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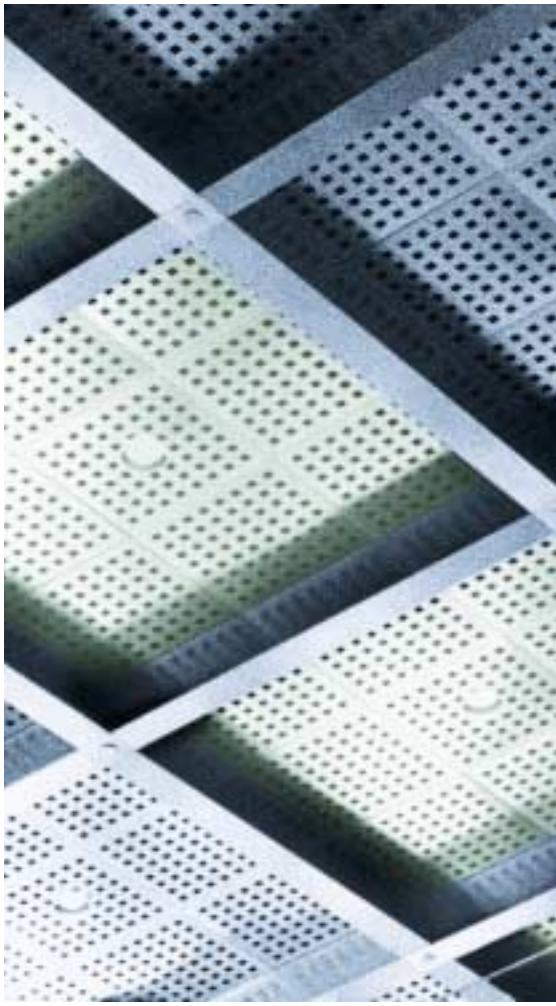

Introduction

Welcome to the seventh edition of BaselBriefing. Since the publication of BaselBriefing 6 in December 2003, the Basel Committee has published three additional working papers addressing key areas of concern raised by the industry in its response to Consultation Paper 3.

This edition begins with articles addressing the three working papers issued on Securitisation, Operational Risk and Expected Losses and discusses to what extent the revised proposals address expectations.

Also in this edition we investigate the establishment of an Operational Risk Early Warning System, and Economic Capital Management, linking to KPMG's Economic Capital White Paper published recently, and also 'The Basel Handbook', one of the few textbooks published that addresses the implementation aspects of Basel for institutions.

The results of the global KPMG Basel survey of 303 financial institutions in 39 countries, published in 2004, reveal that many banks are falling behind on their projects to implement the Basel Accord. Around half are still only in the pre-study or assessment phase. Implementation is due in 2007, but requires that banks are using Basel compliant systems and data for several years before then. We therefore include a more detailed analysis of the survey results in this edition, together with an article on the potential use of XBRL for the Basel data management requirements. We also provide insights into how the Basel Accord is being introduced in South Africa and Korea and how this may impinge on the Committee's aim of a level international playing field. Looking ahead to the rest of 2004, we await with interest the release of the final Banking Book Accord by June 2004 and following that the final draft EU directives and National Supervisor consultation papers. In the meantime the Trading Book Review will be taking place with the regulators consulting with the industry to identify a prioritised list of issues by the end of the summer.

These issues will be taken forward for resolution later in 2004. The Basel Committee is keen to stress that they are on target to meet the Banking Book deadlines and to resolve the remaining issues, but have also stated that the Basel II approach should be evolutionary. This is a clear indication of the need for a stable framework with structured flexibility to enable adaptation to relevant changes in best practice in the future.

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Changes to the securitisation framework

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On 30 January 2004, the Basel Committee published yet another working paper[1] on proposed changes to the securitisation framework, which had been heavily trailed in a press release early in January. Of all the subjects covered by the New Basel Capital Accord ('The Accord'), securitisation is the area which has changed the most over the last three years since the publication of CP2[2].

There have been numerous additional working papers, consultation exercises, delays in publication, complication and simplification during this time. This latest working paper is an attempt to "…address industry concerns related to the complexity of the securitisation proposal and the potential operational burden related to its implementation"[1]. Additionally, the Committee focused on industry comments regarding the "need for greater internal consistency among the proposals comprising the securitisation framework"[1]. This article will look at some of the proposed changes and consider whether, after all the trials and tribulations, this latest incarnation will be around long enough for organisations to plan effectively.

The securitisation proposals in CP3[3] were heavily criticised by the industry in the key areas outlined below:

- Complexity of calculation;
- Operational burden on firms; and
- Lack of internal consistency.

The Committee does appear to have had a change of heart in some key areas below, and the changes proposed demonstrate a willingness to respond to the concerns that firms have.

Internal Assessment Approach (IAA)

The Supervisory Formula (SF) approach was introduced to deal with unrated exposures, but the industry reaction has been negative towards its associated complexity and computational burden.

The IAA is proposed for use in calculating capital requirements for liquidity facilities and credit enhancements extended to ABCP conduits that have an internal rating equivalent of investment-grade at inception.

The Committee has tried to align the treatment with the bank's internal risk management practices, with many banks claiming that they already internally rate their Asset Backed Commercial Paper (ABCP) exposures in a manner consistent with the credit rating agencies' methodologies which would form the basis of the new operational standards.

The working paper sets out the proposed operational requirements which would allow the firm to apply the Ratings Based Approach to calculate the exposure risk weights.

1 Basel Committee, 'Changes to the securitisation framework', 30 January 2004.
2 Basel Committee, 'The New Basel Capital Accord' – Consultation Paper 2, January 2001.
3 Basel Committee, 'The New Basel Capital Accord' – Consultation Paper 3, April 2003.

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Simplified SF approach

It has been said that only two people in the world fully understand the SF presented in CP3 which was to be used to calculate risk weights for unrated securitisation exposures. To address this common concern, the Committee has published details of a simplified formula, together with its derivation to be made available to all unrated exposures. The key difference in the outputs is that two pools with the same *Kirb*[4], but different exposure-weighted average Loss Given Default (LGDs) would now have the same capital requirement (in contrast with the CP3 calculation). However the Committee is still concerned about whether they have the calibration correct, and this probably requires a further calibration exercise, or example bank data in order to verify.

It is interesting to note that a significant number of respondents have come back in support of the CP3 formula, vouching for its conceptual soundness, and there appears to be a groundswell of opinion towards maintaining that SF formula, rather than move to a less precise and conservative treatment.

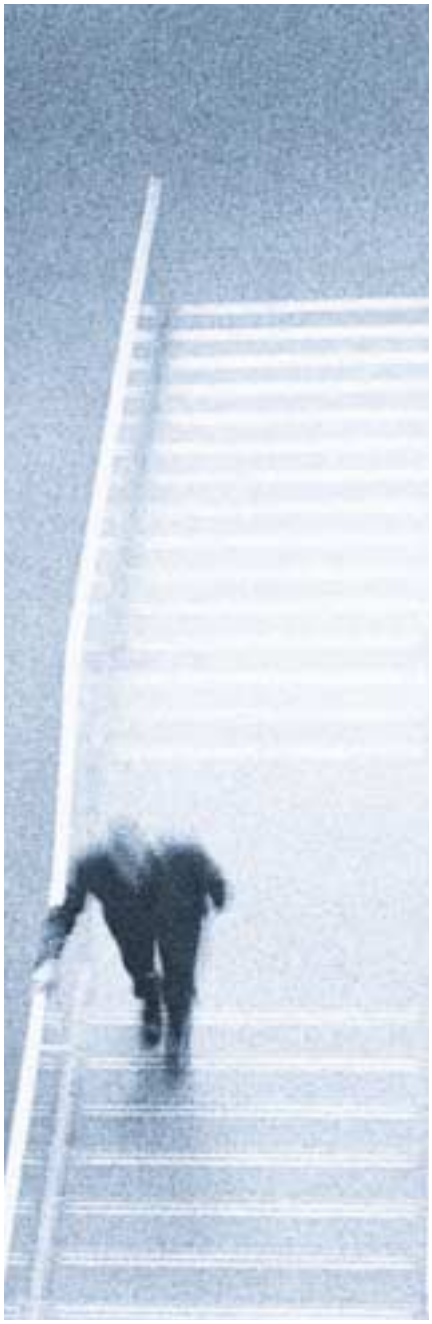
Top-down calculation of Kirb

Many firms have had trouble in calculating *Kirb* for securitisation exposures, particularly those subject to the 'top-down' Internal Ratings Based (IRB) approach. Where firms cannot meet the operational requirements for decomposing their expected loss estimates into reliable Probability of Default (PD) and LGD components, under CP3 they must assign a 100 percent LGD which is producing overly conservative results.

