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Evolution of the Basel Framework on Bank Capital Regulation

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This paper covers the major developments in the efforts towards harmonisation of bank capital standards by the Basel Committee on Banking Supervision (BCBS) *viz.*, the Basel Accord of 1988, the 1996 amendment to the Basel Accord, the Basel II framework and the subsequent refinements. Though capital regulation in banking had existed in some form or the other even before the signing of Basel Accord in 1988, the Accord marked a watershed in the efforts towards harmonisation of bank capital regulation across nations. More than 100 countries adopted the Basel I regulatory requirement of capital at eight per cent of risk-weighted assets. The high pace of financial innovations, however, brought into light the deficiencies of Basel I framework and the need for a more flexible and more risk-sensitive capital standards. After years of intense consultations and modifications, the revised capital framework, popularly known as Basel II was released by the BCBS in June 2004. While the implementation of Basel II is in progress in several countries across the globe, soundness and stability of the international banking has been severely challenged by the outbreak of the sub-prime crisis in the US mortgage market in 2007. The crisis has spread across sectors and across nations without showing any signs of abatement, and by now has taken the shape of an international financial market crisis. This has brought into sharp focus the need for faster implementation of Basel II. At the same time, further refinements in the Basel II framework are being mooted with a view to ensuring that the banking sector serves its traditional role as a shock absorber to the financial system, rather than an amplifier of risk between the financial sector and the real economy. The issues being re-examined include *inter alia* strengthening the risk capture on trading book and off-balance sheet exposures, dampening procyclicality, strengthening framework to assess liquidity at banks, and globally coordinated supervisory follow-up exercises. The Basel framework on capital regulation thus continues to evolve in response to the changing circumstances, and has come to be established at the core of the assessment of soundness and stability of the banking system.

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Introduction

The forces of globalisation and deregulation brought about sweeping changes in the banking sector across countries. While new

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vistas opened up for augmenting revenues of banks, increased competition in the wake of new products, new processes and technological progress exposed banking to higher risks. This gave renewed emphasis to efforts towards harmonisation of international capital standards which gained momentum under the aegis of Bank for International Settlement (BIS). The setting up of the Basel Committee on Banking Supervision (BCBS)[1] in 1975, following the failure of Bankhus I. D. Herstatt in Cologne, Germany, was a significant contribution of the BIS towards international harmonisation of supervisory standards. The BCBS contributed to supervisory standards through issuance of 'best practices' papers. Although these standards are not legally binding, they have made substantial impact on banking supervision, in general, and bank capital regulation, in particular. Robust risk management and strong capital position have come to be recognised to be crucial to ensuring safety and soundness of individual banking organisations as also for fostering stability in the financial system.

Though capital regulation in banking existed even before the Basel Accord of 1988, there were vast variations in the method and timing of its adoption in different countries. In the pre-Basel phase, the use of capital ratios to establish minimum regulatory requirements was being tested for more than a century. In the US, between 1864 and 1950s, the supervisors : (i) tried to make use of a variety of capital adequacy measures such as static minimum capital requirements based on the population of each bank's service area, ratios of capital-to-total deposits and capital-to-total assets; (ii) adjusted assets for risk; and (iii) created capital-to-risk-assets ratios, but none was universally accepted at that time. Even the banking sector was in favour of a more subjective system where the regulators could decide which capital requirements were suited for a particular bank as a function of its risk profile (Laurent, 2006). The emergence of more bank failures and diminishing bank capital triggered a regulatory response in 1981 when, for the first time, the federal banking agencies in the US introduced explicit numerical regulatory capital requirements. The adopted standards employed a leverage ratio of primary capital (which consisted mainly of equity and loan loss reserves) to average total assets. However, each regulator had a different view as to what exactly constituted bank capital.

Over the next few years, regulators worked to converge upon a uniform measure. The inadequate capitalisation of Japanese banks and differing banking structures (universal banks of Germany *vis-à-vis* narrow banks of US) and varying risk profile of individual banks made agreement on capital standards difficult. The Congress in the US passed legislations in 1983, directing the federal banking agencies to issue regulations addressing capital adequacy. The legislation provided the impetus for a common definition of regulatory capital and final uniform capital requirements in 1985. By 1986, regulators in the US were concerned about the failure of primary capital ratio to differentiate among risks and not providing an accurate measure of the risk exposures associated with innovative and expanding banking activities, most notably off-balance-sheet activities at larger institutions. Regulators in the US began studying the risk-based capital frameworks of other countries – France, the UK and West Germany had implemented risk-based capital standards in 1979, 1980 and 1985, respectively. The agencies also revisited the earlier studies of risk-based capital ratios. Leading the initiative in 1987, the US joined the UK in announcing a bilateral agreement on capital adequacy, soon to be joined by Japan (buoyed by a booming stock market in raising capital). Subsequently in December 1987 'international convergence of capital measures and capital standards' was achieved. In July 1988, the Basel I Capital Accord was created.

As regards banking companies, the primary functions of capital are to support banks' operations by absorbing losses and changes in asset values, and thereby maintaining solvency. A comfortable bank capital level boosts depositors' confidence, encourages shareholders' interest in governance of bank and provides protection to creditors in the event of liquidation. Bank capital acts as an insurance against uncertainty.

The Basel Core Principles[2], as a framework of minimum standards for sound supervisory practices considered universally applicable, emphasise capital adequacy and risk management process as one of the significant prudential regulation and requirements. According to the BCBS core principles, supervisors must set prudent

and appropriate minimum capital adequacy requirements for banks that reflect the risks that the bank undertakes, and must define the components of capital, bearing in mind its ability to absorb losses. At least for internationally active banks, these requirements must not be less than those established in the applicable Basel requirement. Supervisors must be satisfied that banks and banking groups have in place a comprehensive risk management process (including Board and senior management oversight) to identify, evaluate, monitor and control or mitigate all material risks and to assess their overall capital adequacy in relation to their risk profile. These processes should be commensurate with the size and complexity of the institution.

This paper deals in the supervisory and regulatory framework governing the capital adequacy of international banks as evolved by the BCBS over the years. The paper is organized into four sections. Section 1 elaborates the Basel Accord of 1988, and the 1996 amendment relating to market risk, which was the most important modification in the Basel norms on capital regulation before the introduction of Basel II framework. Section I also deals with the criticisms of the Basel Capital Accord, 1988. Section II presents the Basel II framework, followed by a discussion of a few conceptual and implementation issues relating to the new capital adequacy framework. Section III outlines the initiatives taken by the Basel Committee in response to the recent financial turmoil. Section IV concludes.

Section I

The Basel I Framework

The Basel Capital Accord, 1988

As discussed earlier, the BCBS has been making efforts over the years to secure international convergence of supervisory regulations governing the capital adequacy of international banks. The Committee adopted a consultative process wherein the proposals are circulated not only to the central bank Governors of G-10 countries, but also to the supervisory authorities worldwide. The major milestones in the

Basel norms of capital measurement and capital standards are: Capital Accord of 1988, market risk amendment of January 1996, New Capital Adequacy framework of June 2004. The two fundamental objectives of the Committee's work on regulatory convergence are: (i) the framework should serve to strengthen the soundness and stability of the international banking system; and (ii) the framework should be fair and have a high degree of consistency in its application to banks in different countries with a view to diminishing an existing source of competitive inequality among international banks.

