



Enterprise Risk
Management
at Asian Banks:
**FROM CHALLENGES
TO STRATEGIES**

An Executive White Paper by James Lam
Senior Advisor, Asia Risk Management Institute (ARMI)

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A Letter from James Lam

Dear Colleague,

"It was the best of times, it was the worst of times," the opening sentence of *A Tale of Two Cities*, by Charles Dickens, perhaps best captures the current state of risk management at Asian banks. Supported by strong capital positions, Asian banks are well poised to play a vital role in supporting the rapid economic growth across Asia. Moreover, deregulation and consolidation provide Asian banks with unprecedented business and growth opportunities.

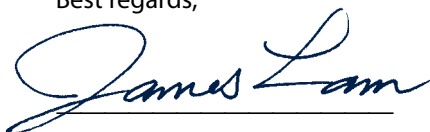
However, banks cannot function effectively without sound risk management. Most of the chief risk officers (CROs) who participated in this research study expressed significant concerns about their readiness in meeting new business and regulatory requirements. In general, they envisaged that it will take at least 5-10 years for their banks to catch up to current international standards in risk management.

In an effort to identify the unique challenges faced by Asian banks, as well as develop practical recommendations, the Asian Risk Management Institute (ARMI) has sponsored this inaugural research project. The objective of this research project is to go beyond descriptive in terms of specific challenges and issues, but also be prescriptive in terms of recommended strategies and actions.

On a personal note, it has been a privilege for me to lead this research effort. Since I was born in China, and spent my early childhood in Macao, Hong Kong, and Singapore, I feel a strong sense of affinity to Asia. As a risk specialist for over twenty years, the opportunity to develop an assessment of risk management practices at Asian banks has been a valuable experience for me. On behalf of ARMI, I would like to thank Atos Origin and Economic Development Board (EDB) of Singapore for their support. I would also like to thank the individual members of the ARMI Research Team – Mr. Lim Eng Hong, Ms. Oh Gim Siew, Mr. James Kong, Mr. Julian Cornelius, and Ms. Abha Uppal – for their considerable contributions.

Asian banks face tremendous challenges with regard to risk management. Their decisions and actions over the next several years will have a significant impact on risk management effectiveness, not only for individual banks but also the overall banking sector. We hope that the research and recommendations contained in this white paper will represent a call to action, as well as the basis for an ongoing dialogue with you in the years ahead.

Best regards,



Senior Advisor, ARMI

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Introduction

Bank executives and board members in Asia, with lessons learned from the 1997 Asian Crisis still fresh on their minds, are now facing unprecedented business opportunities and risk management challenges. On the one hand, economic growth rates are strong, foreign direct investments are high, and future business prospects are indeed bright.

On the other hand, Asian banks operate in more volatile financial markets, and they are undergoing significant structural changes with respect to deregulation, privatisation, and consolidation. Moreover, Asian banks face complex organisational and technical challenges in meeting new regulatory requirements from their central banks and the Basel II framework.

Asian Banking Context

Risk management at Asian banks should be discussed in the context of the overall business and regulatory environment. While risk management practices and issues vary significantly across different countries and individual banks, the ARMI Research Team has identified several common themes. These themes include:

ECONOMIC AND FINANCIAL UNCERTAINTIES ▶ Relative to banks in Europe and North America, banks in Asia face higher economic and financial uncertainties. The ARMI Research Team analyzed the historical volatility of key economic and financial indicators, and found that volatilities in gross national income, housing prices, equity prices, and foreign exchange (FX) rates are higher at Asian countries (see Appendix A). For example, over the past ten years annualised equity price volatility was 17.9% in the US and 18.6% in the UK. In comparison, equity price volatility in Asian countries ranged from 22.7% in China to 30.9% in Thailand. Moreover, despite balance sheet restructuring and government bailouts, Asian banks still have higher non-performing loan (NPL) levels.

BANKING REFORM AND STRUCTURAL CHANGES ▶ In the aftermath of the 1997 Asian Crisis, the Asian banking industry is undergoing dramatic structural changes. These changes include (a) recapitalisation of troubled banks – hardest hit were Indonesia and Thailand, where bank recapitalisation exceeded 50% of GDP, (b) strategic investments by foreign institutions – for example between 2001 and 2005 foreign banks invested about US\$20.9 billion in Chinese banks, with US\$17.6 billion invested in 2005 alone¹, and (c) rapid consolidation as Asian banks attempt to increase scale and competitiveness – in Indonesia, for example, the number of banks fell from a peak of 240 in the mid 1990s to 133 at the end of 2004². Asian banks also face increased foreign competition as competitive barriers are removed to conform with requirements for entering the World Trade Organisation (WTO). Ownership structure is also changing as banks privatise from government to private ownership.

Asian Banking Context

(continued)

SIGNIFICANT GAPS IN RISK MANAGEMENT CAPABILITIES ➤ Banks in Europe and North America are relatively confident in their capabilities for credit risk, market risk, and asset-liability management (ALM) since they have made significant improvements over the past decade. Their key risk management challenges include Basel II compliance, operational risk, and enterprise risk management (ERM). In comparison, most Asian banks need to improve all of their risk management capabilities, yet they lack critical human, data, and modelling resources. When asked to conduct a self-assessment against the ERM Maturity Model shown in Appendix B, CROs in China, Indonesia, Malaysia, and Thailand rated their banks at Stage 1 or 2 (out of a scale of 1-5, with 5 being the most advanced). These CROs estimated that it will take 5-10 years for their banks to catch up to current international standards in risk management. CROs in Singapore rated their banks at Stage 2 or 3, and estimated that it will take 3-5 years to reach international standards.

NEW REGULATORY REQUIREMENTS ➤ Bank regulators in Asia are establishing new standards for risk and capital management, including financial examination and reporting requirements. In preparation for Basel II, most banks in Asia have established programme management offices (PMOs) to address the complex data and modelling requirements. However, as shown in the following exhibit, the Basel II timetables vary significantly across Asian countries³, with Singapore and Hong Kong being ahead of the other countries. As a group, they lag behind top tier banks in the EU and US. Moreover, publicly-traded banks in Asia must deal with SOX-based financial controls documentation and testing standards, as well as stock exchange corporate governance and listing requirements.

Basel II Implementation Schedule for Top Tier Banks						
	2007	2008	2009	2010	2011	2012
Singapore	★★	★★★ ★★				★★★
Hong Kong	★★ ★★	★★★				
Malaysia		★ ★		★★		
Thailand		★★ ★★	★★★			
Indonesia		★ ★		★★		
China		★ ★	★★ ★★			★★★ ★★★
US		★★★ ★★★				
EU	★★ ★★	★★★ ★★★				
KEY	Credit Risk	★ Standardised	★★ Foundation IRB	★★★ Advanced IRB		
	Operational Risk	★ Basic Indicator	★★ Standardised	★★★ AMA		

BUSINESS AND COMPETITIVE MANDATES ➤ Asian bankers recognise that risk management must go beyond regulatory compliance, and create business value through better risk-based pricing, risk limit systems, portfolio management techniques, and capital management decisions. Additionally, key stakeholders such as institutional investors, rating agencies, and business partners will increasingly demand enhanced risk disclosure. The risk professionals who participated in this research study noted that they have seen a significant increase in attention to risk management from key stakeholders such as strategic investors and rating agencies. They also face pressure from senior management to create business value through improved risk management.

Executive Summary of Key Findings and Recommendations

The ARMI Research Team identified five key challenges faced by Asian banks with respect to their risk management programmes, as well as 15 specific recommendations for addressing these challenges. These challenges and recommendations include:

PEOPLE AND SKILLS ► *People and skills represent the most critical challenge for Asian banks, as there is a general shortage of risk management talent. Asian banks should consider adopting the following strategies to hire, retain and develop risk management professionals:*

1. **Hire a risk expert** with practical risk management experience as chief risk officer, board member, or senior advisor to management and the board.
2. **Establish a training and certification programme** to develop required risk management skills from new analysts to board members.
3. **Increase compensation of risk personnel** at all levels to retain current risk professionals, as well as attract external risk professionals and business executives into senior-level risk positions.
4. **Conduct industry benchmarking exercises** to gather lessons learned and best practices from leading banks as a way for the risk management staff to rapidly gain practical experience.

