BASEL II: NEW CAPITAL ADEQUACY FRAMEWORK

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ABSTRACT

Basel-II, New Capital Accord has finally been released in June, 2004 as a successor of Basel-I (Current Capital Accord) by the Basel Committee on Banking Supervision (BCBS). Current Accord (Basel I) published by BCBs in July, 1988 prescribing minimum capital requirements in banks, no longer provides the banks, especially internationally active banks and their supervisors with reliable measures of the actual risks they face. This is because banking; risk management practices, supervisory approaches and financial markets have seen a lot of change over the years. The explosive growth in the market for securitized assets and for credit derivatives has offered banks new ways to manage and transfer credit risk. Also, a new discipline in risk management, i.e., operational risk management is emerging through which banks can quantify in an increasingly reliable manner the risk of losses stemming from failures in internal processes or system or from damage caused by an external disruption.

The first proposal of Basel II, which was released in June 1999, in response to the criticism of Basel I, included operational risk in the measure of minimum capital requirements and emphasized the alignment of actual risk with the allocation of capital. Stated otherwise, the proposal attempted to bridge the gap between regulatory and economic capital by capturing the relationship between capital adequacy and risk management. After this, a series of consultative packages was presented and quantitative impact studies were undertaken which culminated into the final proposal which was accepted as a New Capital Accord and published in June, 2004.

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How was Based II Accord developed — Chronology of events

- June 1999 – I Consultative Package.
- Jan. 2001 – II Consultative Package
- April 2003 – III Consultative Package
- Dec. 2003 – Final Comments on the proposal
- June 2004 – Endorsement of the Revised Framework.
- Dec. 2006 – Implementation in member jurisdictions: standardized and foundation approach to risk measurement.
- Dec. 2007 – Implementation of the most advanced approaches.

The New Capital Accord (Basel II) has its foundation on three mutually reinforcing pillars, which will strengthen the ability of banks to manage risk better. These three pillars are:

(1) The first pillar — Minimum Capital requirement.

(2) The second pillar — Supervisory Review

(3) The third pillar — Market Discipline

The New Capital Accord seeks to achieve the following objectives:

1. It moves away from the "One size fits all" approach characteristic of Basel I. The emphasis is on "mix & match". This means each bank can choose from a number of options to determine its capital charge for market, credit and operational risk. Table A summarizes the choices open to banks.

2. Explicit recognition of operational risk, with capital to be set aside, though overall the amount of capital set aside should remain at 8% of total risk assets.

3. Subject to the approval of national regulators, banks will be allowed to use their own internal rating models for the measurement of credit, market and operational risk. Otherwise, banks will have to adopt a standardized approach drawn up by the Basel committee.

4. In addition to the new "risk pillar" (bringing the regulatory capital closer to economic capital), two other reinforcing pillars, namely, Supervisory Review' and 'Market Discipline' have been introduced.

Table A

Table A, Menu of approaches to measure various types of risks

Credit Risk	Operational Risk	Market Risk
(1) Standardized approach (2) Foundation IRB approach (3) Advanced IRB approach	(1) Basic Indicator approach (2) Standardized approach (3) Advanced Measurement Approaches	(1) Standardised approach (2) Internal Model

PILLAR I — MINIMUM CAPITAL REQUIREMENT

The minimum capital requirement is the sum total of the capital charges for credit risks, operational risks and market risks. This pillar deals with imperfections relating to capital adequacy as laid down in 1988 Accord. The primary objective of Basel II is to introduce greater risk sensitivity into the calculation of regulatory capital (i.e. the capital required to be maintained by the bank against its risk — weighted assets as defined in the 1988 Capital Accord). Regulatory capital is set by the capital Ratio (CRAR) that is defined as follows:

$$\text{CRAR} = \frac{\text{Capital}}{\text{Risk Weighted Assets}}$$

As per the Current Accord the ratio must be kept at a minimum of 8% and denominator in the ratio represent the bank's assets weighted according to two separate type of risk i.e. credit risk and market risk. (Basel II) maintains both the current definition of capital and the minimum requirement of 8% of capital to risk weighted assets ratio. The revision, however, focuses on improvements in the measurement of risks i.e., the calculation of the denominator of capital ratio. The New Accord aims at bringing the following two changes while assessing minimum capital

(i) Substantive changes while measuring credit risk.
(ii) The introduction of an explicit capital charge for operational risk.

