



Celebrating 60th Year of Excellence

A Study on Basel II and Risk-based Supervision



Auditing and Assurance Standards Board

The Institute of Chartered Accountants of India

(Set up under an Act of Parliament)



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A STUDY ON BASEL II AND RISK-BASED SUPERVISION

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Foreword

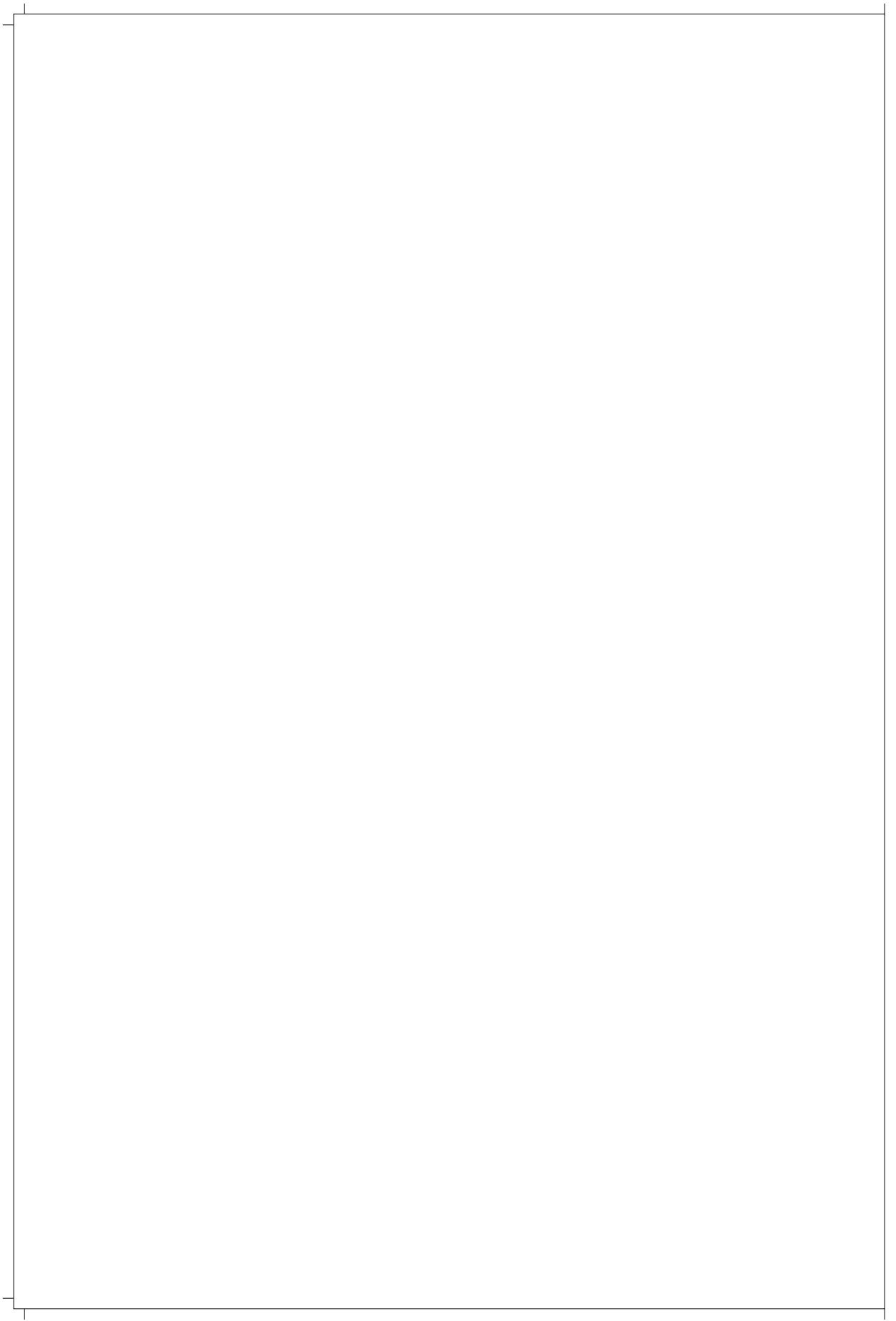
Globalisation and financial innovation have over the last two decades multiplied the inherent and operational risks associated with the banking industry. With the new and varied financial structures, the banking sector needs to be prepared to handle the greater degree of risks associated with them. Basel Capital Accord II provides the banks with a sophisticated risk assessment and management system to mitigate the increased risk of losses. Basel II aims to encourage the use of modern risk management techniques in the banks and also ensure that their risk management capabilities commensurate with the risks of their business.

I am pleased to note that the Auditing and Assurance Standards Board has brought out A Study on Basel II and Risk-based Supervision. The Study is designed to help the members and other readers, have a thorough understanding of Basel II.

I am sure that the Study would be used and appreciated by the members as well as other interested readers.

21st July, 2008
New Delhi

CA. Ved Jain
President, ICAI



Preface

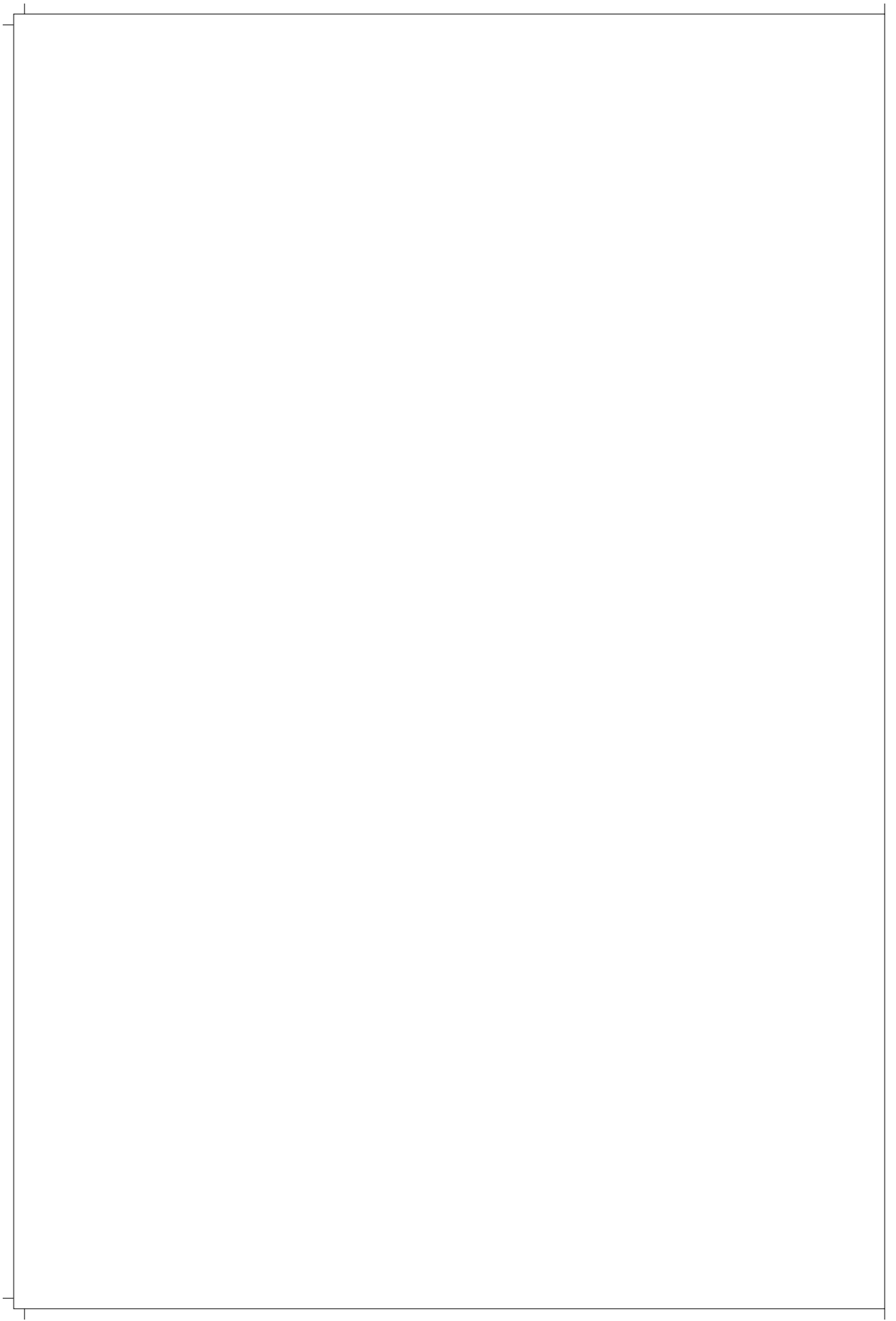
The Basel Capital Accord II, was approved in June, 2004 by the Basel Committee on Banking Supervision of The Bank for International Settlements (BIS), located in Basle, Switzerland and it suggests that banks and supervisors implement it by beginning 2007, providing a transition time of 30 months. It is estimated that the Accord would be implemented in over 100 countries, including India. Reserve Bank of India, with the issuance of detailed guidelines on Basel II in 2006 and 2007, has moved closer to its goal of correlating banking risks and their management with capital requirements. Basel II takes a three-pillar approach to regulatory capital measurement and capital standards. Pillar I - minimum capital requirements; Pillar II - supervisory review process; and Pillar III - market discipline. The primary objective of the new Accord is to make it more risk sensitive and thus strengthen banking systems even in periods of financial crisis. Consequently, the new proposal moves ahead of the 'one-size-fits-all' approach and adopts a methodology for gauging capital adequacy ratios based on credit risk, while also incorporating charges for operational risk.

This Study explains the basic principles of the Basel II Framework in a clear and lucid manner along with graphs, tables and diagrammatic representations.

I wish to place on record my gratitude to CA. Rupendra Singh, FCA and Mr. Amreshvar Seth, an eminent expert in the field of Basel II for preparing the Study.