This area remains work in progress and the Committee intends to publish less restrictive operational requirements in respect of securitisation *Kirb* calculations. The Committee will also deal with:

- double counting of capital charges for dilution and default risk;
- corporate asset correlation assumptions in connection with default risk; and
- treatment of refundable purchased discounts.

It is clear therefore that there is still a lot of work to be done, even to complete the work that the Committee has accepted needs doing in this area.



4 Regulatory capital requirement for the exposures calculated on an Internal Ratings Based basis, assuming that they remained on balance sheet.

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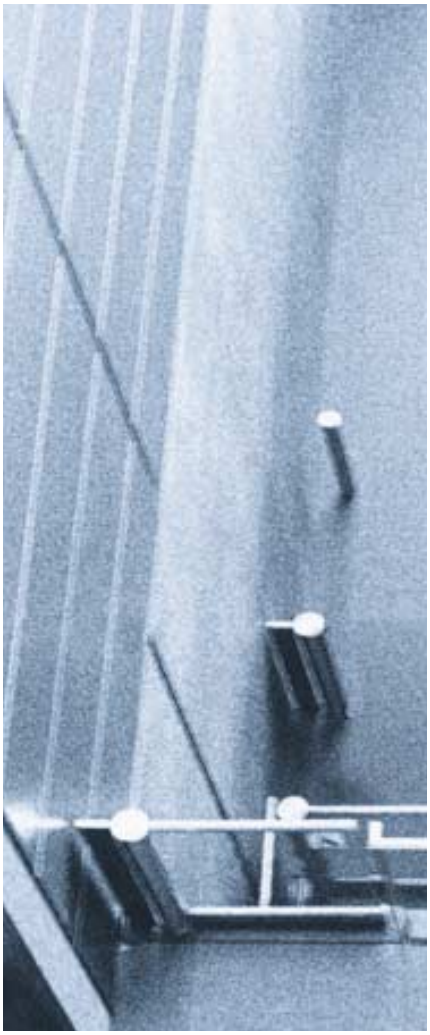
With only a few months until the expected publication of the latest, and hopefully, final draft of the Accord, there is still much uncertainty surrounding the securitisation proposals.



Unrated exposures under the Ratings Based Approach (RBA)

A particular bone of contention for firms has always been the requirement for originating banks to deduct all positions (whether externally rated or unrated) that fell below the *Kirb*, in contrast with investor positions. The argument made obvious sense – why should the capital requirement depend on who held the position?

In this working paper the Committee has relaxed its position and proposes to allow the RBA to be applied to all rated positions, even if they are below the *Kirb* boundary. This simplification and move for greater consistency should be a welcome relief to firms that are involved in significant originations.

Changes to the RBA risk weight tables

In this section, the Committee has accepted the industry's suggestion that the tables should be based around 'seniority' rather than 'thickness' which removes the requirement to calculate the relative seniority, with limited reduction in risk sensitivity. More risk sensitivity has been introduced with further sub-divisions in the risk weight tables, however there has been no move on the contentious issue of a 7 percent minimum risk weight for the most senior AAA tranches. The Committee has not been persuaded by some of the research published by industry respondents. They are also unwilling to entertain the idea of separate RBA tables for different asset types, the conclusion being that it would be unlikely to improve risk sensitivity.

Conclusion

The Committee has spent a difficult three years trying to improve the risk sensitivity of the capital treatments for securitisation while providing a fair and consistent framework which would not overburden institutions. As with other key areas (not just in the Accord, but throughout regulation) there is a difficult balancing act between sensitivity and complexity and this has never been more apparent than in the troublesome development of the securitisation proposals.

With only a few months until the expected publication of the latest, and hopefully, final draft of the Accord, there is still much uncertainty surrounding the securitisation proposals. While the latest changes address some key concerns raised previously, many issues are still unresolved, and it remains to be seen whether those in the industry will be entirely satisfied with the compromises proposed. It may be that this section of the Accord will need to evolve over time as more analysis is done to determine the impact and appropriateness of further changes.

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Operational risk – CP3 and beyond

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Since the publication of the first consultative paper on the New Capital Accord of the Basel Committee on Banking Supervision (BCBS) in June 1999 the envisaged regulation of operational risk management has changed fundamentally.

However, comments on the third consultative paper (CP3) show that quite a number of important issues still remain unresolved. A similar picture is given by the comments on the third consultative paper of the European Commission Services Capital Adequacy Directive.

Criticism revolves around the following major issues:

- Incentive schemes for moving along the spectrum of approaches (basic indicator, standardised, advanced measurement (AMA));
- Home-host issues, especially in recognising AMA models across different jurisdictions as well as the avoidance of double-counting of gross income generated between members of a banking group; and
- Recognition of insurance beyond the current 20 percent cap of the gross capital charge as well as for the simpler approaches than the AMA.

On 30 January 2004 a paper titled "Principles for the home-host recognition of AMA operational risk capital" was published. This paper builds on the "High-level principles for the cross-border implementation of the New Accord" paper from August 2003 and is one of the first concrete outcomes of the Accord Implementation Group. Significant internationally active subsidiaries of banks cannot derive their capital charge from a Group AMA, but will have to calculate regulatory capital on their own. The difficulties of building AMAs at this disaggregated level has prompted adverse reactions from the industry.

The other two issues mentioned above remain open. In particular, the need for incentives to encourage banks to aspire to the AMA, and hence to implement sophisticated operational risk management techniques.

The expectations for the Accord, which is to be published "no later than mid-year 2004", have been reducing. There is a risk that the 'Final Accord' will leave issues open and be subject to later changes and amendments. In addition to that, at least some countries, including Germany and the US, plan to conduct a fourth Quantitative Impact Study (QIS 4) in order to judge better the effect the New Accord will have on the capital level of banks. Its results could give rise to changes in methodology and parameters.

Notwithstanding the open issues, several regulatory bodies, e.g., in the UK and in Germany, have started an in-depth dialogue with a number of banks to work on the national implementation of the Accord. There is hope that the outstanding issues which have not been addressed sufficiently on the international level could be resolved at a national level first and then be adopted internationally, at least to some degree, e.g., through the Accord Implementation Group.

Despite the uncertainties surrounding the Accord, banks need to continue their efforts in implementing effective and efficient operational risk management processes and techniques. In addition to the business benefits, particularly the development of a control framework and loss database, they are much better placed to give focused responses to developing regulatory proposals.

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Smoke, mirrors and expected losses under Basel II

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The introduction of the Internal Ratings Based (IRB) approach under Basel II opened up the debate as to what regulatory capital should cover. In particular, should it cover both expected and unexpected losses? To those firms which already had economic capital models for credit risk, this question seemed very odd.

There has always been an industry consensus that Expected Losses (EL) should be covered by margins, fees and provisions. Indeed, the development of a base case, including EL, is central to a firm's planning and budgeting exercise. In contrast, Unexpected Losses (UL) are seen as a capital issue and to be covered by the capital model.

The problem faced by the Basel Committee is caused by the convoluted definition of regulatory capital. This includes General Provisions (GP) – up to a maximum of 1.25 percent of Risk Weighted Assets. Yet GP are also one of the principal mechanisms for covering EL. It therefore seemed logical to include EL in the calibration of the IRB regulatory capital charge.

With hindsight, it would have been much simpler to change the definition of capital at the start of the Basel II process and to calibrate all approaches to that definition. This would also have had the benefit of making the regulatory capital calculations less procyclical, which has been an ongoing concern of the Committee. The treatment of EL could then have been a separate issue, probably best dealt with under Pillar II.

Instead the IRB approach has been continually tweaked to make sure that EL was treated consistently. This started with a consideration of Specific Provisions (SP), aiming to ensure a broadly consistent treatment with that of GP. The treatment was extended to deal with surplus provisions and the extent to which they should be 'transferable'. An approach for purchase discounts has also been developed, following similar principles to that for provisions. The introduction of the 'Qualifying Revolving Exposures (QRE)' category within Retail also allowed for Future Margin Income (FMI).

While these treatments are all neutral in terms of passing the 8 percent minimum, there has been a concern throughout their development that they distort comparisons between published ratios, both Tier 1 and total capital. The result has been an Accord that has become increasingly complicated in its attempts to deal with EL.

