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FINACLE CONNECT

CONNECTING THE BANKING WORLD

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Implementation Challenges

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Voice from the Desk

ERM- The Final Frontier

As we approach the end of 2005, it seems appropriate to focus the year-end issue of FinacleConnect on risk management. With the upcoming Basel II deadlines, risk management is going to be a top priority at most banks around the globe in the coming year. The Basel II accord requires international banks to show that they have sufficient capital set aside for emergencies. It encourages safer banking practices through internal assessment processes and transparent disclosure processes. In this edition, in Kaleidoscope, we discuss the operational challenges faced by banks in complying with Basel II.

It is also important to understand the greater goal of regulatory measures such as Basel II. As we explain in this edition's cover story, 'Creating a Risk-free Enterprise', by bringing together the discrete streams of market, credit and operational risk for the first time, Basel II offers a wonderful opportunity for banks to streamline their systems and deploy an enterprise-wide risk management strategy. Banks now need to look beyond mere compliance fulfilment tactics to develop a complete Enterprise Risk Management (ERM) strategy that can help them in computing risks comprehensively across instruments, portfolios, business lines and geographies. An enterprise risk management strategy offers several benefits. It helps banks to streamline their operations, thus improving overall efficiency and customer satisfaction. In addition, by increasing business agility, not only does ERM enable banks to protect themselves against different types of risks, but also helps them identify potential opportunities as they arise.

FinacleConnect brings to you the latest thoughts and views on business and technology issues impacting the banking enterprise. In our continuing series of interviews of leading bankers, we talk to Dr. Romano De Carlo, Director, Information Systems at Italy's largest banking group, Banca Intesa, which is also rated as Europe's largest and most successful merger experiences. Dr. De Carlo explains how the bank created a single core banking platform across its various business units, the benefits it has achieved and why risk management is among the top priorities at the bank today.

Many of you would be aware, I have recently taken over as the Business Head of Finacle IBU from Girish Vaidya who was instrumental in leading Finacle since its launch in July 2000. I look forward to continuing our dialogue through FinacleConnect and genuinely hope that you enjoy this edition of FinacleConnect. Thank you for your support and please keep your comments and ideas coming.

From all of us at Finacle, wish you all a Happy New Year !

Merwin Fernandes
Vice President and Business Head - Finacle
Infosys Technologies Ltd.

Creating A Risk-free Enterprise

The philosophy of risk management, balancing returns against costs or the probability of making a loss, lies at the very core of the business of banking, with a bank's success very often depending on how well it manages the various risks it is exposed to. While banks have regarded risk management as a formal science for several years, it was usually a secondary function within the banking enterprise. But this is now changing. In recent years the age-old function of risk management has become a top priority at financial institu-

"The prime driver for increase in emphasis on Risk Management is stringent regulatory regimes and scrutiny through measures such as Basel II and Sarbanes-Oxley."

tions. This is reflected in the 2004 biannual global risk management survey of financial institutions by Deloitte & Touche. Containing responses from 162 financial institutions across six continents with assets totaling nearly US $19 trillion, the Deloitte survey revealed that four out of five global financial services institutions have established the position of a Chief Risk Officer (CRO), a 15 percent increase since the survey was last conducted in 2002. The survey also shows that three quarters of CROs in financial services firms report to their chief executive or the board of directors, which transcribes to a 25 percent increase in board-level oversight of risk management between 2002 and 2004.

Risk Management – The Key Drivers

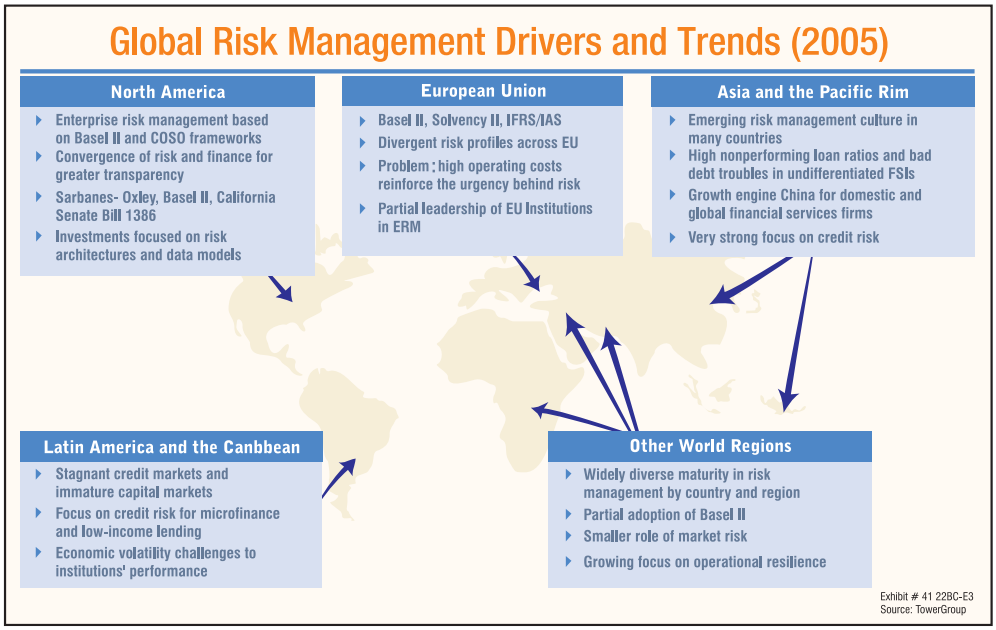
There are several factors that have influenced this increase in emphasis on risk management such as significant financial volatilities and growing margin pressures. However it is almost universally acknowledged that the prime driver is the increasingly stringent regulatory regime and the increased scrutiny of financial institutions in the post-Enron business environment through measures such as Basel II and Sarbanes-Oxley. Established by the Bank for International Settlements (BIS), the capital adequacy framework for banks, commonly known as Basel II, has enhanced and extended banks' overall approach to risk measurement and active risk management. Meanwhile, the Sarbanes-Oxley Act in the United States and similar legislation in other countries have elevated the importance of corporate governance, board oversight, internal controls, and financial disclosures.

Exhibit 1 highlights key risk management drivers and market trends that are directing risk management IT spending of institutions in various parts of the world.

Risks In The Enterprise

Financial institutions face many types of risks, such as credit, market, liquidity, settlement, interest rate, operational, legal and political risks.

EXHIBIT 1



BASEL II

Proposed by the Basel Committee on banking supervision, a subgroup of the Bank for International Settlements (BIS), the Basel II Capital Accord established a new capital adequacy framework for banks, replacing guidelines created in 1988 (Basel I). Basel II places a huge emphasis on bank's risk management systems, supervisory review process and market discipline.