The Basel Accord was endorsed by 12 countries (all G-10 countries plus Luxembourg and Switzerland) in July 1988 under the chairmanship of W P Cooke (Bardos, 1988). As many banks were undercapitalised at that time, a target of 7.25 per cent was set to be met by the end of 1990, and the 8 per cent requirement was to be achieved by the end of 1992. Since then, the Basel Accord has been subjected to several amendments and has itself been evolving under a consultative framework. The Accord has been endorsed by many countries other than G-10 countries, and applied to many banks other than those conducting significant international business. The Accord was phased in by January 1993, and currently more than hundred countries have adopted the Basel Norms.

The main features of Basel I are documented in 'International Convergence of Capital Measurement and Capital Standards'[3] over three sections (BCBS, 1998). While the first two describe the framework in terms of the constituents of capital and the risk weighting system, the third section deals with the target ratio. The framework provides a framework for fair and reasonable degree of consistency in the application of capital standards in different countries, on a shared definition of capital. The central focus of this framework is credit risk and, as a further aspect of credit risk, country transfer risk.

Capital as per Basel Accord, better known as regulatory capital, is sum of Tier I and Tier II capital which a bank is required to maintain in relation to its risk-weighted assets. Under both Basel I and Basel II,

the regulatory definition of capital is comprised of three levels (or 'tiers') of capital. An item qualifies for a given tier if it satisfies the specific criteria. Tier 1 Capital (or 'core capital') comprises only those elements which have the highest capacity for absorbing losses on an ongoing basis. Tier 2 Capital (or 'supplementary capital') is made up of a broad mix of near equity components and hybrid capital/debt instruments, the total of which is limited to 100 per cent of Tier 1 Capital. It is subdivided into two categories: (i) Upper Tier 2 comprises items closer to common equity, like perpetual subordinated debt; (ii) Lower Tier 2 comprises items closer to debt than of equity. It also includes various types of reserves whose values and/or availability are more uncertain than disclosed reserves. Tier 3 Capital (or 'additional supplementary capital') was added in 1996 and can only be used to meet capital requirements for market risk.

The Committee recommended a weighted risk ratio in which capital is related to different categories of asset or off-balance-sheet exposure, weighted according to broad categories of relative riskiness, as the preferred method for assessing the capital adequacy of banks - other methods of capital measurement are considered to be supplementary to the risk-weighted approach. The risk weighted approach has been preferred over a simple gearing ratio approach because: (i) it provides a fairer basis for making international comparisons between banking systems whose structures may differ; (ii) it allows off-balance-sheet exposures to be incorporated more easily into the measure; (iii) it does not deter banks from holding liquid or other assets which carry low risk. There were inevitably some broad-brush judgements in deciding which weight should apply to different types of asset and the framework of weights has been kept as simple as possible with only five weights being used for on balance-sheet items *i.e.*, 0, 10, 20, 50 and 100 per cent (Table 1). Government bonds of the countries that were members of the Organisation for Economic Cooperation and Development (OECD) (which includes all members of the Basel Committee) were assigned a zero risk weight, all short-term interbank loans and all long-term

Table 1: Risk Weights by Category of On-balance Sheet Assets

Risk Weight	Categories of Asset
0%	(a) Cash (b) Claims on central governments and central banks denominated in national currency and funded in that currency (c) Other claims on OECD, central governments, and central banks (d) Claims collateralised by cash of OECD central-government securities or guaranteed by OECD central governments
0, 10, 20 or 50% (at national discretion)	Claims on domestic public-sector entities, excluding central government, and loans guaranteed by or collateralised by securities issued by such entities
20%	(a) Claims on multilateral development banks (IBRD, IADB, AsDB, AfDB, EIB, EBRD) and claims guaranteed by, or collateralised by securities issued by such banks (b) Claims on banks incorporated in the OECD and claims guaranteed by OECD incorporated banks (c) Claims on securities firms incorporated in the OECD subject to comparable supervisory and regulatory arrangements, including in particular risk-based capital requirements,6 and claims guaranteed by these securities firms (d) Claims on banks incorporated in countries outside the OECD with a residual maturity of up to one year and claims with a residual maturity of up to one year guaranteed by banks incorporated in countries outside the OECD (e) Claims on non-domestic OECD public-sector entities, excluding central government, and claims guaranteed by or collateralised by securities issued by such entities (f) Cash items in process of collection
50%	Loans fully secured by mortgage on residential property that is or will be occupied by the borrower or that is rented
100%	(a) Claims on the private sector (b) Claims on banks incorporated outside the OECD with a residual maturity of over one year (c) Claims on central governments outside the OECD (unless denominated in national currency - and funded in that currency) (d) Claims on commercial companies owned by the public sector (e) Premises, plant and equipment and other fixed assets (f) Real estate and other investments (including non-consolidated investment participations in other companies) (g) Capital instruments issued by other banks (unless deducted from capital) All other assets

interbank loans to banks headquartered in OECD countries a 20 per cent risk weight, home mortgages a 50 per cent risk weight, and most other loans a 100 per cent risk weight.

Off-balance sheet contingent contracts, such as letters of credit, loan commitments and derivative instruments, which are traded over the counter, needed to be first converted to a credit equivalent and then assigned appropriate risk weights (Table 2).

The initial standards required internationally active banks to meet two minimum capital ratios, both computed as a percentage of the risk-weighted (both on- and off-balance sheet) assets. The minimum Tier 1 ratio was 4 per cent of risk-weighted assets, while total capital

Table 2: Credit Conversion Factors for Off-balance Sheet Items

Instruments	Credit Conversion Factors (Per cent)
1. Direct credit substitutes, for example, general guarantees of indebtedness (including standby letters of credit serving as financial guarantees for loans and securities) and acceptances (including endorsements with the character of acceptances)	100
2. Certain transaction-related contingent items (for example, performance bonds, bid bonds, warranties and standby letters of credit related to particular transactions)	50
3. Short-term self-liquidating trade-related contingencies (such as documentary credits collateralised by the underlying shipments)	20
4. Sale and repurchase agreements and asset sales with recourse,1 where the credit risk remains with the bank	100
5. Forward asset purchases, forward deposits and partly-paid shares and securities, which represent commitments with certain drawdown	100
6. Note issuance facilities and revolving underwriting facilities	50
7. Other commitments (for example, formal standby facilities and credit lines) with an original maturity of over one year	50
8. Similar commitments with an original maturity of up to one year, or which can be unconditionally cancelled at any time	0

(tiers 1 and 2) had to exceed 8 per cent of risk-weighted assets. The three major principles of the Basel Accord are as follows:

(1) A bank must hold equity capital to at least a fixed per cent (8 per cent) of its risk-weighted credit exposures as well as capital to cover market risks in the bank's trading account.

