	0.714	0.469	0	1
	Employee's wage (USD million)	14	0.044	0.005	0.034	0.052
Malaysia	Turnover[1]	10	0.300	0.483	0	1
	CEO age	6	52.83	9.41	35	61
	Tenure as CEO (years)	8	7.625	6.738	1	21
	Tenure on board	8	10.250	8.762	1	29
	Tenure in the bank	6	16.000	13.750	1	38
	Performance objective[2]	9	1	0	1	1
	Link between performance and compensation[3]	8	0.500	0.534	0	1
	Compensation committee	10	1	0	1	1
	Employee's wage (USD million)	4	0.013	0.001	0.012	0.015
Thailand	Turnover[1]	12	0.166	0.389	0	1
	CEO age	12	51.66	5.69	40	59
	Tenure as CEO (years)	11	7.363	5.005	1	15
	Tenure on board	11	9.272	8.174	1	29
	Tenure in the bank	9	9.000	9.591	2	32
	Performance objective[2]	8	1	0	1	1
	Link between performance and compensation[3]	6	0.833	0.408	0	1
	Compensation committee	11	0.818	0.405	0	1
	Employee's wage (USD million)	13	0.012	0.002	0.008	0.019

Notes:

1 Turnover is set to 1 if CEO is replaced. The variables "Performance objective" and "Link between performance and compensation" represent responses given in the opinion survey.

2 "Performance objective": a positive response to the question "Are there any specific performance objectives?"

3 "Link between performance and compensation": a positive response to the question "Is there any clear link between CEO compensation and performance measures? "

Table 2. Basic Statistics: Panel B

Bank Performance

(Market value and assets are in USD million)

		Obs	Mean	Std. Dev.	Min	Max
All Countries	ROA (%)	63	0.869	1.395	-3.708	4.020
	ROR (%)	58	78.53	590.77	-0.66	4,500
	Market Value	61	1,956	4,075	6	28,636
	Assets	63	15,168	25,257	54	154,329
Indonesia	ROA (%)	26	1.473	1.510	-3.150	4.020
	ROR (%)	23	1.22	2.88	-0.65	11.67
	Market Value	26	503	765	6	2,408
	Assets	26	3,926	6,876	54	29,467
Republic of Korea	ROA (%)	14	0.355	0.748	-1.480	1.420
	ROR (%)	12	0.61	0.99	-0.12	3.55
	Market Value	12	2,972	3,451	40	12,594
	Assets	14	41,759	41,764	1,498	154,329
Malaysia	ROA (%)	10	0.918	0.820	-0.200	2.300
	ROR (%)	10	0.43	0.32	0.036	1.01
	Market Value	10	5,121	8,486	354	28,636
	Assets	10	11,368	9,471	2,804	33,593
Thailand	ROA (%)	13	0.178	1.605	-3.708	1.804
	ROR (%)	13	347.33	1247.77	-0.16	4,500
	Market Value	13	1,488	1,646	11	5,096
	Assets	13	11,938	10,887	1,419	34,436

Note: ROR is stock return, and ROA is return on asset.

Table 3

Determinants of CEO Compensation

Independent Variable	Change in Direct Pay for CEO					
ROA	0.027 [0.011]*		0.008 [0.018]		0.034 [0.016]*	
ROR		0.01 [0.003]**		0.007 [0.007]		0.009 [0.008]
Comp. Committee			0.02 [0.031]	0.054 [0.028]		
CC*ROA			0.025 [0.024]			
CC*ROR				0.004 [0.008]		
Republic of Korea					-0.001 [0.051]	-0.01 [0.047]
Malaysia					0.041 [0.047]	0.015 [0.040]
Thailand					-0.437 [0.477]	-0.072 [0.098]
(Republic of Korea)*ROA					-0.041 [0.033]	
(Malaysia)*ROA					-0.025 [0.034]	
(Thailand)*ROA					0.835 [0.913]	
(Republic of Korea)*ROR						-0.011 [0.015]
(Malaysia)*ROR						0.063 [0.064]
(Thailand)*ROR						0.037 [0.049]
Ln(asset)	-0.008 [0.006]	-0.004 [0.007]	-0.01 [0.007]	-0.011 [0.007]	-0.009 [0.009]	-0.002 [0.010]
Constant	0.083 [0.057]	0.061 [0.059]	0.091 [0.059]	0.091 [0.063]	0.086 [0.066]	0.035 [0.075]
Observations	52	46	52	46	52	45
R-squared	0.12	0.17	0.17	0.26	0.21	0.14

Notes: In the brackets are standard errors; and * and ** indicate significant at 5% and 1%, respectively. Equations were estimated using the robust

regression method.Variable Comp. Committee (CC) is a dummy variable which is set to 1 if the bank has compensation committee; ROR is stock return, while ROA is return on asset; Country*performance is an interaction term between country dummy and performance; CC*performance is an interaction term between Comp. Committee dummy and performance.

Table 4

Determinants of Compensation for Board of Directors

Independent Variable	Change in Direct Pay for Board of Directors					
ROA	0.02 [0.013]		0.004 [0.024]		0.019 [0.021]	
ROR		0.024 [0.006]**		0.001 [0.013]		0.014 [0.054]
Comp. Committee			0.064 [0.043]	0.077 [0.046]		
CC*ROA			0.048 [0.031]			
CC*ROR				0.032 [0.015]*		
Republic of Korea					-0.317 [0.075]**	-0.153 [0.076]*
Malaysia					-0.027 [0.073]	0.021 [0.066]
Thailand					-0.032 [0.056]	-0.02 [0.060]
(Republic of Korea)*ROA					0.237 [0.053]**	
(Malaysia)*ROA					0.024 [0.058]	
(Thailand)*ROA					-0.018 [0.032]	
(Republic of Korea)*ROR						0.023 [0.054]
(Malaysia)*ROR						-0.005 [0.118]
(Thailand)*ROR						-0.015 [0.060]

Ln(asset)	0.004 [0.010]	0.011 [0.012]	-0.013 [0.011]	-0.012 [0.012]	0.021 [0.013]	0.01 [0.015]
Constant	0.008 [0.085]	-0.044 [0.104]	0.089 [0.092]	0.092 [0.105]	-0.093 [0.096]	-0.016 [0.120]
Observations	88	78	82	74	88	77
R-squared	0.03	0.17	0.16	0.27	0.39	0.3

Note: See footnotes to Table 3.

Table 5

Determinants of Compensation for Executive Directors

Independent Variable	Change in Direct Pay for Executive Directors					
ROA	0.042 [0.033]		0.051 [0.066]		0.048 [0.049]	
ROR		0.021 [0.012]		0.035 [0.029]		0.007 [0.028]
Comp. Committee			0.055 [0.117]	0.075 [0.107]		
cc*ROA			0.055 [0.086]			
CC*ROR				-0.015 [0.034]		
Republic of Korea					-0.514 [0.170]**	-0.395 [0.151]*
Malaysia					-0.276 [0.162]	-0.38 [0.128]**
Thailand					-0.02 [0.125]	-0.192 [0.115]
(Republic of Korea)*ROA					0.298 [0.122]*	
(Malaysia)*ROA					0.004 [0.129]	
(Thailand)*ROA					-0.011 [0.071]	
(Republic of Korea)*ROR						0.014 [0.031]
(Malaysia)*ROR						0.141 [0.200]
(Thailand)*ROR						0.034 [0.059]

Ln(asset)	0.039 [0.024]	0.044 [0.023]	0.021 [0.029]	0.04 [0.028]	0.078 [0.029]**	0.092 [0.030]**
Constant	-0.207 [0.212]	-0.258 [0.203]	-0.133 [0.251]	-0.272 [0.246]	-0.398 [0.213]	-0.422 [0.232]
Observations	84	74	78	70	84	74
R-squared	0.05	0.09	0.09	0.09	0.26	0.23

Note: See footnotes to Table 3.

Table 6

Determinants of CEO Turnover

Independent Variable	CEO Turnover 1= Yes, 0 = No							
ROA	-0.494 [0.195]*	-0.426 [0.188]*	-0.511 [0.302]	-0.689 [0.249]**				
lagROA		-0.179 [0.109]	-0.333 [0.162]*	-1.227 [0.769]				
ROR					-0.078 [0.134]	-0.142 [0.252]	-3.201 [3.873]	-0.134 [0.252]
lag ROR						-0.409 [0.560]	-0.823 [0.787]	-0.197 [0.833]
Republic of Korea			0.056 [0.898]	-1.334 [1.110]			-1.845 [2.711]	-0.699 [2.260]
Malaysia			0.308 [1.042]	-1.408 [1.262]			-4.669 [4.179]	-1.907 [2.325]
Thailand			-2.549 [1.078]*	-3.459 [1.246]**			-3.609 [2.725]	-2.223 [2.119]
Republic of Korea*ROR							2.949 [3.849]	
Malaysia*ROR							7.578 [7.558]	
Thailand*ROR							3.199 [3.873]	
Republic of Korea*lag ROR								-0.594 [1.284]
Malaysia*lag ROR								0.445 [3.919]
Thailand*lag ROR								-2.942 [5.145]
Republic of Korea*ROA			-0.674 [0.683]					

Malaysia*ROA			-1.693 [1.420]					
Thailand*ROA			-0.019 [0.538]					
Republic of Korea*lagROA				0.64 [0.827]				
Malaysia*lagROA				0.491 [1.272]				
Thailand*lagROA				1.287 [0.787]				
Ln(asset)	0.127 [0.140]	0.106 [0.141]	0.144 [0.172]	0.164 [0.181]	0.215 [0.187]	0.607 [0.502]	0.925 [0.856]	0.752 [0.590]
Constant	-2.333 [1.279]	-2.083 [1.276]	-1.584 [1.275]	-0.597 [1.497]	-3.447 [1.729]*	-7.902 [4.961]	-8.589 [7.776]	-7.882 [5.056]
Observations	150	147	147	147	135	88	88	88
Number of banks	52	52	52	52	49	47	47	47

Note: Equations were estimated using panel logit regression. See footnotes to Table 3.

6 *Banks' Risk Management Practices: A Survey of Four Asian Emerging Markets*

Julius Caesar Parreñas

1. Introduction

Robust risk management practices in the banking sector are important for both financial stability and economic development. Unsound risk management practices governing bank lending contributed greatly to recent episodes of financial turmoil, including the Asian financial crisis of 1997–98. The development of adequate capacity to measure and manage risk is also important for banks to effectively perform their roles in financing economic activities, most especially the task of continuously providing credit to a large number of enterprises whose activities underpin economic growth.

The experience of financial crisis, the growing competition due to the ongoing globalization of financial markets, and the impending implementation of the Basel II Framework (henceforth referred to as Basel II) have increased pressure on banks in Asian emerging markets to improve their risk management practices. These factors have likewise compelled bank supervisory authorities in these markets to pay more attention to promoting robust risk management of financial institutions and developing their respective capacities for effective risk-based supervision.

A recent survey revealed that bankers and bank supervisors in the region's emerging markets are well aware of the enormous tasks that lie ahead to meet these challenges (Parreñas, 2003). Contrary to initial expectations, banks in these markets have generally taken a positive approach to Basel II, treating it as an opportunity that encourages the development and adoption of better methods to measure and manage credit, market, and operational risks. However, these banks face serious resource constraints, particularly with respect to technology, data availability, and staffing. The need for improved cooperation between banks and supervisory agencies – and for addressing shortcomings in the policy and business environment affecting risk management practices – have also become clear.

Since the aforementioned survey was undertaken in early 2003, much progress appears to have been made in terms of banks' and supervisory authori-

ties' preparation for Basel II, particularly in risk measurement and management practices. This paper attempts to provide an updated evaluation of the soundness of banks' risk management practices in four Asian emerging markets (Indonesia, Malaysia, the Republic of Korea, and Thailand), drawing on the results of a survey covering a larger number of banks from these economies. The survey was limited to commercial banks and was conducted during the summer of 2004.

A total of 52 banks responded to the survey, 22 of which are based in Indonesia, 13 in the Republic of Korea, 6 in Malaysia, and 11 in Thailand. Out of the total, 17 (33%) are foreign-owned banks and 35 (67%) are domestically owned. In terms of types of ownership, 2 (4%) are widely held, 7 (14%) are family-owned, 14 (27%) are owned by other financial institutions, 13 (25%) are owned by governments, government agencies, or public corporations, and 16 (30%) are owned by others.