21th July, 2008
New Delhi

CA. Harinderjit Singh
Chairman
Auditing and Assurance Standards Board

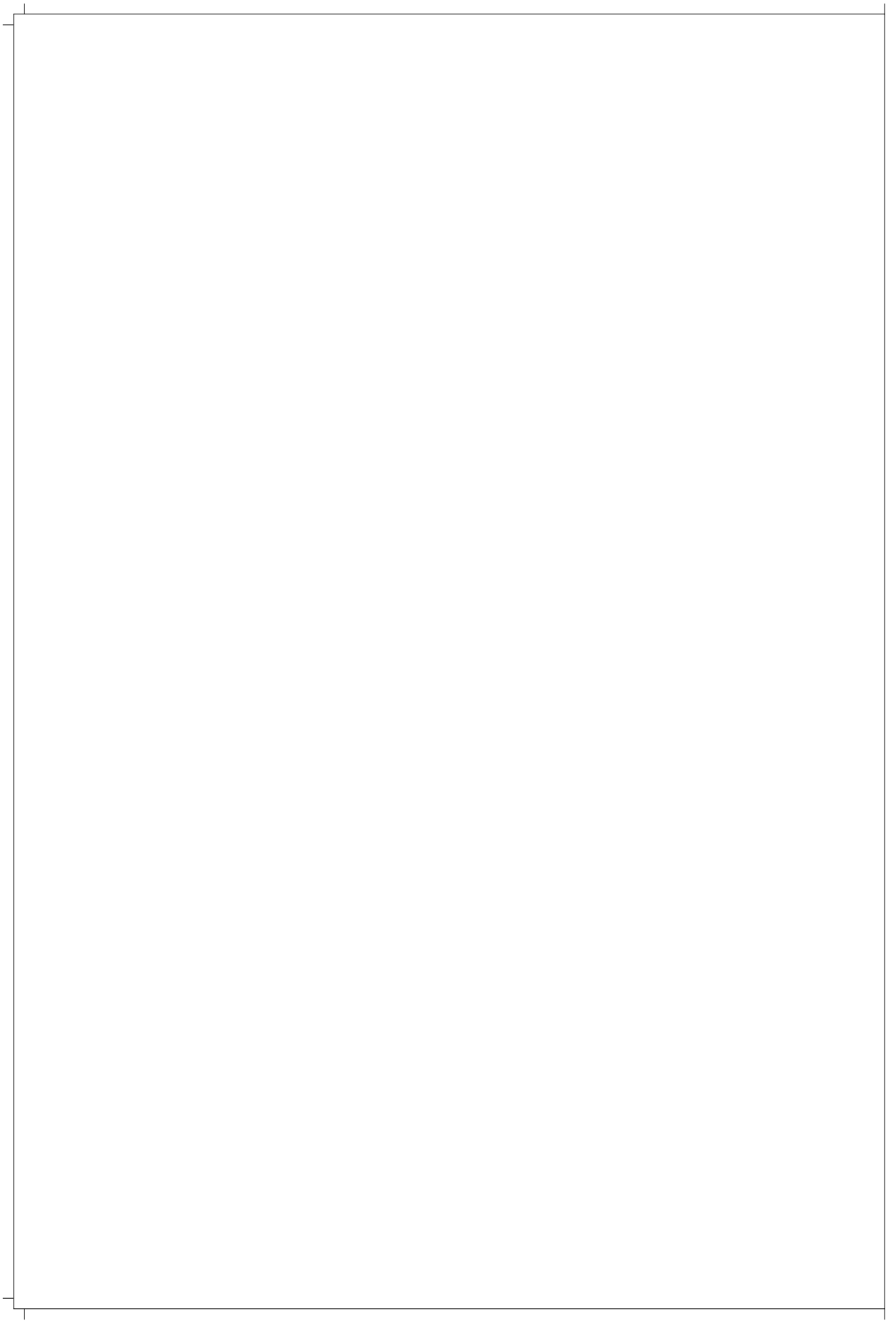


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Chapter One

An Overview

This study explains the Basel Committee's* work in revising the 1988 International Convergence of Capital Measurement and Capital Standards Accord. This revision is based on a new three-pillar concept with far reaching implications for capital management and corporate governance. This document summarises the effects, risks, and challenges arising from the changes.

* *The Basel Committee on Banking Supervision is a committee of banking supervisory authorities that was established by the central bank governors of the group of ten countries in 1975. It consists of senior representatives of bank supervisory authorities and central banks from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom, and the United States. It usually meets at the Bank for International Settlements in Basel, where its permanent Secretariat is located.*



BACKGROUND

The Latin American Debt Crisis in 1982 led to a massive strain on the capital of most large banks. This resulted in the Bank of International Settlements (BIS), located in Basle, Switzerland, to propose regulation requiring Banks to hold a minimum capital buffer as Tier I capital. This was designed to bolster the solvency of the global Banking system.

This Accord, put in place in 1988, became known as the Basel I Accord. It addressed Credit Risk, and required banks to maintain Regulatory Capital of 8% of their risk-weighted assets (The RBI adopted a ratio requirement of 9% for Indian banks).

$$\text{Basel I: } \frac{\text{Capital}}{\text{Risk Weighted Assets (Credit + Market Risks)}} = \text{Minimum Capital Ratio of 8\%}$$

* Note: in 1996, Market Risk was included in this equation

Over the years, however, it became evident that Basel I had many short comings such as inadequate differentiation of credit risks, limited recognition for collateral and netting, no consideration of 'diversification effects', no explicit consideration for other risks such as, Operational, Liquidity and Reputational Risks. There was also minimal scope for risk mitigation

THE NEED

As a result of these short comings, and a number of highly visible and serious losses that took place at a number of banks, Basel II was created. It was designed to improve the safety of the Financial System by placing increased emphasis on bank's internal controls, risk management processes and models.

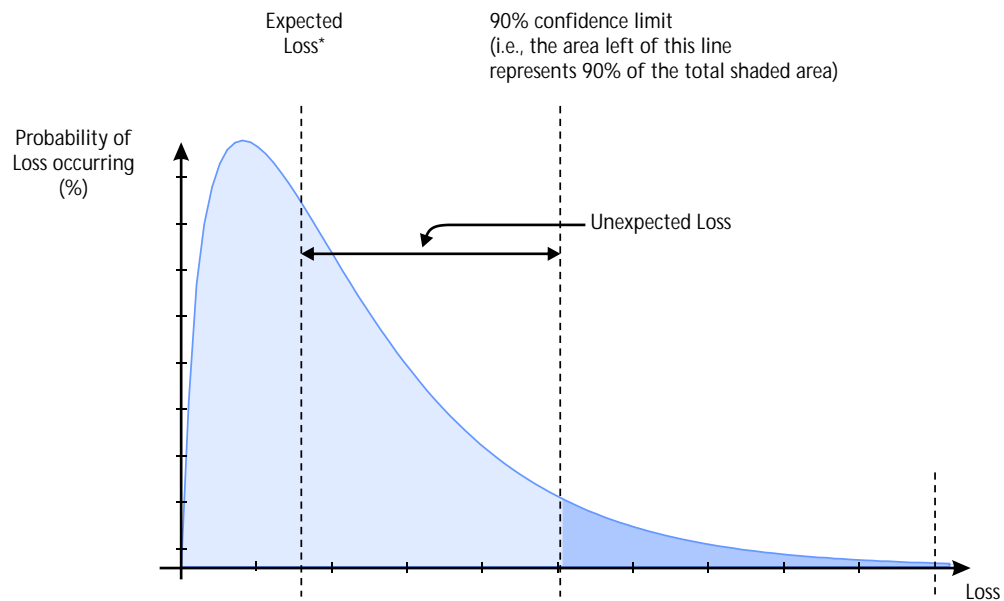
Whereas Basel I had a 'one size fits all' broad brush approach, Basel II is more risk sensitive and requires a portfolio of approaches.



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Another important reason for the creation of Basel II was the concern of International Banking Regulators that unexpected and catastrophic losses could occur at banks if risks were not properly managed...



The expected loss is not always the most likely single event (i.e., it is not always the highest point on the curve), but it is the mean value for the probability distribution

BASEL II - THE INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS



Basel II substantially changes the treatment of Credit Risks and also requires that banks hold sufficient capital to cover Operational Risks - a new risk category. Furthermore, it imposes qualitative requirements on the management of all risks as well as on disclosure of information. It encourages improvements in risk measurement, assessment and mitigation. Over time it provides banks an

$$\text{Basel II: } \frac{\text{Capital}}{\text{Risk Weighted Assets}} = \text{Minimum Capital Ratio of 8\%}$$

(Credit, Market and Operational Risks) (in India capital ratio is 9%)

opportunity to gain competitive advantage by allocating capital to those processes, segments and markets that demonstrate a strong risk/return ratio. Developing a better understanding of the risk/reward trade off for capital to support individual business lines, customers, products and processes is one of the most significant potential benefits for banks.

Whereas Basel I was restricted to basic measures for credit and market risk, Basel II introduces an array of sophisticated approaches for both credit and operational risks. It seeks to tie banks' internal risks (and the choices they make individually in managing them) to the amount of Regulatory Capital they must individually maintain. According to the Basel Committee, 'Banks with a greater than average risk appetite will find their capital requirements increasing and vice versa'.

By putting Operational Risk Management on every banks' agenda, Basel II encourages a new focus on its management and sound, comprehensive Corporate Governance practices.

Basel II intends to simulate a convergence of regulatory driven risk management towards economic driven risk management

With Basel II's implementation, the average capital requirements of banks should not change significantly at an industry level, but an individual bank may experience



a significant change. For example, capital requirements should drop substantially at a bank with a prime business portfolio that is well collateralised, has historically low credit and operational loss experience, and/or has strong risk management processes. On the other hand, a bank with a high-risk portfolio will likely face higher capital requirements and, consequently, limits on its business potential. Banks that are deemed to be 'high risk' could include banks that are pure risk takers with a buy-and-hold credit management approach, no clear customer segmentation, a lack of collateral management as well as inadequate processes, unstable IT systems, and a poor risk management function.

Indeed, the Basel Committee felt that such entities may not be able to make the necessary investment in compliance; thus, consolidation in the banking industry could be expected in certain regions and markets in the world.

As Basel II helps banks differentiate customers by risk, advantages and disadvantages will likely emerge for bank customers.

OBJECTIVES OF BASEL II

- Promote safety and soundness in the financial system;
- Enhance competitive equality 'level playing field';
- Focus on internationally active banks, whilst establishing more broadly applicable underlying principles that can be adopted by less sophisticated institutions;
- Broadly maintain the aggregate level of the existing minimum capital requirements, while providing incentives for banks to adopt the more advanced risk-sensitive approaches of the new framework; and
- Focus on banks' own assessment of risk and provide capital incentives to improve risk management and measurement.

RESERVE BANK OF INDIA GUIDELINES

The Reserve Bank of India (RBI), in its role as national supervisor in India, has taken a step forward in the direction of the implementation of the New Capital Accord, i.e., Basel II. The RBI has mandated¹ that all foreign banks operating in India and Indian banks having operational presence abroad need to adopt the new capital adequacy framework with effect from March 31, 2008. All other commercial banks (excluding



Those with a possible advantage	Those with a possible disadvantage
<ul style="list-style-type: none">■ Prime customers■ Well-rated entities■ Small and medium-sized businesses■ High-quality liquidity portfolios■ Collateralised and hedged exposures■ Low credit and operational loss experience■ Strong risk management processes.	<ul style="list-style-type: none">■ Higher credit risk individuals■ Uncollateralised credit■ Specialised lending (in some cases)■ High historical credit and operational loss experience■ Weak risk management processes.