(2) When capital falls below this minimum requirement, shareholders may be permitted to retain control, provided that they recapitalize the bank to meet the minimum capital ratio.

(3) If the shareholders fail to do so, the bank's regulatory agency is empowered to sell or liquidate the bank.

Capital adequacy is just one of the several factors for assessing the strength of banks, and therefore capital ratios, judged in isolation, may provide a misleading guide to relative strength. Much also depends on the quality of a bank's assets and, importantly, the level of provisions a bank may be holding outside its capital against assets of doubtful value. Recognising the close relationship between capital and provisions, monitoring the provisioning policies by banks in member countries and convergence of policies in this field as well has come to engage the attention of the Basel Committee. The fiscal treatment and accounting presentation for tax purposes of certain classes of provisions for losses and of capital reserves derived from retained earnings, which differ for different countries, may to some extent distort the comparability of the real or apparent capital positions of international banks. Convergence in tax regimes, though desirable, lies outside the purview of the Committee, though tax considerations also need to be reviewed to the extent that they affect the comparability of the capital adequacy. Another issue of relevance is the ownership structures and the position of banks within financial conglomerate groups. The capital requirement should be applied to banks on a consolidated basis, including subsidiaries undertaking banking and financial business. The ownership structures should not be such as to weaken the capital position of the bank or expose it to risks stemming from other parts of the group.

Most regulatory authorities have adopted allocation of capital to risk assets ratio system as the basis of assessment of capital adequacy which takes into account the element of risk associated with various types of assets reflected in the balance sheet as well as in respect of off-balance sheet assets.

With due regard to particular features of the existing supervisory and accounting systems in individual member countries, the capital adequacy framework allowed for a degree of national discretion in the way in which it is applied. It also provided for a transitional period so that the existing circumstances in different countries can be reflected in flexible arrangements that allow time for adjustment.

The 1996 Amendment to the Basel Accord

The Basel Capital Accord of July 1988 was amended in January 1996 with the objective of providing an explicit capital cushion for the price risks to which banks are exposed, particularly those arising from their trading activities (BCBS, 1998). The amendment covers market risks arising from banks' open positions in foreign exchange, traded debt securities, traded equities, commodities and options. A companion paper describing the way in which G-10 supervisory authorities plan to use 'backtesting' (*i.e.*, *ex-post* comparisons between model results and actual performance) in conjunction with banks' internal risk measurement systems as a basis for applying capital charges was also released.

The novelty of this amendment lied in the fact that it allowed banks to use, as an alternative to the standardized measurement framework originally put forward in April 1993, their internal models to determine the required capital charge for market risk. The standard approach defines the risk charges associated with each position and specifies how these charges are to be aggregated into an overall market risk capital charge. The minimum capital requirement is expressed in terms of two separately calculated charges, one applying to the 'specific risk' of each security, whether it is a short or a long position, and the other to the interest rate risk in the portfolio (termed 'general market risk') where long and short positions in different securities or instruments can be offset.

The internal models approach, in contrast, allows a bank to use its proprietary in-house models to estimate the value-at-risk (VaR) in its trading account, that is, the maximum loss that the portfolio is likely to experience over a given holding period with a certain probability. The market risk capital requirement is then set based on the VaR estimate as the higher of the following two: (i) the previous day's value-at-risk; and (ii) three times the average of the daily value-at-risk of the preceding sixty business days. This amendment also defined a Tier 3 capital to cover market risks, and allowed banks to count subordinated debt (with an original maturity of at least two years) in this tier.

Criticisms of Basel I

The major achievement of the Basel Capital Accord 1988 has been introduction of discipline through imposition of risk-based capital standards both as measure of the strength of banks and as a trigger device for supervisors' intervention under the scheme of prompt corrective action (PCA). The fundamental objective of the 1988 Accord has been to develop a framework that would further strengthen the soundness and stability of the international banking system while maintaining sufficient consistency that capital adequacy regulation will not be a significant source of competitive inequality among internationally active banks. The design of the Accord, however, has met with severe criticisms which are discussed in detail in this Section.

First, the standards have not been able to meet one of the central objectives, *viz*., to make the competitive playing field more even for international banks. For example, in a comparison of the competitiveness of banks in the United States and Japan after the implementation of Basel Accord, it was found that the Accord had no impact on competitiveness (Scott and Iwahara, 1994). The authors also showed that other factors such as taxes, accounting requirements, disclosure laws, implicit and explicit deposit guarantees, social overhead expenditures, employment restrictions, and insolvency laws, also affect the competitiveness of an institution. Consequently, imposing the same capital standard on all institutions that differ

with regard to those other factors is unlikely to enhance competitive equity.

The other fundamental objective of the Accord in terms of increasing the soundness and stability of the banking system need not necessarily be met. Capital adequacy regulation in some contexts could even accentuate systemic risk. Therefore, under international financial integration, a simple coordination on some parts of banking regulation (uniform capital requirements), but not others (the forbearance in supervisor's closure policies), could give rise to international negative externalities that destabilize the global system. Furthermore, a design of capital adequacy requirements, based only on individual bank risk, as the actual proposed in the Basel Accord, is showed to be suboptimal in both papers. All the above arguments suggest the need for an analysis of how banks set their capital to assets ratio.

The bank capital adequacy regulation as in Basel I is also criticised for imposing the same rules on all banks even within a country. The simple 'one-size-fits-all' standard under Basel I encouraged transactions using securitisation and off-balance sheet exposures, whose principal aim was to arbitrage bank capital. The Basel rules encouraged some banks to move to high quality assets off their balance sheet, thereby reducing the average quality of bank loan portfolios. Furthermore, banks took large credit risks in the least creditworthy borrowers who had the highest expected returns in a risk-weighted class (Kupiec, 2004).

Perhaps the most fundamental problem with the Basel I standards stems from the fact that they attempt to define and measure bank portfolio risk categorically by placing different types of bank exposures into separate 'buckets'. Banks are then required to maintain minimum capital proportional to a weighted sum of the amounts of assets in the various risk buckets. That approach incorrectly assumes, however, that risks are identical within each bucket and that the overall risk of a bank's portfolio is equal to the sum of the risks across the various buckets. But, most of the times, the risk-weight classes did not match realised losses. In an examination of loan charge-offs and

delinquency rates for banks, it was found that the 1988 Capital Accord risk weights did not accurately track the credit experience in the US. Collateralised loans had the least risk. Commercial loans appear to be under-burdened by the Basel I weights and mortgages were overburdened. All activities or loans within a particular category do not have the same market-based credit risk. For example, not all mortgages are exactly or even approximately half as risky as all commercial loans (reflecting the assigned risk weights).

Securitisation of banks' credit portfolios has become a widespread phenomenon in industrialized countries. At first, banks used to sell their mortgage loans, for such loans represented accurately evaluated risks. But since the advent of e-finance, it is now possible to expand this activity to other types of loans, including those made to small businesses. This type of activity also allows banks to have a much more liquid credit-risk portfolio and, in theory, to adjust their capital ratio to an optimal economic level rather than sticking to the ratio decreed by the Basel Committee.