Pillar 1 – Minimum Capital Requirements

Based I (with 1996 Amendment) Capital (tier I & tier II)	Basel II (2006/2007) Capital (tier I & tier II)
Credit Risk + Market Risk	Amended Credit Risk + Market Risk + Operational Risk

The risks covered under this pillar are
(a) Credit risk
(b) Market risk
(c) Operational risk

(a) Credit risk: The effective management of credit risk is a critical component of the comprehensive approach to risk management and essential in the long run success of any banking organizaton. Basel II allows a financial institution to measure credit risk for regulatory capital purposes in one of the two ways:

(1) Standardized approach.

(2) Internal Ratings Based (IRB) approach

- Foundation IRB Model
- Advanced IRB

STANDARDIZED APPROACH TO CREDIT RISK

In this approach, banks are required to categorize their exposure into supervisory categories. Fixed risk weights are assigned corresponding to each supervisory category based on ratings assigned by external rating agencies approved by the supervisor. The standardized approach also provides for the reduction in credit exposure to a counter party based on the eligible collateral available.
Banks lacking sophisticated models for assessing risk will be required to dopt the standardized approach under Basel II. Even with this approach, the Basel

committee has recognized the need for more flexible treatment with respect to credit risk. The major modification involves the use of a wider band of risk weightings from 0% for very low risk to 150% for high risk loans. The credit risk weights for loans to countries, banks, corporates & securitised assets are summarized in Table B.

Table B

Credit risk weights under the Standardised Approach

Credit Rating	AAA to AA-	A + to A-	BBB + to BBB-	BB + to B-	Below B-	Unrated
Sovereign Central Bank	0%	20%	50%	100%	150%	100%
Banks	20%	50%	100%	100%	150%	100%

Source

Weightings for other assets such as, residential and commercial mortgages, personal loans, venture capital, past due loans and other higher categories have also been specified in Basel II.

FOUNDATION & ADVANCED IRB APPROACHES

Subject to the approval of the national supervisor, these banks may use their own internal ratings and credit information to determine how much capital is to be set aside for credit risk. BaselII has introduced these options to reward banks with sophisticated risk weighting systems, which should lower the capital to be set aside to cover credit risks. It also increases the likelihood that ratings will be based on economic capital, the capital set aside to cover unexpected losses. This is considered an improvement over regulatory capital, that is the capital based on regulatory dictates such as the Basel I or II risk weighting. The IRB calculates of risk weighted assets for exposures to sovereign banks or cooperate depends on four quantitative in puts:

i. Probability of default (PD)

ii. Loss given the default (LGD)

iii. Exposure at default (EAD) and

iv. Maturity (M)

PD measures the likelihood that the borrower will default over a given time horizon.

LGD measures the proportion of the exposure that will be lost if a default occurs.

EAD measures for the loan commitment, the amount of facility that is likely to be drawn if a default occurs and

M measures the remaining economic maturity of the exposure.

Given a value for each of these four inputs, the corporate IRE risk weight function described in CP products a specific credit capital requirement for each exposure.

The difference between the foundation and advanced IRE relates to the data supplied by a bank and the data provided by the supervisor. Under foundation IRE approach, banks can use their own estimate of probability of default (PD) while estimates of loss given default (LGD) and exposure at default shall be provided by the supervisor. For advanced IRB approach, however, banks can use their own estimates of all risk inputs viz. PD, LGD and EAD. Certain minimum requirements which must be satisfied by the bank opting for IRB approach are:

- Differentiation of credit risk.
- Clear criteria for the internal ratings system and a complete rating assignment.
- The probability of default (PD) is estimated for each group of borrowers assigned to internal grades.
- PD data: banks must have at least 2 years of data from the time Basel II takes effect rising to 5 within 3 years.
- LGD: advanced IRB banks are to supply 7 years of data for loss given default (LGD), though they are encouraged to develop a data base covering a complete economic cycle.
- Internal validation.
- A banks internal ratings and VaR must be part of an integrated risk management system.
- Satisfy the disclosure standards specified under pillar-III.