CHANGE MANAGEMENT ► *Change management requirements are critical for implementing new risk management policies, systems, and processes. To ensure successful implementation, Asian banks should implement the following change management strategies:*

5. **Set the tone at the top** with respect to the imperative to improve risk management capabilities. In particular, board members and senior executives must play an active role in enterprise risk management (ERM).
6. **Develop the business case** for risk management as a value-added function. Risk management should be viewed by corporate and business executives as a tool to improve business performance, and not simply a regulatory compliance requirement.
7. **Revise performance measurement and incentives** to ensure that key executives and staff are provided with the appropriate performance feedback and financial rewards for achieving both business and risk management objectives.

Executive Summary of Key Findings and Recommendations *(continued)*

DATA AND MODELLING TOOLS ► *Data and modelling tools are required to support risk quantification and capital allocation, including the calculation of regulatory capital requirements based on the Basel II framework. Asian banks should deploy the following strategies to improve their data and modelling capabilities:*

8. **Establish country or regional data bureaus** so that a critical mass of quality data can be developed and shared by bank participants. Early focus should be on credit risk data to support probability of default (PD) and loss given default (LGD) calculations.
9. **Apply industry benchmarks** from data bureaus to fill in any data gaps until the bank has gathered sufficient internal data to support risk calculations.
10. **Acquire vendor-based models** to support risk measurement applications that are well established, such as ALM, market risk, and credit risk modelling.

REPORTING AND DISCLOSURE ► *Reporting and disclosure at Asian banks should be developed to improve risk transparency, both in terms of internal risk reporting as well as external disclosure. Risk information and transparency should be enhanced based on the following strategies:*

11. **Integrate key performance and risk indicators** to enhance management monitoring and reporting. Key performance indicators (KPIs) and key risk indicators (KRIs) provide more informational value when they are developed and reported on an integrated basis.
12. **Develop dashboard reporting** capabilities to automate the development and delivery of role-based risk information, including drill-down analysis.
13. **Enhance disclosure and risk transparency** to key external stakeholders, including shareholder reporting and analyst presentations.

STRATEGY AND EXECUTION ► *Strategy and execution for the appropriate ERM initiatives represent a critical challenge for Asian banks. The following strategies should be deployed by Asian banks:*

14. **Develop an ERM roadmap** in terms of the bank's long-term objectives for enterprise-wide risk management policies, systems, and processes.
15. **Focus on the "low hanging fruits"** in the early stages of ERM implementation. The bank should establish key initiatives that will provide the most immediate and tangible value relative to cost and effort.

In the rest of the white paper, the above findings and recommendations will be discussed in greater detail.

Research Methodology

Most research surveys focus on describing the current state of risk management practices at banks across the globe or within a specific region. In contrast, this research project was focused on providing in-depth analysis of key risk management challenges at Asian banks, as well as formulating practical recommendations to address these challenges. As such, the research methodology was designed to be both descriptive in terms of specific risk management issues and prescriptive in terms of specific recommendations.

The research was conducted between March 2006 and September 2006, and consisted of a comprehensive review of existing research studies and surveys, an analysis of bank regulatory requirements, and on-site interviews with over 30 risk management professionals across China, Indonesia, Malaysia, Singapore, and Thailand. These five countries were selected because the ARMI Research Team determined that they provide a good representation of the range of risk management practices across Asian banks.

The banks ranged from US\$3 billion to over US\$85 billion in assets. The risk management professionals interviewed included chief risk officers and their direct reports. In an effort to facilitate candid and honest discussions, the ARMI Research Team agreed to the requests by the banks to remain anonymous.

In addition, the ARMI Research Team conducted dozens of interviews, by phone and in person, with bank regulators, directors, consultants, and other analysts with in-depth knowledge of Asian bank risk management issues.

The Business Case for Enterprise Risk Management

Why should Asian banks adopt an ERM programme? While most risk professionals interviewed said that they are planning to implement an ERM programme, others felt that they are “not ready” for ERM as they should first develop core capabilities in market risk, credit risk, and operational risk. However, ERM should not be viewed only as the integration layer for the bank’s risk management processes. Rather, ERM should be viewed holistically as the overall risk management process, inclusive of core capabilities in market risk, credit risk, and operational risk.

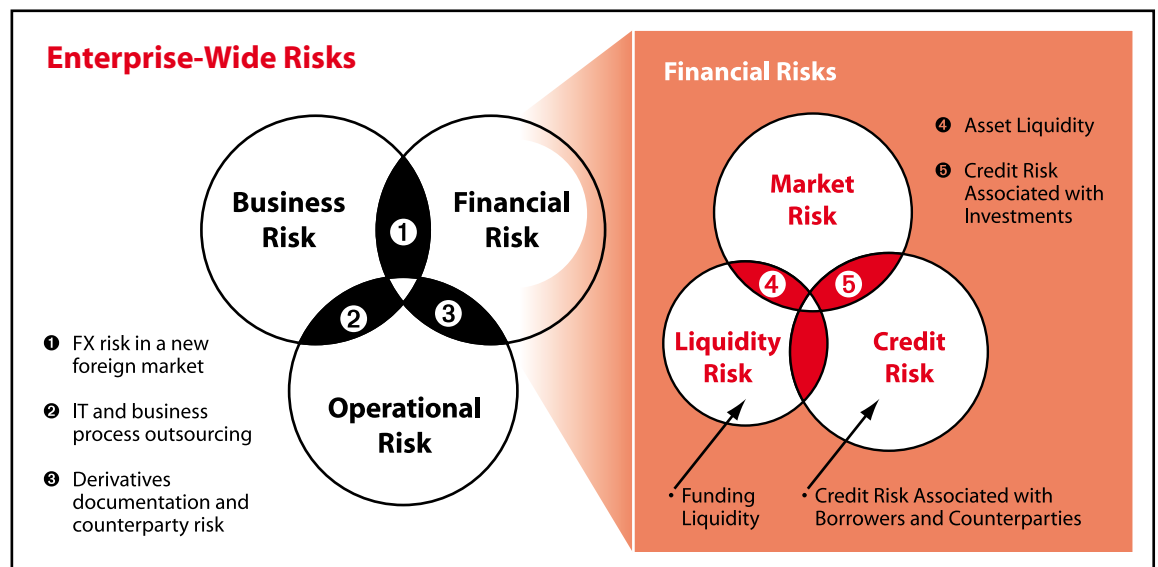
A strong business case can be made that all banks should adopt an ERM programme regardless of their level of sophistication in risk management. There are three key reasons why Asian banks should adopt ERM without delay:

1. Banks face complex risks that are highly interdependent, and an ERM framework enables a bank to manage all major risks and their interdependencies.
2. An ERM framework provides the overall architecture for a bank’s risk management programme.
3. Empirical research and industry surveys have indicated that there are clear business benefits for adopting an ERM programme.

The Business Case for Enterprise Risk Management (continued)

These three points are further discussed below:

RISK INTERDEPENDENCIES ➤ *The key risks faced by banks are highly interdependent (the exhibit below illustrates examples of such interdependencies). In the past, banks managed different risks through separate organisational units, an approach known as “managing risk by silos”. Over time, banks realised that there are important relationships between these risks. For example, inadequate documentation for loans or derivatives (an operational risk) would likely result in higher loss severities in the event of default (a credit risk). Today, banks and bank regulators have adopted ERM as a global standard for effective risk management.*



OVERALL RISK ARCHITECTURE ➤ *An ERM framework provides the overall architecture for a bank’s risk management processes. As such, it is valuable to establish an integrated ERM framework for a bank to identify critical gaps and improvement opportunities. Key components of an ERM framework⁴ include:*

- **Corporate governance** to ensure that the board of directors and management have established the appropriate organisational processes and corporate controls to measure and manage risk across the bank;
- **Line management** to integrate risk management into the revenue generating activities of the bank, including business development, product and relationship management, pricing and so on;
- **Portfolio management** to aggregate risk exposures, incorporate diversification effects and monitor risk concentrations against established risk limits;
- **Risk transfer** to mitigate risk exposures that are deemed too high, or are more cost-effective to transfer out to a third party than to hold in the bank’s risk portfolio;
- **Risk modelling** to provide the risk measurement, analysis, and reporting tools to quantify the bank’s risk exposures as well as track external variables;
- **Data and technology** resources to provide the data management and systems capabilities; and
- **Stakeholder management** to communicate and report the bank’s risk information to its key stakeholders, such as investors, rating agencies, and regulators.