The survey covers general risk management and internal control in relation to the risk management function, as well as practices related to the management of credit, market, and operational risk. Special importance has been accorded to the governance aspect of risk management, particularly the oversight role of the board of directors in this process. Results were evaluated in relation to the risk profiles of banks, their disclosure practices, and relevant practices of bank supervisory authorities with respect to risk management and internal control (see Appendix for the details of survey results).

2. Risk Management within the Banking Organization

This section focuses on how the risk management function is handled within the banking organization, the importance accorded to it by owners and managers, and the institutional environment influencing its effectiveness and efficiency. It gives an overview of systems and practices that cut across the major types of risks faced by banks. These systems and processes include such items as the allocation of resources to risk management activities, governance issues, record-keeping, communications within the organization, and internal audit. The following discussion is divided into two subsections: general risk management and internal control.

General Risk Management

This part of the report provides information on how the banks surveyed performed in four areas: (a) the portion of total employees principally assigned

to risk management in general as well as to the particular areas of credit, market, and operational risk management; (b) the involvement of the board of directors in approving the strategy and major policies of the bank for measuring and managing risk;[1] (c) the frequency of reporting of risk exposure to management; and (d) the frequency with which the bank conducted reviews of risk management procedures.

On average, banks dedicated about 1–5% of their total personnel to risk management tasks, with the greater part assigned to credit risk and smaller portions to market and operational risk. However, a fairly large number of banks assign less than 1% of their personnel to the management of market and operational risk – 54% and 46%, respectively. Banks in the markets surveyed appear to focus their efforts on credit risk, which is taken care of by more than 5% of personnel in the case of 44% of the responding banks.

Responsibility for banks' risk management strategy and major risk management policies is appropriately exercised by the board of directors (rather than bank management) either as a body or through a board committee in about three-fourths of the banks surveyed. This is especially the case with respect to credit risk management strategy and policies, which 82% of responding banks have placed directly under the oversight of directors, while the corresponding figures for market and operational risk are 80% and 74%, respectively.

Management reviews risk exposures at least on a monthly basis for a great portion of banks responding to the survey – 84% in the case of credit risk exposures and 82% in the case of market risk exposures. Operational risk exposures are less frequently reported to management, being reported at least monthly in about 68% of the responding banks. Market risk exposures are generally reviewed more frequently (more than once a month in the case of 48% of the responding banks) than other types of risk exposures.

A majority of the banks surveyed conduct reviews of their risk management procedures on at least an annual basis. However, a significant portion of banks (33%) reviews these procedures less frequently, or not at all. In the area of operational risk management, 27% of banks do not undertake such reviews at all, and another 15% only did so once during the course of the

1. Nachane et al. (2002, p. 11) stress the importance of "centralizing risk management with integrated treasury management to internalize the information synergies on various facets of risk" and thus of having the board of directors be primarily responsible for understanding the risks being run by the bank.

previous three years.

Foreign-owned banks showed better results than domestically owned banks in general, and in particular with respect to the portion of employees assigned to risk management tasks and the frequency of risk exposure reporting to management. Banks owned by families and widely held financial institutions performed slightly better than banks owned by governments and public institutions and those owned by non-financial firms. The relatively high score of family-owned banks reflected the keen interest of owners in exercising control over risk management strategy and policy at the board level. The opposite is true of government-owned banks, which ranked lowest in this particular issue.

Internal Control

This section provides information on how banks' internal control processes measure up to key international standards contained in the framework developed by the Basel Committee on Banking Supervision (Basel Committee, 1998b), henceforth referred to in this paper as the Basel Committee. It provides information on how the banks surveyed performed in five areas, four of which are considered in this section.[2]

- **Management oversight and control culture.** This involves the inclusion of key items related to internal control in the regular tasks of the board of directors (Basel Committee, 1998b, Principle 1, Par 11). Among these items are regular discussions with management concerning the effectiveness of internal control systems; reviews of evaluations of internal controls by management, internal auditors, and external auditors; ensuring prompt follow-ups by management on recommendations and concerns expressed by auditors and supervisory authorities related to internal control weaknesses; and regular reviews of whether the bank's strategy and risk limits are appropriate.

  It also includes the existence of an independent audit committee to assist the board in overseeing the internal control system (Basel Committee, 1998b, Principle 1, Par 12). The purpose of an audit committee overseeing the financial reporting process and the internal control system is to allow detailed examination of information and reports without the need to take up the time of all directors. A properly functioning audit committee

2. The fifth area, *risk recognition and assessment*, is not treated within this section since the rest of the report already deals with this issue on a more detailed basis.

should be composed mainly or entirely of outside directors (i.e., members of the board that are not employed by the bank or any of its affiliates) who have knowledge of financial reporting and internal controls.

- **Control activities and segregation of duties.** These involve all levels of personnel in the bank from senior management to front line personnel. Key activities include top level reviews by boards of directors and senior management of presentations and performance reports enabling them to review progress toward the banks' goals; activity controls at department or division level, where management makes detailed reviews of standard performance and exception reports on a daily, weekly, or monthly basis; and physical controls that generally focus on access to tangible assets, including cash and securities through physical limitations, dual custody, and periodic inventories.

  They include compliance with exposure limits through a process for reviewing compliance with prudent limits on risk exposures and follow-up on instances of non-compliance, as well as requiring approval and authorization for transactions over certain limits to ensure that management at an appropriate level is aware of the transaction or situation, and to establish accountability.

  They also include verifications and reconciliations, including verifications of transaction details and activities and of the output of risk management models used by the bank, periodic reconciliations, especially those comparing cash flows to account records and statements to identify activities and records that need correction, and reporting the results of these verifications to the appropriate levels of management whenever problems or potential problems are detected (Basel Committee, 1998b, Principle 5, Par 24).

- **Information and communication.** This involves the inclusion of key types of data in the record-keeping process, such as internal financial, operational, and compliance data, as well as external market information on events and conditions relevant to decision-making. The record-keeping process should include established procedures for record retention (Basel Committee, 1998b, Principle 7, Par 30).

  It also involves the speed with which information flows upward, downward, and across organizations within the bank. A structure facilitating this communication allows information to flow upward so that the board of directors and senior management are aware of business risks and op-

erating performance of the bank; downward so that objectives, strategies, expectations, policies, and procedures are communicated to lower-level management and operations personnel; and across the organization to ensure that information from one division or department can be shared with others (Basel Committee, 1998b, Principle 9, Par 35).

- **Monitoring activities and correcting deficiencies.** These are indicated by the existence of an independent internal audit department to check whether existing policies and procedures remain adequate. It is important that the internal audit function reports directly to the highest levels (the board of directors or its audit committee and senior management). This ensures the proper functioning of bank governance by giving the board information not biased by the levels of management covered by the reports. The board also needs to reinforce the independence of internal auditors by having their compensation and budgeted resources determined at the highest levels of management rather than by managers who are affected by their work (Basel Committee, 1998b, Principle 11, Pars 40–41).

In general, the banks surveyed have good internal control systems and procedures. As a group, they scored very well in identifying crucial internal control tasks for the board of directors to undertake. In all cases, the boards of directors regularly perform the crucial tasks of discussing with management the effectiveness of internal control systems and concerns regarding internal controls expressed by auditors and supervisory authorities, reviewing the evaluation of internal control whether by management or auditors, and reviewing whether the banks' current risk limits are appropriate.

Banks in the four markets surveyed also scored favorably in organizing control activities and segregation of duties. In all cases, banks require regular performance reports to the board or top management on progress toward strategic goals, as well as approval authorization for transactions over certain limits. Practically all (98%) of the banks undertake periodic inventories of cash, securities, and other tangible assets, 94% have a process to review compliance with risk exposure limits, 88% undertake periodic reconciliations to compare cash flows to account records and statements, and 86% require regular performance and exception reports to department- or division-level management.

Practically all banks include the key types of data in the record-keeping process, which are operational, compliance, and internal financial data, as well as external market information on relevant events and conditions. Banks

from Republic of Korea, Malaysia, and Thailand scored very well with respect to having independent internal audit departments. In almost all banks from these three markets, these departments report directly to the board of directors or the board's audit committee. In the case of Indonesian banks, more than a third (36%) of internal audit committees report to top management instead of the board.

An area of general weakness is the lack of an independent audit committee at the board level to oversee the internal control system. In only 68% of the banks surveyed do employees of the bank or its affiliates not compose the majority in the board of directors.

Larger banks generally tend to have better internal control systems and processes than smaller ones. This is the case especially with respect to practices related to the role of the board of directors, the organization of internal control activities and segregation of duties, the flow of information within the organization, and internal audit systems. Smaller banks show better performance in one area, which is the record-keeping process.

While practices in both foreign and domestic banks are comparable in most areas, foreign banks scored slightly better in two specific areas: having independent audit committees and an adequate flow of information within the organization.

Banks owned by widely held non-financial firms tend to have better systems for internal audit and board oversight of internal control, while family-owned banks tend to have better record-keeping processes and banks owned by financial institutions are better with respect to control activities and segregation of duties. A number of family-owned banks did not have independent audit committees assisting the board in internal control tasks and the flow of information within the organization is slower in the case of government-owned banks.

3. Risk Management in Specific Areas

Banks need to manage specific types of risk arising from their role as financial intermediaries. This section discusses risk management practices in the three areas most relevant to banking organizations, and which constitute the three areas covered by Basel II: credit, market, and operational risk.[3]

3. These risks are defined as follows. Credit risk is the risk of loss arising from default by a creditor or counterparty. Market risk is the risk of losses in trading positions when prices move adversely. Operational risk is the risk of direct or indirect loss from inadequate or failed internal processes, people and systems, or from external events.

Credit Risk Management

Credit risk is obviously the most important type of risk for banks and bank supervisory authorities, and is accorded prominent treatment in the current and new capital accords. This sub-section of the report provides information on how credit risk management practices in the banks surveyed measured up to internationally accepted principles, in particular those developed by the Basel Committee (Basel Committee, 2000b). Specifically, this part of the report provides information on how the banks surveyed performed in three areas.

- **Establishment of an appropriate credit risk management environment.** This can be achieved through written credit policies and procedures related to a number of key items. These include topics such as target markets, portfolio mix, price and non-price terms, the structure of limits, approval authorities, and exception processing and reporting (Basel Committee, 2000b, Principle 2, Par 18.).
- **Operating under a sound credit-granting process.** This involves the consideration of a number of elements in credit granting. Depending on the type of credit exposure and the nature of the credit relationship to date, these elements include the purpose of the credit and sources of repayment; the current risk profile of the borrower or counterparty and collateral; its sensitivity to economic and market developments; and the borrower's repayment history and current capacity to repay, given historical financial trends and future cash flow projections.

  In the case of commercial credits, consideration is ideally given to the borrower's business expertise, the borrower's economic sector, and its position within that sector. Other factors to be included are the proposed terms and conditions of the credit, including covenants designed to limit changes in the future risk profile of the borrower and the adequacy and enforceability of collateral or guarantees under various scenarios, as well as the integrity and reputation of the borrower or counterparty and its legal capacity to assume the liability (Basel Committee, 2000b, Principle 4, Par 28).

  Certain factors are also to be considered when entering into new credit relationships so that a bank can be confident that it is dealing with a reputable and creditworthy individual or organization and avoid association with individuals involved in fraudulent activities and related crimes. To

achieve this, the bank needs to be able to ask for references from known parties, access credit registries, and become familiar with individuals managing a company, checking their personal references and financial condition (Basel Committee, 2000b, Principle 4, Par 29).

A sound credit-granting process also involves the requirement of approval by the board of directors or reporting to the relevant supervisory authority for significant loans to subsidiaries, affiliates, major shareholders, directors, and senior managers (Basel Committee, 2000b, Principle 7, Par 47–48).

- **Maintenance of appropriate credit administration, measurement and monitoring processes.** This involves the regular monitoring of a number of key items related to the condition of individual borrowers and single obligors. These items include the current financial condition of the borrower or counterparty; compliance with existing covenants; collateral coverage relative to the obligor's current condition; and contractual payment delinquencies (Basel Committee, 2000b, Principle 9, Par 55).

  It involves the monitoring of levels of credits in the credit portfolio to specific types of borrowers to avoid concentrations of risk. Such concentrations occur when there are high levels of direct or indirect credits to a single counterparty, a group of connected counterparties, a particular industry or economic sector, a geographic region, an individual foreign country or a group of countries whose economies are strongly interrelated, a type of credit facility, or a type of collateral (Basel Committee, 2000b, Principle 12, Pars 65–66).