Moreover, diversification of a bank's credit-risk portfolio is not taken into account in the computation of capital ratios. The aggregate risk of a bank is not equal to the sum of its individual risks - diversification through the pooling of risks can significantly reduce the overall portfolio risk of a bank. Indeed, a well-established principle of finance is that the combination in a single portfolio of assets with different risk characteristics can produce less overall risk than merely adding up the risks of the individual assets. The Accord does not take into account the benefits of portfolio diversification.

The standards have also been criticized for failing to assign 'correct' risk weights and for failing to promote bank safety effectively. Although the risk weights attempt to reflect credit risk, they are not based on market assessments but instead favor claims on banks headquartered in OECD countries and OECD Governments, and on residential mortgages. The 1988 standards also assign a zero risk weight to all sovereign debt issued by countries belonging to the OECD. Although sovereign debt was not at the center of the Asian

financial crises, it played a central role in the earlier Mexican financial and currency crisis of 1994-1995. Illustratively, Mexico and South Korea, both of which experienced substantial bank insolvencies, are now members of the OECD; and hence, the bonds issued by their Governments are subject to the zero risk weight.

Cosmetic changes in bank capital are possible because the measures of both capital and risk are imperfect proxies for the economically relevant variables. Regulators cannot construct perfect measures as long as bank managers have private information about the value or risk of their portfolios. However, even granting the impossibility of perfect measures, the crudeness of current measures offers substantial measures for cosmetic changes in capital ratios. Capital-to-total asset measures (leverage standards) are easily defeated by reducing low-risk, high-liquidity assets and substituting a smaller quantity of higher risk, lower liquidity assets. The existing risk-based standards are slightly more sophisticated, but numerous flaws remain. The standards (i) require that most commercial and consumer loans carry the same risk weighting and do not allow for differential asset quality within asset classes, (ii) do not allow for risks other than credit risks and (iii) do not account for diversification across different types of risk or even across credit risks. Banks, can therefore, exploit accounting conventions by accelerating the recognition of gains on assets with market value greater than book value, while slowing the recognition of losses on assets with market value less than book value.

The problems are compounded by the fact that the Basel standards are computed on the basis of book-value accounting measures of capital, not market values. Accounting practices vary significantly across the G-10 countries and often produce results that differ markedly from market assessments.

The Subgroup of the Shadow Financial Regulatory Committees of Europe, Japan, Latin America and the United States observed that problems inherent in assigning risk weights in the Basel standards are compounded by the inappropriate division of bank capital into different ‘tiers’. In the process, the Basel Committee implicitly favors

equity over other forms of capital, specifically, subordinated debt. The preference for equity not only is unwarranted but also may be counterproductive since subordinated debt, which is included in Tier 2 capital, but not in Tier 1, often can be superior to equity from a regulatory standpoint.

The financial crises of the 1990s involving international banks have highlighted several additional weaknesses in the Basel standards that permitted and in some cases even encouraged, excessive risk taking and misallocations of bank credit. Notably, Asian banks' short-term borrowing of foreign currencies was a major source of vulnerability in the countries most seriously affected by the Asian financial crisis. The current Basel standards contributed to that problem by assigning a relatively favorable 20 per cent risk weight to short-term interbank lending - only one-fifth as large as the weight assigned to longer-term lending or to lending to most private non-bank borrowers. Putting aside the important issue of whether the standards should have assigned different risk weights for short-term lending to banks in the developed and in the developing world–a distinction not captured by the current system of weighting asset risks– it is clear that the much lower risk weight given to interbank lending than to other types of bank loans encouraged some large internationally active banks to lend too much for short durations to banks in Southeast Asia. Those banks reloaned the funds in domestic currency at substantially higher rates and assumed large foreign exchange rate risk. One would expect those distortions to be most pernicious for banks that are capital-constrained. Therefore, it is not surprising that Japanese banks, which have been weakly capitalized throughout the 1990s, had accumulated the heaviest concentrations of claims on faltering Asian banks.

As noted in the document itself, the risk weights do not attempt to take account of risks other than credit risk, *viz.*, market risks, liquidity risk and operational risks that may be important sources of insolvency exposure for banks. The Basel Committee itself has recognised the validity of many of the above-mentioned criticisms.

These shortcomings seem to have distorted the behaviour of banks and this makes it much more complicated to monitor them. In fact, it is not even clear that the higher capital ratios observed since the introduction of this new form of capital regulation necessarily lower risks.

Section II

The Revised Framework: Basel II

The Basel II framework entails a more comprehensive measure and minimum standard for capital adequacy that national supervisory authorities are working to implement through domestic rule-making and adoption procedures. It seeks to improve on the existing rules by aligning regulatory capital requirements more closely to the underlying risks that banks face, *i.e.*, trend towards convergence of the regulatory and economic capital, which is especially evident in the advanced approaches. In addition, the Basel II framework is intended to promote a more forward-looking approach to capital supervision, one that encourages banks to identify the risks they may face, today and in the future, and to develop or improve their ability to manage those risks. As a result, it is intended to be more flexible and better able to evolve with advances in markets and risk management practices.

The fundamental objective of the Committee's work to revise the 1988 Accord has been to develop a more comprehensive approach towards addressing risks, and, thereby, improve the way regulatory capital requirements reflect underlying risks, *i.e.*, better risk sensitivity. The review of the Accord was designed to better address the financial innovations that have occurred in recent years, for example, asset securitisation structures. The review was also aimed at recognising the improvements in risk measurement and control that have occurred.

In June 1999, the BCBS released for comments its proposal to introduce a new capital adequacy framework for International Convergence of Capital Measurement and Capital Standards, more popularly known as the Basel II. The BCBS held three quantitative

impact studies[4] apart from several rounds of consultations and discussions with the member countries, and the final version of the New Basel Norms was released by the BIS on June 26, 2004, which would replace the 1988 Capital Accord by year-end 2007. In March 2005, the Basel Committee on Banking Supervision re-discussed the schedules for national rule-making processes within member countries and decided to review the calibration of the Basel II framework in spring 2006. In November 2005, the Committee issued an updated version of the revised framework incorporating the additional guidance set forth in the Committee's paper, 'The Application of Basel II to Trading Activities and the Treatment of Double Default Effects' (July 2005). In July 2006, the Committee issued a comprehensive version of the Basel II framework, which is a compilation of the (i) June 2004 Basel II framework, (ii) the elements of the 1988 Accord that were not revised during the Basel II process, (iii) the 1996 Amendment to the Capital Accord to Incorporate Market Risks, and (iv) the 2005 paper on the Application of Basel II to Trading Activities and the Treatment of Double Default Effects. No new elements have been introduced in this compilation. The key elements of the 1988 capital adequacy framework that were retained in the revised framework include the general requirement for banks to hold total capital equivalent to at least 8 per cent of their risk-weighted assets and the definition of eligible capital. The Committee also proposed to develop capital charges for risks not taken into account by the 1988 Accord, such as interest rate risk in the banking book and operational risk. The greater risk sensitivity under Basel II would be achieved by linking each bank's capital requirements to empirically based measures of credit and operational risk as determined in part by risk parameters estimated by that organisation, such as a loan's probability of default and its expected loss given default.