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The Basel Committee's latest attempt to resolve the problem with EL was published on 30 January 2004. This confirmed its decision to move to IRB risk weight functions, calibrated to cover only UL. The precise changes to the calibration were:

- Corporate – EL removed;
- Residential Mortgages – EL removed;
- QRE – Remaining 25 percent EL removed (see note 1 below); and
- Other Retail – EL removed, correlation changed to a range of 3 percent – 16 percent (see note 2 below).

With hindsight it would have been much simpler to change the definition of capital at the start of the Basel II process and to calibrate all approaches to that definition

1 The QRE curve originally included only 25 percent of EL. This was because of the FMI sufficiency test that needed to be met in order for exposures to be included in the QRE category. The latest paper makes no mention of the FMI test, although presumably it is now no longer relevant.
2 The additional change to the Other Retail curve reflects the implausible double humped curve if correlation were left as its previous range of 2 percent – 17 percent. This reflects the tinkering with the curve to produce an 'acceptable' shape when EL was included.

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There is also a corresponding change in the definition of capital for IRB portfolios with the complete removal of GP. However, EL has not disappeared. Instead the total of GP and SP will be compared with the IRB calculated EL figure. Any shortfall will be deducted from capital – equally from Tier 1 and Tier 2. In the unlikely event of a surplus this will be added to Tier 2. The net effect of all this is broadly the same as if EL were left in the curves, at least when considering the 8 percent capital test. The one exception is for QRE, where the removal of FMI means that provisions will now have to cover EL on their own.

Unfortunately the definition of capital has not been changed for those portfolios on the standardised approach to Credit Risk. There is therefore the problem of providing a hybrid definition of capital for those (probably the vast majority) banks who have some (minimal) activities left on the standardised approach. The solution requires allocating GP between the standardised and IRB portfolios. The standardised portion is added to capital, following the traditional method, while the IRB portion goes into the calculation of the shortfall/(surplus) set out above.

So, in conclusion, the latest proposals seem to have added a lot of complexity for very little change in substance. EL will still directly affect capital adequacy, with the only offset being limited to the level of a firm's provisions. The removal of FMI has greatly worsened the treatment of QRE. Indeed, the justification for a separate curve between QRE and Other Retail (with its easy arbitrage opportunity) would seem now to have disappeared. However, the perceived 'unfair' treatment of credit card operations has therefore returned under these proposals. This may well be dealt with in the Final Accord, perhaps with the removal of any requirement to hold capital to cover commitments for QRE. Last, but by no means least, will be the interpretation placed by analysts on the 'shortfall' in a bank's provisioning level. This is despite the fact that it is comparing apples with pears: an incurred loss model for provisions under the revised IAS 39 standard and a forward looking expected loss model for regulatory capital under Basel II. Developing an approach to releasing this information, without leading to the wrong conclusions being drawn, may prove a major challenge to firms.

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Economic capital based management

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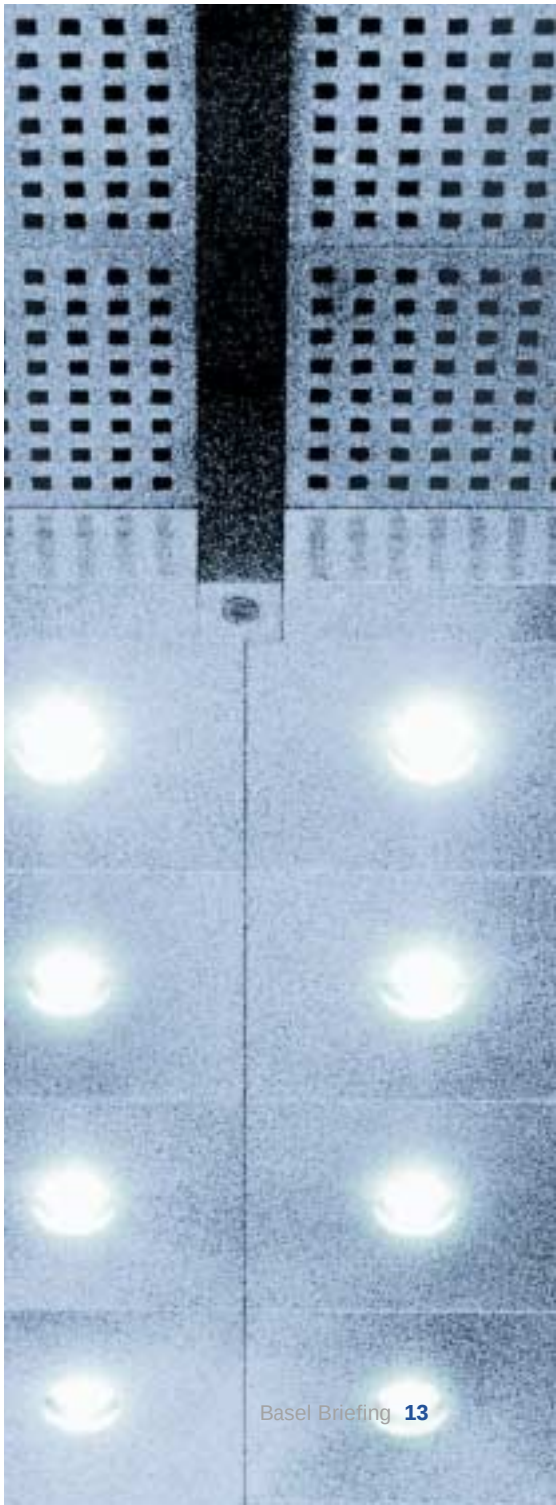
To comply with Basel II's Pillar II ('Pillar II'), banks have to develop and use models to measure, manage and control the risk capital associated with business activities. If their regulator decides that the risk management framework is inadequate then a bank may be forced to hold additional capital in excess of the minimal regulatory requirements.

However, despite Basel II pressures, the core business of a bank is to take on risk. To meet shareholders' expectations regarding the return on equity successfully, it is vital that the risk inherent in each financial product is adequately priced. Since both the share and debt holders providing a bank's capital expect a return which has to be covered by the pricing, the allocation of risk capital to financial products is a prerequisite to obtain their fair value. The allocation of risk capital to business areas also allows identification of value generating areas, where the return with respect to the risk capital exceeds the return expected by the share and debt holders, and areas where less than the expected return is earned. The identification of these business areas is the basis for any kind of systematic maximisation of shareholder value.

Regulatory versus economic capital

To protect deposits and ensure the stability of the banking system, banks are required to provide regulatory capital as a cushion against potential losses. Regulators set minimum capital ratios by defining the risk contribution of business activities on the one hand and capital requirements on the other hand. Nevertheless, a bank's own internal guidelines may require higher capital ratios, e.g., a core capital target ratio above the minimum requirement set by the regulator. In contrast with regulatory capital, economic capital is defined and measured according to a bank's internal policies. In general, the idea behind economic capital is to protect against unexpected losses. Expected losses are not included in the measurement of economic capital, since the pricing and provisioning of the corresponding products already account for them. However, the sources of risk included and the risk measures used differ between different banks.



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Measurement and aggregation of economic capital

Two widely used risk measures are Value at Risk (VaR) and Expected Shortfall (ESF). Given a portfolio of financial products, VaR is defined as the loss not exceeded with a certain probability within a pre-specified period of time. The chosen probability and time horizon depend on the target rating, e.g., 99.98 percent within one year for an AA+ rating.

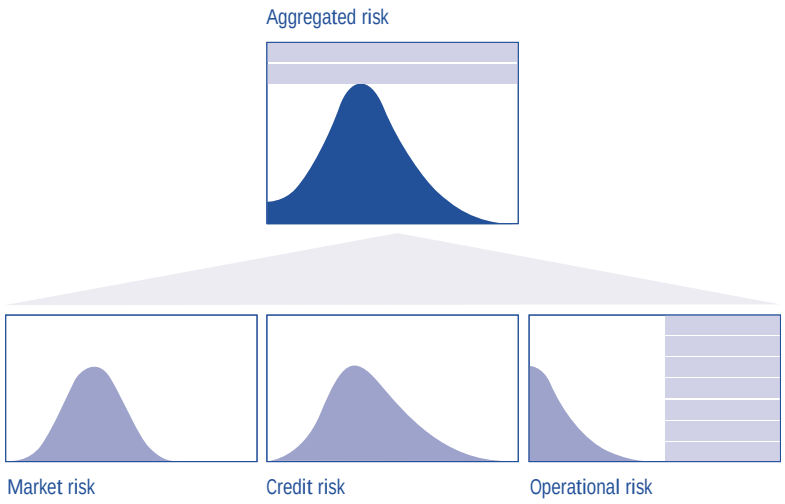
ESF is defined as the expected loss, given that the loss exceeds a certain threshold usually defined in terms of VaR. From an insurance point of view, VaR is a very reasonable risk measure. However, from a methodological point of view ESF incorporates more information concerning the tail of the loss distribution. This is of particular interest because a bank may not only want to ensure survival in normal market conditions (for which a VaR would give some comfort), but also in severe market crises (e.g., 9/11, black Friday). Therefore, VaR calculations have to be accompanied by stress scenarios revealing the size of potential losses in such situations.