Local Area Banks and Regional Rural Banks) are encouraged to migrate to these approaches under the Revised Framework in alignment with them but in any case not later than March 31, 2009. These banks shall continue to apply the Standardised Duration Approach (SDA) for computing capital requirement for market risks under the Revised Framework.

With a view to ensuring smooth transition to the Revised Framework and with a view to providing opportunity to banks to streamline their systems and strategies, banks were advised to have a parallel run of the Revised Framework. The Boards of the banks should review the results of the parallel run on a quarterly basis. The broad elements which need to be covered during the parallel run are as under...

- Banks should apply the prudential guidelines on capital adequacy - both current guidelines and these guidelines on the Revised Framework - on an on-going basis and compute their Capital to Risk Weighted Assets Ratio (CRAR) under both the guidelines.
- An analysis of the bank's CRAR under both the guidelines should be reported to the board at quarterly intervals.
- A copy of the quarterly reports to the Board should be submitted to the Reserve Bank, one each to Department of Banking Supervision, Central Office and Department of Banking Operations and Development, Central Office. While

1 Refer Master Circular "Prudential Guidelines on Capital Adequacy and Market Discipline- Implementation of the New Capital Adequacy Framework" (RBI/2008-09/68 DBOD.No.BP.BC. 11 /21.06.001/2008-09) dated July 1, 2008 issued by the RBI.



reporting the above analysis to the board, banks should also furnish a comprehensive assessment of their compliance with the other requirements relevant under the Revised Framework, which will include the following, at the minimum...

- a. Board approved policy on utilization of the credit risk mitigation techniques, and collateral management;
- b. Board approved policy on disclosures;
- c. Board approved policy on Internal Capital Adequacy Assessment Process (ICAAP) along with the capital requirement as per ICAAP;
- d. Adequacy of bank's MIS to meet the requirements under the New Capital Adequacy Framework, the initiatives taken for bridging gaps, if any, and the progress made in this regard;
- e. Impact of the various elements/portfolios on the bank's CRAR under the revised Framework;
- f. Mechanism in place for validating the CRAR position computed as per the New Capital Adequacy Framework and the assessments/findings/recommendations of these validation exercises;
- g. Action taken with respect to any advice/guidance/direction given by the Board in the past on the above aspects.

THE BUSINESS BENEFITS OF BASEL II

Implementing Basel II to merely meet regulatory or compliance requirements prevents organisations from securing the positive business benefits which a mature risk management framework offers. Whilst there is a clear regulatory thrust to the new Accord, the real drivers are the potential business benefits.

There are compelling reasons for banks to embed good risk management practices into strategic decision making and day to day processes. Some of these reasons are...

- increased competition,
- low tolerance for 'surprises',
- high expectation of stability in earnings,
- expectation for top management to proactively identify and deal with risks that



threaten the achievement of business objectives, increasing need for recognising risk with returns, and



An Overview

A Study on Basel II and Risk-based Supervision

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The Three Pillar Structure

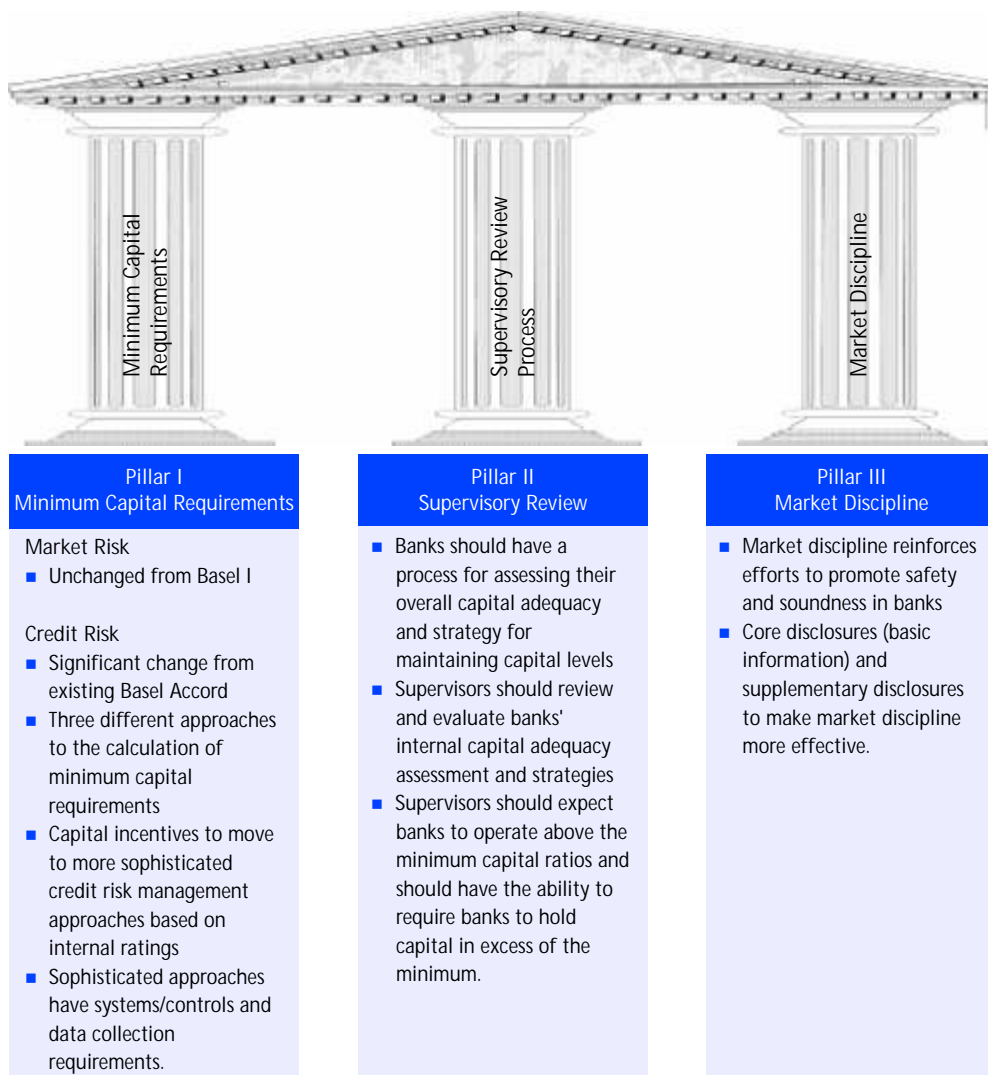
Instead of a 'one size fits all' approach to calculating the minimum regulatory capital requirements (Basel I), the new Accord (Basel II) introduces a three pillar concept designed to align regulatory requirements with economic principles of risk management.

The new Capital Adequacy Framework provides a continuum of approaches from basic to advanced methodologies for the measurement of risk in determining capital levels. It provides a flexible structure in which banks, subject to supervisory review, can adopt approaches that best fit their level of sophistication and their risk profile. The Framework also deliberately builds in rewards for stronger and more accurate risk measurement.



THE THREE PILLARS

The Three Pillars reflect increasing risk sensitivity. This is designed to enable the Banks, and their Regulators, to select the approach that is deemed to be the most appropriate to a banks' size, complexity of its operations/business processes and the nature of its risks.





The Three Pillar Structure

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Operational risk

- Not covered in Basel I
- Three different approaches to the calculation of minimum capital requirements
- Adoption of each approach subject to compliance with defined qualifying criteria.

- Supervisors should seek to intervene at an early stage to prevent capital falling below minimum levels.

PILLAR I

Pillar I sets out minimum regulatory capital requirements i.e., the amount of capital banks must hold against risks. It retains the minimum requirement of 8 percent of capital-to-risk-weighted-assets as prescribed by Basel I.

Basel II limits banks' savings on capital requirements until the potential effects of Basel II are better known. Initially, for those banks making use of either one of the Internal Ratings Based (IRB) Approaches for credit risk or an Advanced Measurement Approach (AMA) for operational risk, minimum capital requirements must equal at least 90 percent of what they were under Basel I. Subsequently, minimum capital requirements must be at least 80 percent of the Basel I figure.

Pillar I Capital Charge	Credit Risk	Operational Risk
	<ul style="list-style-type: none">■ Standardised Approach■ Foundation Internal Ratings Based (IRB) Approach■ Advanced IRB Approach	<ul style="list-style-type: none">■ Basic Indicator Approach■ Standardised Approach■ Advanced Measurement Approach

Basel II makes substantive changes to the current Accord's methods of calculating regulatory capital requirements, specifically in its Pillar I treatment of credit risk and operational risk. Market Risk provisions remain unchanged.

Banks will find the choice of approaches to calculating credit and/or operational risk is affected by competitive dynamics, regulatory pressures, and other factors and they



should do their own impact studies to help them assess the cost/benefit ratio of specific approaches, both in terms of regulatory capital requirements and implementation effort required. A bank should also consider the expectations of the Regulator as well as how market perceptions of the decision could affect the business and the pricing of its products.

Large banks can expect that the Regulator will likely want to see them move in a structured way toward the use of the advanced approaches to credit and operational risk. To meet that goal, banks will need to develop and use quantitative models that are acceptable to the Regulator. Appropriately designed and implemented, such models can enable banks to measure and monitor risks across the organisation, enhance risk management, and ultimately determine capital requirements.

Banks also need to be aware of the views of Rating Agencies and capital providers, which will likely expect them to use robust risk management techniques that enable use of the more sophisticated approaches and could reward them for such choices. Ultimately, however, the new regulatory capital requirements for operational risk could dilute benefits achieved from adoption of the more sophisticated credit risk management approaches, although the Basel Committee appears to support the overall goal of providing capital incentives for adopting the more advanced approaches.

PILLAR II

Pillar II defines the process for supervisory review of an institution's risk management framework and, ultimately, its capital adequacy. It sets out specific oversight responsibilities for the Board and Senior Management, thus reinforcing principles of internal control and other corporate governance practices established by regulatory bodies in various countries worldwide.