  Lastly, the maintenance of appropriate credit administration, measurement, and monitoring processes also involves the inclusion of certain key areas in the process of stress testing to help the bank identify possible events or economic changes that could affect the bank's credit exposures and assess its ability to withstand such changes (Davis, 2003, p. 17). Three areas that banks should examine are economic or industry downturns, market risk events, and liquidity conditions (Basel Committee, 2000b, Principle 13, Par 70).

In general, banks surveyed demonstrated sound credit risk management environments, credit-granting processes, and credit administration, measurement, and monitoring practices. In most cases, written credit policies and procedures covered most, if not all, of the key items recommended by the

Basel Committee, most especially with regard to approval authorities and structure of limits.

In granting credit, banks surveyed generally require an assessment of most or all of the relevant elements. In all cases, banks require an assessment of the purpose of credit, the source of repayment, the borrower's reputation, the enforceability of collateral or guarantees, cash flow projections of the borrower, the adequacy of collateral or guarantees, legal capacity of the borrower to assume liability, and the proposed terms and conditions of credit. In a few cases, banks do not include considerations that would require macro-level analysis, such as an assessment of the sensitivity of the borrower's risk profile to market trends or the situation of the borrower's economic sector.

Requirements for entering into new credit relationships are also robust in general. In all cases, banks required information on the financial condition of the borrower and other information from the individual responsible for managing the borrowing firm. In most cases, banks also included information from credit registries. In a few cases, banks do not require references from known parties for starting a new credit relationship.

Most banks require approval by the board of directors and/or report to the supervisory authority any significant loans to related parties. In some markets, a number of banks neither require board approval nor reporting to the supervisory authority for significant loans to affiliates, major shareholders, and senior managers.

All the banks surveyed perform regular checks on key indicators related to the condition of individual borrowers and single obligors. These include the current financial condition of the borrower or counterparty, compliance with existing covenants, potential problem credits, collateral coverage relative to the obligor's current condition, and contractual payment delinquencies.

Most of the banks surveyed monitor portions of the credit portfolio that may have a major impact on credit risk, especially in the case of high levels of credit to a group of connected counterparties, a single counterparty, or a particular industry or economic sector. A significant minority do not monitor concentrations of credit on a geographic basis, whether by regions or countries. A smaller number do not monitor such concentrations related to a specific type of credit facility or collateral.

In the process of stress testing, a large majority examine the four key areas – economic downturns, market risk events, liquidity conditions, and industry

downturns. However, about a third of banks surveyed do not examine industry downturns, and a fifth on average do not examine the other three areas.

Comparing the four markets surveyed, differences are not significant. Banks from all markets surveyed had virtually similar scores in all aspects of credit risk management practices. The only notable exceptions concern the relatively lower degree of boards of directors' involvement in approving significant loans to third parties and a smaller scope of areas covered by stress testing in the case of Korean banks, compared to banks in other markets.

Foreign banks exhibit better performance in terms of maintaining appropriate credit administration, measurement, and monitoring processes, most especially with regard to stress testing procedures. Domestic banks tend to be more concerned about having an appropriate credit risk management environment through a broader coverage of written credit policies and procedures.

Family-owned banks tend to have the best credit risk management environment and credit-granting process among the banks surveyed. Government-owned banks tend to maintain better credit administration, measurement, and monitoring systems. Banks owned by non-financial firms scored well with respect to the credit-granting process, but did not do as well in the areas of credit risk management environment and credit administration, measurement, and monitoring systems.

Market Risk Management

While credit risk is considered to be the most important type of risk faced by banks, market risk is the area where risk management practices have been more widely developed compared to credit and operational risk, especially in emerging markets (Parrenas, 2003, p. 31). The issues discussed in this sub-section of the survey report draw from the work of the Basel Committee, particularly the 1996 Amendment to the 1988 Basel Capital Accord (Basel Committee, 1998a) and the principles for management and supervision of interest rate risk (Basel Committee, 2003a). The latter is the largest source of market risk losses for banks in both advanced and emerging markets. This part of the report provides information on how the banks surveyed performed in three areas.[4]

4. Internal controls, supervision, and disclosure, which are issues on which the Basel Committee also proposed recommendations to promote robust market risk management, are separately addressed in other parts of this report.

- **Senior management oversight of market risk.** This to ensure that the bank's policies and procedures for managing interest rate risk on both a long-term and day-to-day basis are adequate and that clear lines of authority and responsibility are maintained for managing and controlling this risk. Effective oversight of market risk requires that senior management maintains appropriate limits on risk taking, adequate systems and standards for measuring risk, standards for valuing positions and measuring performance, a comprehensive interest rate risk reporting and management review process, as well as effective internal controls (Basel Committee, 2003a, Principle 2, Par 30).
- **Market risk management policies and procedures.** Robust policies and procedures provide for clear identification and definition of particular elements in the bank's policies and procedures for limiting and controlling market risk. Ideally, policies should be applied on a consolidated basis and at specific affiliates or units, as required. Policies and procedures would have to specify lines of responsibility and accountability over decisions on interest rate risk management. They would have to clearly define authorized instruments, hedging strategies, and position-taking opportunities, as well as quantitative parameters that define the acceptable level of interest rate risk for the bank, in the case of interest rate risk (Basel Committee, 2003a, Principle 4, Par 36).

  Policy statements identifying the types of instruments and activities that the bank may employ should clearly identify permissible instruments, describe the purposes or objectives for which they may be used, and define a clear set of institutional procedures for acquiring specific instruments, managing portfolios, and controlling the bank's aggregate interest rate risk exposure (Basel Committee, 2003a, Principle 4, Par 37).

  In addition, requirements imposed by the board of directors or top management of the bank prior to the introduction of a new product, hedging, or position-taking strategy should include a number of key items. Among these are a description of the relevant product or strategy; identification of resources needed to establish sound and effective interest rate risk management of the product or activity; an analysis of whether the proposed activities in relation to the bank's overall financial condition and capital levels are reasonable; and procedures for measuring, monitoring, and controlling the risks of the proposed product or activity (Basel Committee, 2003a, Principle 5, Par 39).

- **Process of risk measurement, monitoring and control.** This process is indicated by the type of approach currently in use in the bank to calculate market risk capital for various categories.

Scores obtained by banks reflect generally robust market risk management practices in the four markets surveyed. Banks in these markets did best in the area of management oversight, while also scoring well in the area of policies and procedures for market risk management. Risk measurement is an area where there is ample scope for improvement. Table 1 summarizes the responses of the banks in relation to these issues.

Table 1
Market Risk Management Practices: Summary Table

Percentage of banks surveyed where the following items are directly handled or maintained by top management	
Items	%
Formulation of policies and procedures to control/limit market risks	100
Limits on risk taking	100
Market risk reporting and management review process	96
Internal controls	94
Standards for valuing positions and measuring performance	92
Systems/standards for measuring risks	90
Percentage of banks surveyed where the following items are clearly defined and identified in policies and procedures for limiting and controlling market risk	
Items	%
Lines of responsibility and accountability over market risk management decisions	100
Authorized instruments	100
Purposes for which instruments may be used	94
Procedures for acquiring instruments	92
Procedures for managing portfolios	92
Procedures for controlling aggregate market risk exposure	92
Quantitative parameters defining the acceptable level of market risk	90

Position-taking opportunities	80
Hedging strategies	72

Percentage of banks surveyed where the following items are required by the board of directors or top management prior to introduction of a new product, hedging, or position-taking strategy

Items	%
Description of the relevant product or strategy	96
Analysis of whether proposed activities are reasonable given bank's financial condition	92
Procedures for measuring, monitoring, and controlling risks of proposed product	90
Identification of resources required for effective market risk management of product	88

Percentage of banks (out of the total dealing with the following risk categories) using the following approaches to calculate market risk capital for various risk categories

Risk category	*Standardized*	*Internal models*	*Others*
Interest rate	55	42	3
Equity position	58	37	5
Foreign exchange rate	55	42	3
Commodities	45	50	5
Options	44	56	0

In the case of most banks, top management is directly in charge of setting and maintaining management standards and reporting and management processes, systems, and internal controls. A small portion of banks do not include in these areas systems and standards for measuring risks (10%) and standards for valuing positions and measuring performance (8%).

Relevant areas are covered in most banks' policies and procedures for limiting and controlling market risk. In all cases, lines of responsibility and accountability over decisions related to market risk as well as authorized instruments are clearly defined and identified. Most banks also clearly define and identify purposes for which instruments may be used; procedures for managing portfolios, controlling aggregate market risk exposure, and acquiring instruments; and quantitative parameters for acceptable levels of market risk. A significant portion of banks do not have clear definitions of hedging

strategies (28%) and position-taking opportunities (20%) in their policies and procedures.

Most banks maintain robust requirements for the introduction of a new product, hedging, or position-taking strategy. Almost all banks require a description of the relevant product or strategy prior to its introduction. However, a small portion of banks do not require identification of resources required for effective market risk management of the proposed products or activities (12%), market risk management procedures for such products or activities (10%), and analyses of such products and activities in relation to the bank's financial condition and capital levels (8%).

Most banks in the markets surveyed are still using the basic standardized approach to calculate market risk capital. Only 42% of banks are using the more advanced internal models approach with respect to interest rate risk and foreign exchange rate risk, and 37% with respect to equity position risk. For the fewer banks that deal with market risk related to commodities and options, a higher percentage use advanced approaches: 50% in the case of commodities and 56% in the case of options.

Among the banks surveyed, government banks as a group obtained the best scores. They were followed closely by banks owned by financial firms and families, both of which proved to have very good management oversight and robust market risk management policies and procedures, but were not yet quite advanced in the area of risk measurement. There are some indications that banks with low NPL ratios tend to have better market risk management practices.

Operational Risk Management

The measurement and management by banks of operational risk as a distinct risk category is a more recent development compared to credit and market risks. The Basel Committee published the final version of its sound practices for operational risk management, on which this sub-section of the report is based, only in 2003 (Basel Committee, 2003b).[5] This part provides information on how the banks surveyed performed in two key areas covered by the Basel Committee document.[6]

5. Lopez (2002, p. 2) points out that no clearly established single way yet exists to measure operational risk on a firm-wide basis.

6. As in the other risk categories, the issues of supervision and disclosure are dealt with separately elsewhere in the report.

- **Developing an appropriate operational risk management environment.** This may be addressed especially through the management and internal reporting of operational risk as a distinct risk category related to the bank's safety and soundness (Basel Committee, 2003b, Principle 1, Par 12).
- **Operational risk identification, assessment, monitoring and mitigation.** Various alternative processes are commonly used by banks to identify and assess operational risk (Basel Committee, 2003b, Principle 4, Par 25).

  Self- or risk assessment is a process where a bank evaluates operations and activities against a menu of potential operational risk vulnerabilities. It often involves checklists to identify strengths and weaknesses of the operational risk environment.

  Risk mapping is a process where business units, functions, or activities are mapped by risk type.

  Key risk indicators involve the use of statistics and metrics to provide insight into a bank's risk position, which are reviewed periodically to identify changes that may indicate risk concerns. Examples of indicators include staff turnover rates, failed trades, and frequency of errors and omissions.

  Scorecards involve translating qualitative assessments into quantitative metrics to help the bank rank types of operational risk exposures. Scorecards are also used to allocate economic capital to business lines in relation to operational risk management performance.

  Thresholds or limits involve risk indicators – threshold levels in key risk indicators that, when exceeded, alert management to potential problems.

  *Measurement i*nvolves quantifying exposure to operational risk using a variety of approaches, such as the use of data on a bank's historical loss experience, as well as combinations of internal loss data with external loss data, scenario analysis, and qualitative assessment.

  The survey looks at operational risk measurement tools used by banks and gauges the sophistication of these tools to identify and assess operational risks. A study comparing various operational risk methods found scorecards and statistical analysis measuring exposure to be more accurate, though more costly and time consuming than the scalars employed

in self- or risk assessment, risk mapping, key risk indicators, and thresholds or limits (Lawrence, 2000).

The survey also looks at risk management systems and in particular the maintenance by banks of a number of key elements in the identification, assessment, monitoring, and mitigation of operational risk. These include high-level reviews of the bank's progress towards the stated objectives; checks for compliance with management controls; policies, processes, and procedures dealing with non-compliance; and a system of documented approvals and authorizations to ensure accountability within the organization.

