Risk Management, Pricing and Capital Provisioning under the New Basel Accord: Issues for the APEC Region *

Professor Kevin Davis
Commonwealth Bank Group Chair of Finance
The University of Melbourne
Victoria 3010
Australia

Ph: 61 3 8344 5098
Fax 61 3 8344 6914
Email: kevin.davis@unimelb.edu.au

* Prepared for the Asian Bankers Association 19th General Meeting and Seminar, Seoul, Korea, September 2-4, 2002. This paper draws on presentations and comments of participants at an ABAC / PECC Symposium on this topic held in Sydney, 16th /17th May, 2002 and attempts to capture the consensus view of participants. However, the opinions expressed are those of the author.

Introduction

The new Basel Capital Accord for the supervision of banks (hereafter referred to as Basel 2) holds promise of a more internationally coherent and efficient approach to bank supervision, which can assist in promoting a more resilient and stable financial sector in the APEC region. At the same time, interpreting, influencing, and implementing Basel 2 will be a significant challenge and resource intensive task for bank regulators from the region, over a horizon of perhaps 5 – 10 years. Effective implementation of the Accord by regulators, and appropriate responses by financial institutions, requires a thorough understanding of modern risk assessment, pricing, capital provisioning and management techniques and practices.

In doing so it is important to be cognisant of the special features of the economies and financial sectors of the nations in the region, if a successful journey towards more efficient and soundly supervised banking systems in the region is to ensue. Basel 2 provides a framework attempting to deal with both large banks operating in well developed capital markets with access to sophisticated risk management techniques as well as smaller banks operating in a quite different environment. Within the region, banks and financial markets span that spectrum, and regulators have the task of dealing both with that diversity and managing the transition as banks move along that spectrum in response to financial reform, innovation and technological change.

In that regard, a danger is that we will forget that there is much of benefit that can be achieved by drawing upon relatively simple, but sound, principles – and that this should not be forgotten in the welter of high-tech, sophisticated, risk measurement and management techniques continually emerging (and being given impetus by the Basel 2 capital incentives for "advanced approaches"). This applies to both regulators and to the banks which they supervise. And for the latter, an important reminder is that the process of change should not be driven by an objective of compliance with regulatory requirements *per se*, but by an objective of stakeholder benefits, consistent with compliance with regulatory requirements.

The objective of this paper is to outline some of the issues arising from Basel 2 which confront participants in APEC financial markets, and to identify items which should be high on the agenda for attention of regulators, bankers and policy makers.

The Basel Accord

Basel 2 promulgates a "three pillars" approach to the supervision and regulation of banks, involving the three mutually supportive pillars of (a) minimum capital requirements which adequately reflect risk taking by banks (b) an efficient and effective supervisory process, and (c) a key role for market discipline.

The three pillars, like the legs of a photographer's tripod, need to be set to achieve a stable outcome, and in that regard need to be appropriately adjusted to match the unevenness of the underlying terrain. Each is important, but unfortunately, in my view, there has been too little emphasis on the second and third pillars. Much like the well-known warning regarding management performance systems that "what gets measured gets managed", the amenability of the risk measurement methods and capital allocation rules to quantitative analysis has seen most attention focused on the first pillar. Not that it is unimportant. Assessing (a) the overall *quantitative impact* on banks of new capital requirements, (b) whether the new Accord may distort competitiveness within banking and between bank and capital market financing, and (c) possible distortions to flows of funds, are important activities. But we do know that the institutional, legal, social and economic terrain varies markedly between and within G10 and APEC economies. Setting one leg of the tripod (pillar 1) at a level which matches the terrain in G10 countries does not necessarily mean that it will suit the terrain within APEC.

The three pillars approach, if appropriately structured and implemented, can contribute to the development of an efficient and stable financial system by: ensuring an adequate capital buffer to absorb risks; encouraging banks to price appropriately for risk; and preventing regulatory impediments to bank and financial market efficiency arising from intrusive regulation. Underpinning the need for a new, more flexible approach, which builds upon the 1988 Basel Accord, are such factors as the dramatic changes which have occurred in bank risk management systems, growing discrepancies between regulatory capital and bank assessments of appropriate economic capital, and growing diversity in banking business and risk management practices.