The Business Case for Enterprise Risk Management (continued)

ERM BENEFITS ➤ *There is a growing body of research and survey data that would indicate effective ERM practices lead to significant business benefits. Notable studies include:*

- The Conference Board and Mercer Oliver Wyman (2005)⁵ conducted an ERM survey among 271 executives at global companies with over US \$1 billion in sales. The survey found that 91% of the respondents were either positively disposed toward or have adopted ERM. While only 11% have fully implemented their ERM programmes, they reported significant benefits – 86% cited better informed business decisions, 83% cited greater consensus on key risks, and 79% cited increased management accountability.
- Cheng and Wu (2005) at Institutional Shareholder Services (ISS)⁶ examined the correlation between the ISS' Corporate Governance Quotient ratings and 16 financial performance metrics for more than 5,200 U.S. companies in the 2002-2004 period. They found that companies with better corporate governance have lower risk, better profitability and higher valuation. For example, they found that the top decile companies performed significantly better than the bottom decile companies, including 3-to-10% versus negative return on assets; 8-to-15% versus 0.3% return on equity; and 16-to-20% versus 10-to-15% stock price to earnings ratio.
- McKinsey and Company (2000)⁷ surveyed over 200 institutional investors in 22 different countries with a combined US\$3.25 trillion in assets under management. They found that the large majority of investors were willing to pay a premium for companies with effective corporate governance practices. For example, in the U.S. 84% of investors were willing to pay an average premium of 18.3%.

In addition to the above studies, the following exhibit shows the tangible and significant benefits reported by early ERM adopters:

Benefit	Company	Actual Results
Shareholder value improvement	Global bank	Outperformed S&P 500 banks by 58%
Early warning of risks	Investment bank	Global risk limits cut by 1/3 prior to Russian crisis
Loss reduction	Asset management company	Loss-to-revenue ratio declined by 30%
Regulatory capital relief	Commercial bank	\$1 billion regulatory capital relief
Insurance cost reduction	Manufacturing company	20-25% reduction in insurance premium

Key Findings and Recommendations

While risk management is more critical to Asian banks now than ever, they face significant organisational and technical challenges. The ARMI Research Team has identified five key challenges faced by Asian banks – people and skills, change management, data and modelling, reporting and disclosure, as well as strategy and execution. These challenges, and the recommended strategies and actions, are discussed below.

PEOPLE AND SKILLS ► *There is a critical shortage of risk management talent in Asia. Every banker who participated in this research project has indicated that their number one issue is the ability to hire and retain risk management professionals with the appropriate experience and skills.*

For example, the Chief Risk Officer of an Indonesian bank obtained a headcount budget increase from 8 to 32 in February 2006. By August 2006, only 11 out of the 24 new positions were filled due to a shortage of qualified candidates. For Asian banks, the most critical shortage seems to be with senior-level experienced hires. To address this overall issue, Asian Banks should implement the following strategies:

1. **Hire a Risk Expert.** For Asian banks, hiring a world-class risk expert can make a significant difference to overall risk performance. While an effective ERM programme requires a team of qualified risk professionals, it is essential that Asian banks first hire a risk expert. Asian banks should:
 - Engage an executive search firm to hire a risk expert as CRO, board member, or senior advisor to the bank. The risk expert should have practical ERM experience, as well as deep credit risk, market risk, and operational risk management skills. In addition to strong risk management skills, the risk expert should understand local business customs and the culture of the bank.
 - Clearly define the role and expectations for the risk expert. Otherwise, organisational issues may prevent the risk expert from being effective. For example, one of the “big four” banks in China hired two risk experts – one as a board member and the other as a risk executive. In less than two years, both experts resigned after experiences that bank officials described as “difficult”.
 - Engage and empower the risk expert in key risk management decisions, such as developing the appropriate ERM framework and policies, hiring other qualified risk professionals, and acquiring the necessary data and technology solutions. At one bank in China, the ARMI Research Team noted that a risk expert seconded from a foreign bank made a significant contribution to the development of that bank’s risk management capabilities.

Key Findings and Recommendations

(continued)

2. **Establish a training and certification programme.** Training and certification programmes in risk management provide a long-term solution to the development of human capital. The ARMI Research Team discussed this approach with senior officials at Bank Indonesia, which in August 2005 made it compulsory for all bank managers, executives, and board members to go through a formal training and certification programme. To ensure that the appropriate risk management skills are developed at all levels of the organisation, Asian banks should:
 - Enroll risk management staff in training and certification programmes offered by the professional associations. These programmes are generally focused on financial markets and products, credit risk, market risk, actuary methods, and risk modelling skills.
 - Provide customised in-house training for board members and senior corporate and business unit executives. These programmes should be designed to review practical business applications of risk management.
 - Apply advanced learning technologies, such as e-learning and video-conferencing, to provide cost-effective training to a larger group of bank employees.

3. **Increase compensation of risk personnel.** In order to retain talented risk professionals, as well as attract business executives onto the risk management career track, the compensation levels for risk professionals must be attractive. The ARMI Research Team noted that the salary levels for risk professionals at European and North American banks have increased significantly over the past decade, and thus narrowing the compensation gap between line managers and risk managers. As such, it is not unusual to find senior loan officers, traders, and even CFOs who had moved into risk management positions. Asian banks should:
 - Conduct a salary survey to ensure that the bank's compensation packages for risk professionals are competitive from both a regional and global perspective.
 - Increase compensation levels for all risk professionals so that compensation packages are attractive.
 - Link performance incentives for risk professionals to specific milestones in developing the bank's risk management infrastructure, as well as to improvements in key risk indicators.

4. **Conduct industry benchmarking exercises.** A common practice among European and North American banks is industry benchmarking, whereby risk professionals from different banks interact and learn about each other's risk management practices. These benchmarking exercises are often facilitated by consultants, professional associations or organised through industry contacts. Participants in benchmarking exercises benefit from lessons learned and best practices of other banks.

The ARMI Research Team noted that industry benchmarking is not a common practice among Asian banks today. Asian banks should:

- Conduct international benchmarking exercises through global risk management associations and/or international banking contacts.
- Participate in, or help set up, Asia-based risk management associations that would organise and facilitate regional benchmarking exercises.
- Capture and distribute the benchmarking data so lessons learned and best practices can be shared across the bank.

Key Findings and Recommendations

(continued)

CHANGE MANAGEMENT ➤ *Risk management means different things to different people. A key objective for ERM is to establish a common framework. Asian banks should incorporate change management strategies as part of their ERM programmes to ensure that key risk management policies and processes are fully adopted by the organisation. These strategies include:*

5. **Set the tone at the top.** Any enterprise-wide initiative requires the support from senior management in order to be successful. The “tone at the top” should be set not only through words, but actions. Asian banks should:
 - Provide sufficient human capital and budgetary resources to support the development of ERM and other risk management capabilities.
 - Communicate the board and management’s commitment to establishing an effective risk management programme. Specifically, risk management should be one of the “top 5” corporate priorities.
 - Ensure that board members and senior executives play an active role in risk management, especially in the development of risk policies and limits, recruiting senior risk staff, and formulating risk management strategies.

6. **Develop the business case.** The business case for ERM provides the business and economic rationale for the initiative. For most Asian Banks, risk management is still viewed as a compliance function as opposed to a value-added function. CROs interviewed by the ARMI Research Team see this as one of their key challenges. In order to develop the business case for ERM, Asian banks should:
 - Conduct a formal cost-benefit analysis for ERM, including specific cost estimates for the ERM programme and expected benefits. Key benefits may include regulatory and policy compliance, improved risk reporting, reduction in losses and incidents, and improved debt rating and shareholder value.
 - Develop risk management applications that would benefit business units directly, such as risk-based product pricing, customer relationship management, and early detection and resolution of operational issues.
 - Monitor the realised benefits from the ERM programme against the expected benefits. While some of the benefits of ERM are not quantifiable (e.g., enhanced risk awareness), the bank should nonetheless consider these benefits as part of its overall evaluation.