They also include appropriate segregation of duties and measures to minimize conflicts of interest; close monitoring of adherence to assigned risk limits or thresholds; safeguards for access to and use of bank assets and records; ensuring staff expertise and training; identifying business lines or products where returns are significantly out of line with reasonable expectations; regular verification and reconciliation of accounts and transactions; and business resumption and contingency plans commensurate with the size and complexity of the bank's operations (Basel Committee, 2003b, Principle 6, Pars 31–34 and Principle 7, Par 42).

In general, operational risk management practices are not as well developed in the region as those for credit and market risk. In a number of banks (19% of those surveyed), operational risk is not managed and internally reported as a distinct risk category.

More accurate and sophisticated operational risk measurement methods such as scorecards (used by 36% of banks surveyed) and statistical analysis measuring exposure (used by 42%) are not as widely used as the simpler but less accurate scalars and benchmarks. The most widely used method is self- or risk assessment (used by 63%), followed by risk mapping (58%), key risk indicators (52%), and thresholds or limits (46%).

Banks surveyed scored satisfactorily in general with respect to risk management systems. Among the key areas where banks performed well are systems for documented approvals and authorization (maintained by 85% of banks surveyed), checks on compliance with management controls (83%), safeguards for access to bank assets and records (81%), regular verification and reconciliation of transactions and accounts (81%), and segregation of duties to address potential conflicts of interest (81%).

Disaster recovery and business continuity plans, as well as policies and procedures concerning the review, treatment, and resolution of non-compliance issues are maintained by 79% of the banks surveyed. Key systems lacking in a number of banks are those for identification of business lines or products where returns are out of line with reasonable expectations (maintained by only 56% of banks surveyed), ensuring appropriate expertise and training for staff (73%), and monitoring adherence to assigned risk limits or thresholds (73%).

There are significant differences in practices among the four markets. While operational risk is managed as a distinct risk category in all of the Malaysian banks surveyed, this is not the case in 31% of the banks in Republic of Korea and 18% in both Indonesia and Malaysia. There are also major differences in the extent of use of more sophisticated operational risk measurement tools, which are used by all of the banks surveyed in the case of Malaysia, but by only 50% in Indonesia, 45% in Thailand, and 8% in Republic of Korea.

Differences were also evident among banks with different types of owners. Family-owned banks proved to have very good operational risk measurement and management systems. Banks owned by financial institutions and governments tend to have good operational risk management systems, but lag behind family banks in the choice of risk measurement tools. Banks owned by widely held firms have the lowest scores in both aspects of operational risk management.

There is a statistically significant positive correlation between profitability (measured in terms of return on assets in 2003) and scores for operational risk management, most especially the use of more sophisticated risk measurement tools.[7]

4. Assessing Overall Risk Management in Banks

Any attempt to quantify the overall risk management practices of a bank for purposes of analysis, taking into consideration its performance in various key areas, would at best provide only a very rough measure. For this report, overall risk management scores have been derived from the scores obtained

7. The resulting value for the Pearson Product-Moment Correlation Coefficient r was found to be statistically significant at $r(49)=0.302$, $p<0.05$ for the overall operational risk management scores and $r(49)=-0.375$, $p<0.05$ with respect to the scores for risk measurement tools.

by banks in the survey for each of the following key components: general risk management; internal control; and credit, market, and operational risk management. These components have been divided into two sub-groups: (a) one composed of the general areas (the former two areas) and (b) and another composed of the special areas of risk management (the latter three areas).[8]

The results show that, overall, banks' risk management practices in the four markets surveyed conform in most part to internationally accepted standards under the current supervisory framework. In general, banks have sound practices in the areas of credit and market risk management, as well as internal control. Areas where practices are not as robust are operational risk management and general risk management, particularly the frequency of reviews of risk management policies and procedures by the boards of directors and top management, the involvement of boards of directors in the risk management process, and adequate dedication of personnel to risk management tasks.

The results also show that domestically and foreign-owned banks do not exhibit significant differences in risk management performance. As a group, foreign banks demonstrated better practices than their domestic counterparts in only one area, which is general risk management. There are slight differences among banks with different types of ownership. Family-owned banks obtained the best overall score, due particularly to consistently good performance in all areas and very good scores in the area of operational risk management. Banks owned by widely held non-financial firms have the lowest overall score, owing to weaknesses in operational and general risk management practices.

Asset size, profitability, and asset quality do not appear to account for any significant differences in overall scores. Better operational and credit risk management is positively correlated with profitability; better market risk

8. These two sub-groups are given equal weight in the computation of the overall score. The score for the special areas' sub-group is based on different weights given to credit risk management (CRM), market risk management (MRM) and operational risk management (ORM) reflecting their relative importance for the safety and soundness of banks. The weights used in this report are based on the KPMG GlobeRisk Survey of current shares of credit, market, operational, and other risks in total risk charge of banks, with some adjustments to apportion among them the small share of "other risks" and to arrive at a relatively simple formula. The weights used for general risk management (GRM) and internal control (IC) within the other subgroup, which are arbitrary, reflect the author's opinion of their relative importance. The formula used in this report for computing the overall score for risk management (RM) is RM = 0.5 (0.6 GRC + 0.4 IC) + 0.5 (0.4 CRM + 0.35 MRM + 0.25 ORM).

management is positively correlated with better asset quality.[9] Larger banks tend to have good internal control, market risk management, and general risk management systems and processes. The results also indicate that banks have improved internal controls in response to the effects of recent negative developments, including the Asian financial crisis, on profitability and asset quality.

5. Risk Management Environment

An assessment of risk management practices of banks in different markets requires some consideration of the environment affecting these practices. In this section of the report, three major factors are considered: banks' risk exposure, public disclosure practices related to risk exposure (which are assumed to affect the extent to which market discipline mechanisms work), and supervision of risk management practices and of internal controls.

Risk Exposure

Because different banks, especially across jurisdictions, face different levels of risks based on many factors, including size, the markets they serve, complexity, and geographical scope of operations, among others, risk management requirements among them also differ. These differences need to be taken into consideration in comparing the soundness and quality of risk management practices.

The indicators used in this section focus heavily on factors that are largely related to credit risk, the most important risk faced by banks and the largest component of banks' risk charges. As indicators of other types of risks (especially market and operational risks) have not been included due to time limitations, this report provides only a rough indication of the levels of risk faced by banks. This part of the report provides information on four key factors affecting banks' credit risk exposure:

- **concentration of business lines**, the percentage of total revenues derived from various businesses (including retail, private, commercial and invest-

9. There are some indications that banks with low NPL ratios tend to have better market risk management practices. Computing for the Pearson Product-Moment Correlation Coefficient r, the resulting value was found to be statistically significant at $r(49)=-0.284$, $p<0.05$ with respect to the scores on clear identification and definition of particular key elements in the bank's policies and procedures for limiting and controlling market risk and almost statistically significant at $r(49)=-0.252$, $p>0.05$ with respect to the overall score for market risk management and $r(49)=-0.207$ with respect to risk measurement.

ment banking, and card services);

- **concentration of markets for lending**, the percentage of total corporate lending revenues derived from key markets (including global multinational firms, local multinationals, large local firms, medium-sized local firms, and small businesses);
- **riskiness of banks' borrowers**, the portion of medium and large corporate clients with sub-investment grade credit ratings and the portion of such clients that have no credit ratings; and
- **riskiness of banks' lending practices**, the percentage of total loans given to customers with lending relationships of less than a year, the percentage of total loans that is instructed by government policies, and the percentage of total loans that are given to the top 50 borrowers of the bank.

Survey results show that overall on average, banks face medium risks. These arise from a combination of low risks associated with lending practices and medium to high risks associated with borrowers and over-dependence on specific business activities and markets. In a majority (59%) of the banks surveyed, less than 30% of the loans were provided to customers with lending relationships lasting less than a year. Government-directed lending made up only 7% of banks surveyed; whereas loans to the 50 largest borrowers were made in only 35% of these banks.

A significant source of risk is the high proportion of borrowers without credit ratings issued by any of the global and local rating agencies.[10] In the case of more than half (56%) of banks surveyed, more than three-fourths of large and medium-sized corporate clients are unrated. This is notably less of a problem in the case of Republic of Korea and Malaysia, which have more developed bond markets. For the rated clients, banks prefer to lend to firms with investment grade ratings (23% of these banks had such firms composing more than half of medium and large borrowers, as opposed to only 4% of banks where the majority of borrowers were rated below investment grade).

Other notable sources of risk are the concentration of activities in certain business lines and concentration of lending to large firms. Of the banks surveyed, 35% derive more than half of their revenues from one business line

10. Espenilla (2003, p. 35) cites the limited credibility among investors of local rating agencies, which many local corporations turn to when issuing local currency bonds in developing Asian economies, as a problem related to this.

apart from retail banking. Of these banks, 17% derive more than half of their corporate lending revenues from large local firms. Two-thirds (67%) of these banks derive more than a quarter of such revenues from large firms, both local and foreign. In contrast, small businesses make up more than a quarter of lending revenues for less than half (46%) of the banks surveyed.

There are some variations among the different markets. In Malaysia, 50% of banks surveyed derived more than half of corporate lending revenues from large local firms, while government-directed lending exceeded 30% of total lending in half of banks surveyed. Among banks in Republic of Korea, lending is quite diversified – only in 7% of the banks surveyed did loans to large corporations exceed 25% of total loans, while loans to small and medium enterprises exceeded 25% of loans in 77% of Korean banks and exceeded half of all loans in 46% of these banks.

Only 27% of Korean banks surveyed engaged in government-directed lending involving more than 10% of total loans, and in no case did this figure exceed 30%. Less than half (46%) of the banks provided more than 10% of total loans to their 50 largest borrowers, and none of these loans exceeded 30%.

More than half of Thai banks surveyed concentrate their activities on a single business line other than retail banking. In 82% of these banks, unrated borrowers account for more than a quarter of medium and large corporate clients. This latter problem is shared by 72% of Indonesian banks surveyed, which in most other areas face only medium risks.

There is a statistically significant negative correlation between size and risk – larger banks tend to have lower risks.[11] The principal contributing factor to this appears to be the fact that larger banks are more diversified in their business activities. They are also able to lend to a wider range of clients, as reflected in the scores for these items. However, smaller banks do not significantly lag behind their larger counterparts in lending practices, thus the difference on average is small.

Foreign-owned banks clearly face lower risks than their domestic counterparts, especially with respect to lending practices as well as to concentration of activities in single business lines, where domestic banks' risks are high.

Overall average risk levels are similar for banks with different types of own-

11. Computing for the Pearson Product-Moment Correlation Coefficient r, the resulting value was found to be statistically significant at $r(49)=-0.371$, $p<0.05$.

ership. Most face medium risks in various areas, except for banks owned by widely held non-financial firms, which face higher risks due to high proportions of unrated borrowers but lower risks in all other areas. Family-owned and government-owned banks face higher risks in one area – concentration of lending to large firms in the case of family banks and concentration of activities in certain business lines in the case of government banks. Banks owned by financial institutions tend to face lower risks with respect to lending practices.

There is a statistically significant positive correlation between profitability and banks' risk exposure,[12] primarily accounted for by risks related to concentration of business activities and to a lesser extent to concentration of lending.

Public Disclosure Related to Risk Exposure

Public disclosure serves to strengthen the role of market discipline in ensuring capital adequacy and promoting sound risk management practices among banks.[13] For this reason, the Basel Committee has published recommendations on best practices for credit risk disclosure (Basel Committee, 2000a) and incorporated public disclosure requirements into the New Basel Capital Accord (Basel Committee, 2004). This part provides information on three key factors affecting the banks' public disclosure related to risk exposure:

- **frequency of disclosure of risk exposure reports:** public disclosure of such reports for the benefit of investors with respect to market and credit risk during the last three years (Basel Committee, 2000a, Section 2, Par 11);
- **existence of formal disclosure policies:** policies approved by the board of directors that address the bank's approach for determining what disclosures it will make and the internal controls over the disclosure process (Basel Committee, 2004, Par 821); and

12. Computing for the Pearson Product-Moment Correlation Coefficient r, the resulting value was found to be statistically significant at $r(49)=-0.290$, $p<0.05$.