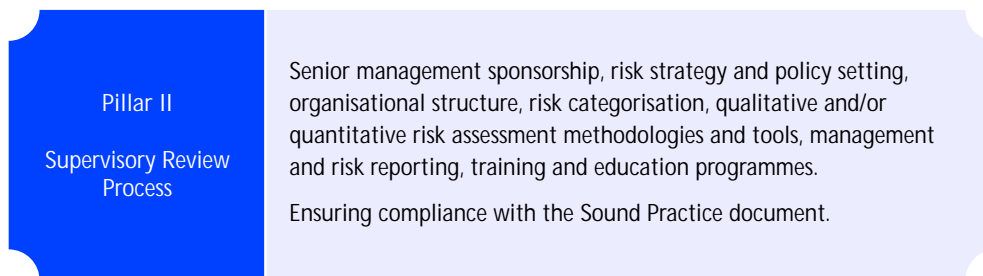
According to the Basel Committee, the new Accord stresses the importance of bank management developing an internal capital assessment process and setting targets for capital that are commensurate with the bank's particular risk profile and control



The Three Pillar Structure

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environment. Supervisors will be responsible for evaluating how well banks are assessing their capital adequacy needs relative to their risks.



This internal process will be subject to supervisory review and intervention, where appropriate. As a consequence, the supervisor may require, for example, restrictions on dividend payments or the immediate raising of additional capital.

The Four Principles

Pillar II is based on a series of four key principles of supervisory review. These principles address two central issues...

- The need for banks to assess capital adequacy relative to overall risks, and
- The need for supervisors to review banks' assessments and, consequently, to determine whether to require banks to hold additional capital beyond that required under Pillar I.

To comply with Pillar II, banks must implement a consistent risk-adjusted management framework that is comparable in its sophistication to, and closely linked with, the risk approaches the bank chose under Pillar I. The four principles provide necessary guidance, as does the Basel Committee's other guidance documents related to the supervisory review process [e.g., 'Principles for the Management of Credit Risk' (September 2000), 'Sound Practices for the Management and Supervision of Operational Risk', (February 2003), and 'Principles for the Management and Supervision of Interest Rate Risk' (July 2004)]².

2 The papers are available from the BIS website (www.bis.org/bcbs/publ/index.htm).



Principle I: "Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels."

To be rigorous, such a process would encompass the following criteria...

- Board and senior management oversight,
- Sound capital assessment,
- Comprehensive management of risks,
- Monitoring and reporting, and
- Internal control review.

Principle II: "Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the result of this process."

This supervisory review could involve some combination of...

- On-site examinations or inspections,
- Off-site review,
- Discussions with bank management,
- Review of work done by external auditors (provided it is adequately focused on the necessary capital issues), and
- Periodic reporting.

Principle III: "Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum".

Capital requirements under Pillar I include a buffer for uncertainties pertaining to the bank population as a whole. Pillar II addresses bank-specific uncertainties.

Principle IV: "Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored."



In taking remedial actions, the regulator could require that the bank undergo intensified monitoring, be restricted in paying dividends, prepare a satisfactory capital restoration plan, and/or raise additional capital immediately. Regulators could require increased capital while the bank seeks to improve its position, perhaps with enhanced systems and internal controls.

Risks that Regulators are likely to assess under Pillar II

- Residual credit risk, i.e., what has not been adequately captured under Pillar I, e.g. Concentrations,
- Settlement risk,
- Legal and compliance risk, e.g. inadequate documentation, non-compliance with regulatory requirements, law changes,
- Reputational risk, e.g. adverse perception by customers and counterparties,
- Strategic risk, e.g. changes in business environment, poor business decision making, inadequate application of management decisions,
- Residual risk, e.g. CRM, securitisation,
- Liquidity risk,
- Interest rate risk in the banking book,
- Operational risk, i.e., inadequate internal processes, people, systems,
- Capital risk, i.e., inadequate own funds composition or difficulties in raising additional capital in an emergency,
- Earnings risk, e.g. inadequate diversification of income, poor cost/income ratio, and
- External risks and other common or unique risks facing the firm that could be considered material.

Other factors that may be assessed by Regulators

Internal Controls

- Risk management framework,
- Financial and management reporting, and
- Audit, IT, Compliance, Operational risk controls



Organisational Structure

- Reporting lines and responsibilities,
- Key person risk, and
- Transparent structure, i.e. clear reporting relationships.

Management

- Quality, experience,
- Decision making process, and
- Risk control culture/attitude.

Pillar II and Economic Capital

This Pillar introduces two critical risk management concepts: the use of Economic Capital and the enhancement of Corporate Governance. If Regulators judge appropriately, banks can be required to set aside regulatory capital in addition to that required under Pillar I.

In emphasising overall risks, Pillar II overcomes a substantial shortcoming of the 1988 Accord, which barely distinguished between high and low risk transactions. With Pillar II, the New Accord introduces the concept of economic capital into the regulatory capital equation i.e., it enables banks to determine capital adequacy based on the level of risk posed by a transaction.

'Economic Capital' is the capital banks set aside as a buffer against potential losses inherent in a particular business activity, for example, making a loan or underwriting a currency. Under Basel II, banks are required to develop and use various models to allocate capital to transactions based on how much risk an individual transaction contributes to the bank's portfolio of risks. These models would help determine how much capital is required to support the various risks taken by the bank - a purpose regulatory capital cannot adequately serve due to the simplicity of its calculation and regulators' lack of knowledge of the bank's customers, practices, and related risks.



One of the means a bank might use will be to determine capital adequacy through stress testing. Sound 'stress-testing' practices help enable a bank to...

- identify future changes in economic or market conditions or other changes that could unfavorably affect credit exposures, and
- assess the bank's ability to withstand such events. Banks would choose the tests, subject to supervisory review.

Implementing a capital measurement framework that covers all risk types and the different business units could pose a variety of challenges. However, a consistent and meaningful risk-adjusted measurement framework provides powerful performance indicators that enable institutions to measure and manage risk/return profiles across their various business activities.

Moreover, the business benefits that a bank can derive from economic capital approaches go beyond Basel II compliance. Indeed, the use of economic capital models can help a bank address two key business objectives...

- developing capital through value creation initiatives by linking risk to return, and
- protecting capital by linking risk to capital required.

While the Basel I proposals only allow the use of Economic Capital models to assess Regulatory Capital for Market Risk, under Basel II the Regulators will also allow Banks to use these models for Operational Risk, subject to individual approval. In addition, Pillar II allows banks to have their own measures of capital requirements beyond the scope of Pillar I. Over time, regulators will likely require banks to disclose much more information pertaining to risks and their management. Consequently, banks need to seek improved insights into their portfolio-wide risks.

Pillar II and Corporate Governance

Since the New Accord requires that banks implement advanced risk management techniques and methodologies, ultimately its requirements are part of a larger trend toward improving corporate governance. Indeed, Pillar II's criteria under Principle 1 align with a variety of other regulations and supporting frameworks whose



purpose is to enhance corporate governance. Banks that must comply with Basel II will see similarities between Pillar II's Principle 1 and, for example, the internal controls framework developed by the Committee of Sponsoring Organisations (COSO) of the Treadway Commission in the United States - a framework that many organisations are using in complying with the Sarbanes-Oxley Act of 2002. Banks may also see similarities in...

- The framework developed by the Canadian Institute of Chartered Accountants,
- Criteria of Control (CoCo) Committee,
- The United Kingdom's Financial Services Authority (FSA) requirements,
- The Dutch Regulation on Organisation and Control (ROC) of the Dutch Central Bank,
- The Nadere Regeling 2002 of the Financial Markets Authority, and
- The German Corporate Sector Supervision and Transparency Act (KonTraG) and Section 25a of the German Banking Act (KWG).

At first glance, banks may have difficulty assessing the scope, relevance, and, particularly, the interdependencies among these regulations. Some of them have been developed over time, thus addressing the accelerating complexity of the twenty-first century management environment; others have evolved in direct response to incidents of major impact on the financial industry. Whatever their origins, however, they are driven by a common goal - to encourage or require incentives for improved risk management and internal control, and, thereby, good corporate governance.

For example, whereas Section 25a KWG and KonTraG in Germany and the UK FSA's Handbook emphasize senior management's overall responsibility for risk management, the Sarbanes Oxley Act establishes clear standards for management's accountability and shows consequences in case of non-compliance. COSO and CoCo, among others, provide integrated frameworks for internal control, with risk assessment playing an integral role in internal control. Under Basel II, the quality of the individual design and implementation of a control framework will directly affect the bank's capital charge thus transforming the binary view of good/bad management into a granular function of cost of capital.



Banks will go far in meeting legal and regulatory requirements if they can ensure the establishment of proper business processes, including a sound risk management framework. Enhanced corporate governance is one likely result.

PILLAR III

Pillar III aims to bolster market discipline through enhanced disclosure of relevant information by banks. It sets out disclosure requirements and recommendations in several areas, including the way a bank calculates its capital adequacy and its risk assessment methods. Enhanced comparability and transparency are the intended results. At the same time, the Basel Committee has sought to ensure that the Basel II disclosure framework aligns with national accounting standards and, in fact, does not conflict with broader accounting disclosure standards with which banks must comply.

Pillar III's focus on market discipline is designed to complement the minimum capital requirements (Pillar I) and the supervisory review process (Pillar II). With it, the Basel Committee seeks to enable market participants to assess key information about a bank's risk profile and level of capitalisation thereby encouraging market discipline through increased disclosure.

The Basel Committee believes that such disclosures have particular relevance under the Framework, where reliance on internal methodologies gives banks more discretion in assessing capital requirements. Thus, Pillar III encompasses both quantitative and qualitative disclosure requirements for capital adequacy and capital structure as well as credit risk, market risk, operational risk, and interest rate risk in the banking book.

Pillar III Disclosure Requirements

Qualitative disclosures of the risk approach adopted and quantitative disclosures for the more advanced approaches.

Enhanced disclosure is intended to enhance the transparency of banks' business and risk structures. It is also intended to provide banks with positive incentives to strengthen risk management and internal controls. The Basel Committee's belief is that investors, armed with enhanced information, will be able to distinguish between well-managed



and poorly managed banks and to use this knowledge in determining a portfolio strategy and an appropriate risk premium. The theory is that across the industry over time, well-managed banks would benefit from better market conditions, while poorly managed banks would face penalties.

Thus, an individual bank may not always benefit from the gains investors and regulators derive from new disclosures. New scrutiny, by the market and by ratings agencies, could have difficult consequences that might evolve differently in a less transparent environment. Problems that banks might be able to work out with their regulators may prompt an immediate, and potentially volatile, response in the market. Understanding the risks of new disclosures is another aspect of risk management that will likely evolve as a result of implementation of Basel II.

EFFORTS TO HARMONISE DISCLOSURE REQUIREMENTS

The Basel Committee affirms that the means by which banks will share information publicly will depend on the legal authority of local regulators. Moreover, the Pillar III disclosure requirements apply solely to capital adequacy. They are intended not to conflict with the broader accounting disclosure standards with which banks must comply.