The broad principle behind there requirements is that rating and risk estimation systems and processes provide a meaningful assessment of borrower and transaction characteristics, a meaningful differentiation of risks, and reasonably accurate and consistent quantitative estimates of risks.

Market Risk

Since January 1, 1998 banks in G- 10 countries are required to maintain regulatory capital to cover market risk (this is commonly referred to as the Market Risk Amendment to the Basel Accord). The capital for market risk will be provided separately for trading book and the banking book, while a standardised approach will be followed for the trading book, banking book will be under supervisory review (pillar II).

Market risk standards set by BaselH cover the risk in the "trading book" and put capital charges on foreign exchange and commodity contracts, debt and equity instruments and related derivative and contingent items. The Committee provides some flexibility in terms of measuring risk. Banks can use either an Internal Model or a Standardised Approach. The Standardized Approach adopts a so called building block approach for interest rate related and equity instruments which differentiates capital requirements (charges) for specific risk from those for general market risk. The Internal Model approach enables a bank to use its proprietary in house method which must need the qualitative and quantitative criteria set out by the Basel Committee and is subject to the explicit approval of a Banks supervisory authority. One of the internal models of choice is a Value at Risk (VaR) model that estimates how much the value of a portfolio could fall due to an unanticipated change in market — prices. Such VaR can be used to set exposure limits for traders and to allocate capital to different activities.

With respect to a bank's exposure to interest rate risk, the Basel principles require that banks hold capital that is proportionate to the risk exposure of the "banking book". The recommendations also stress the need for banks to disclose the level of interest rate risk and their risk management approach.
If supervisors determine that a bank has insufficient capital to support its interest rate risk in the banking book, they must require either a reduction in the risk or an increase in the capital held to support it, or a combination of both. Supervisors should be particularly attentive to the capital sufficiency of "outlier banks" — those whose interest rate risk in the banking book leads to an economic value decline of more than 20% of the sum of tier I and tier H capital following a standardized interest rate shock or its equivalent.

OPERATIONAL RISK

The Basel committee believes that operational risk is an important risk facing banks and that banks need to hold capital to protect against losses from it. Within BaselII framework, operational risk is defined as the "risk of losses resulting from inadequate or failed internal processes, people and systems or

external events". To be specific, operational risk means losses arising due to rogue trading insider fraud, bad lending, poorly understood derivatives, inadequate controls, natural disasters or snowballing of reputational losses etc. One of the main purposes of covering operational risk as a separate risk category is to provide added focus to such risk areas in banking in order that any abrupt incident does not disturb well-being of a bank. New Capital Accord provides that to take care of operational risks banks should maintain separate capita! base in addition to capital requirement for credit risk and market risk. The committee has put forward a framework consisting of three methods for calculating capital charge for operational risk. These are:

(i) Basic indicator approach

(ii) The standardised approach

(iii) Advanced Measurement Approach

BASIC INDICATOR APPROACH

Banks using this approach must hold capital for operational risk equal to a fixed percentage (denoted by alpha-ct) of average annual gross income over the previous three years.

(a = 15% which is set by the committee, relating the industry wide level of required capital to the industry — wide level of the indicator). So, the capital charge for operational risk, say KB may be expressed as follows.

K_B=GI*a
Where GI Average annual gross income over previous three years

Gross income (income before deduction of operational losses) is defined as net interest income plus net non-interest income excluding realized profits/losses from the sale of securities in the banking book and extra-ordinary or irregular items.

(ii) Standardized approach: Under this approach capital requirement for operational risk will be arrived at in the following manner:

(a) Banks is calculated as the simple summation of the regulatory capital activities are to be divided into 8 business lines e.g. corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management and broking.

(b) Capital charge for each business line is calculated by multiplying the indicator, (average annual gross income over previous 3 years) for each business line by respective beta factor.

(c) Total capital charge charges across each of the business lines.