While the 1988 Accord was initially designed for banking regulation in the G10 group of countries, but rapidly implemented world wide, Basel 2 has a worldwide focus – as might be expected given increasing internationalisation of banking. However, whether an advanced approach based primarily on techniques appropriate to sophisticated markets can be easily implemented in emerging countries with less well developed financial markets, poorer information systems, and different governance practices is open to question. And, if implementation is not currently feasible, the question of whether economies of such countries will be adversely affected by the resulting changes in world banking markets remains open for debate.

The Basel 2 proposals significantly extend the definition and treatment of risk beyond that contained in the 1988 Accord and its subsequent modifications. They incorporate a capital charge for *operational risk* and propose changes to the risk weights for counterparty/credit risk used in the *standardised* approach for determination of risk based capital requirements. As well as the suggested changes to the *standardised* approach which was introduced in the 1988 Basel Accord, Basel 2 proposes the alternatives of *foundation* and *advanced* approaches which draw on internal risk measurement and management models of banks to derive capital charges for credit risk.

The intention of the changes is that the overall capital requirement for banks using the *standardised* approach will not change (but will be more accurately calibrated to the composition of risks – and could thus be expected to influence bank pricing of credit to different customers). Basel 2 provides incentives, by way of lower capital requirements, for banks adopting these more sophisticated approaches to risk measurement and management.

In that respect, the approach can be expected to influence the evolution of individual bank management systems and techniques towards greater sophistication. But at the same time, the competitive advantage provided to more sophisticated banks has the potential to distort the structural development of national banking sectors if the resource costs of achieving such status make that infeasible for currently smaller and less sophisticated banks. Balancing these effects by appropriate fine-tuning of regulatory requirements within the range of discretion available to national regulators will be a difficult but important task, particularly when dealing with both multinational and local banks operating in the same markets.

Credit Risk Measurement and Management

This problem is brought into sharp focus when the costs and resource requirements of implementing the sophisticated techniques for credit risk measurement and management reflected in the foundation and the advanced *Internal Ratings Based* approaches are considered. Such techniques require significant technical expertise, resources, and extensive data-bases in order for models to be developed and tested.

Of course, if such techniques are value adding for banks, it might be expected that they would be adopted anyway – without the need for incentives by way of lower capital requirements. The underpinning logic therefore would seem to involve the assumptions that (a) the advanced techniques are value adding but (b) there are significant impediments to adoption by many banks. If so, it might be argued that the size of incentive offered should vary with the perceived size of impediments to adoption. More generally, a complementary strategy of reducing those impediments, including capacity building and cooperative ventures would also seem warranted.

Regulators also face significant additional resourcing problems, since they are responsible for determining whether banks have appropriate internal systems for advancement to foundation and advanced status under Basel 2. The expertise required and time involved in such an accreditation process raise significant issues for both the aggregate funding needs of regulators as well as the incidence of such funding requirements across government budgets, the financial system and banks seeking accreditation.

The process of customer credit risk assessment and loan approval, which is given great significance in Basel 2, is an area in which proposals focused on practices in sophisticated multinational banks may not translate easily to parts of the APEC region. At one level, long term inter-relationships between banks and their customers can be argued to have often had more relevance to credit decisions than formal risk assessment techniques in some APEC countries. While Basel 2 can be expected to change that approach, long standing cultural and institutional practices can be hard to shift. However, increasing focus upon risk grading systems can be expected to influence the behaviour and development of an integrated approach to risk management.

At another level, the process of credit grading varies markedly across three customer classes – in a way critical for the APEC region. Automated processes (such as credit scoring and use of external credit bureaux) are becoming increasingly dominant at the retail level. Large corporate customers are increasingly assessed by market based methods which map data into models of probability of default and loss given default estimates – and which can be benchmarked against market data. However, for the small to medium size enterprise (SME) sector, judgement and interpretation remain critical factors – making benchmarking of such models and compliance with Basel 2 advanced methodologies difficult to achieve.

Whether the capital requirements, and thus pricing, for credit to the SME sector will be appropriate relative to other sectors is thus a key question for banks and regulators in the APEC region. This is particularly important given the major role that SME's play in regional economic activity, and the fact that most banks in the region will initially be regulated under the "standardised" approach. Although individual loans to SME's may have higher expected loss rates (which should be reflected in provisions), a diverse SME portfolio, backed by sound collateral could involve relatively low unexpected loss rates relative to a smaller number of loans to larger corporates – and thus warrant a smaller allocation of economic capital.