The Three Pillar Structure

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Goal of Pillar III	<p>Use of regulating market forces to enhance soundness and safety of the financial system...</p> <ul style="list-style-type: none">■ Higher transparency of business and risk structures of banks via better disclosure■ Setting positive incentives to strengthen the risk management and the internal control systems.
Aimed Effects of Pillar III	<ul style="list-style-type: none">■ Investors distinguish between well and badly managed banks, and use this knowledge to inform their portfolio strategy and their calculation of the appropriate risk premium<ul style="list-style-type: none">□ Well managed banks will benefit from better market conditions□ Badly managed banks will be penalised by the market.

BASIC CONSIDERATIONS

Frequency	Confidentiality	Materiality
<ul style="list-style-type: none">■ On semi-annual basis except the following...■ Qualitative and stable information (e.g., definitions, risk management objectives): 12 months■ Quantitative and volatile information (e.g., capital adequacy): 3 months■ Regional banks with low risk profile in a stable environment: 12 months.	<ul style="list-style-type: none">■ Disclosure restricted in order to allow institutions to maintain their competitive advantage■ No detailed information on the risk management tools and methodologies required towards the public■ Full set of information towards the regulatory body■ Large degree of national discretion.	<ul style="list-style-type: none">■ Definition of materiality- considering the impact of omission or a misstatement on the assessment or decision of a user relying on the information disclosed for the purpose of making economic decisions■ Dialogue with accounting bodies necessary.



SCOPE OF DISCLOSURE

Subject of Disclosure	Details
Scope of application	Group consolidation
Capital	Structure
	Adequacy
Risk positions and risk assessment	Credit risk
	Market risk
	Operational risk
	Interest rate risk in the banking book

GENERAL DISCLOSURE PRINCIPLES

Development of disclosure policy approved by the Board of Directors

Disclosure of objective and policy of risk management for each risk type (credit risk, market risk, operational risk, interest rate risk in the banking book, equities), including:



Strategies and processes



Structure and organisation of the relevant risk management functions



Extent and content of the risk reporting and/or measurement systems



Risk control/risk mitigation strategies



Processes for monitoring the efficiency of risk mitigation strategies

Implementation of a process for regular assessment and review of the adequacy, validity and frequency of disclosures (guidelines for disclosure practice)

Credit Risk

Under pillar I, banks have a choice to adopt one of the three approaches for the calculation of the minimum capital requirements necessary to cover credit risk...

- Standardised Approach,
- Internal Ratings Based (IRB) Foundation Approach, and
- Internal Ratings Based (IRB) Advanced Approach.

These are detailed below...

Criteria	Standardised Approach	Internal Ratings Based (IRB) Approach	
		Foundation Approach	Advanced Approach
Rating	External	Internal	Internal

A Study on Basel II and Risk-based Supervision



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Risk Weight	Calibrated on the basis of external ratings by the Basel Committee	Function provided by the Basel Committee	Function provided by the Basel Committee
Probability of Default (PD): the likelihood that a borrower will default over a given time period	Implicitly provided by the Basel Committee; tied to risk weights based on external ratings	Provided by bank based on own estimates	Provided by bank based on own estimates
Exposure of Default (EAD): for loans, the amount of the facility that is likely to be drawn if a default occurs	Supervisory values set by the Basel Committee	Supervisory values set by the Basel Committee	Provided by bank based on own estimates
Loss Given Default (LGD): the proportion of the exposure that will be lost if a default occurs	Implicitly provided by the Basel Committee; tied to risk weights based on external ratings	Supervisory values set by the Basel Committee	Provided by bank based on own estimates; extensive process and internal control requirements
Maturity: the remaining economic maturity of the exposure	Implicit recognition	Supervisory values set by the Basel Committee or At national discretion, provided by bank based on own estimates (with an allowance to exclude certain exposures)	Provided by bank based on own estimates (with an allowance to exclude certain exposures)
Data Requirements	<ul style="list-style-type: none"> ■ Provision dates ■ Default events ■ Exposure data ■ Customer segmentation ■ Data collateral segmentation ■ External ratings ■ Collateral data 	<ul style="list-style-type: none"> ■ Rating data ■ Default events ■ Historical data to estimate PDs (5 years) ■ Collateral data 	Same as IRB Foundation, plus: <ul style="list-style-type: none"> ■ Historical loss data to estimate LGD (7 years) ■ Historical exposure data to estimate EAD (7 years)



Credit Risk

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Credit Risk Mitigation Techniques (CRMT)	Defined by the supervisory regulator; including financial collateral, guarantees, credit derivatives, "netting" (on and off balance sheet), and real	All collaterals from Standardised Approach; receivables from goods and services; other physical securities if certain criteria are met	All types of collaterals if bank can prove a CRMT by internal estimation
Process Requirements (compliance with minimum requirements will be subject to supervisory review under Pillar II)	Minimum requirements for collateral management (administration/evaluation)	Same as Standardised, plus minimum requirements to ensure quality of internal ratings and PD estimation and their use in the risk management process	Same as IRB Foundation, plus minimum requirements to ensure quality of estimation of all parameters

Under the Standardised Approach, ratings from external agencies such as, Standard & Poor's or Moody's provide the basis for measuring the credit risk posed by a particular customer. In the IRB Approaches, however, banks that receive regulatory approval must use their own internal rating systems, along with formulas specified by the Basel Committee, for the calculation of the capital charge.

CREDIT RISK PARAMETERS

The three approaches differ in the source of the parameters, either external/regulatory pre-determined or an internal estimate.

Probability of Default (PD)	Loss Given Default (LGD)	Exposure at Default (EAD)	Maturity (M)
<ul style="list-style-type: none"> Probability of default of the borrowers in each risk grade (rating) on a one year time horizon 	<ul style="list-style-type: none"> Loss after the event of a default 	<ul style="list-style-type: none"> Outstanding amount at time of default 	<ul style="list-style-type: none"> Remaining effective maturity of the EAD



- Regulatory definition of default event

IRB Foundation Approach

PD has to be assessed on the basis of time series of default events

Acknowledgement of CRMT similar to the standardised approach

Minimum requirements for processes and organisation structures have to be fulfilled to ensure a proper rating process

Bank has to pass an approval process

PD

Own Estimation connected with Internal Rating Systems

LGD

Regulatory predetermined

EAD

Regulatory predetermined

Maturity M

Recognition at national discretion

IRB Advanced Approach

PD has to be estimated similar to the Foundation Approach

Internal parameters to estimate the LGD and/or the exposures have to be assessed; extensive process and internal control requirements

The maturity has to be considered explicitly; Use of internal estimations regarding the impact of any kind of collaterals

Bank has to pass an approval process

PD

Own Estimation connected with Internal Rating Systems

LGD

Own Estimations if certain criteria are fulfilled

EAD

Own Estimations if certain criteria are fulfilled

Maturity M

Recognition obligatory to the maximum of 5 years



CREDIT RISK MITIGATION TECHNIQUES (CRMT)

Minimum requirements for processes regarding Credit Risk Mitigation need to be met for all approaches...

Standard

- Financial collateral (Cash deposits, gold, securities, investment funds)
- Guarantees
- Credit derivatives
- Netting (on-and off-balance sheet)
- Real Estate (residential or

IRB Foundation

- All collateral from the standardized approach
- Receivables from goods and services
- Other physical collaterals if certain criteria are met.

IRB Advanced

- All types of collateral if the Bank can prove a CRMT effect by internal

Operational Risk

The Accord defines Operational risk as 'the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. It includes legal risks but excludes strategic and reputational risks.'

Compared with the familiar territory of market and credit risks, operational risk although easier to understand, affects the entire organisation, and its assessment and quantification is considerably more difficult.



SOUND PRACTICES FOR THE MANAGEMENT AND SUPERVISION OF OPERATIONAL RISK

With the intention of heightening awareness and promoting better operational risk management practices throughout the industry, the Basel Committee articulated the following "Sound Practices for the Management and Supervision of Operational Risk"³...

- The Board of directors and senior management are responsible for approving the establishment and review of the framework for managing operational risk and establishing the organisation's operational risk strategy.
- Senior management are responsible for implementing the operational risk strategy consistently throughout the entire organisation and developing policies, processes and procedures for all products, activities, processes and systems.
- Information, communication and escalation flows must be established to maintain and oversee the effectiveness of the operational risk management framework and management performance.
- Operational risks inherent to all current activities, processes and systems and new products should be identified.
- The processes necessary for measuring operational risk should be established.
- Systems to monitor operational risk exposures and loss events by major business lines should be implemented.
- Policies, processes and procedures to control or mitigate operational risks should be in place together with cost/benefit analysis of alternative risk limitation and control strategies.
- Supervisors should require banks to have an effective system in place to identify, measure, monitor and control operational risks.
- Supervisors should conduct (directly or indirectly) regular independent evaluations of the above principles and ensure that effective reporting mechanisms are in place.
- Sufficient public disclosure should be made to allow market participants to assess an organisation's operational risk exposure and the quality of its operational risk management.

3 Issued by the Basel Committee on Banking Supervision in February, 2003.



Many of the abovementioned principles may already have been adopted in some form or the other by many organisations for a number of years, however, the paper acknowledges that operational risk measurement, mitigation, disclosure and supervisory practices are either new or evolving. However, going forward, it seems that the onus is being placed firmly on organisations to demonstrate the implementation of an effective and robust operational risk framework encompassing all elements of the Sound Principles.

PILLAR I-OPERATIONAL RISK APPROACHES

Basel II provides banks with a choice of three approaches for the calculation of the minimum capital requirements necessary to cover operational risk:

- Basic Indicator Approach,
- Standardised Approach, and
- Advanced Measurement Approach (AMA).

Banks can move along the spectrum of available approaches as they develop more sophisticated operational risk measurement systems and practices.

Internationally active banks and banks with significant operational risk exposures are expected to use an approach that is more sophisticated than the Basic Indicator Approach and that is appropriate for the risk profile of the organisation. A bank will be permitted to use the Basic Indicator or Standardised Approach for some parts of its operations and an AMA for others provided certain minimum criteria are met. A bank will not be allowed to choose to revert to a simpler approach once it has been approved for a more advanced approach without supervisory approval. However, if the supervisor determines that a bank using a more advanced approach no longer meets the qualifying criteria for this approach, it may require the bank to revert to a simpler approach for some or all of its operations, until it meets the conditions specified for returning to a more advanced approach.

The criteria for these approaches and the effort required of banks to fulfill them are shown below..