(iii) Advanced Measurement Approach: Subject to approval of regulatory authorities of each country, the capital required will be worked out taking into account the risk measure generated by bank's integrated operational risk measurement system using qualitative and quantitative criteria as laid down in the Accord.

PILLAR II - SUPERVISORY REVIEW

The Second pillar of New Capital Adequacy Framework seeks to ensure that a bank's capital position is consistent with its overall risk profile and strategy and as such prescribes supervisory intervention in this whole process. To be specific, this pillar identifies the role of the national supervisors under Basel II by means of the following principles:

(a) Supervisors are expected to ensure banks use appropriate methodology to determine BaselII ratios, and have a strategy to maintain capital requirements.

(b) Supervisors should review bank's internal assessment procedures and strategies, taking appropriate action if these fall below standard.

(c) Banks should be encouraged by supervisors to hold capital above the minimum requirement.

(d) Supervisors are expected to intervene as early as possible to ask a bank to restore its capital levels if they fall below the minimum.

This pillar, thus, aims at fostering a dialogue between the banks and their supervisors on the nature of the risk that banks face and the measures they take to control them, including holding aside sufficient levels of capital. Such a dialogue creates great implicit incentives for management to undertake careful evaluation of the bank's capital needs.

PILLAR III — MARKET DISCIPLINE

The main purpose of pillar 3 is to reinforce pillars 1 and 2. Providing timely and transparent information or even knowing they have to provide it, gives the market a role in disciplining banks. Thus, this pillar recognises the power of market place participants to motivate prudent risk management. By enhancing transparency in bank's financial reporting, this pillar provides

counterparties, investors and other participants with greater insight into a bank's risk profiles, that increases their ability to distinguish and reward banks that are well managed while penalising those which are not.

SUPREMACY OF NEW ACCORD OVER CURRENT ACCORD

The New Accord is an ambitious and laborious attempt to bring lasting order, discipline and safety to the banking and financial institutions of the world. Basel II norms provide a timely opportunity for banks (especially in emerging markets) to raise their standards of banking practices t international levels. This happens because the revised capital framework is an effort to re-invigorate the risk management culture in the banking sector as it provides the banks with the incentives necessary to improve their

risk management system and processes. Moreover, it will help to ensure that capital supervision continues to serve as a cornerstone to safety and soundness in the banking system. Both these results will help to make banks more resilient, less sensitive to the ups and downs of the business cycle and better able to serve as a source of credit and growth for business and consumers.
The basic objective of both Basel I and Basel II remains the same, namely, ensuring adequate cushion for possible losses in respect of financial institutions, especially commercial banks. The cushion is in the nature of minimum capital requirement. The quantum of such capital continues to be linked to risk weighted assets and remains at 8%. The classification of capital into Tier — I and tier — II is also retained. However, the differences are, there in details and approach:

1. Under Basel I, the assets were classified into four categories and uniform risk weights were assigned to each category irrespective of the degree of risk associated with the individual items under the specific category. This one-size-fits-all approach put the banks in straight jackets preventing them from distinguishing involuntary default from willful default. BaselI attempts to rectify the situation. It specifies that each of the account holders should be assessed for their riskiness using modern statistical techniques and the risk weighted assets should be obtained. This increases substantially the risk sensitivity of capital requirement. Moreover, a spectrum of approaches, from simple to advanced have been provided in Basel II measure various types of risk.

2. Another feature of Basel II (which makes it superior than Basel I) is the explicit inclusion of operational risk as an additional determinant of riskiness. Of course, this pertains to financial entity as a whole. On the

total of such risk-weighted assets (i.e., both individual account holder and the entity), capital at the rate of 8% should be maintained.

3. Inclusion of supervisory review responsibilities and market discipline as second and third pillar makes the New Accord distinct from Basel I.

The points of difference between Basel I and BaselII establishing superiority of BaselII over BaselI can be understood with the help of Table C

Table C

Three fundamental differences between Basel I & Basel II

Basel I (Current Accord)	Basel II (New Accord)
Board brush structure with one-size-fits all approach.	Greater risk sensitivity and flexibility with a menu of approaches for various risks.
Only credit risk and market risk	Credit, market and operational risk
Emphasis only on minimum capital requirement aspect	Besides minimum capital requirements, emphasis on supervisory review and market discipline aspects.