7. **Revise performance measurement and incentives.** A critical component of the change management programme is to ensure that performance measurement and incentives are aligned with ERM goals and desired behavior. Asian banks should:
 - Incorporate specific milestones into performance measurement and incentives in the early stages of ERM. Performance criteria may include the development of an ERM framework, completion of a training and certification programme, and the implementation of a board-level risk report.
 - Reinforce business unit cooperation through their incentive programmes. Performance criteria may include participation in bank-wide risk assessment and reporting initiatives, or timely resolution of outstanding issues or policy exceptions.
 - Link incentive programmes with risk-adjusted profitability as the bank’s ERM programme becomes more advanced. Performance criteria may include risk-adjusted return on capital (RAROC), net income after capital charge (NIACC), and shareholder value added (SVA).

Key Findings and Recommendations

(continued)

DATA AND MODELLING ► *What gets measured gets managed! Asian banks lack critical data resources and risk models for risk quantification, including the regulatory capital calculations required by the Basel II framework. While the Asian banks interviewed by the ARMI Research Team have conducted gap analyses and developed plans for Basel II, they lack data and modelling resources to implement such plans. Asian banks should implement the following strategies to enhance their data and modelling capabilities:*

8. **Establish country or regional data bureaus.** Asian banks lack risk data because they previously did not have specific risk or business applications that would utilise such data. In addition, disparate systems and manual processes prevalent at Asian banks hinder the systematic collection of such data. Moreover, in order to have sufficient and meaningful data for modelling purposes, many years of data (at least 3-5 years) must be collected. It would be extremely difficult for any individual Asian bank to address these issues independently. Therefore, Asian banks should:
 - Organise, perhaps with the assistance from central banks and risk associations, country or regional data bureaus. The purpose of these data bureaus is to create a critical mass of quality risk data that can be shared by bank participants. The costs, benefits, and “ground rules” for participating banks should be clearly defined at the onset.
 - Collect credit risk data through the data bureau as an early initiative in order to support probability of default (PD) and loss given default (LGD) calculations needed for credit risk capital calculations. This would be critical for Basel II compliance, as well as internal credit risk management processes.
 - Collect operational risk data (e.g., losses, events) and market risk data (e.g., valuations and VaR calculations by instrument) once the data bureau concept is proven and accepted.

9. **Apply industry benchmarks.** Even if data bureaus are organised by Asian banks as suggested above, it will take years before useful data can be developed. Meanwhile, Asian banks should:
 - Apply industry benchmarks or proxies. For credit risk, internal credit ratings should be mapped to public debt ratings (e.g., Moody’s or S&P ratings) so that bond default, loss severity, and rating migration data can be utilised. Such data, or similar databases, should be adjusted for country-specific and bank-specific characteristics.
 - Leverage the industry benchmarks to develop and test risk models, as well as prototype management and board risk reporting. As a conservative measure, Asian banks may also consider applying a “surcharge” or gross-up factor to external data until internal data is made available.

10. **Acquire vendor-based models.** Nearly all of the Asian banks interviewed by the ARMI Research Team use internally-developed Excel-based analytical models for risk quantification. These models are generally less sophisticated and less reliable than vendor models that are commercially available. A corollary issue is that the risk management staff spends too much time on maintaining these risk models, and not enough time interpreting the results or developing risk management strategies. Other than those with simple risk profiles and basic modelling requirements, Asian banks should:
 - Acquire vendor-based models for risk measurement applications that are well established, such as ALM, market risk, and credit risk modelling.
 - Only develop specific risk management models that would give the bank a competitive advantage, such as proprietary trading models or valuation models.

Key Findings and Recommendations

(continued)

REPORTING AND DISCLOSURE ► *A key tenet of sound risk management is risk transparency, both in terms of internal risk reporting as well as external disclosure. The availability, quality, and timeliness of useful risk information need significant improvements at Asian banks. Currently, a typical Asian bank would provide monthly risk reporting to management and quarterly risk reporting to the board. However, due to data and systems constraints, these reports lack timeliness and usefulness. To enhance the effectiveness of risk reporting, Asian banks should implement the following strategies:*

11. **Integrate key performance and risk indicators.** Key performance indicators (KPIs) are designed to measure and track the primary success factors for a bank, such as profitability, credit quality, and operational efficiency. On the other hand, key risk indicators (KRIs) are designed to measure the business variables and risk factors that may prevent the bank from achieving its objectives. From a management perspective, they are both important and one can argue that they are two sides of the same coin. To enhance risk reporting, Asian banks should:
 - Develop and report on KPIs and KRIs on an integrated basis. The combined reporting of KPIs and KRIs provides significantly more value and insights than if KPIs and KRIs are reported separately (Appendix C provides examples of the integration of KPIs and KRIs for bank profitability, pricing, credit quality, and operational efficiency).
 - Develop risk-based performance indicators such as risk-adjusted return on capital (RAROC), net income after capital charge (NIACC), and shareholder value added (SVA).
 - Establish “early warning indicators” for performance and risk indicators to enable the board and management to anticipate potential changes to the bank’s risk-return profile.

12. **Develop dashboard reporting.** As more performance and risk information are made available, Asian banks should develop dashboard reporting to enhance the delivery of such information to key decision makers. To support executive and board decision making, dashboard reporting combines quantitative data (e.g., KPIs and KRIs), qualitative data (e.g., risk assessments and audit issues), external market data (e.g., interest rates, economic data), and management strategies and alternatives. In other words, the purpose of dashboard reporting is to enhance the “risk intelligence” of the bank. Asian banks should:
 - Design a paper-based dashboard report as a means to organising existing data and identify data gaps, as well as function as a prototype for an electronic dashboard system.
 - Develop an electronic dashboard reporting system to automate the development and delivery of role-based risk information, including drill-down analysis. As such, the first generation of the dashboard system will provide web-based dynamic access to performance and risk data.
 - Incorporate modelling capabilities to the dashboard system so that the board and management can ask “what if” questions or test specific business scenarios on a real-time enterprise-wide basis. As such, the second generation of the dashboard system will also provide access to performance and risk modelling capabilities.

Key Findings and Recommendations

(continued)

13. **Enhance disclosure and risk transparency.** The development of internal risk reporting is not enough, Asian banks should also enhance risk disclosure and transparency to outside stakeholders, including regulators, stock analysts, and rating agencies. To enhance disclosure and risk transparency, Asian banks should:
 - Incorporate more risk management information into annual reports and other disclosure documents. The ARMI Research Team analyzed the annual reports of publicly-traded global banks, and noted that there is a direct relationship between the quality of risk management and the quality of disclosure. For example, the number of pages devoted to risk management in JP Morgan Chase’s annual report increased from 12 pages in 1998 to 24 pages in 2005, a period in which the global bank made significant improvements in its highly-regarded ERM programme. In contrast, Asian banks only devoted between 3 to 8 pages to risk management in their 2005 annual reports⁸.
 - Evolve earnings disclosure from earnings variance analysis (ex-post analysis of actual versus expected earnings) to earnings guidance or forecast (ex-ante analysis of projected future earnings) to earnings-at-risk analysis (ex-ante analysis of key drivers of future earnings volatility). For Asian banks with superior risk management, improved risk transparency should lead to improved investor relations, and even improved stock valuation and debt rating as a result of lower “risk premiums”.

STRATEGY AND EXECUTION ► *The key question on risk management is not what, but how. Asian bankers are generally aware of what is the gap between their risk management capabilities against industry best practices. They are uncertain as to how to develop and execute the appropriate strategies to close that gap. Asian banks should implement the following strategies to enhance the strategy development and execution of their ERM programmes:*

14. **Develop an ERM roadmap.** One of the most important success factors in the implementation of an ERM programme is to develop a clear long-term plan. The ERM roadmap should include a clear vision of the “goal state” of risk management at the bank, as well as specific milestones (“what”), dates (“when”), and accountabilities (“by whom”). It should also include resource requirements, change management plans, and measures of success for the ERM programme. Asian banks should:
 - Establish an ERM roadmap and ensure consensus among bank directors, executives, and business unit managers.
 - Conduct quarterly performance reviews in terms of progress against specific milestones and measures of success.
 - Conduct annual reviews on the ERM roadmap to ensure that it continues to be appropriate for the bank.