Basel II consists of three mutually reinforcing pillars: minimum capital requirements, supervisory review process and market discipline. Within the three pillar approach, minimum capital requirement seeks to develop and expand on the standardised rules

set forth in the 1988 Accord, supervisory review of a bank's capital adequacy and internal assessment process, and effective use of market discipline as a lever to strengthen disclosure and encourage safe and sound banking practices, has been designed to strengthen the international financial architecture.

The First Pillar – Minimum Capital Requirements

In the revised capital framework, the importance of minimum regulatory capital requirements continues to be recognized as the first pillar of the framework[5]. The measures for credit risk are more complex, market risk is the same, while operational risk is new.

Credit Risk

With regard to minimum capital requirements for credit risk, a modified version of the existing Accord has come to be known as the 'standardised' approach. The alternative methodology, which is subject to the explicit approval of the bank's supervisor, would allow banks to use their internal rating systems for credit risk. For some sophisticated banks, use of internal credit ratings and, at a later stage, portfolio models could contribute to a more accurate assessment of a bank's capital requirement in relation to its particular risk profile. The capital treatment of a number of important credit risk mitigation techniques, risk reducing effects of guarantees, credit derivatives, and securitisation, is also provided under Pillar 1, thus improving regulatory capital incentive for banks to hedge portfolio credit risks.

The Standardized Approach

Under the standardised approach, one of the main innovations relative to the 1988 Accord is the use of external ratings agencies to set the risk weights for corporate, bank and sovereign claims. More specifically, the new proposals include tables defining 'buckets' of ratings for corporate and for sovereign credits to translate a particular rating into a risk weight. The approach is most clear for corporates. The rules for claims on banks are slightly more complex than those of corporates. One alternative allows banks to be rated one notch worse (*i.e.*, one risk weight category higher) than the sovereign but with a cap at a risk.

For sovereigns, there are slightly different buckets in the basic approach but there are also some special rules that apply. For example, at national discretion, there is a special rule for claims on the sovereign of the country where the bank is incorporated where the claim is denominated in the currency of the sovereign and also funded in that currency (*i.e.*, loans to sovereigns funded and lent in the domestic currency). At first sight this allows banks in emerging countries to lend to their Governments (or hold bonds in an investment account) with a zero or low capital charge. However, in many emerging countries such loans and bonds are often expressed in dollars or other non -local currencies, and these would not then attract this special treatment. In this case, credit extended to a Government of an emerging country would attract the capital charge given the rating of the sovereign. It is not entirely clear what the treatment would be in Ecuador, El Salvador or Panama (3 dollarized countries) or for that matter for the countries of EMU. If the special treatment exists because the 'credit risk' of a local currency claim will, in general, be less than that of a foreign currency claim when there is a devaluation or sharp depreciation of the local currency then this suggests the special treatment should not be extended to dollarized countries or members of EMU and this takes as a given that any currency risk mismatch is treated in an appropriate manner separately. The view that local currency claims are different because of the existence of a lender of last resort appears to confuse 'credit risk' with liquidity considerations and suggests that banks' capital requirements should explicitly reflect the fact that Governments would deflate away debts that goes against any credible commitment to, say, an inflation target.

Internal Rating Approach

Under the internal rating approach banks may employ their own opinions regarding borrowers in setting capital requirements. More specifically, there are a set of basic parameters that banks may estimate and then feed into a formula to determine actual risk weights. Two crucial parameters required are the probability of default (PD) and the loss given default (LGD). Two alternative approaches are proposed (1) a foundation and (2) an advanced approach. Under the foundation approach banks determine the probability of default and all other

parameters are essentially set by supervisory rules. Under the advanced approach, banks may also determine the loss given default (LGD). Other parameters also important for the calculation of the actual risk weight, including in some cases the maturity of the transaction and the exposure at default (EAD) are determined by supervisory rules under both alternatives.

Besides, proposals to develop a capital charge for interest rate risk in the banking book for banks, where interest rate risk is significantly above average, have also been provided.

Operational risk

Operational risk has been defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk, whereby legal risk includes, but is not limited to, exposures to fines, penalties, or punitive damages resulting from supervisory actions, as well as private settlements. The framework outlines three methods for calculating operational risk capital charges in a continuum of increasing sophistication and risk sensitivity: (i) the Basic Indicator Approach; (ii) the Standardised Approach; and (iii) Advanced Measurement Approaches (AMA). Banks are encouraged to move along the spectrum of available approaches as they develop more sophisticated operational risk measurement systems and practices.

The Second Pillar – Supervisory Review Process

Pillar 2 (Supervisory Review Process) requires banks to implement an internal process for assessing their capital adequacy in relation to their risk profiles as well as a strategy for maintaining their capital levels, *i.e.*, the Internal Capital Adequacy Assessment Process (ICAAP). On the other hand, Pillar 2 also requires the supervisory authorities to subject all banks to an evaluation process and to impose any necessary supervisory measures based on the evaluations.

A significant innovation of the revised framework is the greater use of assessments of risk provided by banks' internal systems as

inputs to capital calculations. Each supervisor is expected to develop a set of review procedures for ensuring that banks' systems and controls are adequate to serve as the basis for the capital calculations. There are three main areas that might be particularly suited to treatment under Pillar 2: risks considered under Pillar 1 that are not fully captured by the Pillar 1 process (e.g. credit concentration risk); those factors not taken into account by the Pillar 1 process (e.g. interest rate risk in the banking book, business and strategic risk); and factors external to the bank (e.g. business cycle effects). A further important aspect of Pillar 2 is the assessment of compliance with the minimum standards and disclosure requirements of the more advanced methods in Pillar 1, in particular the internal rating based (IRB) framework for credit risk and the advanced measurement approaches for operational risk. Supervisors must ensure that these requirements are being met, both as qualifying criteria and on a continuing basis. Four key principles of supervisory review were identified, based on the Core Principles for Effective Banking Supervision and the Core Principles Methodology. First, 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. Second, 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. Third, 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. Fourth, 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.

The Third Pillar – Market Discipline

The third pillar is a set of disclosure requirements included in the Basel II framework to allow market participants assess the capital adequacy of the institution based on information on the scope of

application, capital, risk exposures, risk assessment processes, *etc*. Such disclosures are of particular relevance keeping in view the greater discretion allowed to banks in using internal methodologies for assessing capital requirements under Pillar 1. Supervisors have different powers available to them under Pillar 2, ranging from 'moral suasion' to reprimands or financial penalties, that they can use to make banks to make such disclosures. Market discipline can contribute to a safe and sound banking environment, and complement the minimum capital requirements (Pillar 1) and the supervisory review process (Pillar 2).