These issues suggest that particular attention needs to be given to the revised "standardised approach" which assigns different risk weights for different types of business borrowers. Although risk weights for externally rated corporates can be below (or above) 100% depending on the rating, unrated business borrowers, such as SME's, will be assigned a 100% weighting. The proposed revision to the treatment of SME's in the internal models approach (released on 10 July 2002), whereby the risk weights could be lower, raises the possibility of an uneven playing field for banks operating under the alternative approaches in dealing with SME's.

In the area of credit risk measurement and management, significant changes are occurring as major multinational banks increasingly move from a focus on individual transactions which are initiated and held on balance sheet, to a portfolio approach for assessing overall risk and trading of credit risk positions through developing markets for credit risk transfer. In addition to an ongoing need for strong credit approval and monitoring processes, modelling of the overall credit portfolio position to estimate expected losses (and thus provisions) and determination of economic capital required to meet unexpected losses at some confidence level, is a key feature of the Basel 2 advanced status.

Such portfolio approaches require extensive loan history data to enable modelling of probability of default, default correlations across counterparties, and losses arising from defaults. Within the region, this data is not readily available in a useable form for many participants. Moreover that data which may be available is potentially contaminated by the experience of the 1997 Asian Crisis – which has also led to many banks in the region currently having atypical portfolios with high concentrations of non-performing and restructured loans.

The experience of 1997 also highlights a well known problem of portfolio modelling of credit risk. Historical correlations tend to break down in periods of market stress. Standard credit risk modelling techniques may be of limited value in dealing with extreme events, where the "art form" of stress testing assumes significance. Credit risk portfolio modelling may be very useful at the individual bank level in monitoring its position in "normal" times, but of less comfort for banks and particularly regulators in assessing bank strength and ability to cope with system wide stresses.

The problem for banks and regulators in the region is in both attracting and retaining adequate staff with experience and expertise in this area, and in ensuring that management is aware of and able to envisage those extreme events. History is replete with examples of credit cycles where the lessons of a decade earlier are forgotten in the rush for new business.

Operational Risk and Implementing Change

An important feature of Basel 2 is the incorporation of an allowance for operational risk into the capital adequacy standards. Operational Risk is "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events". This includes such things as fraud, personnel failure, failure of IT systems, actions by government, legal disputes. Estimates of operational risk place it at around 20% of total risk.

While significant resources can be expended attempting to measure operational risk using complex techniques, significant advances can be made by use of relatively low cost simple techniques. To a large degree that reflects the fact that most of the benefits are to be gained from the increased focus on risk management – not from the precision of measurement per se. Progress made in this area varies markedly across banks in the region as does the capacity of supervisors to adequately assess banks' internal operational risk systems.

For many banks in the region the usual situation of continuous change in response to market forces, technology, innovation, is compounded by the Basel initiatives. Difficulties faced include: improving information technology systems, deciding upon and implementing appropriate risk management systems for various types of risk, and permeating new approaches throughout the bank. Data shortages, shortages of suitable staff, management culture and tradition, "thin" markets for risk diversification and transfer, are among the problems which can be identified. For banks in the region, the progress to Basel 2 "advanced" status would seem likely to be quite slow.

The current state of risk management systems in large banks in developed countries and most banks in Asia appears to be quite diverse, reflecting in part the nature of the market in which they operate. That, in itself, is not a problem – since systems should reflect the activities and types and extent of risks taken on. However, ensuring that regulatory treatment of alternative approaches is fair and reasonable and does not distort the competitive playing field is an important issue facing regulators in the APEC region.

Supervisory Review Process

The second pillar of Basel 2 is based on the need for adequate monitoring of bank risk management processes and practices, and the implicit recognition that market discipline and resulting governance practices may not, by itself, be adequate.

Supervisory review is an activity which requires significant expertise and resources. This raises a number of issues for supervisors in the APEC region particularly as banks make the transition from the standardised approach to the advanced approach. First, there are potentially significant costs and few benefits if regulators and banks are at different stages on the learning curve regarding new risk measurement and management techniques. Second, with ever increasing international integration of financial markets, there is a clear need for cooperation and coordination between national regulators. Third, as boundaries between financial institutions (and capital market activities) continue to become more blurred, the appropriate division of responsibility between regulatory agencies (or integration of such agencies) becomes increasingly important. Fourth, techniques for adequate financing of regulatory agencies warrant further examination – including analysis of reliance on levies on supervised institutions versus government budgetary financing.