In theory, the total economic capital could be calculated using an approach such as Monte Carlo simulation, which simultaneously takes into account all risk factors and their interdependence, by revaluing the whole portfolio of products across all business units. However, this approach is not feasible currently. In practice, economic capital is computed for each risk type, across the business units and then aggregated to obtain the total economic capital based on assumptions about the correlations between different risk types (see Figure 1).

Performance measurement requires total economic capital to be allocated to single business units. Since, in general the sum of the economic capital needed for two business units considered separately exceeds the total economic capital for the two business units combined due to the diversification benefit, this allocation is non trivial.

Besides fulfilling regulatory requirements, the allocation of economic capital to sub-portfolios enables strategic business decisions based on the performance of the business units.

Figure 1
Schematic sketch of the aggregation of three typical risk types: market risk, credit risk and operational risk



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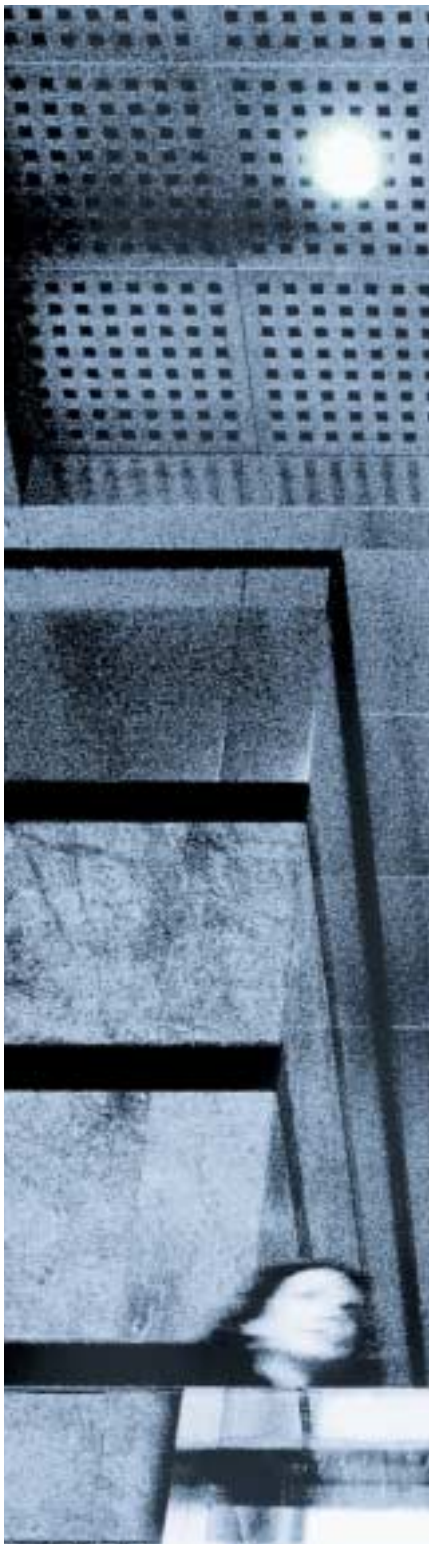
Management based on economic capital requirements

The total amount of book equity required is then equal to the total economic capital. Since book equity is usually the limiting resource, a planning process is necessary to match the economic capital requirements of the single business units to the available book equity. During this process each business unit reports its individual economic capital needs for the planning horizon, which are then aggregated to give the total economic capital requirement. Then the demand for economic capital is iteratively matched to the availability of book equity. For this process it is essential to be able to allocate the total economic capital to single business units to assess and make use of the diversification benefit and to have adequate performance measures to decide on the distribution of the available book equity.

Typically the allocation of economic capital is based on the sensitivity of the total economic capital with respect to the contribution of the respective sub-portfolio. For the two most widely used risk measures, VaR and ESF, this sensitivity can be computed as the conditional expectation of the sub-portfolio loss given the total loss equals or exceeds certain thresholds[1]. In the case of VaR as risk measure for example, the economic capital contribution of a sub-portfolio is given by the expectation of the sub-portfolio loss, given that the loss of the total portfolio equals the total economic capital.

Besides fulfilling regulatory requirements, the allocation of economic capital to sub-portfolios enables strategic business decisions based on the performance of the business units. The two most widely used performance measurement techniques are Economic Value Added (EVA) and RAROC (Risk Adjusted Return On Capital). EVA is defined as expected gross earnings less unit costs, expected losses and the cost of allocated book equity based on a pre-specified required return on equity, (the hurdle rate). RAROC is defined as expected gross earnings less unit costs and expected losses divided by the required economic capital. Hence, profitable business units yielding more than the required return on equity will have an EVA larger than zero and RAROC larger than the hurdle rate.

This article has given a flavour of the issues surrounding economic capital models and their use to comply with Basel Pillar II. A much fuller discussion of this topic is given in KPMG International's recent white paper 'Managing Economic Capital'.



1 Conditional Expectation as Quantile Derivative; D. Tasche; (2000)

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Pillar II: shock absorber or multiplier?

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In the industry many regarded Pillar II as an automatic capital add-on, driven by regulatory requirements rather than by firm specific features

The new capital adequacy framework

When considering the requirements of implementing the new capital adequacy framework, as set forth by the Basel Committee on Banking Supervision (the Committee) and by the European Commission, the focus is usually on Pillar I – Minimum Capital Requirements. This is only natural since it imposes the minimum capital requirements, which are the first hurdle to overcome in implementing the New Basel Capital Accord (Basel II). But all organisations have to be aware that other requirements, equally demanding, are just around the corner… described in Pillar II – Supervisory Review Process.

With Basel II the Committee abandoned the one-size fits all concept that prevailed in Basel I. The growth in volume and complexity of the world's financial system (e.g., the notional of OTC derivates grew from US$72.000 billion in June 1998 to US$169.678 billion in June 2003[1]) could no longer be adequately captured by an outdated and rigid Accord that evaluated the capital adequacy of financial services firms making use of the same approach irrespective of their complexity and risk management systems.

Pillar I addresses this issue by providing three distinct approaches for credit and operational risk and options within each one, which, by itself provides a certain degree of flexibility. Nevertheless, there is still a high degree of standardisation, which is similar to the previous accord.

Principles and risk under Pillar II

Pillar II will then provide the desired flexibility and at the same time address factors not covered by the minimum requirements. Three main areas are identified as suited for treatment under this Pillar in the third Consultative Paper (CP3): "risks considered under Pillar I that are not fully captured (e.g., credit concentration risk), factors not taken into account by Pillar I (e.g., interest rate risk in the banking book, business and strategic risk), and factors external to the bank (e.g., business cycle effects)"[2]. Banks are "persuaded" to enhance their risk management techniques and improve in monitoring and managing their risks. Supervisors will then evaluate the bank's risk management system and provide recommendations or intervene, if necessary. This approach is the recognition that "mechanical formulas may play a role in regulation, but they are in general incapable of providing a solution to the question of how much capital a bank should have."[3]

1 Bank for International Settlements, "BIS Quarterly Review", December 2003
2 Basel Committee on Banking Supervision, "Third Consultative Paper", April 2003
3 Estrella, Arturo, "Formulas or Supervision? Remarks on the future of regulatory capital", 1998

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This Pillar is structured in four distinctive principles and much focus, given for good reason, has been on the third principle: "Supervisors should expect banks to operate above minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum."[2] The Committee clearly addresses the need for a buffer that reflects the risks stated above. This perspective was closely followed by the European Commission that states in Article 127 that "At a minimum, the prudential measures… shall include the obligation to hold own funds in excess of the minimum level…"[4], followed by a statement in Article 128 where it declares that empowerment should be given to competent authorities to achieve appropriate treatment. Accordingly, financial services firms' capital will have the ability to absorb shocks observed at portfolio level, market level or economic level.

