

**BANKS' RISK MANAGEMENT PRACTICES:
A SURVEY OF FOUR ASIAN EMERGING MARKETS**

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JULIUS CAESAR PARREÑAS

Senior Advisor, Taiwan Institute of Economic Research
Senior Advisor to the Chairman, Chinatrust Commercial Bank

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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 greatly contributed to recent episodes of financial turmoil, including the Asian financial crisis of 1997-98. The development of adequate capacity to measure and manage risks 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, 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, they 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, there appears to have been much progress in terms of banks' and supervisory authorities' 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, 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 conducted during the summer of 2004.

A total of 52 banks responded to the survey, 22 of which are based in Indonesia, 13 in South 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%) by others.

The survey covers general risk management as well as internal control in relation to the risk management function, and 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.

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 parts – 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, which are as follows: (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 the 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 at least on 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 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

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.

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 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 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

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.

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 operating 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 board 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%) 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 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 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

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 part 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 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 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.

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.

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 could 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 borrowers 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 board 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 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 part of the survey report draws 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

- **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 for managing and controlling this risk are maintained. 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).

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.

- **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 4 summarizes the responses of banks in relation to these issues.

In the case of most banks, top management is directly in charge of setting and maintaining management standards, 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 portfolio, 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 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 part 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

- **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 involves 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 gauging 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,

⁵ Lopez (2002, p. 2) points out that there is yet no clearly established single way 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.

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 conflict 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 banks 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 systems 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 with 31% of banks in 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 only by 50% in Indonesia, 45% in Thailand and 8% in Korea.

Evident differences also exist 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.

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 by banks in the survey for each of the following key components: general risk management, internal control, credit, market and operational risk management. These components have been divided into two sub-groups: (a) one composed of the general areas (the first two areas) and (b) and another composed of the special areas of risk management (the last three areas).⁷

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 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.

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 management with better asset quality. 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. The 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 part of the report, three major factors are considered: banks' risk exposure, public disclosure practices related to risk

⁷ 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 as follows: $RM = 0.5 (0.6 GRC + 0.4 IC) + 0.5 (0.4 CRM + 0.35 MRM + 0.25 ORM)$.

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:** percentage of total revenues derived from various businesses (including retail, private, commercial and investment banking and card services);
- **Concentration of markets for lending:** 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:** 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:** 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.⁸ 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 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).

⁸ 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.

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 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 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. 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 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-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, 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.⁹ 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 addresses 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
- **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 4).

It 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; and 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.

⁹ 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."

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 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 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 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 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 non-financial firms considerably lagging 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 part 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's 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 and of 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. 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.¹⁰

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 to be ineffective in promoting sound risk management practices (Golin 2001, p. 30).¹¹ 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

¹⁰ Palmer (2003) stresses the importance of such specialist expertise for bank supervisory authorities as they move from rule-based to risk-based supervision.

¹¹ 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.

credit and operational risk¹² from which banks could choose and providing incentives for large and complex organizations to migrate to the more advanced approaches.

There are three 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 *foundation* version (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.¹³

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 part 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 *Appendix*].

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

¹² The alternative approaches to measuring market risk remain the same under Basel II as in the current framework.

¹³ 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).

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.

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.

Availability of data, which is crucial in evaluating the robustness of banks' loss estimates (Fitch Ratings 2004), is the most significant resource constraints 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 markets risk.

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 most 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.

7. Conclusions

Generally speaking, banks' risk management practices in the four markets surveyed conform in 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 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. 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 Korea, government-directed lending as well as lending to the 50 largest borrowers are 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 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 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 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 non-financial 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. 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.

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 adequate for all risk categories and staffing is also seen as such for both credit and market risk. Korean banks have the most 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. There is, however, still much to 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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Table 1

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
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

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

Table 2

Expected date of completion of Basel II preparations
(% of total responses)

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

Table 3

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
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)

Table 4
Market risk management practices: Summary table

Percentage of banks surveyed where the following items are directly handled or maintained by top management			
<i>Items</i>			<i>%</i>
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			
<i>Items</i>			<i>%</i>
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			
<i>Items</i>			<i>%</i>
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			
<i>Risk category</i>	<i>Standardized</i>	<i>Internal models</i>	<i>Others</i>
Interest rate	55	42	3
Equity position	58	37	5
Foreign exchange rate	55	42	3
Commodities	45	50	5
Options	44	56	0