IMPLICATION AND CHALLENGES

While there is no second opinion regarding the purpose, necessity and usefulness of the proposed New Accord the techniques and methods suggested in the consultative document would pose considerable implementation challenges for the banks especially in a developing country. Besides, certain other problems may arise which must be addressed to and considered seriously if Basel II is to be adopted successfully.

IMPLEMENTATIONAL CHALLENGES FOR BANKS

The new standards are an amalgam of international best practices and call for introduction of advanced risks management system, with under 1iu application throughout the organization. A key requirement after the New Accord becomes operational will be that of high quality human resources to cope with and adopt to the new environment involving substantial

upgradation of existing MIS and risk management practices. It would be a daunting task to create the required level of technological architecture and human skills across the institution. Moreover, computation of PD, LGD, migration mapping and supervisory validation require creation of historical database, which is a time consuming process and may require initial support from the supervisor.

All these implementation challenges make the adoption of Basel II much more difficult for many smaller banks. As Moody's Investor Services puts it, "It is unlikely that these banks will have the financial reso intellectual capital, skills and large scale commitment that larger competitors have to build sophisticated systems to allocate regulatory capital optimally for both credit and operational risks".

SUPERVISORY AND REGULATORY CHALLENGES

Implementation of BaselII norms will prove a challenging task for the bank supervisors and regulators as well. They may find it difficult to oversee the actions of banks that opt for the advanced approaches and compute their capital obligations in Basel II. For instance, if using the IRB approach they will compute PD and LGD using sophisticated moels and a considerable mount of judgement. Independent analysts or supervisors may find it difficult to assess the quality of the risk management input of this level of sophistication and it will pore a considerable challenge to their resources.
Given the paucity of supervisory resources, there is a need to reorient the resource deployment strategy. Supervisory cadre has to be properly trained for understanding of critical issues for risk profiling of supervised entities and validating and guiding developing of complex IRB models.
The level of rating penetration is not very significant in emerging economies. For instance in India, ratings are restricted to issues and not issues. While BaselII gives some scope to extend the rating of issues to issues, this would only be an approximation and it would be necessary for it system to move to ratings of issues. Encouraging rating of issues would be a challenge.
Supervisor have to find solutions to certain problems arising due to cross border issues in case of foreign banks, which are statutorily required to maintain local capital e.g.
Whether the internal models approved by their head offices supervisor adopted by the host country branches of foreign banks need to be validated again by the central bank of the host country or whether the validation by the have country supervisor would be considered adequate.

Whether capital for operational risk should be maintained separately for the branches in host country or whether it may be maintained abroad at head office?

Whether these banks can be mandated to maintain capital as per the norms applicable in the host country irrespective of the approaches adopted by their head office.

OTHER IMPLICATIONS

1. Capital Requirement: The new means will almost invariably increase capital requirement in all banks across the board. Although capital requirement for credit risks may go down due to adoption of more risk-sensitive models — such advantage will be more than offset by additional capital charge for operational risk and increased capital requirement for market risk.

2. Adverse impact on profitability: Competition among banks for highly rated corporate needing lower amount of capital may exert pressure on already thinning spread. Further, huge implementation cost may also impact profitability for smaller banks.

3. Incentive to remain unrated: In case of instated sovereigns, banks & corporate, the prescribed risk weight is 100%, whereas in case of those entities with lowest rating, the risk weight is 150%. This may cerate an incentive for the category of counter parties, which anticipate lower rating to remain unrated.

4. Disclosure Regime: Pillar 3 purports to enforce market discipline through stricter disclosure requirement. While admitting that such disclosure may be useful for supervisory authorities and rating agencies, the expertise and ability of the general public to comprehend and interpret disclosed information is open to question. Moreover, too much disclosure may cause information overload and may even damage financial position of a bank.

