Data and Systems Challenges in the Implementation of Basel II

The complexity of Basel II continues to pose challenges in the implementation of the new capital adequacy standards among banking institutions and bank supervisors in the global financial system. Implementation issues and challenges have been widely discussed as banking institutions and bank supervisors seek to learn from each others' knowledge and experience. One area that had attracted wide attention is the data and system readiness of banking institutions as they move closer towards the implementation deadline of Basel II in their respective jurisdictions. Indeed, the credibility of the modelling process of the various risk parameters and hence the computation of minimum capital under Pillar 1 of the new accord depends very much on the quality of data and system architecture and infrastructure established by the banking institutions.

Underlying the complex regulatory requirements of Basel II is the expectation for banking institutions to have in place, robust systems and data management infrastructure that would enable sound risk management processes. A fundamental aspect of this is an enhanced data infrastructure that would allow banking institutions to extract information across the various systems in a consistent and timely manner. This would include having the capability to obtain a single and consolidated view of their borrowers or group of borrowers that enables effective monitoring of borrowers and segmentation of exposures into appropriate portfolios according to their risk profile. While most banking institutions have already captured the information on the various credit exposures of their borrowers, this information often resides in database systems which are not fully integrated. Hence, the process of extracting consolidated view of borrowers and obligors would be exposed to errors and inefficiency such as data inconsistencies and duplications. Systems integration that is required involves standardising the customer identifier of each borrower and firmly establishing the linkages between borrowers and all their related parties and the exposures to these parties. To obtain an accurate risk profile of the various credit facilities granted to a borrower or group of borrowers, systems that maintain information on the borrower and the related credit facilities must also be fully integrated with the collateral management system.

The integration of the various systems capturing information related to the borrower would not only provide a strong foundation for an effective credit risk management system but also support a more efficient business decision making process. With enhanced capacity to monitor their respective borrowers, banking institutions would be able to promptly detect any deterioration in the creditworthiness of the borrower or its related parties. The integration with the collateral management systems would also facilitate a more effective monitoring of collateral performance, particularly financial securities. Effective monitoring of such collateral will ensure that any reduction in their value would allow banking institutions to undertake appropriate action to mitigate the resulting increase in risk. At the borrower level, the overall view of the customer would enhance the ability of banking institutions to assess customer profitability, thus facilitating the marketing of new products to these customers. With the enhanced infrastructure, banking institutions will also be in a better position to undertake better product pricing, more accurate customer and portfolio profitability analysis and more effective portfolio risk management. From a strategic perspective, such information could also be used as vital inputs for the development of the banks' future business expansion strategy to the more profitable segments.

Besides systems capability, the acceptability of internal estimates of the various risk drivers such as the Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD) for the computation of capital adequacy under the Internal Ratings Based (IRB) approaches would be dependent on the quality and adequacy of input data used by the banking institutions in the modelling process. Lack of data could potentially result in a model that is not adequately robust to provide consistent results for the purpose of capital computation. There would also be difficulties in validating the model if the sample size of defaulted borrowers is either too small or have not been appropriately captured. The requirement for data that covers a full economic cycle that is typically a minimum period of ten years, for purposes of modelling the risk drivers also poses a challenge for banking institutions. In this context, a key consideration for banking institutions and supervisors in Asia would be to deal with the impact of abnormally high default incidences and loss rates

during the period following the Asian financial crisis in 1997-1998. While the impact would dissipate naturally as banking institutions populate their database with new data over time, banking institutions would still need to come to agreement with their supervisor on the adjustment methodology to normalise the impact of the crisis data during the initial period of Basel II implementation. The objective is to ensure that the regulatory capital is neither understated relative to the actual risks nor too excessive that it becomes very costly for the banking institutions to conduct their business.

In the context of delivering good model performance, the data collection process is equally important in ensuring data quality. Sound data management processes and procedures are critical to ensure that data is consistently captured and sufficiently accurate. Central to this is the need for banking institutions to establish clear lines of authority and accountability in ensuring that high data quality and integrity standards are observed at all times. This can only be achieved in an environment where the importance of having sound data quality management practices is acknowledged both by the top leadership as well as the various business units within the banking institutions.

Given the intensity of the internal data requirements under the advanced approaches for the computation of capital requirements for credit and operational risk, there has been a tendency to overlook the importance of external data in the implementation of Basel II. In general, external data such as the default studies published by external credit assessment institutions (ECAIs) as well as external credit and operational loss databases may provide useful insights and be used to facilitate the adoption of the advanced approaches. In the context of corporate credit model development in particular, default and credit migration studies from ECAIs may provide valuable input for purposes of benchmarking the output of the models with the experience of ECAIs with local corporates. The default experience of the ECAIs which are usually publicly available may be useful for banks to validate the appropriateness of their model output. The default studies published by the ECAIs can also facilitate the calibration of PD estimates to the internal rating scales. Banks intending to adopt the IRB approaches have been provided the option to map their internal ratings with the rating scales used by ECAIs and subsequently attach the PD estimates attributed with the rating scale to their rating grades. Nevertheless, an important consideration in this process is for banking institutions to ensure the consistency and relevance of these external data to their own internal portfolio, both in terms of rating definition and criteria.