Key Findings and Recommendations

(continued)

15. **Focus on the “low hanging fruits.”** In the implementation plan for the ERM programme, Asian banks should focus on “low hanging fruits” or initiatives that will provide the most immediate and tangible value relative to cost and effort. For example, in operational risk management, a short-term achievable goal may be establishing a loss-event database, whereas conducting bank-wide risk assessments would require much more time and resources. Successful implementation of ERM requires a balance between quick wins and long-term initiatives. As such, Asian banks should:
- Identify “low hanging fruits” in the early stages of ERM, and allocate appropriate resources to successfully implement such initiatives.
 - Document and communicate these early wins to maintain momentum for the ERM programme, as well as demonstrate the tangible benefits that the bank can derive from improved risk management practices.

A Call to Action

As part of this research initiative, the ARMI Research Team has identified 15 specific recommendations for the key risk management challenges faced by Asian Banks. Collectively, these recommendations represent a “call to action” to improve risk management at Asian banks.

However, Asian banks should not attempt to implement all of these 15 recommendations at once. Rather, they should implement those recommendations that are most logical and value-added relative to their stage of development in risk management.

Asian banks can use the ERM Maturity Model shown in Appendix B to conduct a self-assessment of their stage of development. While the specific requirements for each bank are unique, the ARMI Research Team would suggest the following approach to prioritising the implementation of the 15 recommendations:

STAGE 1 ► **Definition and Planning (White Belt)**

Banks at this stage are in the initial phase of scoping and planning for ERM.

Key initiatives should include:

- Hire a risk expert (Recommendation #1)
- Establish a training and certification programme (#2)
- Conduct industry benchmarking exercises (#4)
- Set the tone at the top (#5)
- Develop the business case (#6)
- Develop an ERM roadmap (#14)

A Call to Action

(continued)

STAGE 2 ▶ **Early Development (Yellow Belt)**

Banks at this stage are in the early development phase of ERM.

Key initiatives should include:

- Increase compensation of risk personnel (#3)
- Establish country or regional data bureaus (#8)
- Focus on the “low hanging fruits” (#15)

STAGE 3 ▶ **Standard Practice (Green Belt)**

Banks at this stage are focused on developing KRIs and reporting.

Key initiatives should include:

- Revise performance measure and incentives (#7)
- Apply industry benchmarks (#9)
- Acquire vendor-based risk models (#10)
- Integrate key performance and risk indicators (#11)

STAGE 4 ▶ **Business Integration (Brown Belt)**

Banks at this stage are focused on integrating ERM into business processes.

Key initiatives should include:

- Develop dashboard reporting (#12)

STAGE 5 ▶ **Business Optimisation (Black Belt)**

Banks at this stage are applying ERM to optimise business performance.

Key initiatives should include:

- Enhance disclosure and risk transparency (#13)

Summary

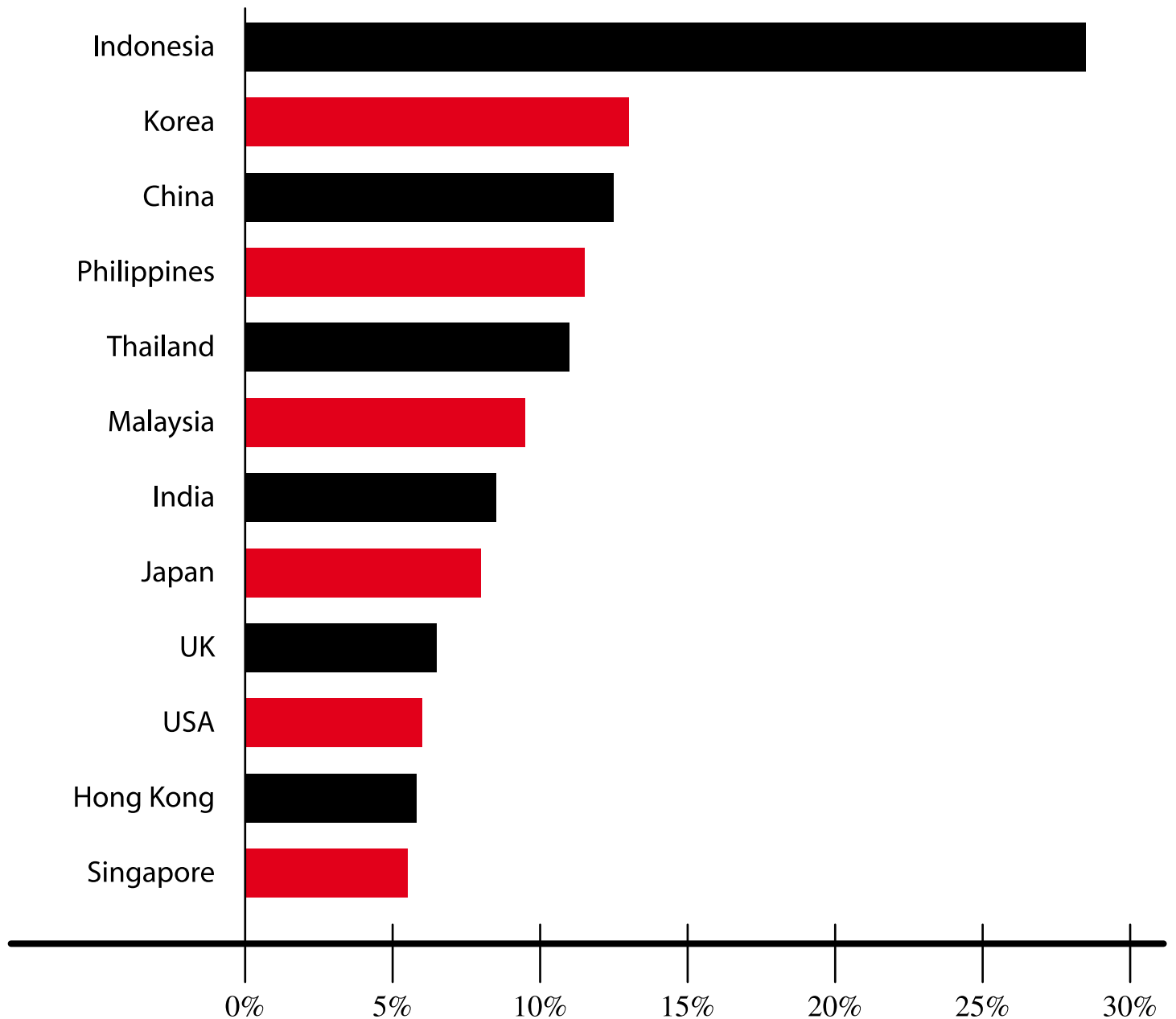
Indeed, it is the best and worst of times for banks in Asia. On the one hand, the Asian banking systems are being transformed and modernised at a rapid pace. As a result of these changes and high economic growth, Asian banks face unprecedented business and profit opportunities. On the other hand, they must improve risk management to ensure long-term success and survival. However, they face significant challenges in people and skills, change management, data and modelling, reporting and disclosure, as well as strategy and execution.

These risk management challenges are not insurmountable. As part of this research effort, the ARMI Research Team has identified 15 practical recommendations to address these challenges. We hope that the research and recommendations contained in this white paper will lead to more in-depth discussions, and more importantly, specific actions on the part of Asian banks. Only through improved risk management can Asian banks be assured that the future will in fact bring the best of times.

Appendix A: Economic and Financial Uncertainties in Asia

Graph 1 shows foreign exchange volatility for 1985-2006. While Singapore and Hong Kong have been quite stable, Indonesia has been particularly volatile.