Banks should have a formal disclosure policy approved by the board of directors that addresses the bank's approach regarding the disclosures they make, and the internal controls over the disclosure process. In addition, banks should implement a process for assessing the appropriateness of their disclosures, including validation and frequency. Several key banking risks to which banks are exposed, such as credit risk, market risk, interest rate risk and equity risk in the banking book and operational risk, and the techniques that banks use to identify, measure, monitor and control those risks such as disclosures relating to credit risk mitigation and asset securitisation, both of which alter the risk profile of the institution, are important factors market participants consider in their assessment of an institution.

Basel II: An Evaluation

Even though implementation of Basel II is in progress with approximately 57 countries adopting all or parts of the framework by end-2008, the major advantages and deficiencies in Basel II have been discussed widely by the practitioners, policymakers and academicians. The main incentives for adoption of Basel II are (a) it is more risk sensitive; (b) it recognises developments in risk measurement and risk management techniques employed in the banking sector and accommodates them within the framework; and (c) it aligns regulatory capital closer to economic capital. These elements of Basel II take the regulatory framework closer to the business models employed in several large banks. In Basel II framework, banks' capital requirements

are more closely aligned with the underlying risks in the balance sheet. Basel II compliant banks can also achieve better capital efficiency as identification, measurement and management of credit, market and operational risks have a direct bearing on regulatory capital relief. Operational risk management would result in continuous review of systems and control mechanisms. Capital charge for better managed risks is lower and banks adopting risk-based pricing are able to offer a better price (interest rate) for better risks. This helps banks not only to attract better business but also to formulate a business strategy driven by efficient risk-return parameters. Marketing of products, thus, becomes more focused/targeted.

The movement towards Basel II has prompted banks to make necessary improvement in their risk management and risk measurement systems. Thus, banks would be required to adopt superior technology and information systems which aid them in better data collection, support high quality data and provide scope for detailed technical analysis. For instance, the framework requires fundamental improvement in the data supporting the probability of default (PD), exposure at default (EAD) and loss given default (LGD). Basel II incorporates much of the latest 'technology' in the financial arena for managing risk and allocating capital to cover risk.

Basel II goes beyond merely meeting the letter of the rules. Under Pillar 2, when supervisors assess economic capital, they are expected to go beyond banks' systems. Pillar 2 of the framework provides greater scope for bankers and supervisors to engage in a dialogue, which ultimately will be one of the important benefits emanating from the implementation of Basel II. The added transparency in Pillar 3 should also generate improved market discipline for banks, in some cases forcing them to run a better business. Indeed, market participants play a useful role by requiring banks to hold more capital than implied by minimum regulatory capital requirements - or sometimes their own economic capital models - and by demanding additional disclosures about how risks are being identified, measured, and managed. A strong understanding by the market of Pillars 1 and 2 would make Pillar 3 more comprehensible and market discipline a more reliable tool for supervisors and the market.

According to a survey published by Ernst & Young, processes and systems are expected to change significantly, alongwith the ways in which risks are managed. Over three-quarters of respondents believed that Basel II will change the competitive landscape for banking. Those organisations with better risk systems are expected to benefit at the expense of those which have been slower to absorb change. Eighty-five per cent of respondents believed that economic capital would guide some, if not all, pricing. Greater specialisation was also expected, due to increased use of risk transfer instruments. A majority of respondents (over 70 per cent) believe that portfolio risk management would become more active, driven by the availability of better and more timely risk information as well as the differential capital requirements resulting from Basel II. This could improve the profitability of some banks relative to others, and encourage the trend towards consolidation in the sector.

Limitations of Basel II

The Basel II framework also suffers from several limitations, especially from the angle of implementation in emerging economies. In its attempt to strive for more accurate measure of risks in banks, the simplicity of the 1988 Capital Accord has been replaced by a highly complex methodology which needs the support of highly sophisticated MIS/data processing capabilities. The complexity of Basel II also arises from several options available. The complexity and sophistication essential for banks for implementing the New Capital Accord restricts its universal application. Consequently, many of the countries that have voluntarily adopted Basel I also view these issues with considerable caution. While it is true that the Basel II framework is more complex, at the same time, it has also been argued that this complexity is largely unavoidable mainly because the banking system and related instruments that have evolved in recent times are inherently complex in nature. The risk management system itself has become more sophisticated over the time and applying equal risk weights (as done in the Basel I accord) may not be realistic anymore.

The more sophisticated risk measures unfairly advantage the larger banks that are able to implement them and, from the same

perspective, that the developing countries generally also do not have these banks and that Basel II will disadvantage the economically marginalized by restricting their access to credit or by making it more expensive.

In the standardised approach for credit risk measurement, rating agencies have been assigned a crucial role. Rating agencies move slowly, and changes in ratings, lag changes in actual credit quality, so that the ratings have a questionable ability to predict default (Altman and Saunders, 2001). Moreover, rating agencies have limited penetration in many emerging countries. In the absence of reliable ratings for different assets, banking industry will not be able to fully exploit the flexibility of Basel II and most credit risks will tend to end up in the unrated 100 per cent category and as a result there will be little change in capital requirements relative to Basel I. It has also been argued that in the case of standardised approach, unrated borrowers will have a lower risk weight (100 per cent) as compared to the lowest graded borrower (150 per cent) and this may lead to moral hazard problem with lower grade borrowers preferring to remain unrated. This may also lead to adverse selection. Concerns have also been expressed about the quality of rating agencies' judgements. Even in the developed economies, the recent sub-prime crisis has highlighted the problems relating to the role of rating agencies which is discussed in the following section.

Under the IRB approaches, greater reliance on banks' own internal risk ratings may be an improvement, but this is also not free from difficulties. Specifically, the proposal does not indicate how regulators will evaluate the accuracy of banks' own internal credit-risk ratings or how they would be translated into capital requirements. Nor does it explain how it would achieve comparability across the variety of internal rating systems in different banks. Most important, the proposal does not explain how regulators will enforce the ratings that banks produce or impose sanctions if the ratings turn out to be inaccurate and capital is insufficient or depleted. In any event, even if an effective enforcement mechanism is put in place, summing across risk buckets is just as deficient when the risk buckets are determined

by internal ratings as when they are determined by external risk ratings or the current arbitrary regulatory distinctions.

The interactions between regulatory and accounting approaches at both the national and international level to reduce, wherever possible, inappropriate disparities between regulatory and accounting standards which can have significant consequences for the comparability of the resulting measures of capital adequacy and for the costs associated with the implementation of these approaches. Keeping this in view, changes in the treatments of unexpected and expected losses, credit risk mitigation, treatment of securitisation exposures and qualifying revolving retail exposures, among others, are being incorporated.