Operational Risk

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Approach	Basic Indicator Approach	Standardised Approach	Advanced Measurement Approach (AMA)
Calculation of Capital Charge	<ul style="list-style-type: none"> ■ Average of gross income over three years as indicator ■ Capital charge equals 15% of that indicator 	<ul style="list-style-type: none"> ■ Gross income per regulatory business line as indicator ■ Depending on business line, 12%, 15%, or 18% of that indicator as capital charge ■ Total capital charge equals sum of charge per business line 	<ul style="list-style-type: none"> ■ Capital charge equals internally generated measure based on: <ul style="list-style-type: none"> □ Internal loss data □ External loss data □ Scenario analysis □ Business environment and internal control factors ■ Recognition of risk mitigation (up to 20% possible)
Qualifying Criteria	<ul style="list-style-type: none"> ■ No specific criteria ■ Compliance with the Basel Committee's "Sound Practices for the Management and Supervision of Operational Risk" recommended 	<ul style="list-style-type: none"> ■ Active involvement of board of directors and senior management ■ Existence of Operational risk management function ■ Sound Operational risk management system ■ Systematic tracking of loss data 	<p>Same as Standardised, plus:</p> <ul style="list-style-type: none"> ■ Measurement integrated in day-to-day risk management ■ Review of management and measurement processes by internal/external audit ■ Numerous quantitative standards - in particular, 3-5 years of historic data

BASIC INDICATOR APPROACH

Banks using the Basic Indicator Approach must hold capital for operational risk equal to the average over the previous three years of a fixed percentage of positive annual gross income. Figures for any year in which annual gross income is negative or zero should be



excluded (Gross income is defined as net interest income plus net non-interest income⁴). Banks using this approach will be expected to comply with the guidance on "Sound Practices for the Management and Supervision of Operational Risk".

STANDARDISED APPROACH

In the Standardised Approach, activities of banks have been divided into eight business lines as follows...

- Corporate finance
- Trading and sales
- Retail banking
- Commercial banking
- Payment and settlement
- Agency services
- Asset management
- Retail brokerage.

A bank may use these and map its activities to those suggested by the Accord.

Within each business line, gross income is a broad indicator that serves as a proxy for the scale of business operations and, thus, the likely scale of operational risk exposure within each of these business lines. The capital charge for each business line is calculated by multiplying gross income by a factor (denoted beta) assigned to that business line. Beta serves as a proxy for the industry-wide relationship between the operational risk loss experience for a given business line and the aggregate level of gross income for that business line. It should be noted that in the Standardised Approach gross income is measured for each business line, not the whole institution, i.e., in corporate finance, the indicator is the gross income generated in the corporate finance business line. The total capital charge is calculated as the three - year average of the simple summation of the regulatory capital charges across each of the business lines in each year. The quantitative and qualitative criteria for the Standardised Approach are given in the table below...

4 As defined by national supervisors and/ or national accounting standards.



Operational Risk

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Risk Strategy/ policy	Categorisation/ mapping	Risk governance/ people	Risk processes/ IT systems	Capital management	Risk reporting/ disclosure
<ul style="list-style-type: none"> Firm level policies and procedures for managing operational risk, including risk definitions, risk appetite/ tolerance/ thresholds, risk management processes, including risk mitigation/ control/ transfer approaches 	<ul style="list-style-type: none"> Documented criteria for mapping business lines and risk data into regulatory framework Gross income by business line 	<ul style="list-style-type: none"> Active involvement of Board and senior management Strong control culture Clearly defined responsibilities and reporting lines for managing operational risk Appropriate segregation of duties Independent operational risk function Use of sufficient appropriately qualified and experienced staff Remuneration policies consistent with risk appetite Routine for ensuring compliance with operational risk policies, procedures and controls Regular review of operational risk management framework by internal audit and external audit 	<ul style="list-style-type: none"> Well documented processes for identifying, assessing, managing/controlling operational risk Appropriate risk reporting systems and systems for collation of data required for capital charge Systematic tracking of operational risk data, including material losses by business line Use of other risk identification/assessment processes e.g., self assessment approaches, external loss data and risk indicators Integrated/ongoing monitoring of operational risk profiles/exposure to loss Appropriate contingency/ business continuity plans and use of insurance for low probability/high severity events Incentives to improve the management of operational risk 	<ul style="list-style-type: none"> Policies, processes and procedures for determining, monitoring and maintaining capital adequacy 	<ul style="list-style-type: none"> Regular reporting of operational risk exposures and material losses to business unit/ senior management/ board of directors Procedures for taking appropriate action according to information received Public disclosure of operational risk management arrangements



ADVANCED MEASUREMENT APPROACH (AMA)

A bank's AMA will be subject to a period of initial monitoring by its supervisor before it can be used for regulatory purposes. This period will allow the supervisor to determine whether the approach is credible and appropriate. The bank's internal measurement system must reasonably estimate unexpected losses based on the combined use of internal and relevant external loss data, scenario analysis and bank-specific business environment and internal control factors. The bank's measurement system must also be capable of supporting an allocation of economic capital for operational risk across business lines in a manner that creates incentives to improve business line operational risk management. Use of AMA is subject to supervisory approval.

Under the AMA, the regulatory capital requirement will equal the risk measure generated by the bank's internal operational risk measurement system using the quantitative and qualitative criteria for the AMA as given in the table below..



Operational Risk

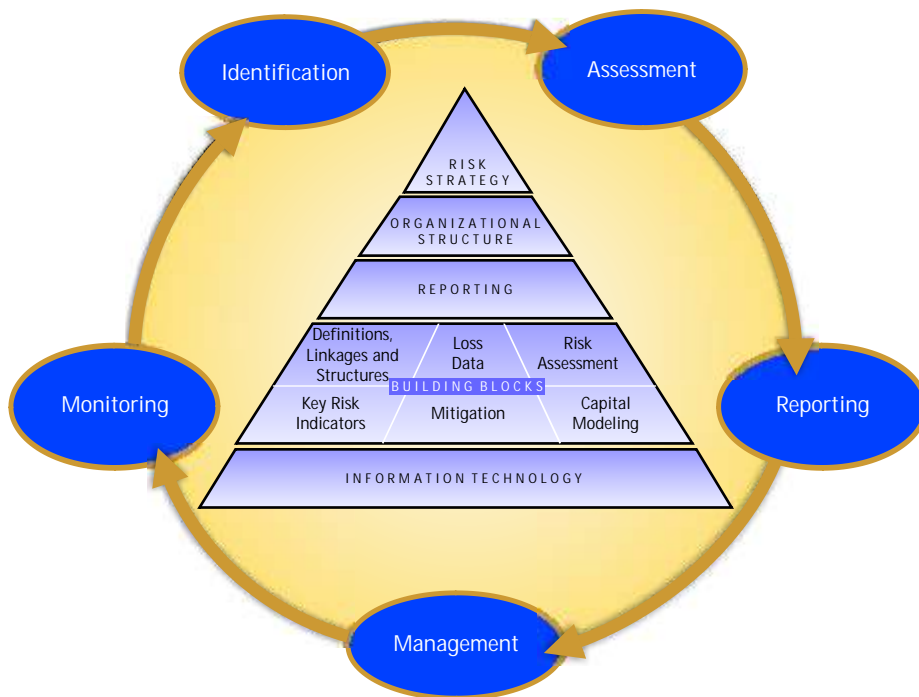
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Risk Strategy/ policy	Categorisation/ mapping	Risk governance/ people	Risk processes/ IT systems	Capital management	Risk reporting/ disclosure
<ul style="list-style-type: none"> As per the Standardised Approach plus: Output from risk measure nt/ modeling approach must be closely integrated into decision making framework and day-to-day risk management processes of the business 	<ul style="list-style-type: none"> As per the Standardised Approach plus: Must collate/ map operational risk loss data and exposure indicators in accordance with regulatory framework 	<ul style="list-style-type: none"> As per the Standardised Approach plus: Regular reviews of risk measurement/ modeling approach by internal audit/ external audit, including associated procedures, inputs and documentation Validation of risk measurement/ modeling approach and associated data integrity by external auditors/ supervisors 	<ul style="list-style-type: none"> As per the Standardised Approach plus: Use of credible, well documented and verifiable risk measurement/ modeling approach with following attributes: <ul style="list-style-type: none"> Consistent with regulatory definition of operational risk Rigorous analysis of internal & external data Minimum of 3 years internal loss data Low probability but high severity events Key business environment/ internal control factors Stress testing/scenario analysis Soundness standard comparable to 1 year holding period and confidence level of 99.9% Regular validation/back testing Documented procedures to include use of external data, scaling data, use of judgement overrides, validating model output, recognition of insurance and ensuring ongoing relevance of data 	<ul style="list-style-type: none"> As per the Standardised Approach plus: Specific approach for allocating, monitoring and maintaining operational risk capital requirements for major businesses Results of stress testing/ scenario analysis to form part of above and broader risk management processes e.g., contingency 	<ul style="list-style-type: none"> As per the Standardised Approach plus: Regular reporting of operational risk exposures and loss experience (including losses related to market and credit activities) to business unit management/ senior management/ board of directors Output from risk measurement/ modelling approach having a prominent role in reporting to senior management/ board of directors



OPERATIONAL RISK MANAGEMENT FRAMEWORK

The use of an Operational Risk Management Framework is recommended in order to comply with the Basel Accord.



RISK STRATEGY AND POLICIES

In order to qualify for use of the Standardised or Advanced Approach, a bank must satisfy its Supervisor that, at a minimum...