Implementing Pillar II

In the industry many regarded Pillar II as an automatic capital add-on, driven by regulatory requirements rather than by firm-specific features. This prompted a reaction from the Committee in its last press release of 15 January 2004. The Committee emphasised the desired flexibility in dealing with particular risks, "The Committee also notes that the need for reasonable flexibility in dealing with certain risks was precisely the reason they were included in Pillar II and not in Pillar I."[5] and reaffirmed the expectation that buffers or shock absorbers should be in place, "Pillar II thus expresses the Committee's expectation that internationally active banks should operate above the Pillar I minimum."[5] but that they should be driven exclusively by firm-specific factors. "For example, Pillar II is not described as, and is not intended to lead to, specific additional formal across-the-board requirements. Pillar II does not require such an approach. Nor does Pillar II require an explicit automatic add-on for each element mentioned in the Accord."[5]

Nevertheless, there is still some apprehension since regulatory arbitrage might be possible. The Committee recognises that perfect uniformity of approaches or results across national jurisdictions is not possible. To mitigate this risk, a high level of communication, cooperation and exchange of information amongst national supervisors is crucial. Even more so, since international active banks with operations in different jurisdictions are expected to adopt more advanced approaches, which allow for a higher degree of discretion. The Committee's high-level principles for cross border implementation of the New Accord provides guidance regarding this subject, and once more stresses that more cooperation and coordination between home country and host country supervisors will be required. Furthermore, the second principle states that: "The home country supervisor is responsible for the oversight of the implementation of the New Accord for a banking group on a consolidated basis."[6] Therefore, financial services firms operating in the same jurisdiction might be subject to different supervisory authorities, hence, conceivably different criterion.

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Challenges going forward

Basel II, and particularly Pillar II have placed supervisors worldwide facing major challenges. They have to find the proper balance between harmonisation and scope of discretion, both at firm and national level. European Commission respondents identified the "variation in the application and impact of Supervisory Review Process as the single most significant issue threatening the consistent application of the new Directive."[4] The European Commission is seeking to achieve the appropriate harmonisation with the above-mentioned articles 127 and 128 and in particular under Annex J, still under discussion. Supervisors will also have to cope with a variety of risk management systems (e.g., databases, modelling, scenario analysis, stress testing…) to be individually assessed. Are supervisors ready to perform this judgment with the intensity foreseen for the next years and going forward?

Simultaneously, financial services firms will have to "convince" supervisors that they control adequately their risks and that they hold an adequate level of capital. Nonetheless, they have to be prepared for the principle that different firms might have different capital requirements given their risk management skills, with all competitive implications it entails. Are financial services firms prepared for this shock?

1 Bank for International Settlements, "BIS Quarterly Review", December 2003
2 Basel Committee on Banking Supervision, "Third Consultative Paper", April 2003
3 Estrella, Arturo, "Formulas or Supervision? Remarks on the future of regulatory capital", 1998
4 European Commission, "Commission Services Third Consultation Paper", July 2003
5 Basel Committee on Banking Supervision, "Continued progress toward Basel II", January 2004
6 Basel Committee on Banking Supervision, "High-level principles for the cross-border implementation of the New Accord", August 2003

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The establishment of an operational risk early warning system

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Through the identification of predictive signals, the introduction of an Early Warning System (EWS) helps financial institutions foresee upcoming operational risk related problems that in the worst case can materialise into financial losses. Therefore, establishing an EWS is high on the agenda of many financial institutions as it can potentially lead to significant savings in terms of improved cost control.

It also helps to meet some of the key requirements of The New Basel Capital Accord's Advanced Measurement Approach (AMA). KPMG has assisted a number of financial institutions worldwide with establishing an EWS and based on that work, this article will highlight some of the key features.

EWS – aims and objectives

The objective of an EWS is to prevent/reduce the levels of operational risk losses, through the identification of predictive indicators and patterns, by linking them to preventive actions.

As an EWS aims to highlight changes in the risk environment and the effectiveness of controls, it can provide an opportunity to intervene at an early stage and avert problems before they become a source of financial loss or damage to the financial institution's reputation.

As many of the steps of an EWS framework overlap with some of the key requirements under the AMA regime, the EWS framework should play an important role from the perspective of The New Basel Capital Accord as well.

This is particularly important in terms of capturing and identifying forward-looking key business environment and internal control factors as this type of data plays a crucial role in the measurement, mitigation and reporting of operational risk.

Data components of EWS

Access to sufficient and thoroughly structured operational risk data that supports a robust analysis forms the foundation for an EWS. There are two main types of data that need to be considered:

Internal loss data

Before internal loss data can be used for early warning identification, extensive cleansing and analysis needs to be done. Information about the collated losses should include dates of occurrence, the business lines and loss event types they belong to, as well as, actual loss amounts. In addition, the causal analysis of the losses must capture information regarding the control(s) being breached and/or circumvented and the Key Risk Indicators (KRI) being used to track the selected risk causes behind the loss, something which will facilitate the selection of KRI and control scores for the EWS.

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Key risk indicators and control scores
The construction of a KRI must follow one main design principle: To capture and reflect correctly the actual level of the operational risk exposure.

To ensure that the full population of risk causes are linked to some type of quantitative tracking metrics, a mapping exercise, normally part of Control and Risk Self Assessment (CRSA) is conducted and aims to pinpoint KRI to all identified risk causes and controls. A KRI should be forward looking to provide early warning of upcoming problems as that allows it to be embedded in the sensitivities of the capital estimate. The way an individual KRI is analysed and designed need to be set in a formulised context (this is normally done on a case-by-case basis):

- Atom versus aggregate level – Does it make sense to study and monitor a particular KRI in isolation or should the analysis be done in conjunction with other KRI and/or operational risk data, e.g., should number of process errors be studied in context with number of deal volume and system downtime?;
- Trends over time – To understand better how operational risk exposures evolve, analysing trends over time can prove very powerful. However, if a certain process has been materially re-designed or the controls have been altered, historical data will be of limited value and hence assessments need to be conducted continuously to evaluate the relevance of historical data for each KRI;
- Frequency of reporting – How often can an individual KRI be updated and is that frequent enough for an adequate analysis and management of the associated operational risk exposure?;
- Optimising the measurement unit – Which measurement unit provides the optimal informative value for analysis? In most cases, it should be a monetary unit, as that keeps focus on the potential P&L impact of the items making up the KRI value. However, a monetary value for certain KRI might not be appropriate, such as staff turnover and system downtime and in other cases, frequency rather than (potential) impact provides more relevant information. Another key question is whether one should focus on absolute or relative values when analysing KRI; and
- Types of break-down – Normally a KRI can be broken-down in many different formats. It can be measured by organisational unit, per client, product, system or geographical area, etc. Deciding which breakdown provides the most meaningful information can only be done on a case-by-case basis through granular examination.

In addition to using KRI, control scores provide information about the current status of the control environment. Control scores are the output from the CRSA exercises, where the quality of controls are evaluated through expert judgement and given a rating, which normally is a traffic light score. The control scores can, once quantified, be blended with the KRI and form part of an EWS as candidates for early warning signals.

Before internal loss data can be used for early warning analysis, extensive cleansing and analysis needs to be made.

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Implementing EWS – key steps

The introduction of EWS not only carries with it extensive requirements in terms of data management and statistical methodologies but also change management, ensuring that warning signals are acted upon through preventive actions.

1) The basis for identification of predictive indicators is internal loss data. Subsequently, it is pivotal that an internal loss database has been established and that losses are categorised by loss event type and business line to facilitate the understanding of generic features. A granular analysis aiming to pinpoint the underlying causes of existing loss data is conducted to identify associated risk drivers.

2) Time series of loss frequencies for each loss data categorisation are extracted, to enable the identification of possible trends and occurring patterns through a graphical overview.

3) The identified underlying risk drivers are linked to tracking metrics such as KRI, to ensure that any changes in the levels of risk can be estimated quantitatively. Time series for individual KRI are extracted and arranged to match associated loss categories.

4) By plotting the relative changes for the frequency of loss and KRI over time per category, a graphical examination that aims to highlight any occurrences where KRI shows increasing (or decreasing) trends prior to the increasing (or decreasing) trends of frequency of loss data is conducted. The identification of potentially predictive signals triggers a statistical analysis of the particular KRI.

