

Basle II and the role of technology

The new rules on capital and credit risk outlined in the Basle banking committee's latest Capital Accord require a change of mindset in boardrooms – and a new approach from financial IT houses to the reporting and analysis of corporate exposure



The proposed Capital Accord from the Basle Committee on Banking Supervision of the Bank for International Settlements (Basle II) puts forth new recommendations for credit and operational risk management. It encourages banks to become more sophisticated in their analysis of risk – more closely aligning regulatory requirements with internal risk measurement methodologies and improving operational process controls. By modernizing their risk practices, banks can achieve more consistent process execution, maximize operating efficiency, improve available information to support credit decisions and reduce regulatory capital requirements.

Compliance with Basel II is adding urgency to banks' enterprise-wide risk management projects, and many banks are leveraging Basel II to revamp their global risk practices and policies to gain a greater competitive advantage. As part of that global effort, banks are re-examining the technology supporting risk measurement and management.

Banks will not achieve compliance with the Accord strictly by way of technology – there is no one, comprehensive “Basel II system”. That said, the Accord does place demands on banks that technology can address (see Figure 1 (right)). To meet the requirements set out in the Accord in an auditable and robust fashion demands extensive data-collection and consolidation as well as system integration and reporting capabilities within a global infrastructure. Institutions

must determine how best to leverage their existing infrastructure by identifying and closing gaps, implementing new solutions and enhancing existing ones.

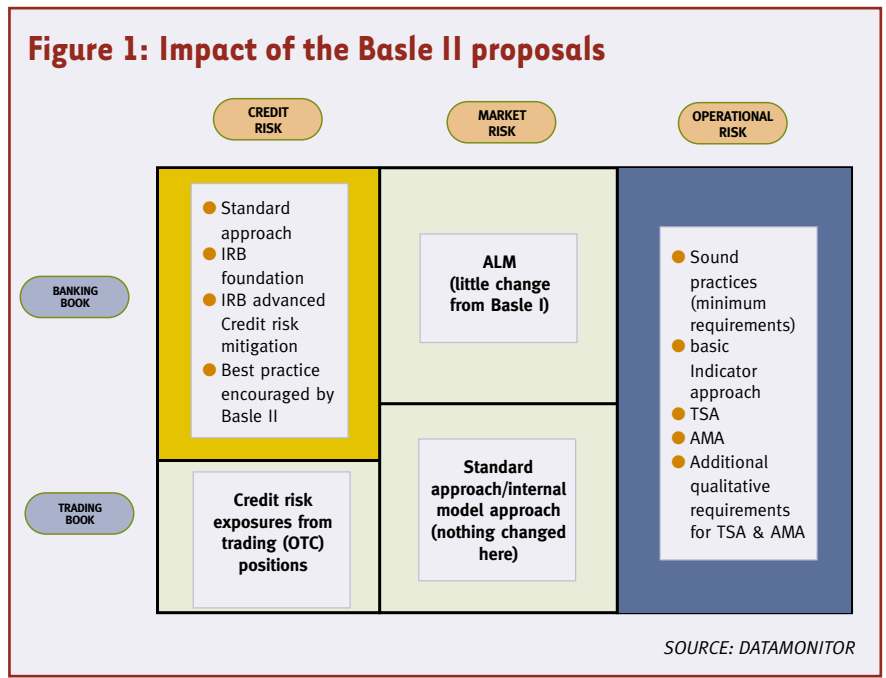
Risk-sensitive approaches for credit risk

The Accord sets out three methodologies of varying sophistication for a bank to determine regulatory credit-risk capital: Standard, Foundation Internal Ratings-Based (IRB) and Advanced IRB. Technology should address all three proposed methodologies and be flexible enough to support special local regulatory

requirements as well as future demands, through a modular and extensible architecture. Global consolidation of the core data required to support the central conduct of portfolio credit analysis is the strongly preferred approach. Confidence in analytical results hinges on vendor reliability, data consistency and dependable workflow tools.

New charge for operational risk

The Bank for International Settlements (BIS) additionally plans to introduce a new capital charge to account for operational risk, to





encourage banks to improve process monitoring and control. In effect, it wants banks to embrace the lessons of Total Quality Management that became common in the manufacturing sector over 20 years ago.

All business are built on the performance of various operational processes; it is the essence of quality control to perform these processes with discipline and consistency. Many tools are available to support this goal. In the banking arena, such technology tools include straight-through processing, electronic confirmation matching and automated collateral management systems, to name just a few. A systematic approach to operational risk, however, requires support for levels 2 through 5 of the pyramid shown in Figure 2 (right).

Level 2: control and risk self-assessment involves a formal review of what can go wrong with a process, the potential cost of such failures, how the process can be strengthened, and whether the residual risk of loss from operational failures is acceptable. In effect, this is qualitative analysis based on the judgement of people close to the process being reviewed. Once an acceptable control portfolio is in place, it is important to monitor the quality of execution on a continuous basis, leading to *level 3: key risk indicators*. Multiple quantitative indicators are selected that are considered good early warnings of potential problems. Changes in their behavior through time provide objective signals to higher management that there is an issue to be addressed before a situation becomes critical.