Market Discipline

The third pillar of Basel 2 is reliance upon market discipline to reinforce the other pillars of capital requirements and the supervisory process in promoting financial system soundness and stability. Much of the debate and analysis surrounding Basel 2 has been focused upon the features of the internal models proposals reflecting their applicability to large multinational banks. However, perhaps only as many as forty banks world-wide might initially qualify for "advanced" status – including only a handful of banks headquartered in the Asia-Pacific region.

For many of the economies in the APEC region, there may be no local banks close to achieving the advanced status. Likewise, there may be few regulators whose supervisory processes currently meet the (Pillar 2) standards compatible with allowing banks to operate under the advanced status capital approach.

The introduction of Basel 2 can be seen as an important component of the process of financial reform, whereby intrusive regulatory controls over financial institutions and markets are removed in favour of a more liberalised approach. In such a regulatory approach, the managers of financial institutions are recognised as being responsible for risk taking and its management subject to: meeting adequate capital requirements; appropriate supervisory oversight; requirements to provide adequate disclosure such that market discipline can operate as a spur to efficiency and check to excessive risk taking. However, as experience has shown, successful financial liberalisation requires that a number of preconditions be met – including importantly the development of adequate market discipline and good corporate governance practices.

In this regard, continued progress towards implementing pillar three is as important as analysis of capital adequacy requirements for countries in the region. Improvements in accounting standards, disclosure requirements, corporate governance arrangements are all part of this process. Likewise, ongoing development, and improvements in the integrity, of financial markets through which information is signalled, and market discipline exerted, by price changes is an important part of the changes required.

It is crucial that linkages be made between capacity building measures to support implementation of Basel 2 generally, and incentive structures to encourage the role of market discipline in making Basel 2 effective. There is substantial work to be completed within the region on this linkage, among governments on policy development, in business on responding to market pressures, and in the research community on providing a deeper understanding of the interaction of market development and regulatory structures.

International Agencies and Financial Market Strengthening

The need for regulatory capacity building and strengthening of financial systems in the APEC region is well recognised by international agencies and organizations such as ABAC and PECC. Among the international agencies, the IMF's role (in conjunction with the World Bank) has evolved in this area into the Financial Sector Assessment Program (FSAP). This program provides an external, peer review, assessment of strengths, vulnerabilities and risks in financial systems of member countries, and helps to identify key development needs and policy responses reflected *inter alia* in Financial Sector Stability Assessments (FSSAs) and Reports on Observance of Standards and Codes (ROSCs).

Specifically within the APEC region, the Asian Development Bank established an APEC Financial Regulators Training Program in 1998 aimed at Bank Supervisors and Securities Regulators. (The ADB also supports the *Managing Regulatory Change in Life Insurance and Pensions* Training Program – a three year initiative which commenced in 2001 involving both private sector and official sponsors for training of regulators from the APEC region). As well as direct training of regulatory officials, the programs involve "train the trainer" type initiatives and development of accessible lasting materials to lever on the cost of these activities. However, the APEC Financial Regulators Training Program is currently scheduled to end in late 2002. More generally its interrelationship with the training programs initiated by the Financial Stability Institute at the BIS (which does a lot of training of bank regulators) and the Basle Committee's Accord Implementation Group (which has been appointed by the Basle Committee to oversee efforts to ensure that regulators are able to properly implement the new accord) remains to be developed.

Both the APEC/ABAC and PECC groups have significant financial sector initiatives related to capacity building underway. The Finance Forum of the PECC group is currently undertaking a review of financial institution ownership and risk management practices within the PECC economies, which will provide a valuable comparative resource for assessing risk management techniques in the region against best practice benchmarks. The ABAC Finance Task Force Work Program for 2002 includes projects designed to assist in the deepening and broadening of capital markets and recommendation of actions to promote financial reform.

Moving Forward

Basel 2 involves both potential benefits and costs for the region's economies. Benefits can flow from improved regulatory approaches and more stable and efficient financial systems. Costs may arise if the new approach is poorly implemented or in ways that tilts the playing field towards banks and borrowers from more developed financial systems. Notably, however, there appears to be a willingness to share information by market participants and to cooperate in capacity-building measures.