5) Statistical testing, through regression, is conducted to determine and evaluate existing historical predictive patterns and KRI formally. The testing is conducted as part of an iterative process with a view to identify the combination of KRI that provides the highest explanatory value. The relative changes of the selected KRI are established in a regressive equation, which over time leads to adjustments of the operational risk capital, initially set through loss distribution or scenarios.

6) A Bayesian Belief Network (BBN) acts as additional analytics to understand the interdependencies between different risk causes graphically and is used to stress assumptions, which helps to provide useful information for the establishment of limit levels.

7) The capital estimate set through the combination of historical loss data, scenarios and KRI is back tested on an on-going basis against actual loss outcomes and the validation helps calibrate model parameters, i.e. weightings and selection/ combination of KRI.

8) As new loss data becomes available, the perpetual cycle of identifying early warning signals is repeated.

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The flagging of an early warning signal is normally a sign that the level of operational risk has increased and the likelihood of a loss occurring is on the rise.

Linking EWS to escalatory procedures

Once an EWS have been introduced and predictive signals can be picked up by the system, what are the next steps?

The flagging of an early warning signal is normally a sign that the level of operational risk has increased and the likelihood of a loss occurring is on the rise. Subsequently, to establish any practical use of an EWS, it needs to be integrated with the business line's day-to-day management.

The signals must be acted upon through issuing escalatory procedures which will differ depending on the nature of the particular operational risk exposure.

Most financial institutions already have a number of escalation procedures in place: however, these are seldom linked and integrated with an EWS. Hence, the mapping of action plans to early warning signals constitutes a key success factor.

Summary

The introduction of an EWS requires investment in data management as well as change management procedures linking the businesses preventive actions and escalation to early warning signals to ensure that the EWS carries practical value.
A clear strategy is therefore needed to avoid a costly trial-and-error implementation process.

An EWS is also naturally integrated and linked with the regulatory framework through the identification of forward-looking indicators.
These are used for improving the monitoring and mitigation, including measurement, of operational risk exposures.

In all, the benefits of an EWS, aligned with Basel II, clearly outweigh the costs, through the potential reduction of operational risk losses, improved cost control and the enhancement of the managerial decision-making process through a better understanding of operational risk exposures.

Figure 1
An overview of the perpetual cycle of identifying predictive indicators

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Data management for credit risk – an XBRL equation

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The New Basel Accord places a strong emphasis on the use of models for measuring credit, operational and other types of risk that affect the solvency and capital adequacy of banks. Banks seeking to use one of the advanced approaches for the calculation of minimum capital requirements, as set out in Basel II, are looking to develop and validate internal models for the prediction of credit default and operational loss events and ensuing loss severity.

Before such models are approved for use in the calculation of capital requirements, banks must convince their prudential supervisor of their value in quantifying risk exposure. In order for regulators to gain sufficient confidence in model performance, objective analysis of performance against historical data is required. Moreover, it is important for the historical data to be different from the data that was used in the development of the model.

This article explores the value that XBRL, the "eXtensible Business Reporting Language", can create by simplifying the data capture and retrieval processes supporting risk measurement in the banking sector. While the XBRL approach is equally relevant to operational risk data requirements we have used the example of credit risk to illustrate its use and application.

Basel II credit risk data requirements

The Basel Accord strongly encourages a quantitative approach to credit risk based on a framework based on:

- the probability of a default occurring;
- loss severity in the event of a default; and
- the level of exposure at default.

With credit risk depending on a broad range of inputs, a major challenge involves making sure that all of the risk factors are being recorded and electronically archived at the date of each credit risk assessment. Moreover, the data on risk factors needs to be associated with information about default events, including the behaviour of exposure levels and loss severity.

These data needs require a bank to be able to draw together information from a diverse range of different systems, each tailored to its own specific function. The heavy emphasis on historical data introduces significant difficulties into the preparations for Basel II.

Matching Basel data requirements to systems solutions

In practice it is extremely difficult to address all of the functional requirements of the banking business with a single system that also meets the very specific data-capture requirements associated with validation of credit risk measurement models. An alternative approach is to build a series of bridges that connect from each of the operational systems to a central data archive or warehouse.

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Basel II creates significant challenges for data collection. As banks find themselves collating data to validate the models they are using, there will inevitably be an incentive to make changes.

A data warehouse can be thought of as a huge collection of facts where each fact is a point in a large, multi-dimensional grid, where the dimensions in the data warehouse reflect information about the facts. This multi-dimensional structure to data in the data warehouse supports the data analysis that banks require under Basel II to understand their current state and to make decisions about their future actions.

However, the traditional data warehouse approach has limitations that are particularly relevant in the context of credit risk measurement. Specifically, traditional data warehouses:

- are overly rigid in design;
- often impose a degree of approximation of the various dimensions (e.g., time) that is not acceptable in the context of credit risk measurement;
- are generally incapable of recreating the exact information set that was being used at a specific point in time when an assessment was made; and
- do not facilitate flexibility in the data that is captured on a transaction by transaction basis.

A new approach to data capture, based more closely on a document archiving system addresses many of these limitations of traditional data warehouses while still enabling banks to support all of the rigorous data analysis needed for credit risk measurement.

Data archiving with XBRL

XBRL is a format for data that emphasises data definitions. Before any data can be formatted using XBRL, it is necessary for that data to be carefully defined. This data definition work is exactly the activity that many banks are engaged in as they lay the groundwork for migration to the New Basel Capital Accord.

By using XBRL, a bank is able to do the data definition work in a way that also establishes a uniform syntax for the exchange and storage of actual data that is captured from the source systems. The XBRL data format has a number of properties that make it very attractive in the context of Basel II risk measurement data:

- it uses XML, a widely supported computer standard for structured information;
- the document approach to data organisation that XML imposes is very well suited to retaining absolute integrity in the set of information;
- it uses XML in a way that ensures individual facts can be isolated from other facts in the source document without losing any information necessary to understand them;
- the XML representation of the data enables flexible querying of the source data for extracts that meet particular requirements; and, most importantly
- the XBRL format enables data capture to be extremely flexible.

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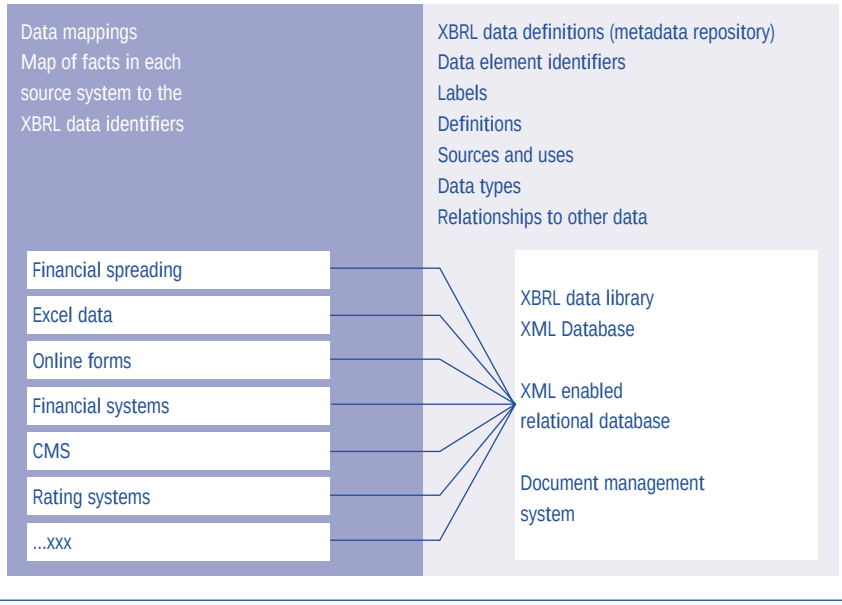
At a superficial level, Figure 1 looks a lot like any data warehouse model, the only difference being in the choice of format for the data at the transfer and archiving stages. However, this difference is extremely powerful, as indicated by the key differences outlined above. The point of using XBRL to define the data being captured and to structure the data being stored for analysis, is to future proof credit risk modelling, allowing easy modification of data sources and therefore easy refinement of models.