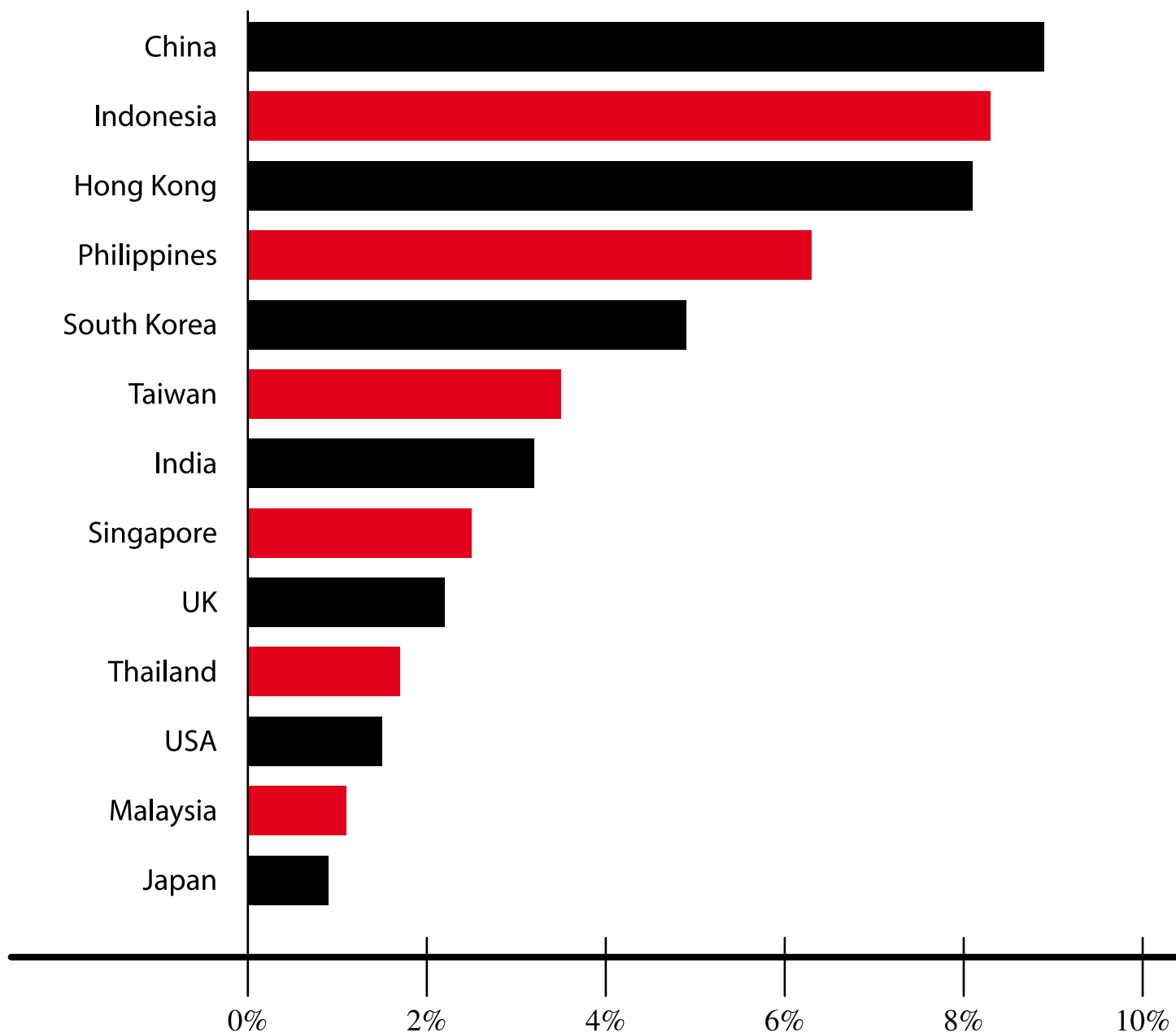
GRAPH 1:
Volatility – Exchange Rates 1986-2005⁹



Appendix A: Economic and Financial Uncertainties in Asia (*continued*)

Graph 2 depicts volatility of housing prices between 1990 and 2005. Malaysia and Thailand have been relatively stable but China and Indonesia have been more volatile.

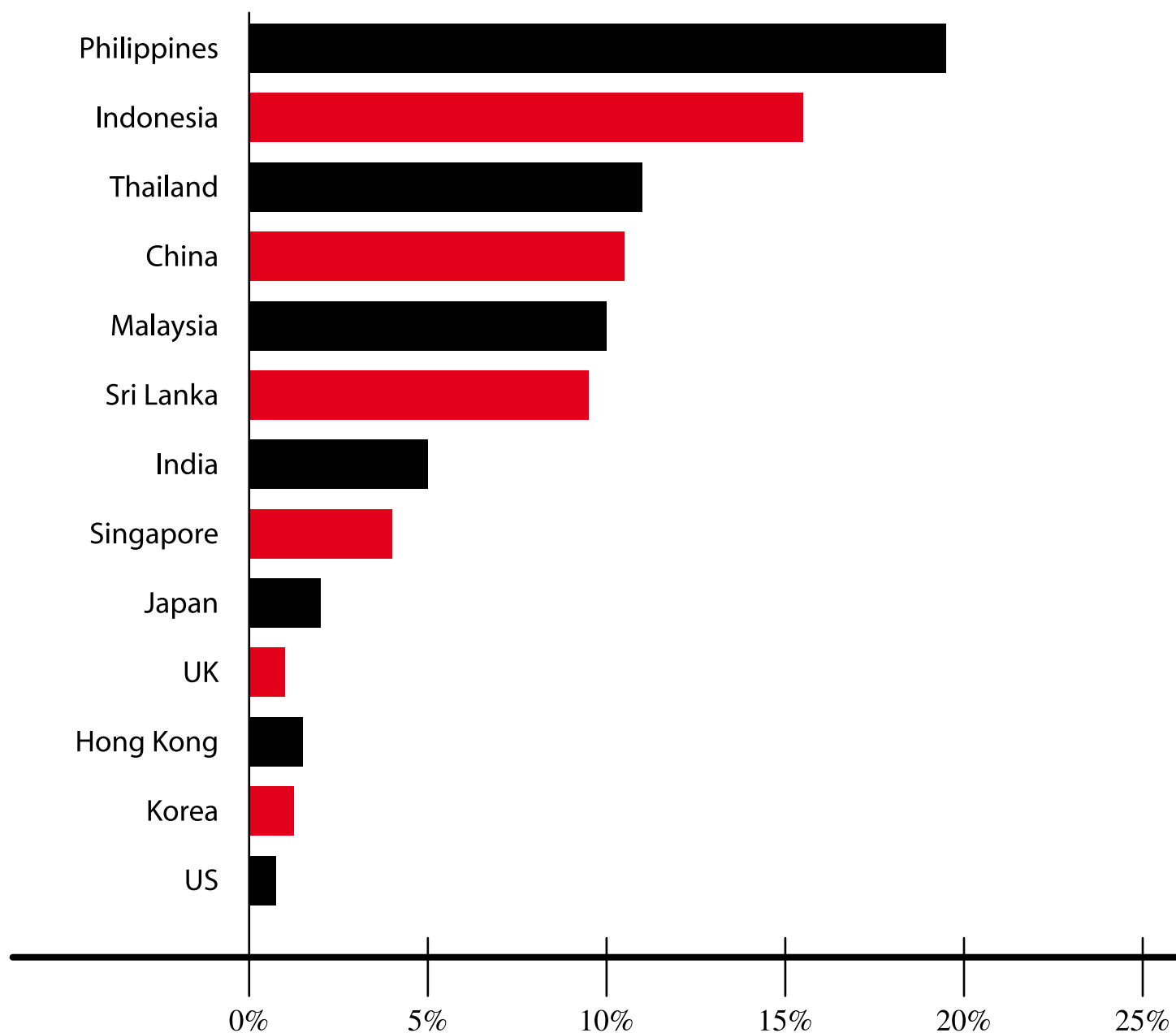
GRAPH 2:
Volatility – Housing Prices 1990-2005¹⁰



Appendix A: Economic and Financial Uncertainties in Asia (*continued*)

Massive loan recapitalisation efforts in China, Indonesia and Thailand have reduced non-performing loan (NPL) rates over the past five years. Even after this recapitalisation; NPL rates in these countries continue to be high by world standards.