- Its board of directors and senior management, as appropriate, are actively involved in the oversight of the operational risk management framework;
- It has an operational risk management system that is conceptually sound and is implemented with integrity;
- It has sufficient resources in the use of the approach in the major business lines as well as the control and audit areas. A bank must develop specific policies and have documented criteria for mapping gross income for current business lines and



activities into the framework. The criteria must be reviewed and adjusted for new or changing business activities as appropriate;

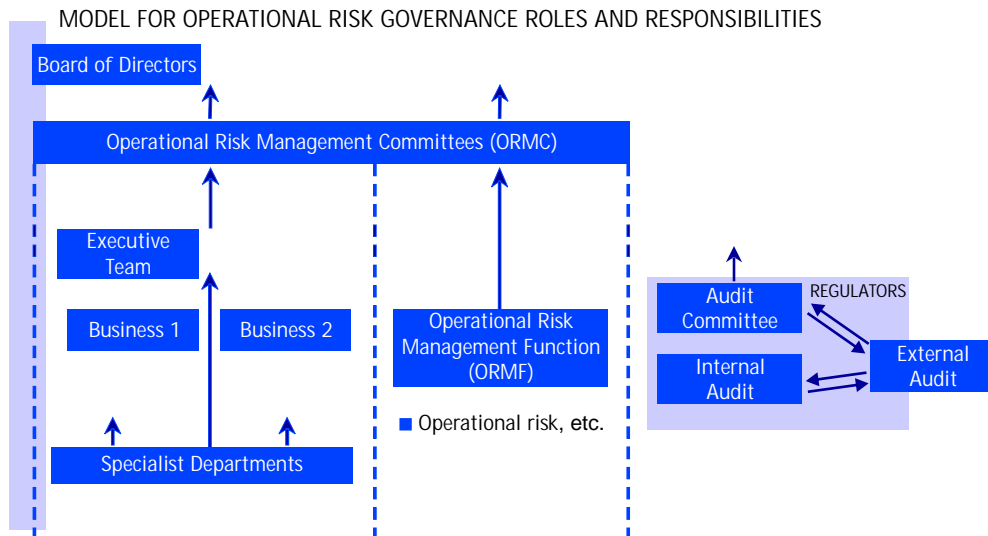
- The bank's operational risk management system must be well documented. The bank must have a routine in place for ensuring compliance with a documented set of internal policies, controls and procedures concerning the operational risk management system, which must include policies for the treatment of non-compliance issues;
- The bank's operational risk management processes and assessment system must be subject to validation and regular independent review. These reviews must include both the activities of the business units and of the operational risk management function; and
- The bank's operational risk assessment system (including the internal validation processes) must be subject to regular review by external auditors and/or supervisors.

This implies that a risk strategy and policy must be documented and approved by the Board of directors.

ORGANISATIONAL STRUCTURE

The bank must have an operational risk management system with clear responsibilities assigned to an operational risk management function. The operational risk management function is responsible for developing strategies to identify, assess, monitor and control/mitigate operational risk; for codifying firm-level policies and procedures concerning operational risk management and controls; for design and implementation of the firm's operational risk assessment methodology; and for design and implementation of a risk-reporting system for operational risk.

A potential organisational structure may look like this, but the key is that the structure should reflect the organisation's objectives and strategy...



REPORTING

There must be regular reporting of operational risk exposures, including material operational losses, to business unit management, senior management, and to the board of directors. The bank must have procedures for taking appropriate action according to the information within the management reports. Reports could be of the following types...

Recipient	Type Of Information Received
Board	<ul style="list-style-type: none"> ■ Aggregated bank wide information on loss data ■ Risk assessment and key risk indicators results ■ Economic and regulatory capital ■ Ad hoc reports in case of major events
Operational Risk Management Committees	<ul style="list-style-type: none"> ■ Aggregated bank wide information on loss data ■ Ad hoc and detailed reporting of major events ■ Risk assessment and key risk indicators results ■ Economic and regulatory capital
Business unit Heads	<ul style="list-style-type: none"> ■ Aggregated business unit specific information on loss data ■ Risk assessment and key risk indicators results ■ Economic and regulatory capital ■ Ad hoc reports in case of major events



Operational Risk

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Operational Risk Management Function	<ul style="list-style-type: none"> ■ Detailed (raw) bank wide information on loss data ■ Risk assessments ■ Key risk indicators
Specialist Departments	<ul style="list-style-type: none"> ■ Detailed bank wide information in the respective areas of expertise
Audit Committee	<ul style="list-style-type: none"> ■ According to actual information requirements
Internal Audit	<ul style="list-style-type: none"> ■ According to actual information requirements
External Audit	<ul style="list-style-type: none"> ■ According to actual information requirements
Regulators	<ul style="list-style-type: none"> ■ Regulatory capital ■ Operational risk losses.

Risk category by cause	Example risk
Processes	<ul style="list-style-type: none"> ■ Incorrect transaction capture, execution, settlement ■ Loss of client assets ■ Compliance issues ■ Stock lending errors ■ Accounting and taxation errors ■ Inadequate record keeping
People	<ul style="list-style-type: none"> ■ Unauthorised or insider trading ■ Fraud ■ Employee illness and injury ■ Discrimination claims ■ Compensation, benefit or termination issues ■ Organised labour activity
Systems	<ul style="list-style-type: none"> ■ Hardware, software or telecommunications failure ■ Unavailability and questionable integrity of data ■ Unauthorised access to information and systems security ■ Computer hacking or viruses
External Events	<ul style="list-style-type: none"> ■ Operational failure at suppliers or outsourced operations ■ Fire or natural disaster ■ Terrorism ■ Vandalism, theft, robbery.

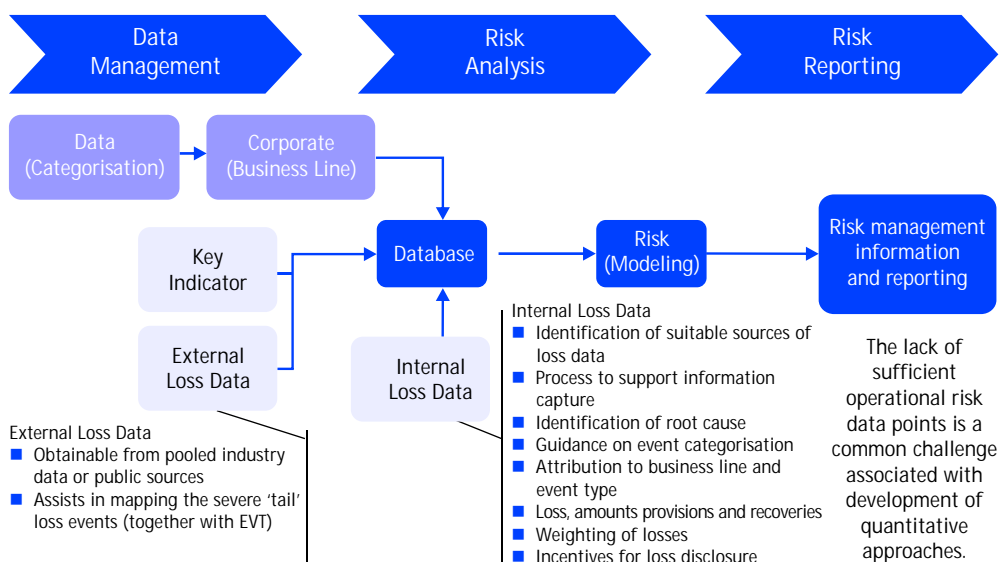


LOSS DATA

The tracking of internal loss event data is an essential prerequisite to the development and functioning of a credible operational risk measurement system. Internal loss data is crucial for tying a bank's risk estimates to its actual loss experience. Internal loss data is most relevant when it is clearly linked to a bank's current business activities, technological processes and risk management procedures. A bank's internal loss data must be comprehensive in that it captures all material activities and exposures from all appropriate sub-systems and geographic locations.

A bank's operational risk measurement system must also use relevant external data (public data and/or pooled industry data). These external data should include data on actual loss amounts, information on the scale of business operations where the event occurred, information on the causes and circumstances of the loss events.

A bank must use scenario analysis of expert opinion in conjunction with external data to evaluate its exposure to high severity events. This approach draws on the knowledge of experienced business managers and risk management experts to derive reasoned assessments of plausible severe losses...

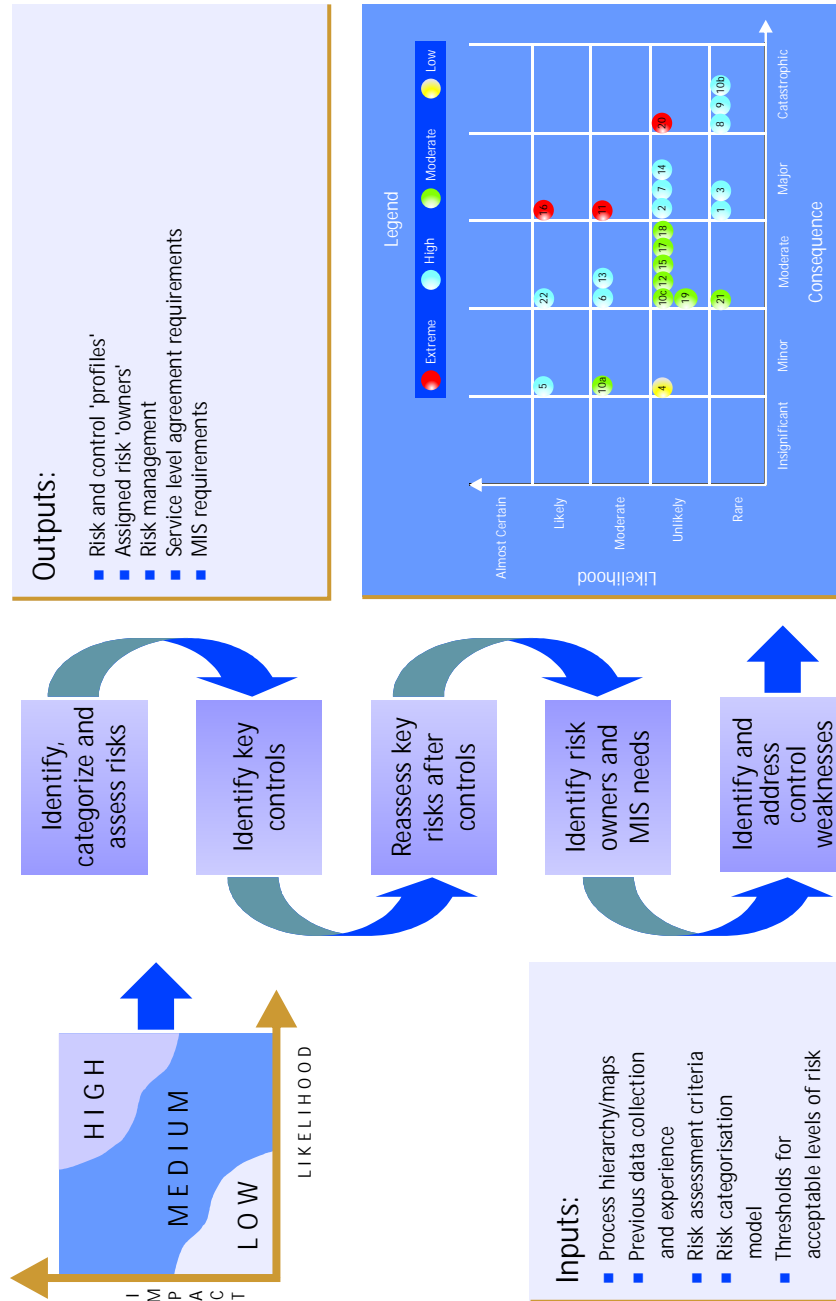




RISK ASSESSMENT

As part of the bank's internal operational risk assessment system, the bank must systematically track relevant operational risk data including material losses by business line. Its operational risk assessment system must be closely integrated into the risk management processes of the bank. Its output must be an integral part of the process of monitoring and controlling the bank's operational risk profile. For instance, this information must play a prominent role in risk reporting, management reporting, and risk analysis. The bank must have techniques for creating incentives to improve the management of operational risk throughout the firm.