13. Caruana (2003, p. 3) sums up the process whereby disclosure leads to effective market discipline as follows: "When investors, customers and even other banks have access to better information on how well a bank manages its risks, they are better able to make business and investing decisions relevant to that bank, which can create a powerful incentive for bank management to improve their handling of those risks."

- **extent and content of current public disclosures related to credit and market risk:** inclusion of key elements recommended by the Basel Committee in regular public disclosures related to credit risk exposures, such as strategies and processes; structure and organization of the risk management function; the scope and nature of measurement systems and risk reporting; policies for hedging or mitigating risk and strategies and processes for monitoring the continuing effectiveness of hedges or mitigants; information about overall credit exposure; the specific nature of the exposures; and the means of capital assessment and data to assess the reliability of the information disclosed (Basel Committee, 2004, Pars 824–825 and Table 1).

The New Basel Capital Accord also involves the inclusion of similar key elements in regular public disclosures related to market risk exposures for the use of either the standardized approach or the internal models approach for measuring market risk. Specific additional disclosures for banks using the standardized approach include the capital requirements for interest rate risk, equity position risk, foreign exchange risk and commodity risk.

For banks using the internal models approach for trading portfolios, disclosures ideally include the characteristics of the models used, a description of stress testing applied to the portfolio, a description of the approach used for backtesting and validating the accuracy and consistency of the internal models and modelling processes, and the scope of acceptance by the supervisor. For trading portfolios under the internal models approach (IMA) they should include the high, mean, and low VaR values over the reporting period and period end as well as a comparison of value-at-risk (VaR) estimates with actual gains/losses experienced by the bank, with analysis of important "outliers" in backtest results (Basel Committee, 2004, Par 824 and Tables 9–10).

The survey results indicate that the current level of banks' public disclosure related to their risk exposure leaves much to be desired. About 31% of the total banks surveyed do not have formal disclosure policies. A significant portion of these banks (27% with respect to market risk and 20% with respect to credit risk) have not publicly disclosed risk exposure reports for the benefit of investors during the past three years.

Regarding the content of banks' public disclosure, these included on average only about half of the key elements recommended by the Basel Committee for regular public disclosures related to banks' credit and market risk exposures.

The five most commonly disclosed items of information related to credit risk are:

- risk management strategies and processes,
- structure and organization of the bank's credit risk function,
- bank's definitions of past due and impaired,
- scope and nature of risk reporting and measurement systems, and
- amount of impaired and past due loans by counterparty type or industry.

The five least commonly disclosed in this area are:

- amount of impaired and past due loans broken down by significant geographical areas,
- geographic distribution of exposures,
- total gross credit risk exposure and average gross exposure over the period broken down by major types of credit exposure,
- charges for specific allowances and charge-offs during the period by counterparty type or industry, and
- policies for hedging and mitigating credit risk.

The three most commonly disclosed items of information related to market risk for banks using the standardized approach are:

- risk management strategies and processes,
- structure and organization of the risk management function, and
- scope and nature of risk reporting and measurement systems.

For banks using the internal models approach, these are:

- risk management strategies and processes,
- scope and nature of risk reporting and measurement systems, and
- portfolios covered, as well as the aggregate value-at-risk of the trading portfolio.

The three least commonly disclosed items of information related to market

risk for banks using the standardized approach are:

- strategies and processes for monitoring the effectiveness of hedges and mitigants,
- policies for hedging and mitigating market risk, and
- portfolios covered.

For banks using the internal models approach, these are:

- strategies and processes for monitoring the effectiveness of hedges and mitigants,
- description of the approach used for backtesting or validating the accuracy and consistency of the internal models and modeling processes, and
- comparison of value-at-risk estimates with actual outcomes and analysis of important outliers in the backtest results.

The most commonly disclosed item related to credit risk was disclosed by 67% of the banks surveyed, while the least disclosed was disclosed by only 31%. In the case of market risk disclosures, the most commonly disclosed item was included by 75% of those using the standardized approach and 62% of those using the internal models approach, and the least disclosed item by 41% and 38%, respectively.

A comparison of the four markets reveals significant differences. All Malaysian banks surveyed have formal disclosure policies and relatively high levels of disclosure in the area of market risk, though less frequent public disclosure of risk exposure reports and low levels of disclosure in the area of credit risk. Korean banks displayed low frequencies of public disclosure and low levels of disclosure for credit and market risk. Thai banks scored relatively high in frequency of public disclosure, but have low levels of disclosure related to market risk, as did Indonesian banks.

Foreign- and domestically owned banks do not exhibit significant differences with respect to disclosure. Foreign-owned banks disclosed information more frequently than did their domestically owned counterparts, but disclosed less information with respect to both credit and market risk.

Comparing banks with different types of ownerships, all categories obtained mediocre scores for disclosure, with banks owned by widely held nonfinancial firms lagging considerably behind. Family- and government-owned

banks obtained the best scores, followed by banks owned by financial institutions.

Supervision of Risk Management Practices and Internal Control Systems

Bank supervisory authorities play an important role in promoting robust risk management practices among banks. Comparisons of these practices across jurisdictions need to take into consideration the quality of bank supervision. This section discusses how bank supervision in the markets surveyed measure up to key international standards related to general banking supervision (Basel Committee, 1997) and supervision of internal control systems (Basel Committee, 1998c) by the Basel Committee. Specifically, this sub-section of the report provides information on three key items.

- **Adequacy of supervisory oversight of banks' risk management techniques and procedures:** frequency of inspection by supervisors of banks' risk management techniques and procedures (Basel Committee, 1997). In most markets in the region – both advanced and emerging markets – most banks' risk management techniques and procedures come under review by the supervisory authorities at least on a yearly basis, as revealed by the ABA/PECC 2003 survey on the regulatory and business environment for risk management practices in the Asia-Pacific's banking sector (Parrenas, 2003).
- **Adequacy of supervisory oversight of risk exposures:** frequency of reporting of risk exposure as part of regulatory requirements for market and credit risk (Basel Committee, 1997). In the region's advanced markets, most banks report market and credit risk exposure as part of regulatory requirements on a quarterly basis, and more frequently in the case of emerging market banks, as revealed by the ABA/PECC 2003 survey on the regulatory and business environment for risk management practices in the Asia-Pacific banking sector (Parrenas, 2003).
- **Quality of supervision of internal control systems:** inclusion of key elements recommended by the Basel Committee in the process of routine on-site examination conducted by bank supervisors, or external auditors if such on-site examinations are not conducted by the former. These include identification of internal control objectives that are relevant to the unit or activity under review; the evaluation of the effectiveness of the internal control elements through reviews of documentation, discussions

> of operations with various levels of bank personnel, observations of the operating environment, and testing of transactions; sharing of supervisory concerns about internal controls and recommendations for their improvement with the board of directors and management on a timely basis; and undertaking of corrective action in a timely manner (Basel Committee, 1998c, Principle 14, Par 47).

The survey results show that supervision of risk management and internal control systems conform to internationally accepted standards in most ways in most of the markets surveyed. On average, bank supervisors proved to be diligent in supervising banks' risk management techniques and procedures as well as their internal control systems. Two-thirds (68%) of the banks surveyed reported their risk management techniques and procedures being inspected annually or more frequently. More than three-fourths (76%) reported bank supervisors including six out of seven key elements in their examination of internal control systems.

However, a large proportion of banks surveyed do not submit risk exposure reports (40% in the case of market risk and 44% in case of credit risk) as part of regulatory requirements as frequently as the norm, which is 5–12 times a year.

Assessing the relationship between bank supervision scores and banks' risk management scores, statistically significant positive correlations were found for banks' internal control systems, general risk management, and market risk management practices.[14] The results imply that more diligent bank supervision in these markets tended to result in improvements in these areas, but not in credit and operational risk management practices. This is especially the case with supervision of risk measurement systems, which require specialist expertise to adequately review the quality of these practices.[15]

6. Banks' Responses to the Basel II Framework

The concept of risk-weighted capital adequacy became a global standard with the 1988 Basel Capital Accord – the current framework – which introduced uniformity in capital measurement. This framework, however, proved

14. Computing for the Pearson's r, results are as follows: 0.31623, $p<0.05$ for general risk management scores, 0.379215, $p<0.05$ for internal control scores, and 0.280503, $p<0.05$ for market risk management scores.

15. Palmer (2003) stresses the importance of such specialist expertise for bank supervisory authorities as they move from rule-based to risk-based supervision.

to be ineffective in promoting sound risk management practices (Golin, 2001, p. 30).[16] Consequently, the Basel Committee moved to revise the framework.

The current framework of Basel II requires the setting of a regulatory minimum for capital, which is part of a more elaborate three-pillar structure that includes enhanced supervisory review of banks' assessments of their own capital adequacy and additional public disclosure of bank risk profiles. It introduces a flexible and incentive-compatible menu-based approach that encourages banks to adopt risk-sensitive risk measurement and management systems, thus putting capital requirements more in line with underlying risks, while retaining the overall level of regulatory capital.

In measuring the riskiness of assets to determine the minimum capital requirement, Basel II adds operational risk to credit and market risk with a view to reflecting the broader set of risks involved in the operations of banks. It proposes a menu of approaches for measuring credit and operational risk[17] from which banks could choose and providing incentives for large and complex organizations to migrate to the more advanced approaches.

There are alternative approaches to measuring credit risk under Basel II. The *standardized* approach is a modified version of the current framework's method for measuring credit risk according to a risk weighting schedule. It has been refined by linking risk weights to ratings given to different categories of borrowers (e.g., sovereigns, financial institutions, corporations) by external credit assessment institutions, such as credit rating agencies and export credit agencies that meet certain standards.

Basel II introduces the use of banks' own internal ratings through the *internal ratings-based* (IRB) approach. Under this approach, banks are allowed to use their own assessments of various risk components associated with exposure to calculate minimum capital requirements, subject to supervisory approval and review and to strict disclosure requirements. Under the *foun-*

16. The accord attempted to link the capital that banks must set aside with risks that they are running. Ideally, banks should increase their holdings of capital as the riskiness of their assets increase. This, however, was not achieved effectively for two major reasons. First, the rules did not sufficiently discriminate between different levels of risk, and at times rewarded risky lending. Second, the growing sophistication of risk management has increasingly enabled banks to structure portfolios in ways that circumvent the capital standard.

17. The alternative approaches to measuring market risk remain the same under Basel II as in the current framework.

dation version of this approach (FIRB), the bank estimates the probability of default associated with each borrower and the supervisor supplies other inputs, while under the *advanced* version (AIRB), the bank supplies other inputs in addition to those already specified in the former.[18]

With respect to operational risk, Basel II provides three alternative approaches. The *basic indicator* approach uses one indicator of operational risk for a bank's total activity. The *standardized* approach specifies different indicators for different business lines. The *advanced measurement* approach (AMA) requires banks to utilize their internal loss data to estimate required capital.

The process of drawing up Basel II to replace the current capital adequacy framework has stimulated efforts by banks to upgrade their risk measurement and management systems in anticipation of the eventual implementation of the new accord. This section of the report discusses the extent to which risk measurement approaches may be expected to improve, as well as the challenges faced by banks in undertaking such improvements.

The survey results confirm the conclusions of earlier studies that Asian banks are taking up the challenge of Basel II, particularly with respect to the use of more sophisticated risk measurement approaches. While a majority of banks surveyed currently plan to adopt the most basic approaches provided for under Basel II, a large portion intend to adopt the more sophisticated approaches (see Table 2).

Table 2

Risk Measurement under Basel II: Choice of Approaches (% of total responses)

Market	Credit Risk				Market Risk			Operational Risk			
	Std	FIRB	AIRB	DK	Std	IM	DK	BI	Std	AMA	DK
Indonesia	50	14	22	14	71	25	4	40	23	14	23
Republic of Korea	27	33	40	0	38	46	16	7	43	43	7
Malaysia	50	17	33	0	50	50	0	33	33	17	17
Thailand	72	9	19	0	42	50	8	18	73	0	9
All banks	**48**	**18**	**28**	**6**	**55**	**38**	**7**	**26**	**40**	**19**	**15**

18. Basel II does not yet allow a full models regime, where banks can use their own credit risk models, until such time that problems with regard to data quality and the ability of banks and supervisors to validate model outputs have been sufficiently addressed, as argued by Ferguson (2003).