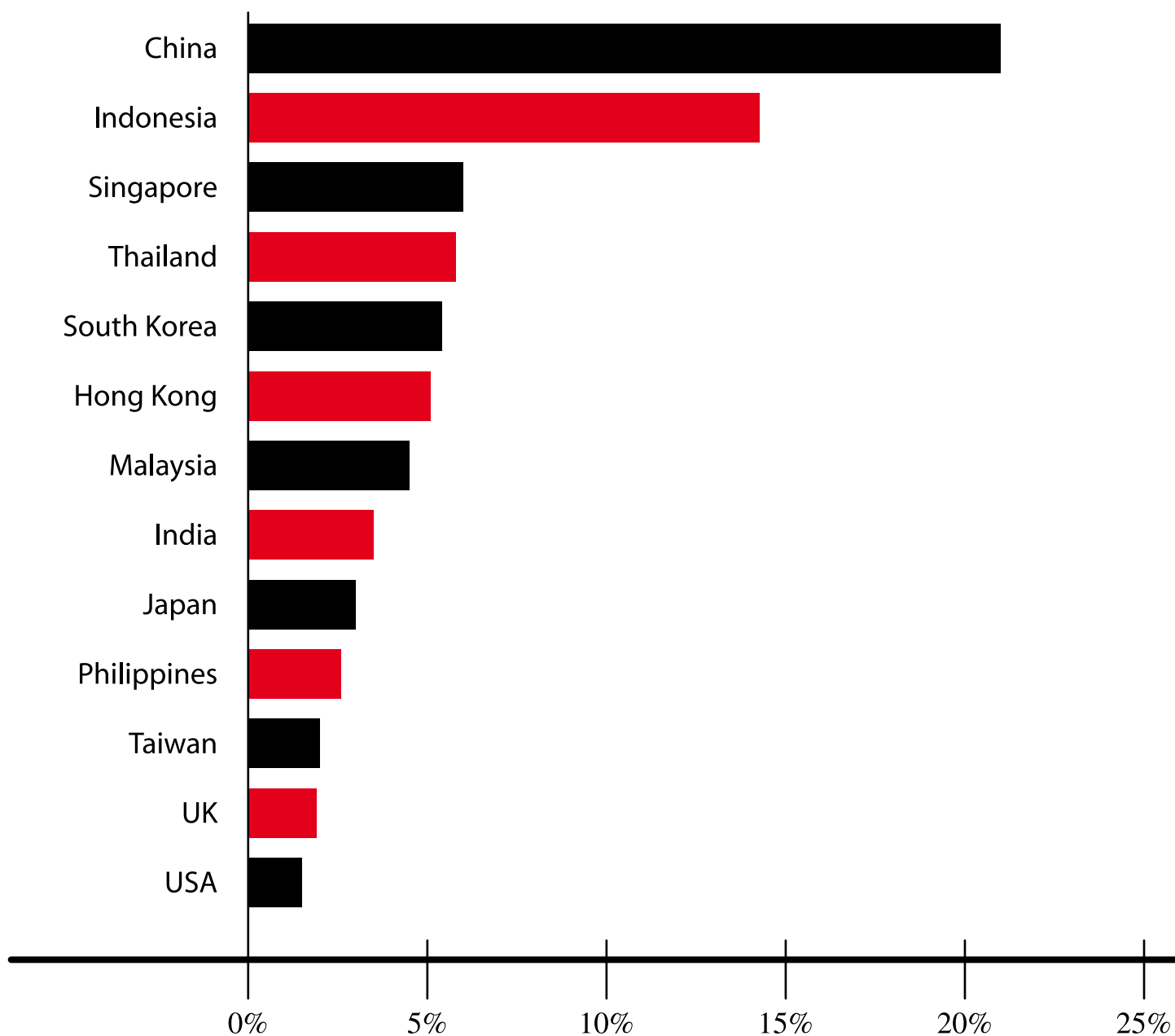
GRAPH 3:
Level of Non-Performing Loans 2005¹¹



Appendix A: Economic and Financial Uncertainties in Asia (*continued*)

Graph 4 shows that economic growth volatility measured through changes in Gross National Income (GNI) has been much more pronounced in Asia than the US or UK.

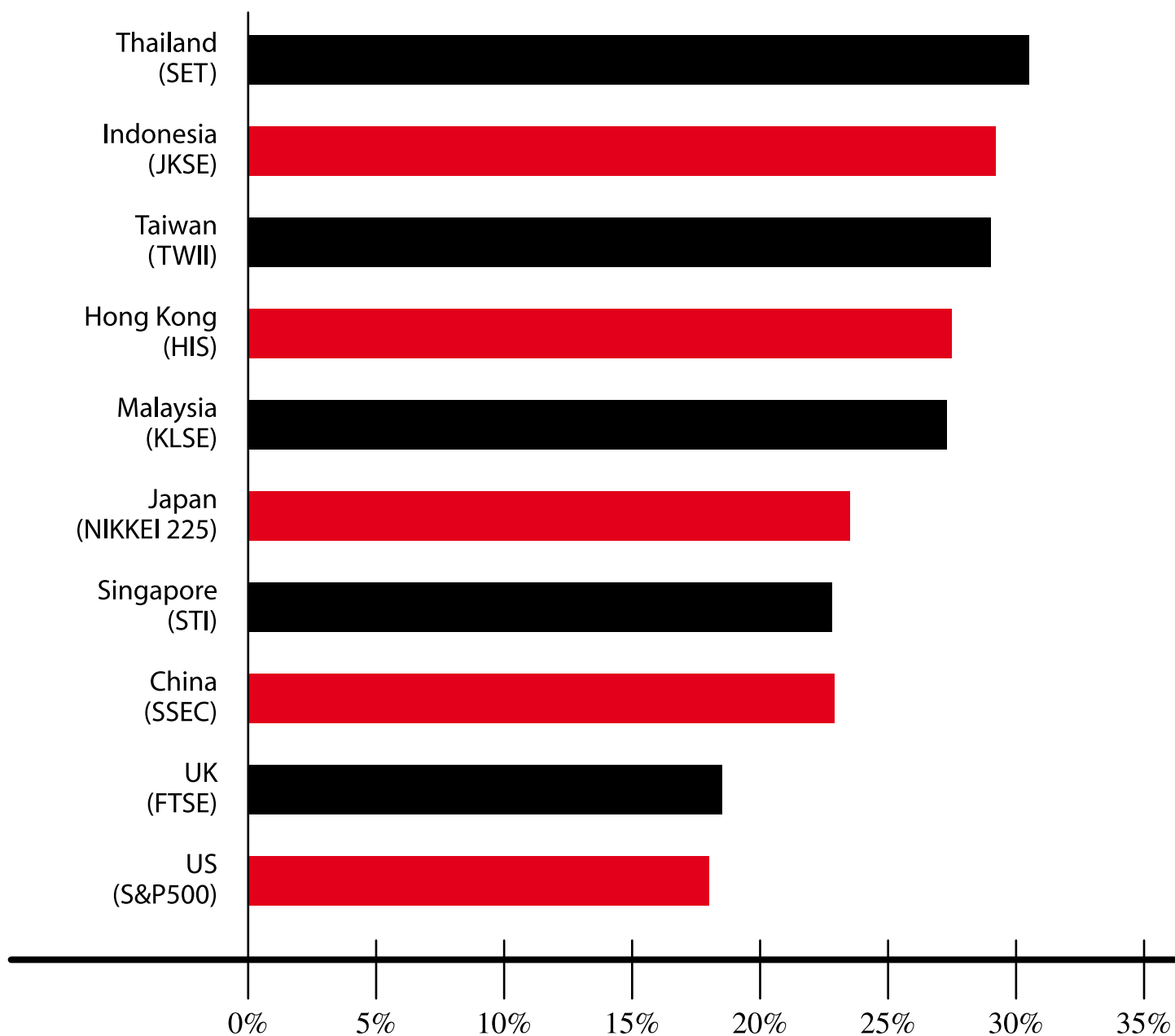
GRAPH 4:
Volatility – Gross National Income 1986-2005¹²



Appendix A: Economic and Financial Uncertainties in Asia (*continued*)

Graph 5 shows that stock price volatility has been much more pronounced in Asia than the US or UK.