In addition to using loss data, whether actual or scenario-based, a bank's firm-wide risk assessment methodology must capture key business environment and internal control factors that can change its operational risk profile. These factors will make a bank's risk assessments more forward-looking, more directly reflect the quality of the bank's control and operating environments, help align capital assessments with risk management objectives, and recognise both improvements and deterioration in operational risk profiles in a more immediate fashion. To qualify for regulatory capital purposes, the use of these factors in a bank's risk measurement framework must meet minimum standards...





KEY RISK INDICATORS

JAN FEB ETC.								
FINANCIAL			BUSINESS UNIT TARGET			MOVEMENT		
Total cost of risk								
Cost of losses								
Exposure								
PEOPLE			BUSINESS UNIT TARGET			MOVEMENT		
Operational Risk management performance								
Staff turnover/vacancies								
Overall Operational Risk awareness								
Fraud incidents involving staff/exstaff								
Operational Risk satisfaction surveys								
PROCESS			BUSINESS UNIT TARGET			MOVEMENT		
General audit findings								
Operational Risk framework - audit findings								
Sharing of best practice								
Action plan progress								
Temporary risk control measures								

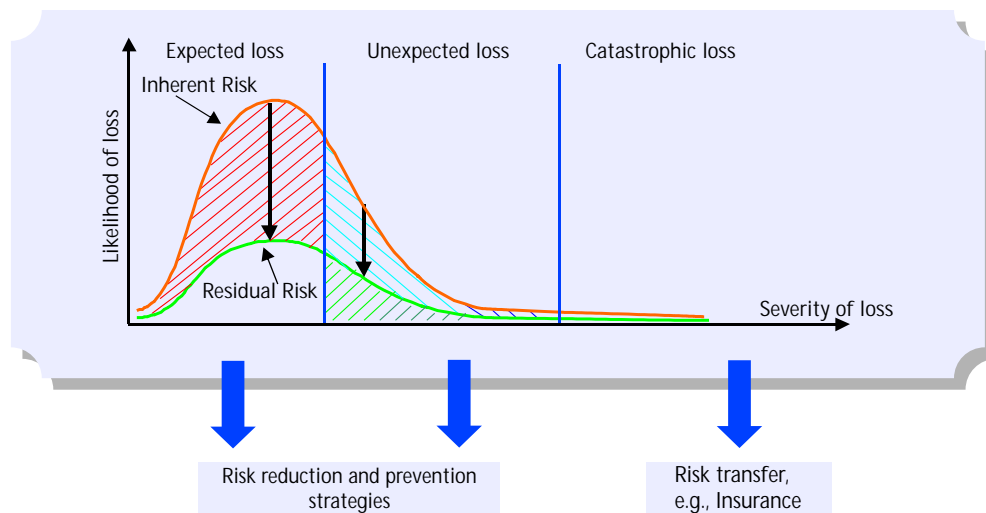
Indicates immediate action required
 Indicates close monitoring needed
 Indicates no action required



MITIGATION

Under the AMA, a bank will be allowed to recognise the risk mitigating impact of insurance in the measures of operational risk used for regulatory minimum capital requirements. The recognition of insurance mitigation will be limited to 20% of the total operational risk capital charge calculated under the AMA.

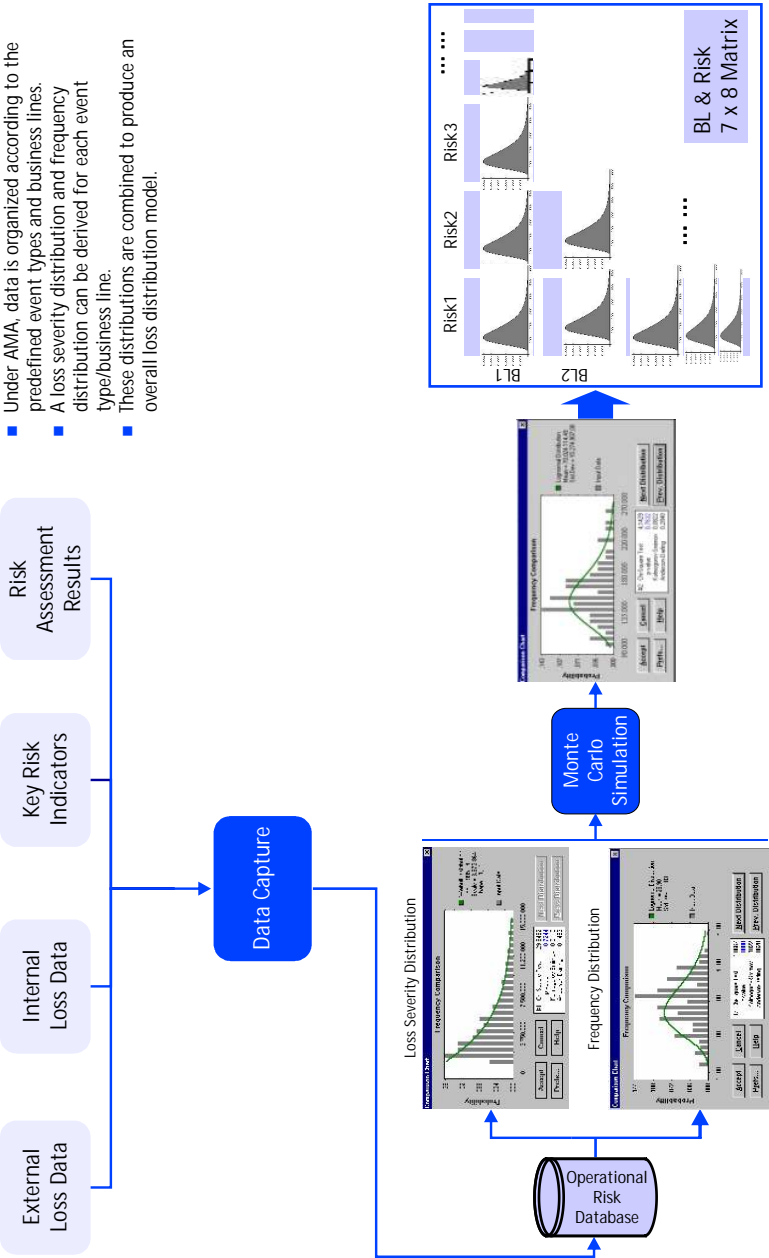
Risk mitigation can be achieved through avoidance, reduction, prevention or transfer techniques...





Capital Modeling

- Under AMA, data is organized according to the predefined event types and business lines.
- A loss severity distribution and frequency distribution can be derived for each event type/business line.
- These distributions are combined to produce an overall loss distribution model.





- Quality and quantity of data feeding the model is critical. Sources include...
 - Internal and external loss data,
 - Scenario data, and
 - Key risk indicators (or business environment and control factors).
- Mathematical/statistical relationships and assumptions are used to account for imperfect data.

Implementation of Basel II

To implement Basel II adequately, banks need to rethink their business strategies, underlying processes and risks. To calculate capital requirements, a comprehensive risk management framework needs to be implemented across the organisation.

AN ILLUSTRATIVE STANDARD FRAMEWORK AND IMPLEMENTATION APPROACH

The complexity of the New Accord, as well as its interdependencies with other significant regulations, makes implementation of Basel II a highly complex corporate governance/risk management project necessitating a structured and



disciplined approach. Such an approach can be considered in four phases, as described below...

Phase I

Phase I encompasses a gap analysis comparison of the bank's current state against Basel II requirements, simulation of the impact of capital burden under the possible approaches, and management decisions on credit and operational risk approaches, and credit risk mitigation techniques among other items. Banks should also consider interdependencies with other programs and regulations, such as International Financial Reporting Standards (IFRS) conversion.

An important step prior to embarking on the Basel II implementation is development of a master plan, structured by key topic areas. The institution's Basel II implementation master plan will encompass key milestones, project scope, project risks, needed resources, interdependencies, and a step-by-step plan.

Phase II

In Phase II, the bank would establish various teams to address specific aspects of the Basel II implementation master plan, including corporate governance and risk assessment, credit risk, operational risk, market and other risks, capital planning, disclosures, and the supervisory review process. Teams focus on defining data needs; designing the organisational structures, processes, and systems required for Basel II implementation; and rolling out the plan. Developing and executing a robust implementation plan can help teams to address organisational considerations such as communications, training, quality assurance, etc.

Phase III

During Phase III, a bank would conduct implementation reviews and use testing to assess its approaches to data collection, risk measurement and modelling, capital adequacy, its compliance with minimum standards, and its control environment. These efforts will help it make sure that it is prepared for the supervisory review required under Pillar II.



Phase IV

Ongoing monitoring, in Phase IV, is important both internally and externally. Pillar II requires banks to monitor and report regularly to senior management regarding the bank's risk profile and capital needs. It also requires that supervisors review and evaluate banks' ability to monitor and ensure compliance with regulatory capital ratios. Banks will need to establish monitoring processes and systems that suit the needs of their own organisations and that of their regulators, both domestically as well as in foreign jurisdictions in which they operate.

IMPLEMENTATION ISSUES AND CHALLENGES

Adapting to the New Accord will be more demanding for some organisations than for others, based on factors including current data collection and modelling capabilities, risk management practices, business size, number of geographies, risk types, and specific business, portfolio, and market conditions. A number of challenges may emerge...

- Interpreting regulatory requirements,
- Understanding the impact of regulatory requirements on existing business practices,
- Building a robust business case for change,
- Securing and maintaining Board and senior management sponsorship and buy-in,
- Availability of appropriately skilled resources e.g., project management, business and IT analysts, finance, operations, IT, risk management, statisticians, compliance etc.,
- Determining current market/'best practice' solutions,
- Diversity of information required and availability of underlying data,
- Automation of data collation, aggregation, transformation and reporting,
- Determining business requirements and sophistication of solutions required,
- Embedding new/enhanced practices into wider business environment,
- Avoidance of gaps/overlaps in operational risk/credit risk approaches,
- Consistent implementation of change across the entire organisation,
- Creating an organisation structure with clarity to manage and control operational risk effectively which meets the requirements of the selected approaches across the



group in Pillar 1 and avoids additional requirements under Pillar II,

- Developing global operational risk management and controlling processes