Notes:

Credit risk: **Std**: standardized; **FIRB**: foundation IRB; **AIRB**: advanced IRB; **DK**: don't know

Market risk: **Std**: standardized; **IM**: internal models; **DK**: don't know

Operational risk: **BI**: basic indicator; **Std**: standardized; **AMA**: advanced measurement; **DK**: don't know

In the case of credit risk, almost half of the banks surveyed (46%) indicated their preference for either the foundation internal ratings-based approach (FIRB) or its more advanced version (AIRB). In the case of market risk, over a third (38%) plan to use the internal models approach. In the case of operational risk, only 26% expect to adopt the basic indicator approach, with the largest portion (40%) opting for the intermediate alternative (the standardized approach) and 19% for the advanced measurement approach.

Korean and Malaysian banks are the most enthusiastic adherents of the more risk-sensitive approaches. In the case of Korean banks, the largest portion of banks surveyed are opting for the most advanced approaches (40% choosing AIRB for credit risk, 46% choosing IM for market risk, and 43% choosing AMA for operational risk). Half of Malaysian banks surveyed indicated that they will be using the IRB approach (either foundation or advanced version) for credit risk and the IM approach for market risk.

Even in the case of Indonesian and Thai banks, a significant if smaller portion are preparing to adopt the more sophisticated risk measurement options. More than a third (36%) of Indonesian banks are opting for the IRB approach for credit risk and 25% will be using the IM for market risk. In the case of Thai banks, 28% will be using the IRB for credit risk, and the majority are preparing to use IM for market risk.

Table 3

Expected Date of Completion of Basel II Preparations

(% of total responses)

Market	2004	2005-2006	After 2006
Indonesia	10	20	70
Republic of Korea	0	58	42
Malaysia	17	83	0
Thailand	0	55	45
All banks	**6**	**45**	**49**

About half (51%) of the banks surveyed have either completed or expect to complete their preparations for measuring credit, market, and operational risk according to Basel II requirements before the starting date of its implementation in early 2007. Malaysian banks are the most advanced in this respect, with about 17% already having finished their preparations in 2004 and with all banks expecting to reach completion before the starting date for Basel II implementation. However, almost half of the banks surveyed do not expect to complete their preparations by the end of 2006. In the case of Indonesian banks, a large majority (70%) have indicated that they will not be ready to implement Basel II requirements by 2006 (see Table 3).

Availability of data, which is crucial in evaluating the robustness of banks' loss estimates (Fitch Ratings, 2004), is the most significant resource constraint faced by banks in implementing Basel II requirements. Technology is a second resource issue. These are major issues in the areas of credit and operational risk. Funding is the resource that is seen as most adequate, followed by staffing. Market risk is the least difficult area, as Basel II will not be introducing any changes to the current framework already being used to measure market risk.

Table 4

Adequacy of Resources for Basel II Preparations

(% of positive responses - % of negative responses)

Market	Credit Risk				Market Risk				Operational Risk			
	S	F	T	D	S	F	T	D	S	F	T	D
Indonesia	10	54	-10	-18	18	46	10	18	0	46	-10	-10
Republic of Korea	66	34	16	-34	66	34	34	16	34	34	16	-34
Malaysia	100	100	0	34	100	100	66	100	66	100	0	0
Thailand	46	60	-20	-40	60	60	20	0	40	60	-20	-40
All banks	**42**	**62**	**- 4**	**-20**	**52**	**68**	**30**	**30**	**26**	**64**	**0**	**-16**

Note: S (staffing), F (funding), T (technology), and D (data availability)

Comparing the four markets, Malaysian and Korean banks see themselves as having the most adequate resources. In the case of Malaysian banks, funding is seen as adequate by all banks for all risk categories and staffing is also seen as such for both credit and market risk. Korean banks have the highest number of areas where a larger number judge resources to be adequate. These include technology for both credit and operational risk, which are seen as constraints by banks in other markets. Unlike their counterparts in other markets, Thai banks face resource constraints in data for market risk

measurement, while Indonesian banks face problems in availability of qualified staff in the area of operational risk (see Table 4).

7. Conclusions

Generally speaking, banks' risk management practices in the four markets surveyed conform for the most part to internationally accepted standards under the current supervisory framework. Overall, these banks have sound practices in the areas of credit and market risk management, as well as internal control. In the area of operational risk, banks' practices leave much to be desired. General risk management, which includes regular reviews of risk management policies and procedures by the board of directors and top management, the involvement of boards of directors in the risk management process, and adequate dedication of personnel to risk management tasks, is another area that needs improvement.

The results also show that domestically and foreign-owned banks do not exhibit significant differences in risk management performance. Foreign banks' practices are better than their domestic counterparts in only one area, which is general risk management. There are slight differences among banks with different types of ownership. Family-owned banks obtained the best overall score, due particularly to consistently good performance in all areas and very good scores in the area of operational risk management. Banks owned by widely held non-financial firms have the lowest overall score, owing to weaknesses in operational and general risk management practices.

Asset size, profitability, and asset quality do not appear to account for any significant differences in overall scores. However, profitable banks tend to have better operational risk management practices and banks with better market risk management have better asset quality.

Survey results show that on average, banks face medium risks. These arise from a combination of low risks associated with lending practices and medium to high risks associated with borrowers and over-dependence on specific business activities and markets. Loans to customers with lending relationships of less than a year as well as concentration of loans to the largest borrowers were significant for a third of banks surveyed. Only in a few banks did government-directed lending reach significant levels.

In Malaysia, half of banks surveyed derived more than half of corporate lending revenues from large local firms, while government-directed lending exceeded 30% of total lending in a similar number. Among banks in Repub-

lic of Korea, government-directed lending, as well as lending to the 50 largest borrowers, is limited.

More than half of Thai banks surveyed concentrate their activities on a single business line other than retail banking and in the case of most banks, unrated borrowers account for more than a quarter of medium and large corporate clients. This latter problem is shared by most of Indonesian banks surveyed, which in most other areas face only medium risks.

Larger banks tend to have lower risks as a result of more diversified business activities and their ability to lend to a wider range of clients. Smaller banks do not lag significantly behind their larger counterparts in lending practices, thus the difference on average is small.

Foreign-owned banks clearly face lower risks than their domestic counterparts, especially with respect to lending practices and to concentration of activities in a single business line, where domestic banks' risks are high.

Overall average risk levels are similar for banks with different types of ownership. Most face medium risks in various areas, except for banks owned by widely held non-financial firms, which face higher risks due to high proportions of unrated borrowers but lower risks in all other areas. Family- and government-owned banks face higher risks in one area: concentration of lending to large firms in the case of family banks and concentration of activities in certain business lines in the case of government banks. Banks owned by financial institutions tend to face lower risks with respect to lending practices.

Profitable banks were found to have higher risks, primarily due to higher concentration of business activities and lending to fewer large firms. No significant relationship was found between risk exposure and asset quality.

The survey results indicate that the current level of banks' public disclosure related to their risk exposure leaves much to be desired. A significant portion of these banks (31% of the total banks surveyed) do not have formal disclosure policies. Another significant portion (27% with respect to market risk and 20% with respect to credit risk) has not publicly disclosed risk exposure reports for the benefit of investors during the past three years.

Regarding the content of banks' public disclosure, these included on average only about half of the key elements recommended by the Basel Committee for regular public disclosures related to banks' credit and market risk exposures.

A comparison of the four markets reveals significant differences. All Malaysian banks surveyed have formal disclosure policies and relatively high levels of disclosure in the area of market risk, though less frequent public disclosure of risk exposure reports and low levels of disclosure in the area of credit risk. Korean banks displayed low frequencies of public disclosure and low levels of disclosure for credit and market risk. Thai banks scored relatively high in frequency of public disclosure, but have low levels of disclosure related to market risk, as did Indonesian banks.

Foreign- and domestically owned banks do not exhibit significant differences with respect to disclosure. Foreign-owned banks disclosed information more frequently than did their domestically owned counterparts, but disclosed less information with respect to both credit and market risk.

Comparing banks with different types of ownerships, all categories obtained mediocre scores for disclosure, with banks owned by widely held nonfinancial firms considerably lagging behind. Family- and government-owned banks obtained the best scores, followed by banks owned by financial institutions. Asset size, profitability, and asset quality did not show any significant impact on scores for public disclosure as far as the survey is concerned.

The survey results show that supervision of risk management and internal control systems conform to internationally accepted standards in most ways in most of the markets surveyed. On average, banks' risk management techniques and procedures, as well as internal control systems, are adequately supervised, but a large proportion of banks surveyed do not submit risk exposure reports frequently enough as part of regulatory requirements. Two-thirds of the banks surveyed reported their risk management techniques and procedures being inspected annually or more frequently. More than three-fourths of bank supervisors reported six out of seven key elements in their examination of internal control systems.

Banks that are effectively supervised tend to have better internal control systems, general risk management, and market risk management practices. The results imply that more diligent bank supervision in these markets tended to result in improvements in these areas, but not in credit and operational risk management practices.

The survey results confirm the conclusions of earlier studies that Asian banks are taking up the challenge of Basel II, particularly with respect to the use of more sophisticated risk measurement approaches. While a majority of

banks surveyed currently plan to adopt the most basic approaches provided for under Basel II, a large portion intend to adopt the more sophisticated approaches.

In the case of credit risk, half of the banks surveyed indicated their preference for either the foundation internal ratings-based approach (FIRB) or its more advanced version (AIRB). In the case of market risk, over a third plan to use the internal models approach (IM). In the case of operational risk, only 26% expect to adopt the basic indicator approach, with the largest portion opting for the intermediate alternative (the standardized approach) and a significant number for the advanced measurement approach (AMA).

Korean and Malaysian banks are the most enthusiastic adherents of the more risk-sensitive approaches. In the case of Korean banks, the majority of banks surveyed are opting for the most advanced approaches (AIRB for credit risk, IM for market risk, and AMA for operational risk). Half of Malaysian banks surveyed indicated that they will be using the IRB approach (either foundation or advanced version) for credit risk and the IM approach for market risk.

Even in the case of Indonesian and Thai banks, a significant if smaller portion are preparing to adopt the more sophisticated risk measurement options. More than a third of Indonesian banks are opting for the IRB approach for credit risk and a quarter will be using the IM for market risk. In the case of Thai banks, more than a quarter will be using the IRB for credit risk, and the majority is preparing to use IM for market risk.

About half of the banks surveyed have either completed or expect to complete their preparations for measuring credit, market, and operational risk according to Basel II requirements before the starting date of its implementation in early 2007. Malaysian banks are the most advanced in this respect, with a number already having finished their preparations in 2004 and all banks expecting to reach completion before the starting date for Basel II implementation.

However, almost half of the banks surveyed do not expect to complete their preparations by the end of 2006. In the case of Indonesian banks, a large majority have indicated that they will not be ready to implement Basel II requirements by 2006.

Availability of data and technology are the main resource constraints faced by banks in implementing Basel II requirements. These are major issues in

the areas of credit and operational risk. Funding is the resource that is seen as most adequate, followed by staffing. Market risk is the least difficult area, as Basel II will not be introducing any changes to the current framework already being used to measure market risk.

Malaysian and Korean banks have the most adequate resources. For Malaysian banks, funding is judged to be adequate for all risk categories and staffing is also seen as such for both credit and market risk. Korean banks have the highest number of areas where a larger number judge resources to be adequate. These include technology for both credit and operational risk, which is seen as a constraint by banks in other markets. Unlike their counterparts in other markets, Thai banks face resource constraints in data for market risk measurement, while Indonesian banks face problems in availability of qualified staff in the area of operational risk.

One may conclude from these results that, in the area of risk management, banks in these four markets have in general learned valuable lessons from the Asian financial crisis. Risk management practices in the areas of credit and market risk seem to be adequate to the levels of risk that banks are facing at the moment under current regulatory frameworks. Much, however, must still be done to address gaps in particular markets, strengthen operational risk management, and more closely integrate risk management into the overall governance and management of banks.

In general, supervisory authorities have been diligent in the performance of their tasks with respect to risk management and internal controls under the current regulatory framework. However, the effectiveness of supervision has been limited, especially in promoting more robust management of credit risk, which is the most important risk faced by banks. This underscores the importance of disclosure as a way to strengthen the role of market discipline. Much improvement is still needed in this area, as public disclosure practices related to risk exposure of banks in the four markets are generally well below internationally accepted standards.

Banks are responding very positively to the challenge of Basel II, seeing it as an opportunity to move toward more robust risk measurement and management practices. However, this serves to raise the challenges for both banks and regulators to a much higher level, as they not only have to address the issues previously described, but also the resource constraints involved to ensure the effective implementation of the new accord.