Figure 1 Data requirements – Data sources matrix



Looking to the longer term

Basel II creates significant challenges for data collection. As banks find themselves collating data to validate the models they are using, there will inevitably be an incentive to make changes. Changes to the models will be in terms of parameter values, model specifications and in terms of the set of risk factors that the models draw upon. One way of limiting the impact of shifts in model specification is to collect data on a broader range of factors than are actually used in the models of today. However, there are real costs associated with the collection of each new piece of data about a transaction. These costs generate significant resistance to data collection requirements that are not actually pertinent to today's business decisions. Looking ahead a few years, this is where XBRL may well be of considerable value. As XBRL spreads beyond the early adopters to cover all kinds of external financial reporting, it is gradually positioning itself as the de facto format in which customer information is received.

By building a credit risk data repository that works instinctively with XBRL, it becomes possible to store, for example, the complete financial reports in the XBRL format, exactly as provided by customers. Having stored the complete set of information, banks can at least know that they have not lost historical information simply because of rigidities in their data storage technologies. A much more complete range of retrospective analyses will then be possible in the model validation processes.

First steps

The first step towards an XBRL approach to credit risk data management can be taken by using XBRL for the data templates describing the current credit risk data requirements. At a minimum, this step provides a solid set of data definitions on which to build a traditional data warehousing solution. It also lays the foundation for using XBRL as the transfer format for data from source applications to be used in the context of Basel II and any future credit risk requirements.

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Basel II – A South African perspective

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The regulator and Basel II

Implementation structure

During 2002 the Bank Supervision Department (BSD) of the South African Reserve Bank (SARB) set up the Accord Implementation Forum (AIF) to ensure successful implementation of the New Capital Accord (Basel II)[1]. Several subcommittees were established to consider and advise market participants on the implementation issues for Pillar II of Basel II and to promote the development of sound risk-management practices. Below is a schematic representation of the structure.

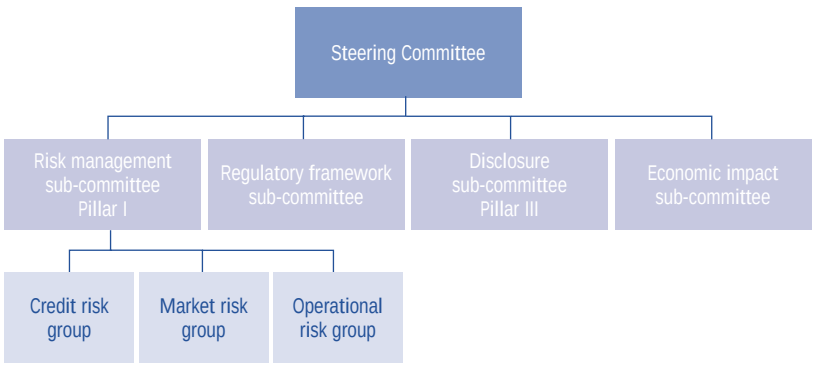
Each of the committees has formulated its terms of reference and a schedule of meetings was set up for 2003 and 2004.

Progress to date

In its comments on the third consultative document (CP3) to the Basel Committee in July 2003, the BSD conveyed that it and the banks that it regulates are endeavouring to implement Basel II by the official implementation date of 1 January 2007.

In a circular issued in November 2003 the BSD stated that they were of the opinion that adopting Basel II was in the best interests of the whole South African banking industry and imperative to overall financial stability. The BSD conveyed that in order to implement all the requirements of Basel II they would follow a consultative process, taking the interests of all stakeholders into account.

Accord implementation forum proposed structure



[1] Banks Act Circular 2/2004

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The BSD's approach

On 27 February 2004 the BSD issued a comprehensive consultative paper setting out the following:

- the BSD's position on the scope of application of Basel II in South Africa;
- various technical aspects pertaining to credit risk;
- the BSD's views on certain items of national discretion; and
- proposed next steps.

The consultative paper is the first in a series, intending to communicate the BSD's thinking on various aspects of the implementation of Basel II. Although banks are working towards the 2007 implementation date, the BSD stated that implementation of the more advanced approaches might take longer than initially envisaged. The BSD is of the opinion that it is more prudent to implement Basel II appropriately than to meet strict timelines.

Scope of approaches allowed in South Africa

In South Africa, banks will not have the option to remain on the current 1988 Capital Accord after 31 December 2006. They will have to migrate to Basel II, even if this means only implementing the simplest approaches. The BSD will allow banks to select any of the approaches but the more advanced approaches (Advanced Internal Ratings Based Approach for corporate credit risk and the Advanced Measurement Approach for operational risk) will only be considered on an exceptional case-by-case basis, until such time that both the industry and the BSD are comfortable that appropriate processes are in place to supervise the approach.

More complex, sophisticated banking groups are expected to adopt the more advanced approaches over time and the BSD is confident that competitive market forces will speed up the process. Failure of such banks to progress may lead to higher capital requirements.

The BSD expects banks to consult with them on their suggested approach to be followed prior to the date of implementation. For the more advanced approaches banks will have to make formal applications to obtain regulatory approval, prior to implementation.

The BSD will allow banks to adopt the Alternative Standardised Approach for corporate and retail business lines, provided that the bank can satisfy the regulator that this alternative approach provides an improved basis for avoiding the double counting of risk.

Furthermore, banks will be allowed to adopt a partial use approach to the implementation of operational risk, subject to minimum requirements being met. Banks will however have to discuss their plans with the BSD.

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The South African banking industry's preparedness

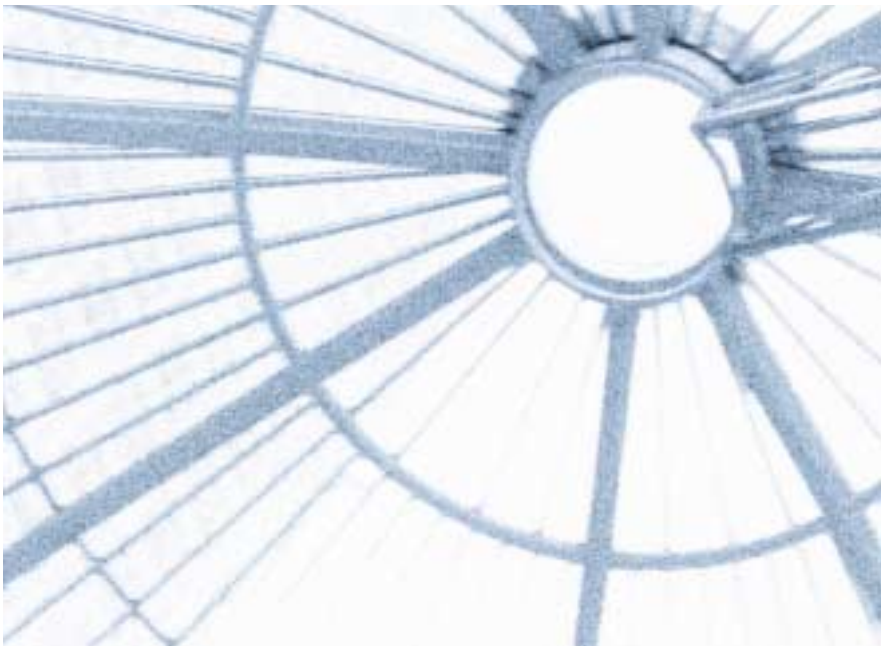
During the last quarter of 2003, a global KPMG questionnaire was sent to a limited number of South African banks to ascertain the opinions and experiences relating to the Basel II. 60 percent of the South African banks surveyed have progressed to "designing and building systems and models". The remaining 40 percent have progressed even further and are at the "implementation and integration stage" with regard to credit risk. Progress on operational risk, however, is lagging behind credit risk.

The 2003 survey revealed that the surveyed banks would obtain the most value from their preferred approaches in the following areas:

- an improved credit rating system;
- improved process quality; and
- enhanced reputation due to advanced risk management techniques.

Previously credit risk management was the main area of concern, but currently all the banks surveyed are mostly concerned about the timing of implementation. In addition, 80 percent of the banks surveyed regard the cost of compliance with Basel II as a major obstacle.

At this stage preliminary indications are that only the large South African banks and international banks are considering anything other than the simple approaches.



The four largest banks in South Africa have commenced the development of an industry-wide model for their corporate advances book. There is insufficient default data to form statistically significant Probability of Default (PD) and Loss Given Default ("LGD") measures, and this has led to the banks pooling their data to construct a Basel compliant model.

Conclusion

South African banks are faced with many challenges in ensuring compliance with Basel II, the most important being the timing of implementation.

The BSD has issued a comprehensive consultative paper to set out its views and expectations and to determine the banks' viewpoints on the proposed strategies.

The AIF will continue to be used as a platform to discuss implementation ideas and issues freely and openly with both the BSD and their peers.