As well as seeking greater input into Basel Committee deliberations, the agenda, insofar as Basel 2 is concerned, for bankers, regulators, and politicians from the region should include a number of key elements.

Education and Training

At one level, regulators need to understand the details and nuances of the Basel 2 proposals in order that the discretion for action contained therein is wisely utilised. But at a more important level, Basel 2 requires regulators to understand risk measurement and management techniques applied within banks if the supervisory process (pillar 2) is to be adequate.

Facilitating Cooperation and Knowledge Sharing

There is much willingness of private sector participants, from banks and financial advisory firms, to share knowledge and contribute to the strengthening of the regulatory process within the region. Although there are proprietary aspects to the risk management processes and techniques which banks and consulting firms develop, there is much of a public domain nature which can be shared in general training and discussion to assist in strengthening regulatory capacity. And banks are well aware of the spill-over benefits which enhanced supervision and stronger financial systems in the region bring to them.

Regulatory Funding and Structure

Good supervision is a costly exercise and implementation of a rigorous supervisory process adequate to facilitate the transition of local banks to *foundation* or *advanced* status will be very costly. It is also apparent from the experiences of the past that the value to the community of good supervision is very high. Whether banking regulators should be separate from, or integrated with other financial regulators is an increasingly important issue as the boundaries between financial institutions and between intermediation and capital market transactions continue to become more blurred. Development of mechanisms to ensure adequate funding of financial supervisors is also critical, and not unrelated to the desirability of independence of the regulator from political interference.

International Cooperation and Information Transfer

While there should be no expectation of convergence of regulatory systems to one specific model, there is much that can be learnt from other regulators about pitfalls and progress. Indeed, the Basel 2 consultative document notes that "it is intended that Pillar 2 will encourage …that supervisors will share their experiences in implementing Pillar 2. Furthermore, on an on-going basis it is hoped that supervisors can draw on each others experience in applying Pillar 2 in practice."

For regulators in the region, a critical issue is the appropriate pace and method of transition to a new regulatory regime. Moreover, with banks operating across international boundaries, regulatory coordination is necessary to ensure absence of regulatory overlap or of regulatory arbitrage opportunities. There exist several forums through which such information transfer can occur, but the building of networks of prudential regulators within the region is to be encouraged.

Data and Information Infrastructure Development

This is also an area warranting attention. The development and use of more sophisticated risk measurement and management models is a data intensive process. Significant amounts of historical data are necessary for the calibration and validation of risk measurement models. Without such information it will not be possible, for example, to ascertain whether risk weights applied, and thus pricing of credit, to certain classes of borrowers is appropriate. Information systems of many banks in the region are probably inadequate to easily generate the requisite historical data. Newness of certain markets, information systems consequences of bank mergers and acquisitions and past changes to such systems, and the disruption of the 1997 Asian Crisis are among the contributing factors. Cooperative efforts to develop data bases specific to the regions credit markets are warranted. Sharing of databases and knowledge will be a key ingredient in capacity building for the region for both estimation of default models and stress testing.

Financial Market Development

The existence of strong capital and derivatives markets is a key ingredient underpinning the more sophisticated Basel 2 approaches. Credit Risk management techniques increasingly involve the use of techniques for the trading or transferring of credit risk, such as credit derivatives and securitisation. So too, derivative markets are important for the efficient transfer of market risk. In addition, development of bond and equity markets through which information about borrowing companies is reflected in prices are important for benchmarking bank credit risk assessments and for the application of some of the more sophisticated risk measurement techniques. Regulators need to be familiar with these products and activities of such markets, facilitate rather than hinder their appropriate development, and be able to monitor and supervise bank involvement in such markets.

Conclusion

The New Basel Accord will play a significant role in shaping the future structure of the region's financial markets. There are significant challenges for regional regulators and bankers in achieving the transition from the standardised approach to the advanced approach, and for public policy makers in facilitating the achievement of pillar 2 (effective supervisory processes) and pillar 3 (adequate market discipline) standards. Equally important, for national economies, are likely to be the challenges of ensuring that the competitive playing field does not become unduly tilted in favour of those international banks using the advanced approach and able to benefit from lower capital requirements at the expense of local banks not so favoured. Since the risks arising from that situation increase with the time taken for local banks to achieve advanced status, the urgency of implementing the agenda outlined above is heightened.