The accord takes the form of three 'pillars'. The first sets out the minimum capital requirements for a bank to cover the various types of risks they face; the second establishes a supervisory review process for a bank's internal risk assessment techniques and capital adequacy; while the third proposes increased disclosure by banks of their exposures, risk management and capital provisions.

Basel II maintains the existing regime for market risk management as suggested by Basel I, but greatly extends recommendations of the first accord with respect to credit risk, while bringing operational risk into the same supervisory framework for the first time. Banks can now apply the same quantitative modeling approach that they have evolved for market risk to credit and operational risk.

The Basel Committee's recommendations are intended for internationally active banks but have no legal force and must be adopted by each national regulator and tailored to requirements. While the Federal Reserve in the US has suggested that only a very limited number of large banks will be required to adopt Basel II, most other developed countries, and even several developing countries have indicated that they will adopt and apply Basel II comprehensively across their banking industry.

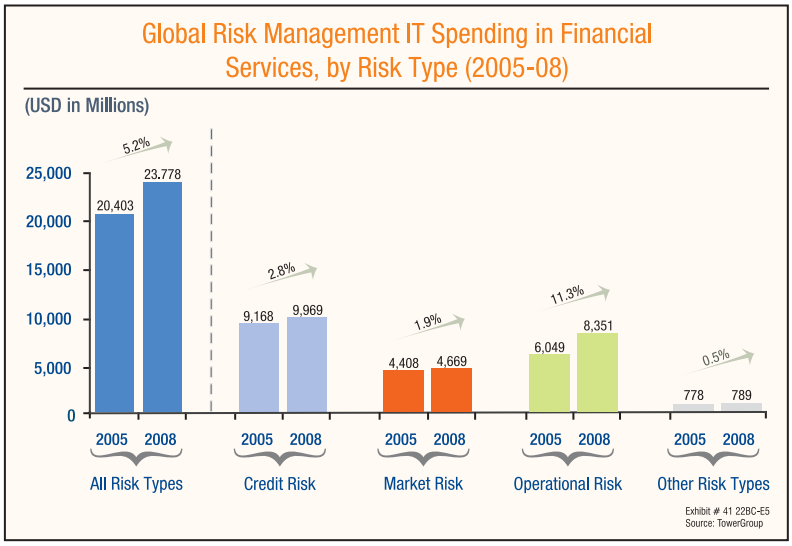
However, risk management analysis tools, measurement techniques and investments have predominantly focused on two core risk types; credit risk, the risk of a borrower defaulting on their loans and; market risk, risk that the value of investments will decrease due to fluctuations in market prices. Now, under the umbrella of the Basel II accord, along with the mature disciplines of credit and market risk, banks have also started focusing on operational risk, the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events.

While banks have always taken steps towards controlling operational risks, for the first time, under Basel II, they are being mandated to apply a rigorous and quantitative approach to monitor and mitigate operational risks. Estimates by analyst firm TowerGroup suggest that globally, financial institutions will increase their spending on risk management technology from $20.4 billion in 2005 to $23.8 billion in 2008, a compound annual growth rate of 5.2%. The dramatically increased awareness of operational risk is reflected in Exhibit 2, which shows annual spending on operational risk management growing at a rapid pace of just over 11 percent per annum as against a much slower rate of growth of around 2 percent for the mature risk disciplines of credit and market risk.

An Integrated View Of Risk

With the Basel II deadlines looming up ahead, banks around the world are systematically working to be compliant by 2007, and leading banks like ING have already announced that their implementation of Basel II is on track. However, industry experts stress that it is important to understand that Basel II's impact on the risk management process extends much beyond the discrete disciplines of market, credit and operational risk , or the siloed approach that has till date largely defined the banking industry's approach towards risk management. Basel II is enabling banks to consider the correlation between market, credit and operational risks and the most appropriate ways to mitigate the organization's exposure to all three. While on the one hand, Basel II motivates banks to continue to develop robust methodologies for measuring individual risks and allocating capital against those risks, on the more strategic front, it enables banks to think beyond the more im-

EXHIBIT 2



mediate compliance demands and move towards a common architecture to manage risk on an enterprise-wide basis.

"Financial services risk managers have long recognized the strategic importance of a holistic view of risk. Regulatory mandates, the increasing complexity and diversification of financial services firms, growing margin pressure, and stinging corporate scandals are prompting (forcing, really) financial institutions to adopt a dynamic, process-oriented discipline of enterprise risk management (ERM). Notwithstanding the impact of these drivers on the movement towards ERM, Basel II is, for nearly all FSIs, the most instrumental driver in the shift of an integrated view of risk management from 'nice to have' to 'must have'," states Virginia Garcia, senior analyst at TowerGroup, in her report, Risk Management in Financial Services: Global IT Spending and Market Drivers in 2005 and Beyond.

Enterprise Risk Management (ERM) helps banks in computing risks comprehensively across instruments, portfolios, business lines and geographies. Aggregating this information in a single view not only enables banks to protect themselves against individual risks, but also helps them identify potential opportunities as they arise. ERM is therefore not simply a defensive measure, it can help the bank achieve better returns by enabling it to maximize its use of risk capital and actively manage the risk/return portfolios. And through all this, ERM simplifies the onerous task of regulatory reporting.

"Enterprise Risk Management (ERM) helps banks in computing risk comprehensively across instruments, portfolios, business lines and geographies."

However, examples of banks having adopted ERM are few and far between. Leading UK bank, Lloyds TSB, is among the few banks that deployed an enterprise wide risk management strategy way back in 2001. Within the first 18 months itself, Lloyds TSB could see benefits such as achieving an alignment of the bank's policy manual to the bank-identified 11 principal risk groups. In addition, the bank was able to develop a risk dashboard for reporting to the group risk committee. Mizuho International is another bank that has adopted ERM by bringing together its market and credit risk environments and deploying a single solution across these risks.

Working on a different model, Bank of Ireland has used the US-oriented COSO ERM Framework to develop its integrated approach to risk management. COSO (Committee of Sponsoring Organizations of the Treadway Commission) is a private sector organization dedicated to improving the quality of financial reporting, which has released a draft framework of ERM based on its control and reporting framework. While the COSO framework is not specific to the world of risk management in the financial services industry, Bank of Ireland has fine-tuned the theoretical COSO framework to come up with its own eight-step process to achieve ERM.

Achieving ERM

Although industry experts are unanimous on the benefits of ERM, and despite the increasing emphasis on containing risk, the 2004 Deloitte survey revealed that ERM continues to be an elusive goal for many institutions. In fact, less than one-quarter of survey participants said they are able to integrate risk across any of the major dimensions of risk type, business unit or geography. Their focus in ERM is on measuring economic risks including credit, market, operational and liquidity. While 38 per cent of respondents said they had integrated the organizational structure required to deal with these risks, only 15-16 per cent reported progress in integrating methodology, data and systems.