Plans are set to recruit specialised staff over the next few months to assist with the implementation of Basel II and the supervisory review process under Basel II.

From June 2004 in-depth reviews of banks' preparedness for Basel II will be conducted by the BSD. The BSD will form a specialised team to carry out these reviews.

BSD is considering a fourth quantitative impact study to allow the rest of the banking industry to participate and to reap the benefits of a simulated environment while providing the BSD with the opportunity to test many of the remaining Basel II issues arising.

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Quantum leap for Korean regulatory framework

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Basel I was only introduced in Korea in 1995, many years after the Bank of International Settlements (BIS) first announced it in 1988, mainly because the Korean financial industry didn't have sufficient information to calculate BIS ratios. The Korean industry still lags behind other banking industries in many respects. There is still a lack of transparency in financial statements, high long-term default rates and a general absence of loss databases and other expected pieces of a risk management infrastructure.

Basel II is focused on qualitative criteria almost as much as factual measurement. The Financial Supervisory Service (FSS), the Korean financial regulatory authority, plans to let the industry interpret the qualitative criteria "subjectively" in a bid to improve the soundness of the industry. The qualitative criteria are described in detail in terms of credit, market and operational risk. The subjective interpretation of the qualitative criteria is designed to make up for insufficient quantitative financial information.
The following is the preliminary plan envisaged by the Korean government for the implementation of the three Pillars of Basel.

Timeline for its application

The Basel Committee's planned implementation date of 2007 is being used as a guideline for Korean institutions. It is felt to be pressure to adopt the Accord within a similar timeframe as neighbouring countries. However, each financial institution will be allowed to have a different application timeline for each risk type and also to adopt a partial approach to operational risk measurement methodology.

Pillar I

The FSS is expected to apply the Advanced Internal Ratings Based ('AIRB') approach only to large banks, as in the U.S. However, given that many issues have to be dealt with to use the AIRB, the standardised approach and Foundation Internal Ratings Based ('FIRB') approach will also be available. As for operational risk, all three alternatives will be allowed: Basic Indicator Approach, Standard Approach, and Advanced Measurement Approach.

However, the FSS will guide banks to use an appropriate methodology commensurate with their size and risk exposure. It will also grant more benefits to banks using advanced methods, in order to motivate banks to improve risk management capability.

Pillar II

It is quite daunting to calculate interest rate risk, reputational risk and other risks. But these risks are indeed very crucial, which makes the FSS very focused on the issue. Hence, the FSS has built a task force to address these issues. The task force is responsible for developing criteria for minimum equity ratios for banks and for Early Warning Parameters.

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Pillar III

The FSS believes that banks sufficiently disclose financial information under current disclosure requirements. However, to comply with Basel II, FSS wants to define the information to be disclosed publicly and the disclosure methods.

Pre-requirements

The major requirements for complying with Basel II, as envisaged by the Korean FSS are:

- system and human resource investment is required for financial industry and regulation compliance and effective operation;
- bank management's risk recognition and commitment to risk management is required; and
- application of a flexible supervisory system tailored to meet the specific environment of each financial institution and introduction of a responsibility management system are required.

Closing remarks

The FSS believes that Basel II is a description of best practice for regulating advanced banks and provides an opportunity to improve the risk management of Korean banks.

The FSS will lead preparation to comply with Basel II in a phased approach, starting from 2004. Various benefits will be granted to banks that satisfy regulations based on Basel II and more stringent rules will be applied to banks with poor risk management.

It is quite daunting to calculate interest rate risk, reputational risk and other risks. But these risks are indeed very crucial, which makes the FSS very focused on the issue.

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The Basel Handbook

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Despite The New Basel Accord's impending publication, there have been few books published on how financial institutions can satisfy the new regulations. RiskBooks have a good reputation for publishing timely and content-rich books, with some excellent recent publications in operational and credit risk management, and this is why KPMG has chosen to sponsor their new publication, "The Basel Handbook".

As editor of this publication, Michael Ong has found some excellent authors to contribute articles. The articles include implementation-oriented accounts from highly respected industry figures, balanced with a number of useful and thought-provoking articles provided from the academic world, as well as a pragmatic article describing how to achieve IRB-compliant models within retail banking, submitted by KPMG's Dr. Richard Norgate. In particular the articles cover the key lessons learnt from implementing Basel-compliant solutions for both credit and operational risk, and across all types of organisation, from the smaller building societies, through high street banks, corporate banks and investment banks.

We recommend that all financial organisation's Basel teams should have a copy of this book: the lessons learnt from other organisations are invaluable, and there are likely to be very few Basel programmes that would not benefit from others' insight.

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Basel preparedness survey 2003: banks behind on Basel

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Many banks are falling behind on their projects to implement the Basel Accord on capital adequacy, according to a global survey by KPMG International of 303 financial institutions in 39 countries. Around half are still only in the pre-study or assessment phase. Implementation is due in 2007, but requires that banks are using Basel compliant systems and data for several years before then.

Around 10 percent of banks are still in fact establishing their Basel teams – and in the Asia Pacific region this climbs to as high as 22 percent. Only eight percent of banks have reached the testing and validation phase of their project on credit risk (although this rises to 15 percent in the Americas[1]). Yet testing and validation is one of the key phases of the total overall project and one that often proves difficult to complete. Banks therefore need to be reaching that stage soon, at least for their main portfolios – but for a large number of banks, this does not look likely.

Although many banks are struggling to keep their Basel project on track, there is a clear consensus among them of the benefits of implementing the Basel requirements. The most widely perceived benefit was an improved credit rating system, followed by improved management of operational risk. A reduction in capital requirements was only the fourth most highly rated benefit.

Approaches

In general, banks are further advanced in their credit risk programmes than on operational risk. While 46 percent of banks have reached the systems modelling stage or further on credit risk, only 33 percent have done so on operational risk.

Banks are also generally planning to take a more advanced approach to credit risk than operational risk – over a quarter are intending to take the most advanced approach to credit risk, while only 11 percent plan to do so on operational risk. In general, more European banks are planning to take advanced approaches to Basel, while more Asia Pacific banks are intending to take basic approaches. In the Americas, banks are polarised between the most basic and advanced approaches.

Benefits

KPMG's survey found a generally positive view of the Basel requirements: 77 percent of respondents agreed that Basel would provide a better foundation for future developments in risk management, and over two thirds agreed that credit portfolio analysis would be easier.

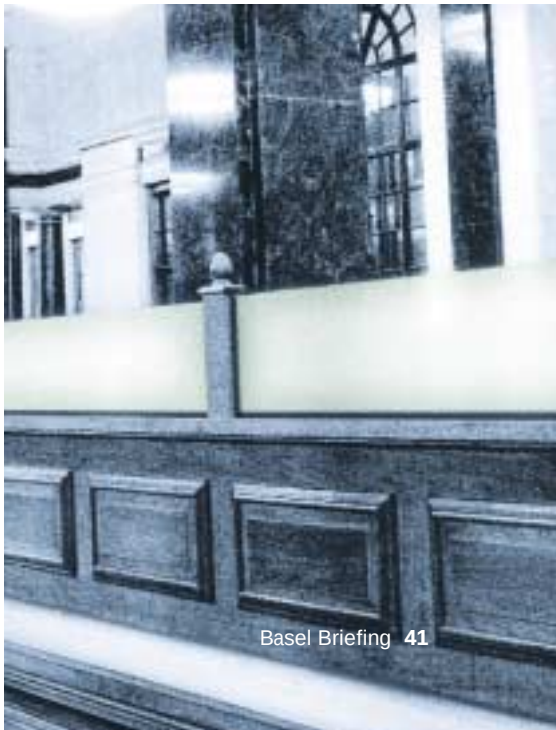
A clear majority agreed that both credit and operational risk practices would be improved overall.

However, a relatively low proportion of respondents (41 percent) agreed that there was the possibility of leveraging synergies between Basel and International Financial Reporting Standards (IFRS).

Barriers

The cost of complying with Basel was seen as the biggest barrier – perhaps not surprisingly, as half of respondents said that their total Basel budget was less than US$1 million. For a handful of banks however, budgets stretched to in excess of US$40 million.

Other widely cited concerns were lack of time, lack of data for operational losses, inflexibility of existing IT systems (a concern in Europe especially) and, in the Asia Pacific region primarily, a shortage of Basel experts.



[1] KPMG defined regions: Americas = Canada, United States and Latin America

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