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Appendix

Survey Result on Risk Management Practices of Banks in Asia

Questions	Responses	Indonesia	Republic of Korea	Malaysia	Thailand
Number of Surveyed Banks		22	13	6	11
I. Key Information Related to Risk Exposure					
1. How much did the following business lines account for in the bank's revenues last year?					
(1) Retail banking	Less than 25%	4	3	2	5
	25–50%	5	5	1	6
	More than 50%	9	3	3	0
(2) Private banking	Less than 25%	11	10	4	8
	25–50%	2	1	0	1
	More than 50%	2	0	0	0
(3) Other commercial banking	Less than 25%	9	3	2	0
	25–50%	8	5	3	5
	More than 50%	2	3	1	6
(4) Credit cards	Less than 25%	10	9	6	9
	25–50%	0	2	0	0
	More than 50%	1	0	0	0
(5) Investment banking	Less than 25%	8	9	4	10
	25–50%	4	1	1	1
	More than 50%	2	0	1	0
2. How much did the following markets account for in the bank's corporate lending revenues last year?					
(1) Global MNCs	Less than 25%	8	6	5	8
	25% or more	0	0	1	1
(2) Locally-owned MNCs	Less than 25%	8	6	3	7
	25% or more	3	0	3	0
(3) Large local firms	Less than 25%	3	10	0	2
	25–50%	10	1	3	4
	More than 50%	3	0	3	3
(4) Medium-sized local firms	Less than 25%	6	1	2	6
	25–50%	7	7	2	1
	More than 50%	4	3	2	2
(5) Small businesses	Less than 25%	7	2	3	7
	25–50%	6	7	3	1
	More than 50%	5	2	0	0

3. What portion of your medium-sized to large corporate clients are unrated, or rated investment or sub-investment grade by global or local credit rating agencies?					
(1) Rated investment-grade	Less than 25%	12	1	2	7
	25–50%	1	2	2	1
	50–75%	1	3	2	0
	75–100 %	2	4	0	0
(2) Rated sub-investment grade	Less than 25%	12	5	2	7
	25–50%	0	4	3	0
	50% or more	0	1	1	0
(3) Unrated	Less than 25%	0	7	4	0
	25–50%	0	0	0	1
	50–75%	3	1	0	1
	75–100 %	16	3	1	9
4. What is the fraction of your bank's lending that has the following feature?					
(1) Lending to customers with lending relationship for less than a year	Less than 10%	7	0	3	4
	10–30%	4	1	1	6
	30–50%	6	1	1	0
	More than 50%	1	8	1	0
(2) Lending to customers with lending relationship for more than 3 years	Less than 10%	4	6	0	0
	10–30%	6	3	3	5
	More than 30%	7	1	3	5
(3) Lending to customers with lending relationship for more than 5 years	Less than 10%	8	6	0	1
	10–30%	2	3	0	3
	More than 30%	7	1	5	6
(4) Lending that is instructed by government policies	Less than 10%	11	6	2	8
	10–30%	1	3	1	0
	More than 30%	1	0	3	0
(5) Lending to the public sector	Less than 10%	10	9	2	10
	10–30%	4	0	1	0
	More than 30%	1	0	3	0
(6) Of the lending to the public sector, the fraction that is instructed by government policies	Less than 10%	10	8	3	5
	10–30%	0	1	0	0
	More than 30%	1	0	3	1
(7) Lending to the private sector	Less than 50%	4	1	1	0
	50–70%	4	0	0	1
	More than 70%	10	8	5	9
(8) Of the lending to the public sector, the fraction that is instructed by government policies	Less than 10%	7	6	2	6
	10–30%	1	2	0	0
	More than 30%	2	1	3	0
(9) Loans to the top 50 borrowers	Less than 10%	3	4	0	1
	10–30%	4	5	3	5
	More than 30%	11	0	3	4

II. Overall Risk Management

1. What portion of your total employees are principally assigned to the following tasks?					
(1) Market risk management	Below 1%	16	1	3	6
	1–5%	2	1	1	3
	5–10%	0	3	2	0
	Over 10%	3	6	0	2
(2) Credit risk management	Below 1%	12	1	0	2
	1–5%	4	0	4	5
	5–10%	1	0	0	2
	Over 10%	4	11	2	2
(3) Operational risk management	Below 1%	13	2	3	4
	1–5%	2	1	1	5
	5–10%	2	3	1	0
	Over 10%	4	5	1	2
(4) Risk management in total	Below 1%	11	2	0	2
	1–5%	5	2	2	6
	5–10%	2	1	3	1
	Over 10%	4	6	1	2
2. Who is ultimately responsible for approving the strategy and major policies of your bank for measuring/managing the following risks					
(1) Credit risk	Board of directors	12	1	4	8
	Board committee	4	10	1	1
	Management committee	7	0	1	0
	CEO	2	0	0	0
	Others	0	0	0	2
(2) Market risk	Board of directors	13	1	4	7
	Board committee	3	10	1	1
	Management committee	7	0	1	2
	CEO	2	1	0	0
	Others	0	0	0	1
(3) Operation risk	Board of directors	12	1	3	7
	Board committee	2	10	1	1
	Management committee	8	0	2	2
	CEO	3	0	0	0
	Others	0	0	0	1

3. How many times each year on average does your bank management require risk exposure reports as part of management requirements for the following?					
(1) Market risk	None or once	2	0	0	0
	2–4 times	4	2	0	1
	5–12 times	7	2	4	4
	13–24 times	2	5	1	1
	25 times or more	7	2	1	5
(2) Credit risk	None or once	1	0	0	0
	2–4 times	4	2	0	1
	5–12 times	11	2	4	5
	13–24 times	4	5	1	2
	25 times or more	2	3	1	3
(3) Operational risk	None or once	2	0	0	1
	2–4 times	8	3	0	2
	5–12 times	8	6	5	5
	13–24 times	2	1	0	1
	25 times or more	2	1	1	2

III. Credit Risk Management

1. Are the following items covered by written credit policies and procedures within your bank?					
(1) Target markets	Yes	20	7	5	10
	No	2	4	1	1
(2) Structure of limits	Yes	19	11	6	11
	No	3	0	0	0
(3) Exception processing/reporting	Yes	16	7	6	10
	No	4	4	0	1
(4) Portfolio mix	Yes	18	7	6	9
	No	3	4	0	1
(5) Price and non-price terms	Yes	15	11	6	7
	No	4	0	0	2
2. Does your bank normally consider the following elements relevant in credit granting?					
(1) Borrower's position within his economic sector	Yes	20	12	5	11
	No	2	0	1	0
(2) Situation of borrower's economic sector	Yes	20	12	5	11
	No	2	0	1	0
(3) Borrower's business expertise	Yes	20	12	6	11
	No	2	0	0	0
(4) Sensitivity of risk profile to market trends	Yes	17	12	6	10
	No	5	0	0	1
(5) Current risk profile of borrower	Yes	19	12	6	10
	No	3	0	0	0
(6) Repayment history of borrower	Yes	21	11	6	11
	No	1	1	0	0

3. Does your bank normally consider the following factors when deciding to enter into new credit relationships?					
(1) References from known parties	Yes	21	9	5	9
	No	1	3	1	2
(2) How well borrower is known to the bank	Yes	20	12	5	10
	No	2	0	1	1
(3) Information from the credit registries	Yes	19	12	6	11
	No	3	0	0	0
(4) How reputable is the borrower	Yes	22	12	6	8
	No	0	0	0	2
4. Do significant loans to the following entities need approval by the board of directors, or report to the supervisory authority (SA)?					
(1) Subsidiaries	No	0	3	0	0
	Yes, approval by the board	3	1	1	6
	Yes, report to the SA	2	3	1	0
	Yes, both	13	3	4	5
(2) Affiliates	No	0	3	1	1
	Yes, approval by the board	3	1	0	5
	Yes, report to the SA	2	2	1	0
	Yes, both	14	3	4	5
(3) Major shareholders	No	0	3	0	1
	Yes, approval by the board	1	1	1	5
	Yes, report to the SA	2	2	1	0
	Yes, both	15	3	4	5
(4) Directors	No	0	1	0	2
	Yes, approval by the board	1	2	1	4
	Yes, report to the SA	5	0	1	1
	Yes, both	12	6	4	4
(5) Senior managers	No	0	1	1	2
	Yes, approval by the board	4	2	0	3
	Yes, report to the SA	3	1	1	0
	Yes, both	11	4	4	5
5. Does your bank monitor whether the credit portfolio contains high levels of credits to any of the following?					
(1) A single counterparty, a group of connected counterparties, and a particular industry or economic sector – all of them	Yes	21	10	5	11
	No	1	2	1	0
(2) A geographic region	Yes	18	8	3	8
	No	4	3	3	2

(3) A type of credit facility	Yes	19	9	5	9
	No	1	2	1	2
(4) An individual foreign country	Yes	11	7	4	10
	No	11	5	2	1
(5) A group of countries with strongly interrelated economies	Yes	8	5	3	5
	No	12	6	3	4
(6) A type of collateral	Yes	20	9	5	5
	No	2	2	1	3
6. Are the following areas examined in the process of stress testing undertaken by your bank?					
(1) Economic downturns	Yes	16	6	6	8
	No	5	5	0	1
(2) Market risk events	Yes	15	6	6	8
	No	6	5	0	2
(3) Liquidity conditions	Yes	17	6	5	9
	No	4	5	1	1
(4) Industry downturns	Yes	15	5	4	7
	No	6	6	2	2

IV. Market Risk Management

1. Does top management directly handle or maintain any of the following areas?					
(1) Standards for valuing positions and measuring performance	Yes	20	11	6	11
	No	2	2	0	0
(2) Market risk reporting and management review process	Yes	21	13	5	11
	No	1	0	1	0
(3) Systems/standards for measuring risks	Yes	18	12	6	11
	No	4	1	0	0
(4) Internal controls	Yes	20	12	5	11
	No	1	1	1	0
2. Are the following clearly defined and identified in your bank's policies and procedures for limiting and controlling market risk?					
(1) Hedging strategies	Yes	16	8	5	7
	No	4	5	1	4
(2) Position-taking opportunities	Yes	16	10	5	8
	No	3	3	1	3
(3) Quantitative parameters defining the acceptable level of market risk	Yes	16	12	6	10
	No	3	1	0	1
(4) Purposes for which instruments may be used	Yes	18	12	6	10
	No	2	1	0	0
(5) Procedures for acquiring instruments	Yes	17	11	6	11
	No	2	2	0	0
(6) Procedures for managing portfolios	Yes	17	13	6	10
	No	3	0	0	1
(7) Procedures for controlling aggregate market risk exposure	Yes	15	13	6	11
	No	4	0	0	0

3. Are the following required by the board of directors or top management of your bank prior to the introduction of a new product, hedging, or position-taking strategy?					
(1) Description of the relevant product or strategy	Yes	20	12	6	11
	No	1	1	0	0
(2) Identification of resources required for effective market risk management of the product or activity	Yes	18	11	6	9
	No	3	2	0	1
(3) Analysis of whether proposed activities are reasonable given the bank's financial condition and capital levels	Yes	19	12	6	9
	No	2	1	0	1
(4) Procedures for measuring, monitoring, and controlling the risks of the proposed product or activity	Yes	18	12	6	9
	No	3	1	0	1
4. Which approach does your bank currently use to calculate market risk capital for each of the following risk categories?					
(1) Interest rate	Standardized	19	6	1	6
	Internal models	6	8	4	6
	Others	1	0	1	0
(2) Equity position	Standardized	10	6	2	6
	Internal models	2	7	3	3
	Others	1	0	1	0
(3) Foreign exchange rate	Standardized	15	7	1	6
	Internal models	6	7	4	5
	Others	1	0	1	0
(4) Commodities	Standardized	4	5	1	0
	Internal models	1	6	3	1
	Others	1	0	0	0
(5) Options	Standardized	4	5	1	1
	Intermediate approaches	1	6	4	3
	Others	0	0	0	0

V. Operational Risk Management

1. Is operational risk currently being managed by your bank and reported internally as a distinct risk category related to the bank's safety and soundness)?					
	Yes	18	9	6	9
	No	3	4	0	1
2. Does your bank use the following tools to identify and assess operational risks?					
(1) Self- or risk assessment	Yes	17	3	5	8
	No	3	4	1	3
(2) Risk mapping	Yes	16	2	5	7
	No	4	5	1	4
(3) Key risk indicators	Yes	12	1	5	9
	No	7	6	1	2