Garcia of TowerGroup, who has authored reports on ERM, agrees with these findings. She says that while risk managers have long recognized the strategic importance of a holistic view of risk, very few firms have actually achieved ERM. "Many institutions around the globe are beginning to speak a common enterprise risk language and take steps toward achieving ERM. However, harnessing the strategic equity of enterprise-wide risk management presents daunting implementation challenges."

The main challenge of achieving ERM is lack of data integration and the siloed infrastructure within financial institutions. There is often no common understanding of data sources. It is well known that antiquated core banking systems and legacy technology make enterprise-wide data integration very costly and nearly impossible to achieve. The problem has been further exacerbated by ongoing mergers and acquisitions, making integration of risk information across different business lines, geographies and different platforms very difficult. The only way out is for banks to streamline their operations and adopt enterprise-wide IT architectures. In fact, analyst firm, TowerGroup suggests that since enterprise-wide initiatives are hampered by the limitations of decaying core systems, risk management imperatives will fuel core systems renewal at banks throughout the world.

But is an investment in technology enough to ensure ERM at a firm? Not really, because a key ingredient for success lies within the organization itself – process and culture. Banks need to look beyond the CRO, and ensure that a risk culture permeates throughout the organization.

Achieving enterprise-wide risk management requires the right combination of risk technology, processes and a risk mentality within the banking organization. And ERM is incomplete if even one of those ingredients is missing■

Merwin Fernandes
Vice President and Business Head - Finacle
Infosys Technologies Ltd.

Inside Talk

Technology- A Catalyst For Organizational Changes

The biggest banking group in Italy, Banca Intesa is among the largest banks in Europe and has total assets worth Euro 271 billion (USD 325 billion). With over 3000 branches spread across Italy servicing 8 million customers and over 800 international branches in nearly 30 countries servicing 3.5 million customers, Banca Intesa is a full service banking group that provides a wide range of retail, commercial banking and other financial services.

Banca Intesa group originated from the integration of three major players in Italy's banking system - Banco Ambrosiano Veneto and Cariplo in 1996, then with Banca Commerciale Italiana (BCI) in 2001. While this merger created the largest banking group in Italy, it also brought along a legacy of three different cultures, a staggering array of 1500 retail products, different technology platforms and rising costs. The consolidation efforts from 2002 to 2005 have completely transformed the bank such that Banca Intesa is now rated as Europe's largest and most successful merger experiences. The bank's net income rose 55% in 2004, to $2.5 billion, and return on equity hit 12.9%, up from 1.4% in 2002.

"The focus on information technology lies at the core of the bank's transformation," says Dr.Romano De Carlo, who currently heads technology at Banca Intesa. In a career spanning forty years, Dr. De Carlo has been the technology head at several leading banks in Italy where he has overseen the technology program and the restructuring of complex organizational units. Here he talks to research and contributing editor, **Rekha Menon**, about the bank's technology strategy, current focus and future plans.

Q **What was the key post-merger technology initiative at Banca Intesa?**

A The biggest challenge created by the merger was that each of the three banks had their own core banking systems. This led to high maintenance costs, unnecessary duplication of activities and lack of communication between the three banks. It was therefore essential to create an integrated technology platform across Banca Intesa. Keeping the high transaction volumes and costs in view, we decided to use the existing in-house developed core system at Banco Ambrosiano Veneto. It was a strategic decision since we felt that this would help us retain information system knowledge within the organization. The core technology system at Banco Ambrosiano Veneto was enhanced and then it replaced the existing solutions at the other two.

Q **What was the impact of the technology integration exercise?**

A Putting together a single technology platform that replaced existing systems and is now serving the bank's entire network has been one of the most critical projects for the bank in recent years. The entire migration exercise took 3 years. There is a single core-banking platform with three modules - private banking, retail banking and corporate banking. This reflects the new organizational structure at the bank. Technology was in fact a catalyst to creating business and organizational changes at the bank.

There have also been other efficiency and streamlining benefits. For instance, between the three banks, there were initially 1500 retail products that have now been brought down to 250. Our customers now have easier access to loans, for instance, if they meet the requirements, individuals can get consumer loans up to $40,000 within 48 hours.

Q **What were the key challenges of the technology integration exercise?**

A The biggest challenge was managing change, because with this new system we have changed how people work in the bank. We had decided on which functions to implement and which to discard in all the three banks. This took a lot of planning and time. Managing a project of this size, which involved thousands of people, different processes and systems was very challenging. For such a complex and intensive project to be successful, it was essential to have the complete commitment of both the top management and employees throughout the duration of the project.

Q **Are you planning any enhancements to your existing systems?**

A We are working on the simplification and rationalization of our Information System. We are also working in parallel on defining standard policies for the same. Our priority is to optimize the cost of maintaining the information system and create synergies between Banca Intesa and other banks in the group. We are also focused on developing a true multi-delivery channel bank. We are creating a new self-service focused layout for our branches and are also investing on delivery channels such as telephone, mobile and Internet banking.

Q **With the technology integration project through, what other technology initiatives have you been focusing on?**

A After the migration of the core banking systems, we have been focusing on four key objectives. The first was a recently concluded project on accounting standards prescribed by IAS 39, the International Accounting Standard for the recognition and measurement of financial instruments. The second task, which is nearly through, was to provide technology support to our business divisions. The other key objectives were with regards to risk management, because of the Basel II Accord, and business continuity. Business continuity and disaster recovery planning requires huge effort. We have created a new disaster recovery service for Banca Intesa and are extending it to other group companies.

Q **Please describe the importance of risk management at Banca Intesa.**

A At Banca Intesa, we place a huge emphasis on risk management. We were the first bank with an internal model for market risk approved by Italy's central bank, nearly four years back. Today, risk management is even more critical at the bank because of the upcoming mandatory Basel II capital adequacy requirements. We have focused our efforts to ensure management of risk at all levels in the organization. In the first phase of our risk management efforts we have deployed a risk management framework in Banca Intesa that helps the bank meet the regulatory requirements. Now we are working on the second phase, to extend the same instruments and models to all the other banks in the group■

Kaleidoscope

Basel II

Implementation Challenges

It's been over a year now since Basel Committee published the final Basel II accord in June 2004. Regulators in the various countries are busy publishing the Basel II document applicable to their jurisdiction or are in the process of finalizing the same (see page 12 for an overview on Basel II).

Basel II provides banks a bouquet of approaches from the basic to the advanced, however it is in the advanced approach that banks have a better chance of achieving reduction in capital charge. Basel II, unlike Basel I, is highly data intensive, more so in the advanced approaches for the measurement of Credit and Operational Risk.

"Basel II is extremely data intensive and requires good quality data for better results. Data, both current and historical, is required for internal estimation of the PD, LGD, EAD and Maturity (M) parameters in the Capital calculation."