A more serious criticism is that the operation of Basel II will lead to a more pronounced business cycle. This criticism arises because the credit models used for Pillar 1 compliance typically use a one year time horizon. This would mean that, during a downturn in the business cycle, banks would need to reduce lending as their models forecast increased losses, increasing the magnitude of the downturn. Regulators should be aware of this risk and can be expected to include it in their assessment of the bank models used. That the risk-based capital requirements are pro-cycle in nature (more capital is required in recessions because credit risk in banks' portfolios increases in cyclical downturns) was also recognised by the Basel Committee on Banking Supervision (BCBS). In a Consultative Paper issued by the BCBS in 1999, the Financial Stability Forum had raised the question whether several features of the new capital framework discussed by the BCBS could increase the cyclical fluctuations in the economy. In response, the BCBS confirmed that risk-based capital requirements were inevitably pro-cyclical, but could be addressed by different instruments. During the course of consultation, the Basel Committee maintained that various features of the risk weights of the IRB approach under Pillar 1 can be expected to mitigate its pro-cyclical impact. For example, the length of the observation period mandated for estimating PD is at least five years and that for LGD and EAD seven years, with the qualification that if the observations for any of

the sources used span a longer period, then the latter should be used. Basel II requires banks to estimate long run average PD and downturn LGD, which to a great extent reduced the variability of capital requirement with respect to business cycles. The greater allowance for eligible provisions can also be expected to reduce the importance in risk-weighted assets of defaulted loans during cyclical downturns, when such loans increase as a proportion of banks' portfolios. The Committee further recommended that national supervisors could also promote the use of internal models leading to lower pro-cyclicality. Measures such as through-the-cycles rating methodologies could also 'filter-out' the Imapct of business cycle on borrower rating. Supervisors could also prescribe additional capital under Pillar 2 during a business cycle expansion.

Challenges to Effective Implementation of Basel II

Apart from certain deficiencies of Basel II, its implementation presents several challenges, especially in emerging market economies. Data limitation is a key impediment to the design and implementation of credit risk models. Most credit instruments are not marked to market; hence, the predictive nature of a credit risk model does not derive from a statistical projection of future prices based on comprehensive historical experience. The scarcity of the data required to estimate credit risk models also stems from the infrequent nature of default events and the longer term time horizons used in measuring credit risk. Thus, in specifying model parameters, credit risk models require the use of simplifying assumptions and proxy data. One of the major challenges is the availability of long-time series and reliable data and information as also sophisticated IT resources. In view of these constraints, banks in emerging economies are forced to adopt the standardised approach.

Banks need to put in place sound and efficient operational risk management framework since this will be a focus under the Pillar 2. The most important Pillar 2 challenge relates to acquiring and upgrading the human and technical resources necessary for the review of banks' responsibilities under Pillar 1 by the supervisors. Other areas of concern include coordination of home and host supervisors

in the cross-border implementation of Basel II; issues relating to outsourcing; common reporting templates for easy comparability; and external benchmarks to be made available by the regulator, and to be used for comparison/self-evaluation for the risk components/ operational losses.

Aligning supervisory disclosures under Pillar 3 with international and domestic accounting standards has emerged as a major challenge. There are also issues relating to (i) reporting framework/disclosures in the context of risk appetite for the stated business objectives and risk management systems in place; and (ii) providing information, on the risks and the risk management systems in place, in the public domain which could be used for comparison among banks. Market discipline is not possible if counterparties and rating agencies do not have good information about banks' risk positions and the techniques used to manage those positions.

Full implementation of Basel II would require upgradation of skills both at the level of supervisory authority and the banks. Banks would be required to use fully scalable state of the art technology, ensure enhanced information system security and develop capability to use the central database to generate any data required for risk management as well as reporting. The emphasis on improved data standards in the revised accord is not merely a regulatory capital requirement, but rather it is a foundation for risk-management practices that will strengthen the value of the banking franchise.

The validation of credit risk models is also fundamentally more difficult than the backtesting of market risk models. Where market risk models typically employ a horizon of a few days, credit risk models generally rely on a timeframe of one year or more. The longer holding period, coupled with the higher target loss quantiles used in credit risk models, presents problems to model-builders in assessing the accuracy of their models. A quantitative validation standard similar to that in the Market Risk Amendment would require an impractical number of years of data, spanning multiple credit cycles.

The costs associated with Basel II implementation, particularly costs related to information technology and human resources, are

expected to be quite significant for both banks and supervisors. Even in the absence of Basel II, well managed financial institutions and regulatory authorities would have continued to update and improve their IT systems and risk management practices simply to keep pace with the evolving practices in the marketplace. However, Basel II has pushed banks and supervisors for development of human resource skills and IT upgradation. In this context, the challenge that banks are likely to face will have many facets, *viz*., assessing requirements, identifying and bridging the gaps, identifying talents, putting the available talents to optimum use, attracting fresh talents, retention of talents and change management.

Though, the Basel II framework aims to achieve common standards, its implementation also requires closer cooperation, information sharing and co-ordination of policies among supervisors. The existence of separate supervisory bodies to regulate different segments of the markets within a jurisdiction may create challenges in implementation of Basel II not only within a jurisdiction but also across jurisdictions. This is because when different market participants are regulated by separate supervisors, it is difficult to maintain comparable quality of policy formulation and vigilance. In many developing countries, only the banks are coming under the ambit of Basel II and not other financial services providers, thus creating some scope for regulatory arbitrage. As the main objective of the New Accord is to ensure competitive equality and providing a reasonable degree of consistency in application, it is necessary that supervisors across the globe should have a common definition of internationally active banks. Basel Committee may, therefore, define what constitute internationally active banks. For example, in Indian conditions, those banks with cross-border business exceeding 20-25 per cent of their total business may be classified as internationally active banks. The foreign banks in EMEs are the ones which would be implementing the advanced approaches of Basel II on a world-wide consolidated basis. However, the home-host regulatory and supervisory issues would get accentuated due to the greater scope for multiple regulatory treatments as also the several unresolved cross-border issues under the different Basel II approaches.

The risk weights/implied correlations for different exposures under standardised or IRB approaches are based upon certain assumptions which may not be applicable in the context of emerging economies. For instance, 35 per cent risk weight for mortgage lending is based upon PD estimates and LGD of developed European/US markets and may not be adequate as the losses in secured real estate lending in countries like Taiwan, Thailand and Indonesia have at times exceeded 35 per cent. Thus, the regulators in developing countries need to independently assess whether all the assumptions of Basel II framework are applicable to their domestic markets and modify them suitably, if required.

Countries that have already adopted Basel I and are complying with the reasonable minimum BCP (Basel Core Principles of Effective Banking Supervision), are in a better position to choose among the various alternatives offered under Basel II. In environments where banking supervision is weak as reflected in a poor BCP compliance, implementing sophisticated methods of calculating bank capital may pose challenges for the supervisors that far outweigh the benefits derived from more accurate calculation of bank risk and capital prescribed under Basel II. Furthermore, the thin regulatory resources have a tendency to deflect away from the priority areas. Such countries would need to adopt the BCP more fully and are advised to focus primarily on Basel Pillars 2 and 3. Though there is enough room for country specific adaptations, it should be borne in mind that such adaptations should not take away the essence of a 'standard'. The IMF (jointly with the World Bank), as a part of its financial sector assessment programs, have reviewed countries' compliance with the Basel Core Principles (BCP). In the course of 71 confidential assessments covering 12 advanced, 15 transition and 44 emerging economies, it was found that all advanced economies under consideration complied with the core principles regarding market risk and risk management. In contrast, 66 per cent of emerging economies and 53 per cent of transition economies did not comply with such principles. Given this level of compliance, the challenges that are likely to be faced by the emerging economies in implementing the Basel II framework is daunting indeed.