(4) Scorecards	Yes	9	1	5	4
	No	10	6	1	7
(5) Thresholds or limits	Yes	11	1	5	7
	No	8	6	1	4
(6) Measurement of exposure	Yes	11	1	5	5
	No	8	6	1	6
3. Are the following maintained by your bank?					
(1) Checks on compliance with management controls	Yes	19	7	6	11
	No	1	2	0	0
(2) Policies and procedures concerning the review, treatment, and resolution of non-compliance issues	Yes	17	7	6	11
	No	2	2	0	0
(3) System of documented approvals and authorizations	Yes	20	8	6	10
	No	0	1	0	1
(4) Policies governing segregation of duties to address potential conflicts of interest	Yes	20	6	6	10
	No	0	3	0	1
(5) System for monitoring adherence to assigned risk limits or thresholds	Yes	18	6	6	8
	No	2	2	0	3
(6) System for maintaining safeguards for access to bank assets and records	Yes	19	7	6	10
	No	1	2	0	1
(7) System to ensure appropriate expertise and training for staff	Yes	16	8	6	8
	No	3	1	0	3
(8) System/policies to identify business lines or products where returns are out of line with reasonable expectations	Yes	10	6	6	7
	No	9	3	0	4
(9) System for regular verification and reconciliation of transactions and accounts	Yes	19	7	6	10
	No	1	2	0	1
(10) Disaster recovery and/or business continuity plan	Yes	18	7	6	10
	No	2	2	0	1

VI. Internal Control

1. Who composes the audit committee?					
- Only directors employed by the bank or its affiliates		2	0	2	1
- Mostly directors employed by the bank or its affiliates		5	0	0	1
- Equal number of directors employed by the bank/affiliates and outside directors		0	0	1	1
- Mostly outside directors		8	12	2	1
- Only outside directors		3	1	1	7
2. During the last three years, how many times has your bank conducted a review of its risk (management) procedures?					
(1) Overall risk management	None	6	1	0	0
	Once	8	1	1	0
	2–3 times	6	7	1	9
	4–6 times	1	3	1	1
	Over 6 times	1	1	3	1

(2) Credit risk management	None	5	0	0	0
	Once	7	0	1	0
	2–3 times	8	7	1	5
	4–6 times	2	2	1	3
	Over 6 times	0	1	3	3
(3) Market risk management	None	6	0	0	0
	Once	8	0	1	0
	2–3 times	7	7	1	7
	4–6 times	1	3	1	3
	Over 6 times	0	0	3	1
(4) Operational risk	None	7	1	1	2
	Once	6	2	0	0
	2–3 times	5	4	2	6
	4–6 times	2	1	1	2
	Over 6 times	2	2	2	1
3. Does your bank:					
(1) Require regular performance and exception reports to department/division-level management?	Yes	17	11	6	10
	No	4	2	0	0
(2) Undertake periodic inventories of tangible assets including cash and securities?	Yes	21	13	6	10
	No	1	0	0	0
(3) Have a process for reviewing compliance with limits on risk exposures?	Yes	19	13	6	10
	No	3	0	0	0
(4) Undertake periodic reconciliations to compare cash flows to account records and statements?	Yes	20	12	5	8
	No	1	1	1	1
4. How would you characterize the flow of information within your bank?					
(1) Upward to the board and senior management	Slow	2	0	0	0
	Moderate	8	2	4	3
	Fast	10	11	1	7
	Very fast	2	0	1	0
(2) Downward to lower management, rank-and-file	Slow	0	0	0	0
	Moderate	13	3	3	5
	Fast	9	8	1	4
	Very fast	0	2	2	0
(3) Across the organization among departments	Slow	2	1	1	0
	Moderate	14	3	3	6
	Fast	6	9	1	3
	Very fast	0	0	1	0
5.1 Does your bank have an internal audit department to check whether existing policies or procedures remain adequate?					
	Yes	20	12	6	11
	No	0	1	0	0

5.2 (If yes) To whom does the internal audit department report?				
- Board of directors	7	0	0	1
- Board's audit committee	7	12	5	9
- Top management	8	0	1	1

VII. Public Disclosure Related to Risk Exposure

1. During the last 3 years, how many times has your bank publicly disclosed risk exposure reports as part of accounting (investor reporting) requirements for the following?					
(1) Market risk	None	7	6	0	1
	Once	1	0	3	0
	2–3 times	9	2	2	5
	4–6 times	1	1	1	3
	Over 6 times	2	1	0	1
(2) Credit risk	None	4	5	0	1
	Once	1	0	3	0
	2–3 times	8	2	2	4
	4–6 times	2	1	1	4
	Over 6 times	5	2	0	1
2. Does your bank have a formal disclosure policy governing the public disclosure of information on its financial condition and performance?	Yes	15	7	6	8
	No	5	2	0	2
3. Does your bank normally include the following in its regular public disclosures related to credit risk exposures?					
(1) Definitions of past due and impaired (for accounting purposes)	Yes	14	7	4	8
	No	4	3	2	2
(2) Amount of impaired and past due loans broken down by significant geographic areas	Yes	9	2	4	1
	No	9	8	2	9
(3) Amount of impaired and past due loans by counterparty type or industry	Yes	13	6	4	8
	No	6	4	2	2
(4) Residual contractual maturity breakdown of the whole portfolio, broken down by major types or credit exposure	Yes	9	4	5	4
	No	9	6	1	5
(5) Geographic distribution of exposures, broken down in significant areas by major types of credit exposure	Yes	8	2	6	1
	No	10	8	0	9
(6) Description of approaches followed for specific and general allowances and statistical methods	Yes	9	4	6	8
	No	9	6	0	2
(7) Risk management strategies and processes	Yes	13	8	6	8
	No	5	2	0	2
(8) Scope and nature of risk reporting and/or measurement systems	Yes	11	8	6	7
	No	7	2	0	3

(9) Strategies and processes for monitoring effectiveness of risk mitigants	Yes	10	2	3	8
	No	8	8	3	2
(10) Discussion of the bank's credit risk management policy	Yes	12	7	3	7
	No	6	3	3	3
(11) Reconciliation of changes in the allowances for loan impairment	Yes	11	5	6	6
	No	7	5	0	3
(12) Specific and general allowances by counterparty type or industry	Yes	9	5	3	1
	No	10	5	3	9
(13) Charges for specific allowances and charge-offs during the period by counterparty type or industry	Yes	9	4	3	1
	No	9	6	3	9
(14) Industry or counterparty type distribution of exposures, broken down by major types of credit exposure	Yes	11	4	4	4
	No	7	6	2	5
(15) Total gross credit risk exposure, plus average gross exposure over the period broken down by major types of credit exposure	Yes	11	0	4	2
	No	8	9	2	8
(16) Structure and organization of credit risk management function	Yes	13	7	6	8
	No	6	3	0	2
(17) Policies for hedging and/or mitigating credit risk	Yes	8	3	3	4
	No	10	7	3	6
4. Does your bank normally include the following in its regular public disclosures related to market risk exposures?					
For banks using the standardized approach:					
(1) Risk management strategies and processes	Yes	10	5	3	6
	No	7	2	2	2
(2) Scope and nature of risk reporting and/or measurement systems	Yes	9	5	3	3
	No	8	2	2	3
(3) Strategies and processes for monitoring effectiveness of hedges/mitigants	Yes	8	1	3	1
	No	9	6	2	5
(4) Capital requirement for interest rate risk, equity position risk, foreign exchange risk and commodity risk	Yes	9	3	3	2
	No	8	4	2	5
(5) Structure and organization of market risk management function	Yes	10	5	3	3
	No	7	2	2	3
(6) Policies for hedging and/or mitigating market risk	Yes	8	1	3	2
	No	9	6	2	5
(7) Which portfolios are covered	Yes	12	1	3	2
	No	5	6	2	4
For banks using the internal models approach:					
(1) Portfolios covered	Yes	4	1	5	3
	No	0	4	0	2

(2) Description of the approach used for backtesting or validating accuracy and consistency of the internal models and modeling processes	Yes	4	0	4	2
	No	0	5	1	3
(3) Risk management strategies and processes	Yes	4	3	5	3
	No	0	2	0	2
(4) Scope and nature of risk reporting and/or measurement systems	Yes	4	3	5	2
	No	0	2	0	3
(5) Strategies/processes for monitoring effectiveness of hedges/mitigants	Yes	4	0	3	2
	No	0	5	2	3
(6) The aggregate value-at-risk (VaR) of trading portfolio	Yes	4	3	4	2
	No	0	2	1	3
(7) Comparison of VaR estimates with actual outcomes, with analysis of important "outliers" in backtest results	Yes	4	1	4	2
	No	0	4	1	3
(8) High mean and low VaR values of trading portfolio over the reporting period and period end	Yes	4	2	4	2
	No	0	3	1	3
(9) Information on the characteristics of the internal models used	Yes	4	2	4	2
	No	0	3	1	3

VIII. Supervision of Risk Management Practices

1. During the last 3 years, how many times has the supervisory authority undertaken an inspection of your bank's risk management techniques and procedures?					
	None	7	0	0	0
	Once	3	0	0	1
	2–3 times	11	3	4	8
	4–6 times	1	4	1	1
	Over 6 times	0	4	1	0
2. How many times each year on average does your bank submit risk exposure reports as part of regulatory requirements for the following?					
(1) Market risk	None	3	0	0	1
	1–4 times	5	2	1	2
	5–12 times	8	6	3	6
	13–24 times	1	2	2	0
	Over 24 times	2	1	0	0
(2) Credit risk	None	4	0	0	0
	1–4 times	7	2	1	2
	5–12 times	8	7	3	6
	13–24 times	1	1	2	0
	Over 24 times	0	1	0	0

3. Does the banking supervisory authority (or external auditor, if the former does not conduct routine on-site examinations):					
(1) Discuss operations with various levels of bank personnel?	Yes	19	9	6	9
	No	0	2	0	1
(2) Observe the operating environment?	Yes	17	9	6	7
	No	2	2	0	2
(3) Test transactions?	Yes	11	5	5	8
	No	7	6	1	1
(4) Discuss internal controls with the board of directors and senior management?	Yes	19	11	6	9
	No	0	0	0	1

IX. Response to the New Basel Accord

1. Which approach to measuring the following risks is your bank adopting or likely to adopt to comply with the requirements of the new Basel Capital Accord?					
(1) Credit risk	Standardized	11	4	3	8
	Internal ratings-based (foundation)	3	5	1	1
	Internal ratings-based (advanced)	5	6	2	2
	Don't know yet	3	0	0	0
(2) Market risk	Standardized	17	5	3	5
	Internal models	6	6	3	6
	Don't know yet	1	2	0	1
(3) Operational risk	Basic indicator	9	1	2	2
	Standardized	5	6	2	8
	Advanced measurement	3	6	1	0
	Don't know yet	5	1	1	1
2. When is your bank expected to complete its preparations for measuring credit, market, and operational risk according to the requirements of the <u>new</u> Basel Capital Accord?					
	Already completed by now	0	0	1	0
	Within 2004	2	0	0	0
	Between 2005 and end of 2006	4	7	5	6
	After end of 2006	14	5	0	5

3. Are the following resources adequate in your bank at present in relation to your preparedness for the new Basel Capital Accord given your chosen level of compliance for the following risk categories?						
(1) Credit risk	Staffing	Yes	12	10	6	8
		No	10	2	0	3
	Funding	Yes	17	8	6	8
		No	3	4	0	2
	Technology	Yes	10	7	3	4
		No	12	5	3	6
	Data availability	Yes	9	4	4	3
		No	13	8	2	7
(2) Market risk	Staffing	Yes	13	10	6	8
		No	8	2	0	2
	Funding	Yes	16	8	6	8
		No	3	4	0	0
	Technology	Yes	12	8	5	6
		No	9	4	1	3
	Data availability	Yes	13	7	6	5
		No	8	5	0	4
(3) Operational risk	Staffing	Yes	11	8	5	7
		No	10	4	1	3
	Funding	Yes	16	8	6	8
		No	3	4	0	1
	Technology	Yes	10	7	3	4
		No	11	5	3	5
	Data availability	Yes	10	4	3	3
		No	11	8	3	6