Although not the only – or the most important – indicators of process weaknesses, actual realized losses do play a role in evaluating operational risk. In *level 4: loss data collection*, it is important that such data collection be surrounded with a rigorous review process to assure reconciliation to the profit and loss account and to provide supplemental information on the nature of the failure that gave rise to a loss. Only when a proper foundation is in place does it make sense to turn to *level 5: analytics* to estimate potential extreme loss events as a basis for capital allocation.

Basle II provides for three increasingly sophisticated approaches to the treatment of operational risk. These are the Basic Indicator and Standardized Approaches as well as three Advanced Measurement Approaches (AMA). There are incentives for banks to move to the more sophisticated approaches. An emerging development, however, is that qualitative process review and improvement will be required as the “ticket of admission” to be allowed to use either the Standardized Approach or one of the AMAs.

Advanced analytics applied to loss data will not, in and of themselves, be sufficient to achieve a reduced regulatory capital level. This focuses attention on the need for sound tools to address levels 2 and 3 of the operational risk pyramid, and not just levels 4 and 5.

Data collection and consolidation

The heart of Basle II involves data collection and management. Much complex data involved in credit and operational risk management, including volumes of historical credit and operational loss data, must be captured, aggregated, evaluated and acted upon globally under a consistent policy framework and a global IT system.

Such a global framework should extend to all risks that are related to the quality of a specific legal entity:

Figure 2: The operational risk pyramid



In effect, the Basle committee wants banks to embrace the lessons of Total Quality Management that became common in the manufacturing sector over 20 years ago

- traditional banking-book credit exposures (like loans, letters of credit, etc);
- counterparty exposures in the trading book;
- settlement risk (resulting from timing differences in exchanges for value);
- issuer risk (resulting from the holding of debt or equity securities).

A consolidated view of all entity-specific exposure is highly important because:

- It provides fast, complete access to exposure data, especially in stress situations triggered by bad news or looming bankruptcy.
- It facilitates the ability to set an overall “credit appetite” limit for individual counterparties and groups.
- It allows for proper identification of risk concentrations and portfolio optimization opportunities like diversification possibilities or economic offsets.

Aggregation of the relevant exposure data across multiple systems is often the biggest obstacle to success. Such core data consolidation is essential in order to reflect the risk-reducing impact of diversification across regions, industries and specific obligors, as seen from an aggregate, high-level view.

By automating the data collection and risk-adjusted asset calculation, technology can reduce costs while minimizing associated operational risk and providing an effective audit trail to satisfy bank examiners.

A bank must not only collect and aggregate data – it also must have confidence in that data. Technology can help ensure:

- **Data integrity:** the quality of data is linked to the procedures, data flows and systems used. Fewer systems means less risk of processing errors, fewer unique data transformations, reduced daily reconciliation between different systems, minimal exceptions processing and reporting – and, ultimately, improved operational efficiency.
- **Data accuracy:** data accuracy should begin with data input, which should require the least amount of manual entry and rekeying into other systems. With systems integration,

data can flow through the organization, being continually cleansed and enriched.

Reporting

Pillar three of Basle II calls for a range of reports for improved transparency. Streamlined reporting, using a common platform for global lines of business across investment and retail banking activity, is crucial for maximum operating efficiency.

Under Basle II, fully customizable internal reporting is a valuable resource to support different purposes and views, such as for senior management or specific business lines. Such reports are best provided through a secure Web-browser interface that facilitates easy and secure distribution across the organization and allows supervisors limited access to reports on a routine basis.

A bank must be able to perform *ad hoc* queries to examine exposure with and without netting or collateral, and test the impact of new agreements. Under the guidelines of pillar two, credit protection reports listing the main providers of guarantees and credit derivatives are also required. A range of reports on customer and facility internal and



external ratings that show current levels, mappings between categories and ratings histories is also useful.

Flexible data assembly and display capabilities offer a powerful demonstration tool to outsiders that credit decisions are being supported with all the relevant information in a timely and reliable fashion.

Global, real-time infrastructure

Enterprise-wide data consolidation must extend to all products and all geographic locations. In a trading-oriented environment, a prerequisite for effective intra-day compliance with credit limits will be the ability of a global credit risk system to update exposures in real time. In addition, exposures should be aggregated not only at the legal entity level, but also into portfolios that allow the monitoring of concentration risk – to account, among other things, for combined exposure to entities grouped into related legal and economic structures, exposure to companies in the same industry, and exposure to entities domiciled in a given country.