Given that Market risk has largely been left untouched, the implementation of Basel II centers around choosing the appropriate approaches for Credit and Operational risk and ensuring that their existing source systems provide all the necessary data with the desired accuracy for risk analytics and capital calculations.

The Basel Committee of BIS has set aggressive deadlines for banks to comply with Basel II and the regulators have -- based on the realities in their respective jurisdictions -- extended the implementation deadlines by about 12-18 months. However, large international banks in Europe and US, which have to adopt the advanced approaches have already embarked on their Basel II compliance program and have spent a significant amount of resources (money, effort and management focus) on this. While banks had recognized the difficulties involved in implementing the Basel II regulations, the problems they have encountered in the implementation have turned out to be much bigger and challenges much greater than was initially estimated. In this article we take a look at a few key challenges on the shopfloor.

Data Challenge

Basel II is extremely data intensive and requires good quality data for better results. Data, both current and historical, is required for internal estimation of the PD, LGD, EAD and Maturity (M) parameters in the Capital calculation. The most popular solution centres around building a data warehouse that will store all the data necessary to support the risk analytics and capital calculation. The largest challenges have been in the following areas:

- **Data Sourcing**: Banks will have to develop an exhaustive list of data elements that will be required to support the Basel II calculations in their banks. These will then have to be mapped to the source systems and checked for their availability. Gaps if any must be noted. These gaps will require enhancements to the source systems. The mapping process is extremely slow and will have to cover all the source systems. Decisions on which source system a particular data element be sourced from will have to be made and in considering multiple sources for a single data element, identifying the golden source of each element will be an extremely involved task.
- **Data Integrity & Quality**: In many cases, where the banks have found the required data in the source systems, they have not been in the same format or of the same version, and in some cases mean the same thing. This has turned out be a much bigger problem than anticipated earlier and most of the effort of the banks are currently focused on scrubbing the data, performing necessary transformations and making them consistent prior to loading it to the data warehouse.
- **Data Stewardship**: Often during implementations, any modifications that need to be made to the data structure, formats etc runs into problems over the ownership of data and hence the authority to make the changes. While business is clearly the owner of the business data, the various LOBs may resist changes to say the customer data structure that are not in line with the way they have defined in their source systems. There may be cases when different units are allowed to update data other than the depart-

ment that is supposed to be responsible for the data. This often leads to versioning conflicts and data integrity problems. Resolution of these problems lie in clear identification of data ownership and responsibilities of the data stewards.

Enterprise Data Model & Meta Data Management

It has been noticed in many instances that different divisions of the banks define same entities (e.g. say customer / organization / facility) in multiple structures, formats and standards that gives rise to inconsistency in the definition of the entities and the data they capture. Also in many cases the banks have lacked a formal organization-wide meta data management which has led to adoption of multiple data standards with in the organization. All of these have made integration of data across multiple source systems an extremely difficult task.

"Basel II is providing the banks an opportunity to rationalize the various models currently in place and develop an enterprise data model."

Most banks today have various data models that exist with in their organization supporting their current businesses. Basel II is providing them an opportunity to rationalize the various models currently in place and develop an enterprise data model. Some of the top tier banks are investing in creating an enterprise data model that will not just meet the Basel II data requirements but also address the wider reporting and MIS requirements of their existing businesses. They are also investing significant resources in enterprise-wide meta data management that will track the data through its lifecycle and provide guidelines for future application development regarding the data standards pursued by the organization.

Model Validation & Stress Testing

A critical part of Basel II is the validation of the risk models being used by banks. The challenges on this front are two fold. The first one is to get internal acceptance on the model and ensure that there is adequate senior management and Board level oversight on the use and application of the models. The second is to obtain regulatory acceptance for the models. Both the above will require detailed documentation and sign off on the models used. The regulators may demand to know how well the model has been working in practice. A common way to test the validity of models is by back testing. This is necessitated due to the fact that most models are developed using test data and their performance in the real world needs to be assessed.

While stress testing is fairly developed in the area of market risk, where practitioners rely on the assumption of extreme movement of financial market variables, stress testing techniques are not well developed in the area of credit and operational risk.

Another issue faced by most banks is in adopting appropriate stress testing approaches for the analytical models. While there are multiple methodologies available, the choice of the one methodology over the other is not clear cut. There is also little agreement amongst the practitioners on which approach is better. Some banks prefer to input extreme movements in the variables used in the models and calculate the capital required under the new values, while some banks prefer to use a scenario approach.

The problems faced by banks in stress testing arise in scenario definition, testing correlation

breakdowns, choosing what is an extreme market movement and what is the level of shock to be applied to model variables. As real life data on extreme losses are difficult to come by, users have to depend on assumptions to incorporate extreme losses into risk measurement. Banks need to design stress scenarios that are in line with the banks risk appetite, clearly document the assumptions used and get necessary internal approvals. For stress testing to be effective, banks will need to develop portfolio stress scenarios. This will involve studying the correlation between different risks, for example an upward move in interest rates can impact the trading book and can also have impact on the credit quality of the borrowers.

Operational Risk Data / Modeling

Banks are yet to come to terms with operational risk modeling as required by Basel II. Most banks seem to be moving towards adopting the standardized approach, while putting in place plans for eventual adoption of the AMA model. Banks are still in the process of identifying suitable quantification models for operational risk. Allied to this is the issue of collecting suitable data for the operational risk model. Banks need a history of internal data in their operational risk modeling exercise. However, many banks may not have the required data. Again, in instances where banks do have data on internal operational risk losses, an extensive cleansing and analysis will be required, as information on operational risk losses will need information about the date of the incident, loss type (whether people related or system related), loss amount, recovery, line of business, etc. Also, Key Risk Indicators (KRI) used to track the selected risk causes behind the loss, will need to be developed. Banks face problems sometimes, regarding the choice of the appropriate risk indicator. In a few cases, there can be multiple indicators. Again, in the absence of historical data against which to test the risk indicators, banks will need to test the KRI's against observed losses on an ongoing basis.

Another difficulty that is encountered by the banks is due to the fact that the accord is not very clear on the issue of use of risk mitigation techniques for operational risk like outsourcing and insurance. Banks using these techniques are yet to develop techniques for incorporating such measures in their operational risk model.

Conclusion

While the above issues are only a subset of the larger problems that have confronted the banks during implementation, these indicate the need for a much deeper understanding of the issues involved in the Basel II implementation at the banks. There is a need for a lot of pre-work and an accurate understanding of the issues involved in order to achieve successful implementations. The problems faced by the leading banks adopting advanced approaches can serve as a useful learning experience for the other banks that are embarking on their Basel II implementation programs■

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Case Study

CREDIT SUISSE
Enhancing Productivity

About Credit Suisse Group

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"Well over 85 percent of all trades are fully automated, with the STP rates for inter-bank trades being as high as 99 percent. Positions are updated in real-time. Finacle also seamlessly integrates with all other internal and external systems at the bank such as Credit Suisse's credit and market risk management systems."