The ECAI ratings also act as an indicator of the relative riskiness of a corporate borrower under the Standardised Approach and are therefore used as the basis for the capital computation. While this may be appropriate in many developed countries with high rating penetration, default information associated with ECAI ratings in emerging markets could be amplified by the smaller sample size of rated borrowers. The result of these structural constraints must therefore be taken into account by both banks and regulators in emerging markets when ECAI ratings are used for purposes of risk management and capital computation. In this context, the pooling of ratings information amongst regional ECAIs should be explored by regional supervisors as a long-term initiative to enhance the credibility of external ratings as the basis for the capital computation under the Standardised Approach.

Given the significance of having robust data and systems infrastructure for the successful implementation of Basel II, Bank Negara Malaysia will be issuing industry guidance on data quality management and management information systems in 2006. Whilst the guidelines will be outlining broad supervisory expectations relating to data integrity and effective management information system within banks, the expectations would be the basis for more specific data requirements to be issued by the Bank for Basel II implementation. In particular, the guidelines will be used by the Bank in its pre-validation assessment on data and systems capabilities for effective Basel II implementation.

In an effort to facilitate industry Basel II implementation efforts on data, the Bank is also exploring other industry-wide initiatives that can be undertaken to accelerate the progress made by banks. In this regard, the possibility of leveraging existing infrastructure like the Central Credit Reference Information System (CCRIS) and the Fraud Information Database System (FIDS) would be explored. The central credit repository system such as

the CCRIS could be enhanced with a single borrower group identifier mechanism to facilitate the monitoring of risk concentration on borrowers and their related parties. The information could be shared and used by all banking institutions as benchmarks to ensure that information on borrowers and their related parties captured internally are accurate. The CCRIS could also be further enhanced with the inclusion of ratings on banking institutions' corporate customers, thus facilitating supervisory surveillance and the assessment of the robustness of internal ratings systems among banks.

An industry-wide collection of data on operational risk losses is another initiative where the Bank sees potential benefits for the industry over the long-term. In Malaysia, the existing platform such as FIDS for the capturing of industry data on fraud is only a small portion of operational risk loss data that would be required by banking institutions for the modelling of operational risk. Given the time taken to develop a meaningful operational risk database, the possibility of developing an expanded operational loss database at the national or even at regional level should be explored by banking institutions and supervisors to support further development in operational risk management within the Asia-Pacific region.

From a capacity building perspective, the need to ensure and maintain a high standard of data quality and system capability is not confined to banking institutions. Supervisors will also need to reassess their existing reporting infrastructure from banks given the extensiveness of data required for purposes of more rigorous supervisory monitoring and risk assessment. While there would be a need to enhance the supervisory reporting framework to meet this objective, the challenge for supervisors would be to raise the supervisory reporting standards without putting undue and unnecessary burdens on the banking industry. For Bank Negara Malaysia, investment in data and system capability would complement the continuing efforts and investment to develop specialised skills and expertise for the assessment of banks' internal models and risk estimates. The risk specialist's assessment would be a fundamental basis for making supervisory judgments on the credibility and robustness of the capital calculation process under Basel II environment.

During the year, the Bank also engaged a series of discussions with local external credit assessment agencies (ECAIs) in its process to finalise the criteria for recognition of ECAIs for the implementation of the Standardised Approach. On the international front, Bank Negara Malaysia continued to participate in active dialogues with home supervisors of foreign banking institutions to gain greater clarity on the approaches undertaken by these regulators whilst forging greater cooperation with them for the implementation of Basel II. The Bank has been particularly involved in the work of the Executive Meeting of East Asia Pacific (EMEAP) Working Group on Banking Supervision, focusing on Basel II related issues that are common among member countries, such as the recognition of ECAIs and home-host issues relating to the validation of internal models.

In addition to the initiatives that are being carried out towards preparing for the adoption of Basel II, continued efforts are also being channelled to strengthen the risk management practices of the industry. As banking institutions undertake more investment, trading and hedging activities, it becomes increasingly essential for them to take into account the impact and potential effects of movements in the financial market. In this regard and to complement the Basel II initiatives, the implementation of the *Market Risk Capital Adequacy Framework (MRCAF)* which was issued in September 2004, took effect in April 2005. This represented a significant shift towards explicit provision of regulatory capital for potential losses arising from activities that expose banking institutions to market risk. Further to this, the recent period has witnessed a significant expansion in loans extended by banking institutions for the purchase of residential properties. To ensure that such expansion is undertaken in a prudent manner and that sufficient capital is maintained to support this increased exposure, the risk-weight imposed on housing loans secured by first charge that have turned non-performing was increased from 50% to 100%. In addition to the regulatory changes, the Bank also focused its supervisory resources on assessing the adequacy of risk management systems and market conduct practices in household lending. Despite the incorporation of market risk capital requirements into the existing RWCR framework and the increased risk-weight for housing loan NPLs, banking institutions remained sufficiently capitalised with the RWCR maintained at levels well above the minimum requirement of 8%.

In recent years, banking institutions have begun to engage in more credit derivative transactions to hedge themselves against counterparty risks and to reduce