From a technology point of view, the state-of-the-art architecture of a global credit

SunGard's Credient

Credient is a comprehensive, global credit portfolio management solution delivered via Application Service Provision (ASP). It uses a modern, portfolio-based approach to credit risk management that delivers accurate, global limits and exposure information in real-time for increased transparency across the organization and greater operational efficiency and utilization of capital.

Credient can help a bank meet the requirements of Basle II. It provides the relevant information infrastructure to support the operational requirements of an internal ratings-based credit risk system. Its workflow tools enable banks to monitor their

internal ratings methodologies and allow them to be incorporated into Credient for more precise limits monitoring, default predictions, collateral management, and exposure calculations. Credient's modular, object-oriented architecture and data model provides the seamless workflow environment that banks require to reliably and consistently collect and consolidate the full range of credit risk data for Basle II, including exposures, netting and portfolio analytics.

The Credient Portal provides Web-based access to Credient on traders' desktops, for credit analysis, limit enquiry and pre-deal availability checking.

risk system implies a Web-based front-end which can be accessed throughout the organization with nothing but standard corporate desktop software. All risk positions and counterparty data should be gathered into one central database via direct interfaces to global trading systems. A modern credit risk management system should also be capable of calculating a number of risk indicators with a variety of different methods simultaneously, and subsequently conducting portfolio simulations based on those calculations.

Conclusion

In the current market climate, banks are focused on total cost of ownership and return on investment. Effective investments to meet the requirements of Basle II can enable them to lower capital requirements, increase operational efficiency, reduce errors, streamline processes and increase transparency. Technology must be resilient, dependable and cost-effective.

SunGard offers a risk management framework which has at its heart solutions ideally suited to form the centerpiece of a Basle II-compliant risk infrastructure. From the calcula-

SunGard's BancWare Insight

"Prior to Basle II, there was no requirement for banks' data measuring market risk in their retail banking books to be 'complete and accurate'. The need for us to produce data to these standards has been a primary driver for our acquisition of SunGard's BancWare Insight solution."

Brandon J Davies,
head of retail market risk, Barclays, London

Insight is an integrated solution that captures and combines fundamental data from a variety of sources and subsystems (including a bank's own data warehouse) to ensure data integrity at the transaction

level as the basis of detailed analysis and forecasting. Fundamental data is validated and enhanced using a series of algorithms, and rigorous checks to create accurate information feeds that support precise modeling and reporting.

Insight provides banks with the ability to independently extract and transform raw data from all subsidiary accounting systems into the information required to support analyses – minimizing dependence on internal IT resources. Insight adds value to data by performing a series of banking and finance-specific calculations to derive the core data required for analysis.

tion of credit risk capital for trading and banking books under pillar 1, through providing robust, transparent processes under the supervisory review focus of pillar 2, to the reporting and disclosure requirements of pillar 3, SunGard helps banks automate and streamline processes and achieve compliance with the new regulatory framework.

SunGard also provides the advanced analytics, speed and flexibility to help banks implement current best-practice management techniques and meet the expected requirements of future regulations. SunGard can provide incremental return on a bank's technology investment for Basle II with solutions that are proven, mission-critical and extensible.

CP3: the final consultation

On April 29, 2003, the Committee released its third and last consultative paper (CP3) on Basle II. CP3 incorporates various modifications to the "three pillars" of the Accord.

Pillar 1

Standardized and IRB approaches: A simplified presentation of the standardized approach to credit risk measurement is introduced and steps have been taken to better align the amount of capital required for residential mortgages. Several modifications to the IRB approaches include the recognition of provisions in offsetting the expected loss of risk-weighted assets, adjustments to the criteria for recognizing provisions, and amendments to the treatment of past due loans to allow for some recognition of provisions.

Credit Derivatives: Banks will be permitted to recognize, for capital purposes, credit derivatives that do not reference restructur-

ing as long as they have complete control over the decision of whether or not the underlying obligation will be restructured. **Operational Risk:** Banks using the Basic Indicator or Standardized approaches to operational risk are not permitted to recognize the risk-mitigating impact of insurance, but those using an AMA approach will be. Subject to the minimum criteria outlined in CP3, a bank using an AMA approach may recognize insurance in an amount not to exceed 20% of total operational risk capital requirement. Banks may use the Basic Indicator or the Standardized approach for some parts of its operations and AMA for others, provided that all material risks are captured.

Pillar 2

Banks adopting the IRB approach will be required to hold adequate capital to protect against adverse or uncertain economic conditions and will be required to perform a

meaningful stress test of their own design with the aim of estimating the extent to which their IRB capital requirements could increase during a stress scenario.

Pillar 3

After taking a hard look at the disclosures proposed in its second consultative package, the committee has considerably scaled back the requirements, particularly relating to the IRB approaches and securitization.

Implementation

Within the G10, committee members have agreed to a common implementation date for the new Accord of year-end 2006. In these countries, implementation is intended to encompass internationally active banks, and other significant banks as supervisors deem appropriate. In a number of G10 countries, the Basle II framework will be applied to the entire banking system.