Credit Suisse - Finacle Partnership

Credit Suisse's partnership with Finacle dates well over a decade ago, to the early 1990s. At that time the bank was looking for a treasury system for its money markets operations and selected the Light-house solution (as Finacle treasury solution was called back then) to automate manual operations and re-place its in-house developed money markets trading platform across its offices in Zurich, London and New York.

By 1997, the bank also decided to deploy the solu-tion for its FX trading operations in Zurich, where it replaced the existing in-house developed trading plat-form. Today, Finacle is the treasury solution at all legal entities of Credit Suisse in Switzerland, includ-ing the independent private banks, Bank Leu and Bank Hofmann, and some other locations such as New York, London and Singapore.

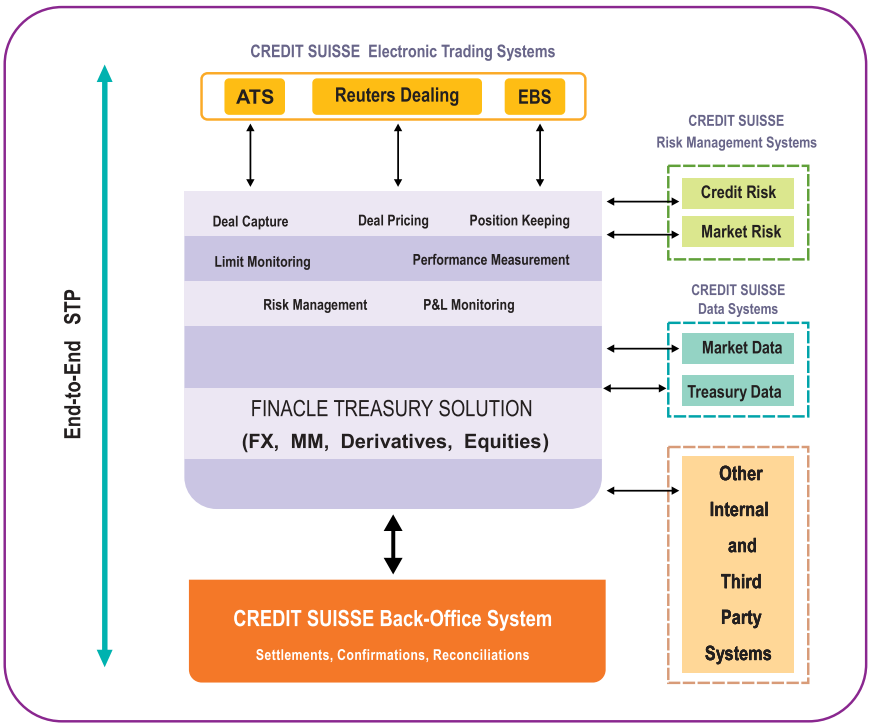
At The Heart Of The Bank's Operations

Finacle offers comprehensive and integrated front-to-back office treasury functionality at Credit Suisse, where it supports over 800 users globally across various functional areas such as foreign exchange (spot, outright, swaps and arbitrage), money mar-kets (calls, terms, structured trades, repos, certifi-cate of deposit), derivatives (FRAs, IRSs, exchange traded futures and options) and securities (including FRNs, MTNs, government bonds).

Running on Sun Solaris servers with a Windows NT front-end, Finacle is tightly integrated with all price-capture systems including ATS, EBS, Reuters deal-ing system and Prime Trade, an in-house developed web-based futures and forex trading system. At the back-end, Finacle integrates with the bank's in-house developed mainframe based back-office system. This ensures a very high level of straight through process-ing. Well over 85 percent of all trades are fully

"Finacle treasury solution is completely integrated in all our processes and is the central point of all our systems. The solution is a standard part of all our trading operations."

Bruno Langfritz, Director, Foreign Exchange, Credit Suisse.



automated, with the STP rates for inter-bank trades being as high as 99 percent. Deal pricing, deal capture, risk analysis, position management and performance management are some of the key features of Finacle deployed at Credit Suisse. Positions are updated in real-time. In addition, the bank uses Finacle's back-office as its main P&L engine. Finacle also seamlessly integrates with other internal and external systems at the bank such as Credit Suisse's credit and market risk management systems, market data systems and FENICS, a third party product for pricing option instruments.

Providing The Critical Edge

As a modular and scalable front-to-back office treasury management solution, Finacle offers Credit Suisse several business benefits.

- **Enabling enhanced risk management** – Risk management is a key feature offered by Finacle and it helps consolidate the risk positions of all instruments traded in real-time mode. A highly configurable system, Finacle has been rated very highly in its position management features. The solution empowers traders with powerful tools such as 'liquidity view' and 'net P&L view' which provide snapshots of liquidity and P&L positions. These tools help traders better analyse their risk and enable them to take intelligent trading decisions. Residing at the heart of Credit Suisse' trading floor technology architecture, Finacle acts as the data integration hub for all internal as well as third-party systems, thus providing an integrated view of the risk across the entire trading operations at Credit Suisse.
- **Continuous performance improvement** - With Finacle, traders have reported a consistent improvement in the time required to access rates and deal capture information, which has helped enhance their ability to monitor risk. In fact the speed of entry of ticket input has increased by a factor of 7 in just one year.
- **Greater productivity** - The tight integration of the treasury solution with other systems such as the price capture system has ensured that there are lesser op-