5. Procyclicality: Another serious problem arising from adoption of Basel II is procyclicality. To the extent that the credit within of financial and non-financial firms moves with the cycles, the method for calculating the amount of capital to be set aside in a given year means less will be needed during an economic boom; more during a downturn. The nature of recession (falling stock markets, downgrading of firms experiencing falling profits by independent rating agencies and higher loan losses as a result of increased default rates) will reduce banks risk assets ratios. Since raising capital, even if possible, will be more costly, banks are likely to cut back on their activities (e.g., reduced lending, less trading), which in turn will aggravate the downturn.

6. Discrimkinatory lending against developing countries:
Developing countries have high concentration of lower rated borrowers. The calibration of IRB has lesser incentives to lend to such borrowers. This, along with withdrawal of uniform risk weight of 0% on sovereign claims may result in overall reduction in lending by internationally active banks in developing countries and increase their cost of borrowing. Small and Medium - sized Enterprise (SME) and firms located in emerging markets may find it more difficult to raise external finance because they are not rated.

INDIAN SCENARIO

- Keeping in view the RBI's goal to have consistency and harmony with international standards and the approach to adopt the pace as may be appropriate in the context of our country's specific needs, the RBHI has in April 2003 accepted in principle to adopt the New Capital Accord. The RBI has announced in its Annual Policy Statement in May, 2004 that banks in India should examine in depth in options available under Basel II and draw a road — map by end December 2004 for migration to Basel II and review the progress made thereof at quarterly intervals. In this regard, the draft guidelines framed by RBI are stated below.
- The revised capital adequacy norms shall be applicable uniformly all Scheduled Commercial Banks (except Regional Rural Banks) both at the solo level (global position) as well as at the consolidated level.
- Banks will be required to implement the revised capital adequacy framework with effect from March 3 1, 2007.
- While implementing the revised framework, banks in India, shall at a minimum, adopt Standardised Approach (SA) for credit risk and Basic Indicator Approach (BIA) for operational risk. After adequate skills are developed, both in banks and at supervisory levels, some banks may b allowed to migrate to advanced approaches like IRB approach for credit risk and advanced measurement approaches for operational risk.
- With a view to ensuring smooth transition to the revised
- Framework, banks in India are required to commence a parallel run of the revised framework with effect from April 1, 2006.
- In addition to these draft guidelines, RBI has also taken certain regulatory initiatives to move towards Basel II. These initiatives include:

- Introduction of Risk Based Supervision (RBS) in banks.
- Encouraging banks to formalise their Capital Adequacy Assessment Programme (CAAP) in alignment with business plan and performance budgeting system. This together with adoption of RBS would aid in factoring the Pillar II requirements under Basel II.
- Enhancing the area of disclosures (Pillar III) so as to have greater transparency of the financial position and risk profile of banks.
- Improving the level of corporate governance standards in banks.
- Building capacity for ensuring the regulator's ability for identifying and permitting eligible banks to adopt IRB/Advanced measurement approaches.

CONCLUSION

The need of the time, on the part of banks, is to go ahead with high level preparations, keeping in view the implementational and supervisory challenges in adopting Basel II. For instance, the norms would compel a bank to first assess its own risk management capability, its technical expertise, its data warehousing and data mining readiness as also capacity to incur expenditure on advanced technology. Also, the new norms require a lot of disclosures of risks and the risk management practices by banks. Data sharing among banks is also very crucial under the new norms. Therefore, a lot of investments in technology development and creating database and developing human skills is required to implement the New Accord successfully.

As banks have two years lead time to prepare themselves for Basel II, they are encouraged to focus on capacity building and undertake impact analyses. On the bases of the outcome of the impact studies, banks may put and plans for raising fresh capital or resources. Banks may also redefine their altering their profile of risk exposures or these approaches to meet the capital.

However, there is ample evidence of the capacity of the Indian banking system to migrate smoothly to Basel II. This is because, with the gradual and purposeful implementation of the banking sector reforms over the past decade, the Indian banking system as shown significant improvement on various parameters and has become robust and displayed ample resilience to shocks in the economy.

In place appropriate strategies augment capital through internal business strategy with a view to adopt a combination of both requirements.

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