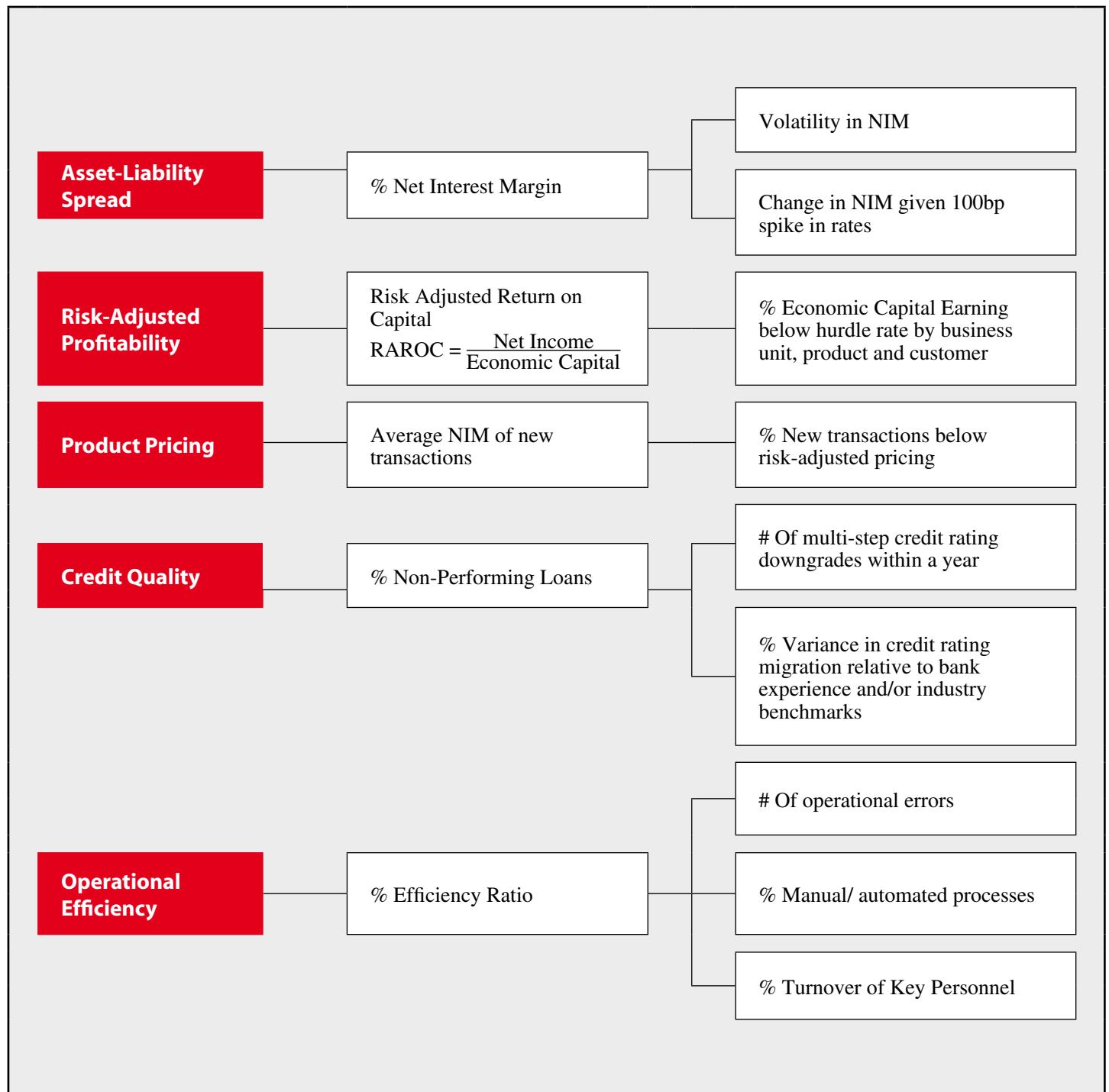
GRAPH 5:
Volatility – Stock Indices 1997 – August 2006¹³



Appendix B: The ERM Maturity Model

STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
Definition and Planning ("White Belt")	Early Development ("Yellow Belt")	Standard Practice ("Green Belt")	Business Integration ("Brown Belt")	Business Optimisation ("Black Belt")
<ul style="list-style-type: none"> • Researching regulatory requirements and industry practices • Appointing a chief risk officer and/or ERM project leader • Organising an ERM task force and/or ERM committee • Conducting a benchmarking exercise with other companies • Providing risk education for senior executives • Defining the scope for ERM (including credit, market, and operational risks) and developing an overall ERM plan • Establishing an ERM framework, including a risk taxonomy 	<ul style="list-style-type: none"> • Establishing an ERM Policy, including roles and responsibilities • Performing annual control self-assessments across business units • Integrating risk identification processes across risk management, audit, compliance, and other oversight activities • Providing risk education for the board of directors, as well as risk training for a wider group of employees • Establishing risk functions across the business units 	<ul style="list-style-type: none"> • Developing risk measurement models and databases • Developing KRIs and reporting on enterprise-wide risks on a monthly basis • Integrating credit risk and market risk models, and building operational risk models • Developing risk-adjusted performance measurement methodologies • Updating control self assessments on a quarterly or monthly basis 	<ul style="list-style-type: none"> • Expanding the scope of ERM to include business risk (and possibly reputational risk) • Allocating economic capital to underlying market, credit, operational, and business risks • Incorporating the cost of risk into product and relationship pricing, as well as portfolio management and risk transfer strategies • Integrating risk reviews into business development and product approval processes • Automating ERM reporting from monthly reports to electronic dashboards, including customised queries and real-time escalations • Establishing "trigger points" to make timely business decisions, including risk mitigation and exit strategies • Linking risk management performance into executive compensation 	<ul style="list-style-type: none"> • Expanding the scope of ERM to include strategic risk • Integrating ERM into strategic planning processes • Maximising shareholder value by actively allocating organisational resources at the "efficient frontier" • Providing risk transparency to key stakeholders – regulators, investors, rating agencies – with respect to current risk exposures and future risk drivers • Leveraging risk management skills, tools, and information to deepen customer relationships by helping them manage their risks

Appendix C: Integration of Key Performance Indicators & Key Risk Indicators



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Asia Risk Management Institute is an initiative driven by Atos Origin and supported by Economic Development Board (EDB) of Singapore. Its key objectives are to:

- Benchmark Asia risk management practices
- Develop risk management framework based on the Asian context
- Train and certify risk management professionals and organisations in the region
- Work with banks in Asia to advance their risk management methodologies
- Attract top risk management researchers and practitioners to this region to share risk management best practices

For more information on ARMI, please email: enquire@asiarmi.org

**ABOUT THE
AUTHOR** ▶



James Lam
Senior Advisor, ARMI

Through his consulting practice, Mr. Lam has worked with leading institutions on important projects, including Allied Capital, Bank of China, Citigroup, FHLB of Chicago, the Federal Reserve, GMAC, OCBC Bank, Risk Management Association, United HealthGroup, and the World Bank. In a 2005 Euromoney survey, Mr. Lam was nominated by clients and peers as one of the leading risk consultants in the world.

Mr. Lam has over twenty years of experience in risk and business management. He has been an early advocate of enterprise risk management, and is noted as the first ever “chief risk officer.” In January 1999, Mr. Lam joined Oliver, Wyman & Company as a partner to establish ERisk, a company that provides integrated consulting and Internet-based analytical tools to banks and energy firms. Between 1995 and 1998, Mr. Lam served as chief risk officer of Fidelity Investments, the largest mutual fund company in the world. The Economist, Price Waterhouse Review, and Risk Magazine have profiled his work at Fidelity as best practice in case studies. Prior to Fidelity, Mr. Lam worked as chief risk officer of FGIC Capital Markets Services, Inc., a GE Capital company.

Mr. Lam is the author of “Enterprise Risk Management: From Incentives to Controls,” which has ranked #1 best selling among 25,000 risk management titles on Amazon.com. In 1997, Mr. Lam received the inaugural Financial Risk Manager of the Year Award from the Global Association of Risk Professionals. Treasury & Risk Management magazine recently named him one of the “100 Most Influential People in Finance”. He is a member of the Blue Ribbon Panel of PRMIA, and has worked with the IIA, RMA, SOA, and other professional associations. Mr. Lam speaks regularly at conferences, and has appeared on national TV and cable news programmes. He has been published extensively, with over 50 articles and book chapters currently to his credit. Mr. Lam is a contributing author of numerous books, including “Modern Risk Management: A History” (with Nobel Prize winners Markowitz, Modigliani, Samuelson, and others) and “Derivatives Handbook” (with Alan Greenspan, Merton Miller, and others). He has been quoted in the Wall Street Journal, Financial Times, Risk Magazine, CFO Magazine, and American Banker.

Mr. Lam graduated summa cum laude with a BBA from Baruch College (1983), and has an MBA with honors from UCLA (1989). He was appointed a senior research fellow at Beijing University in 2004. Mr. Lam has lectured at Harvard Business School as the subject of a HBS case study, and has taught graduate-level courses in risk management and advanced derivatives at Babson College as an adjunct professor of finance.

8 Temasek Boulevard, Suntec Tower 3, #07-01 Singapore 038988
Tel : 65 6333 8000 Fax : 65 6832 2600 Email : enquire@asiarmi.org