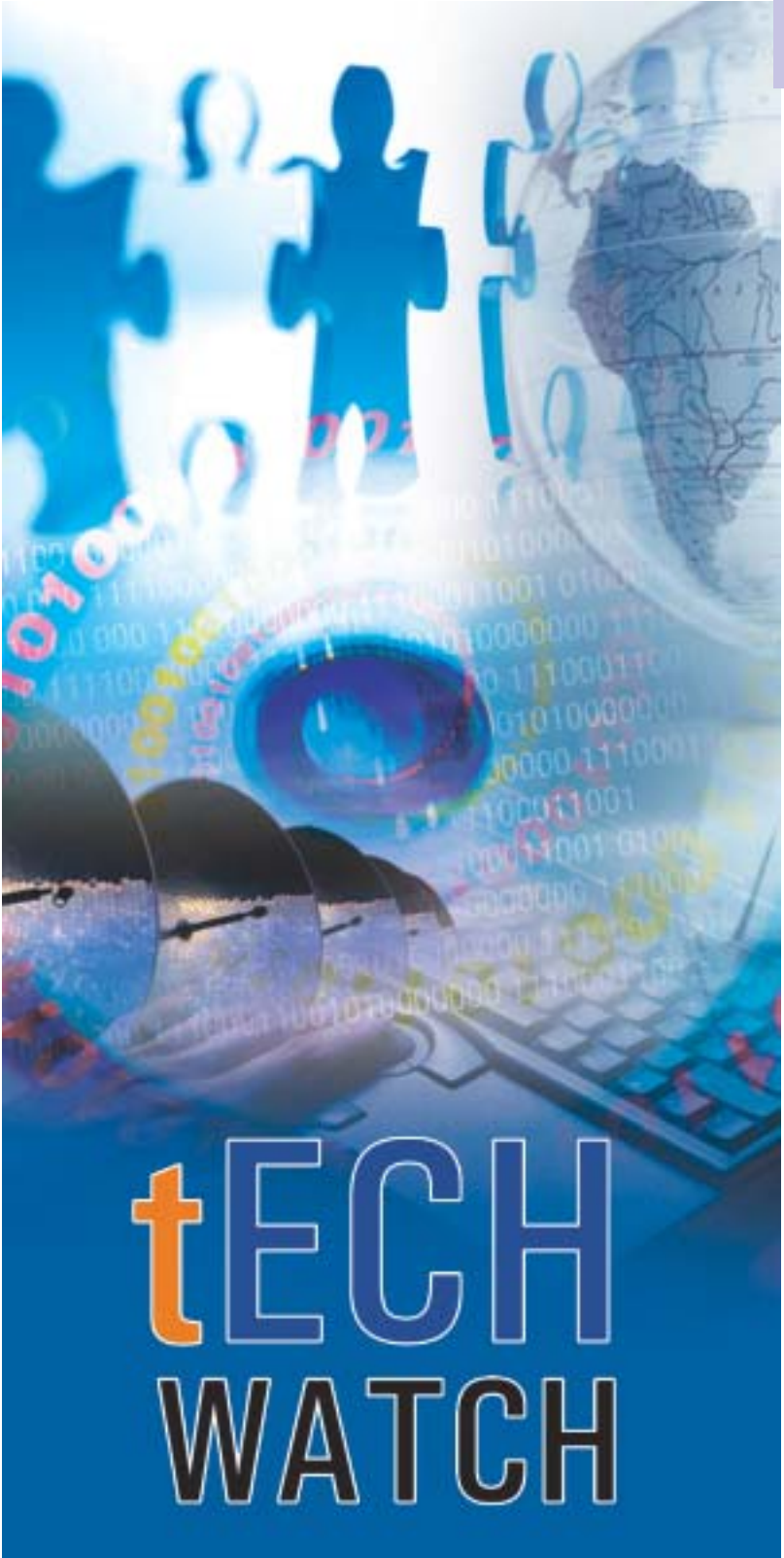
erational errors as traders have fewer instances when they have to manually key in information. In addition, for any major systemic enhancements, as was required for the arrival of the Euro or for CLS, changes are made only once. This reduces the probability of errors by removing the need to re-key information.

- **Powerful security** – Finacle's permissioning and security features help the bank manage operational risk better. There are multiple levels of security including user log-on, function-based, field-based, and trading book. Importantly, the security features allow for the creation of privilege groups and user groups as well as the ability to specify trading book permissions and to do field-level permissioning.
- **Proven scalability** – Currently the bank has several hundred thousand counterparties. Finacle supports high volume transaction processing in an online, real-time mode and has helped the bank to rapidly scale up its trading volumes.
- **High degree of flexibility** - Finacle's tool kit facility empowers Credit Suisse users to add new functionalities and features without having to depend on Infosys or change the source code. The tool kit enables Credit Suisse to create its own products or interfaces within the system as required.
- **Ease of use** - The benefit of any software application is fully derived only when the user finds the application to be user friendly. Finacle has appealed to the users with its intuitive design. The NT front end deal input uses ergonomic deal capture windows designed by Credit Suisse traders, which provide a fast and efficient interface for entering trades, with minimum mouse clicks or key strokes. For instance, a deal can be completed within three clicks.
- **Aiding future growth** - Not only does Finacle help Credit Suisse improve its own treasury operations, the solution is a critical element of the bank's ambitious trading floor at medium to small banks in Europe, which according to Credit Suisse's own research that is corroborated by Gartner's reports, will be looking to replace their trading systems in the next few years. The comprehensive trading solution powered by Finacle combined with the Credit Suisse's knowledge and size of operations provides just the right platform for insourcing services■

View from the Top

"Finacle offers us a powerful combination of comprehensive treasury functionality and new generation technology. Having a single, tightly knit front and back office platform clearly brings enormous benefits since all the expertise of the different entities can be fed into the centre, so that the system can evolve with the group. We view Finacle as the technology engine behind our trading floor insourcing initiative and we are confident that with a partner like Infosys, we will continue to grow in functionality and size."

Bruno Langfritz
Director, Foreign Exchange
Credit Suisse



Business Intelligence

Leveraging Technology To Manage Risks

Banking scandals in the recent past have led to the formation of regulations like Basel II, SOX, GLB etc., which have to be complied with. Non compliance is not acceptable and banks do not want to risk their reputation by not complying with these regulations.

In their endeavor to comply with these regulation, banks have formed different teams to achieve the common objective of better governance through parallel initiatives. Such initiatives to address different compliance requirements have led to:

- Enormous wastage of money and effort
- Redundant resource usage
- Lack of re-use of solution components addressing common aspects across compliance initiatives

The commonality among various compliance requirements such as operational risk management and data management provide great opportunities for the re-use of resources (refer to Figure 1). Effective and coordinated corporate governance, IT security management and data management significantly reduce risks across the enterprise.

Though finite outcome for compliance may vary, such outputs are derived out of the same data or sometimes from the same information. Technology can be leveraged to effectively manage such data, reduce risks and provide efficient business solutions. One such technology that enables effective data management is Business Intelligence (BI).

Compliance Requirement For BI

Senior management of the bank is required to assess the internal controls in the business practice on a regular basis and bridge the gap if any. Timely availability and accuracy of the information is critical for enforcing compliance requirements. Banks can make optimal use of resources by building Enterprise Data Warehouse (EDW) to address different compliance requirements. Regulatory requirements can be built within such data warehouses and data can be reported in different dimensions as per regulatory requirements using analytics and data mining features of business intelligence (refer to Figure 2).

Organization Data / Base Data

Every bank should identify the base data for BI. Such information will be either the transactional data or master data or standing data. Master data will include information about customers, vendors, assets, bill of materials etc. They are usually entered once and may be revised less frequently. Transaction data will refer to the master data and includes the day-to-day operational information of the company

for example- process records. Standing data will be the one time data input like application configuration data, organization roles and responsibilities, polices and procedures etc.

Data Cleansing & Standardization

Organizational data may be available in different systems in different forms. Such data should be extracted, cleansed, standardized and mapped to the regulatory requirements.

Data Quality

Data quality can be characterized by its accuracy, integrity, consistency, completeness, validity, timeliness and accessibility. For successful regulatory implementation, data quality should be of the highest level. Otherwise, the results given out by the data mining and analytics models will be inconsistent. This will lead to a 'garbage-in garbage-out' situation.

In a study conducted by Gartner, it was analyzed that 80% of CRM implementations failed due to the lack of clean data. On many counts, the data requirement of a CRM implementation is not much different from that of a compliance implementation. A CRM implementation gathers data from varied customer touch points and intends to give one holistic view of the customer. Similarly, a compliance regulation implementation tries to give an enterprise-wide view of risk by pulling together data from a number of applications.

Various techniques that can be employed to improve data quality are:

Aggregation – Collection of data from multiple data sources

Categorization – Classification of every record to a defined classification schema

Standardization – Application of pre-defined standards for data representation and other validation checks

De-duping – Elimination of duplicate information

Enrichment – Provision of enhanced data where information is missing or pertinent data available from external sources

Enterprise - wide Data Warehousing

Such cleansed and standardized data is stored in an enterprise-wide compliance data warehouse which will be a central repository of all organizational, compliance and regulatory information. Data is stored using

Figure 1

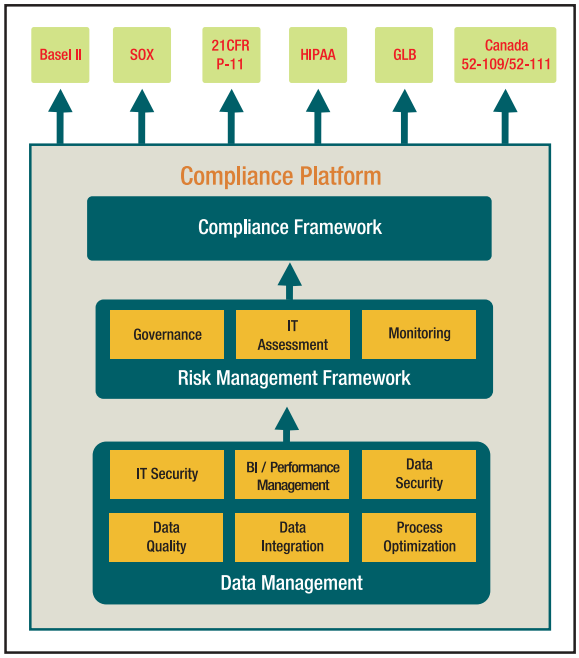
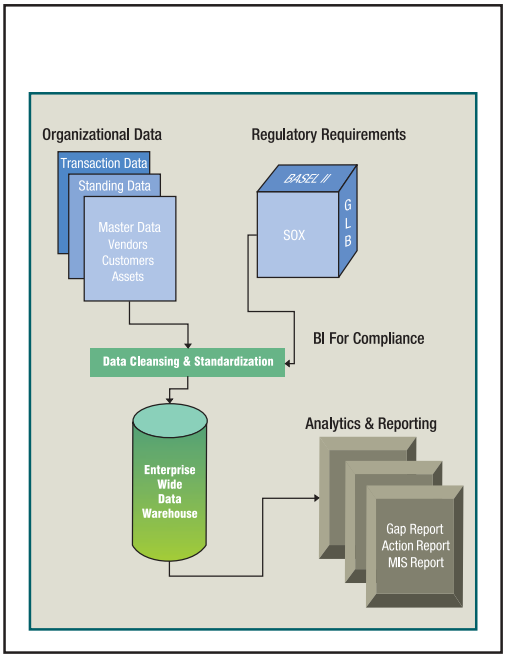


Figure 2



different dimensions to enable easy accessibility. Design of such dimensions is very critical to the success of data modeling.

Reports and Analytics

The reporting and analytical engine is perhaps the most critical part in presenting the required information in different forms to the top management. This tool will enable multi-dimensional analysis, what-if analysis and data drill down analysis. A summary of the compliance status is provided in the corporate dash board. The top management of the company will be able to drill down each of the report to analyze the compliance status and track progress. The analytical and reporting engine enables effective program management of compliance implementation.

IT Requirements

To meet the IT requirements to achieve compliance, banks must:

- Give the importance compliance deserves against other high priority projects
- Conduct a cross functional compliance requirement analysis, business requirements analysis and a technical gap analysis for studying existing technology systems, infrastructure and business processes to understand the changes required
- Create an enterprise-wide strategic IT plan that addresses business and regulatory requirements
- Assess internal expertise and set up a team for implementation that directly reports to the top management
- Develop an implementation plan that sets dates, budgets and milestones for building technology infrastructure.

Finally, the project needs to be implemented across the bank within the timelines specified in the plan.

Business models and business environment are both dynamic. If we try to solve issues only for the short-term, we may run into problems in the long run. Similarly, if we get the technology right, but not the information content, it may not work either. There is a growing realization that banks must dramatically improve their ability to monitor, forecast and report on financial and business performance as well as adhere to prudential norms. Banks must seek ways to use the information and the data and distinguish the value creating activities both at tangible and intangible levels. Business Intelligence is an enabler for establishing a framework to mitigate the enterprise-wide risks that the uncertain regulatory environment springs up and at the same time provides valuable insights into business performance measurement and management■

Keerthana Mainkar & Arvind Kamath
Senior Consultants,
Enterprise Solutions Group
Infosys Technologies Ltd.

Infosys in the news

Q2 revenues grow 38.3 percent

Infosys Technologies Limited announced financial results for its second quarter ended September 30, 2005. Revenues for the quarter aggregated $ 524 million, up 38.3 percent from $ 379 million for the quarter ended September, 30 2004. Net income was $138 million ($ 97 million for the quarter ended September 30, 2004). 34 new clients were added this quarter with a gross addition of 8026 employees, taking the tally of the number of employees to 46,196 (September 30, 2005).

ABN AMRO Deal

Infosys won its single largest multi-year, multi-million dollar contract from ABN AMRO to develop, support and enhance a wide spectrum of applications. This reinforced its belief that offshoring of large deals is a mega trend. It also signifies the entry of Infosys into the arena of large, global, multi-year outsourcing contracts and is an endorsement of its competitive business model.

Finacle – The Universal Banking Solution from Infosys

Finacle in the News:

- **United Bank for Africa (UBA),** among the largest banks in West Africa, has selected Finacle universal banking solution for its business transformation initiative. UBA will deploy Finacle core banking, consumer and corporate e-banking, alerts, CRM and treasury solutions. With this win, Finacle now powers two of the top three banks in West Africa, in addition to several others and has further consolidated its position as a clear market leader in the Nigerian core banking market. United Bank for Africa will consolidate its technology platform on Finacle following its recent merger with Standard Trust Bank. The bank also aims to leverage Finacle's new generation technology architecture to support its aggressive growth plans and differentiate itself in an intensely competitive and fast consolidating market in Nigeria.

- **Making Headway in Europe & Australia:** Finacle further consolidated its position among global Tier 1, Tier 2 and large regional banks, particularly in the strategic European market. A global top 100 bank headquartered in Europe licensed Finacle core banking, CRM, consumer e-banking and wealth management solutions to power its retail banking initiative in India. One of the top 5 banks in Russia licensed Finacle universal banking solution. A leading financial services company in Australia will deploy Finacle core banking and consumer e-banking solutions.

- Finacle treasury solution has successfully gone live at **Aspis Bank**, Greece. Aspis Bank now enjoys the benefits of a functionally rich and fully automated STP driven treasury solution. The application is being used by the main treasury desk at its headquarters for various trades in FX, MM and Securities.

- **All States Trust Bank (ATB), Nigeria** went live with the Finacle CRM solution. Inspite of being the first CRM implementation for Finacle in Nigeria, the project was completed well ahead of the scheduled date. The successful implementation aims to provide the bank with the best fit solution which streamlines its operations and provides the richest functionalities CRM has to offer.

Customer Speak

"We are confident that by migrating from our current legacy systems to Finacle, it will provide our bank tremendous business agility and time-to-market advantage. Apart from the rich functionality and open architecture, we are especially impressed with its flexibility and scalability, which we feel is critical to our retail driven growth strategy. Infosys' impeccable delivery track record, global experience of working with leading banks and the financial viability reinforced our confidence in selecting Finacle for a mission critical project of this nature and Infosys as the strategic technology partner of the bank in this key initiative."

George Dayantis
General Manager-Operations and IT,
Aspis Bank, Greece

Benton E. Gup
James W. Kolari

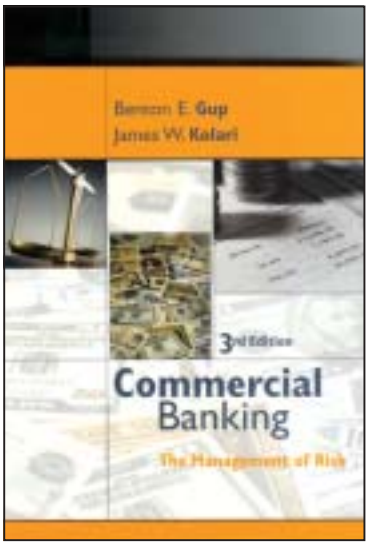
Commercial Banking –

The Management of Risk (third edition)

Banking is essentially the management and evaluation of risk, and balancing the need for profitability with safety. This is the basic premise of the book Commercial Banking, The Management of Risk. The authors of this in-depth treatise on banking state that banks must balance alternative strategies in terms of their risk/return characteristics with the goal of maximizing shareholder wealth. And in order to do so, they need to recognize the different types of risks, understand how they impact the bank and its customers, and finally know ways to manage these risks.

One of the most visible risks facing banks is credit risk, or the risk of an obligor failing to meet the terms of any contract with the bank. It is usually associated with loans and investments, but it can also arise in connection with derivatives, foreign exchange and other extensions of bank credit. Credit risk or 'bad loans' is infact considered the primary cause of bank failures. The book describes the commercial and industrial lending process along with credit scoring methods and techniques to reduce credit risks. Another critical risk for a bank is interest rate risk. This is the risk of market rates of interest changing unfavorably, which leads to the market value of a bank's assets to fall with increases in interest rates. The book explains indepth how banks can reduce their interest rate risk by effective asset/liability management techniques and by hedging with derivative securities. Other types of risks too are covered in considerable detail in the book, such as, market risk, foreign exchange risk, liquidity risk, risks involved in making investments and payment systems risk.

However, this book goes beyond being merely a dry analysis of risks faced by banks. While risk management forms the common thread throughout the book, the book provides an excellent snapshot of banking history



in the US, describes banking functions and explains the rationale behind banking regulations, quoting the US Federal Reserve Chairman, Alan Greenspan, *"If risk-taking is a precondition of a growing economy, and if banks themselves exist because they are willing to take on and manage risk, what should be the objectives of bank regulation? The answer clearly should begin with the goal of circumscribing the incentive of banks to take excessive risks owning to the moral hazard in the safety net designed to protect the financial system and individual depositors. But the full answer must involve some benefit-costs and on the other hand, allowing banks to perform their essential risk-taking function."* Progressing to modern day banking in the US, the authors cover banking strategies in great detail such as capital management, including the capital adequacy requirements proposed in the Basel I and II Accords. Keeping recent developments in the US banking industry in view, in this third edition, the authors have added a couple of chapters on credit evaluation and securities, investment and insurance services.

At 500 plus A5 sized pages, this is not a small book and is not intended as a quick read. But for a reader trying to determine which chapter to delve into, the introductory bullets and chapter-end summaries provide excellent pointers. The book is in fact written like a textbook, with case studies and questions after each chapter. Not surprisingly, I found that this book is recommended reading for banking courses in some universities in the US. What is surprising though is that such a well-researched book does not cover certain important aspects of risk management, namely operational risk, which has gained prominence in recent years due to the Basel II Accord, and enterprise risk management, another area of focus for banks around the world. However, these lacunae aside, Commercial Banking, The Management of Risk is the perfect book for anyone looking to understand the world of risk management in banking, albeit with a US focus■

Rekha Menon
Research and Contributing Editor
FinacleConnect

Maximize Opportunity. Minimize Risk.

Has your bank experienced The "Finacle" Feeling yet? The feeling that comes from confidently facing challenges and seizing opportunities, while secure in the knowledge that your risks are minimized. With Finacle, the universal banking solution from Infosys, your bank too can experience that imminent feeling of success.

Finacle addresses the business requirements of universal, retail, corporate, community and private banks worldwide.

Built on the next generation technology and a flexible architecture, the solution's ability to scale seamlessly with growing business volumes ensures greater business agility and lower TCO for banks. With a successful implementation track record and global deployment capability, the solution minimizes risks while maximising business opportunities. Its customers include ABN AMRO, ICICI Bank, UTI Bank, Credit Suisse, DBS Bank, National Commercial Bank of Saudi Arabia, First Bank of Nigeria and Mizuho Corporate Bank, to name a few.

With Finacle, you can fly high, while being securely strapped.

Universal Banking Solution from Infosys

Finacle
Transforming Banking

www.infosys.com/finacle

■ Core Banking ■ Consumer e-Banking ■ Corporate e-Banking ■ Treasury ■ Wealth Management ■ Cash Management

for more information, e-mail us at finacleinfo@infosys.com

Infosys technologies defines, designs and delivers IT enabled business solutions across the globe. Each solution is delivered with a high degree of time and cost predictability that ensures peace of mind for its customers.