As countries are moving forward with Basel II implementation, supervisors are closely monitoring its impact on overall bank capital levels. A capital monitoring exercise is in place to track minimum capital requirements, actual capital buffers above the minimum and how the minimum requirements compare to Basel II floors. Analysis of the first data submissions will be available to the BCBS in the first quarter of 2009, and data will continue to be collected on an ongoing semi-annual basis.

Section III

Basel II in the light of the Current Financial Turmoil

In light of recent financial market turbulence, the importance of implementing Basel II capital framework and strengthening supervision and risk management practices, and improving the robustness of valuation practices and market transparency for complex and less liquid products, have assumed greater significance. Moreover, it has become indispensable to have robust and resilient core firms at the centre of the financial system operating on safe and sound risk management practices. The Basel II plays an important role in this respect by ensuring the robustness and resilience of these firms through a sound global capital adequacy framework along with other benefits including greater operational efficiencies, better capital allocation and greater shareholder value through the use of improved risk models and reporting capabilities.

The recent financial turmoil exhibited that even such technical analysis have their limitations, such as incomplete data or assumptions that have not been tested across business cycles. Therefore, quantitative assessment of risks also needs to be supplemented by qualitative measures and sound judgement.

The Financial Stability Forum (FSF)[6] made comprehensive proposals that were ratified in early April 2008 by the G-7 to be implemented over the next 100 days. The proposals include *inter alia* full and prompt disclosure of risk exposures; urgent action by setters

of accounting standards and other relevant standard setters to improve accounting and disclosure standards for off-balance sheet or entities and to enhance guidance on fair value accounting, particularly on valuing financial instruments in periods of stress; strengthening of risk management practices, supported by supervisors' oversight, including rigorous stress testing; and strengthening of capital positions as needed. In addition, the FSF emphasised on a number of proposals for implementation by end-2008 which include *inter alia* strengthening prudential oversight of capital, liquidity, and risk management under Basel II, especially for complex structured credit instruments and off-balance sheet vehicles; enhancing transparency and valuation for off-balance sheet entities, securitisation exposures, and liquidity commitments under the Basel Committee's guidance; enhancing due diligence in the use of ratings.

As part of its capital monitoring exercise, the BCBS would be tracking on an ongoing basis the impact of Basel II on bank capital levels. This will shed light on the effects of the proposed amendments to Basel II and help determine whether additional efforts are needed to strengthen capital in the banking system. In addition, BCBS members regularly exchange information on how supervisors are implementing the various aspects of Basel II and conducting model approvals in practice.

The BCBS has also launched a joint undertaking with the FSF to examine the impact of Basel II on the cyclicality of capital requirements and possible measures for mitigating it. The FSF will report to the G7 on progress with this work in April 2009.

The BCBS announced a comprehensive strategy on November 20, 2008 to address the fundamental weaknesses revealed by the financial market crisis related to the regulation, supervision and risk management of internationally-active banks. The primary objective was to strengthen capital buffers and help contain leverage in the banking system arising from both on- and off-balance sheet activities. The key building blocks of the Committee's strategy include the following:

- strengthening the risk capture of the Basel II framework (in particular for trading book and off-balance sheet exposures);
- enhancing the quality of Tier 1 capital;
- building additional shock absorbers into the capital framework that can be drawn upon during periods of stress and dampen procyclicality;
- evaluating the need to supplement risk-based measures with simple gross measures of exposure in both prudential and risk management frameworks to help contain leverage in the banking system;
- strengthening supervisory frameworks to assess funding liquidity at cross-border banks;
- leveraging Basel II to strengthen risk management and governance practices at banks;
- strengthening counterparty credit risk capital, risk management and disclosure at banks; and
- promoting globally coordinated supervisory follow-up exercises to ensure implementation of supervisory and industry sound principles.

Under Basel II, though liquidity risk is not reckoned explicitly as Pillar 1 risk, it is provided that a bank's Pillar 2 assessment should cover the full range of risks facing an institution, including liquidity risks. Effective liquidity risk management usually emerges as a challenge during periods of financial stress, when many markets become less liquid, making it difficult for some entities to fund themselves. In recent months, some of the well-known challenges associated with liquidity risk management became evident in the light of the US sub-prime crisis and the failure of the Northern Rock bank in the UK. Even banks with strong capital base experienced liquidity problems as they did not have a strong liquidity risk management system in place. The adequate stress and scenario testing for potential asset expansions arising from liquidity shocks becomes crucial to

communicate to market participants about their risk profiles. The BCBS has already initiated the process of assessment of the weaknesses identified by the recent crisis with a view to setting global standards for liquidity risk management and supervision, and integrating it more closely with other risk management disciplines. After issuing a public consultation document in June, the BCBS released in September Principles for Sound Liquidity Risk Management and Supervision. The Principles materially raise standards for sound liquidity risk management and measurement – including the capture of off-balance sheet exposures, securitisation activities and other contingent liquidity risks that were not well managed during the turmoil. The Principles underscore the importance of establishing a robust liquidity risk management framework that is well integrated into the bank-wide risk management process. Key elements of a bank's governance of its liquidity risk management are also emphasised. Moreover, the document sets out principles to strengthen the measurement and management of their liquidity risk, which include *inter alia*, the requirement of a bank to: (i) maintain a cushion of unencumbered, high quality liquid assets as insurance against a range of stress scenarios; (ii) actively manage its intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed conditions, and thus contribute to the smooth functioning of payment and settlement systems; (iii) conduct regular stress tests for a variety of short-term and protracted institution-specific and market-wide stress scenarios and use the outcomes to develop robust and operational contingency funding plans; and (iv) ensure the alignment of risk-taking incentives of individual business lines with the liquidity risk exposures the activities create.

The Principles highlight the key role of supervisors, including the responsibility to intervene to require effective and timely remedial action by a bank to address liquidity risk management deficiencies. The Principles also stress the need for regular communication with other supervisors and public authorities, both within and across national borders. They also recommend regular public disclosure that enables market participants to make an informed judgement about

the soundness of a bank's liquidity risk management framework and liquidity position. The guidance focuses on liquidity risk management at medium and large complex banks, but the sound principles have broad applicability to all types of bank. The document notes that implementation of the sound principles by both banks and supervisors should be tailored to the size, nature of business and complexity of a bank's activities. Other factors that a bank and its supervisors should consider include the bank's role and systemic importance in the financial sectors of the jurisdictions in which it operates. The BCBS expects banks and supervisors to implement the Principles thoroughly and quickly, and will assess progress in this area. It will also start to examine possible steps to promote more robust and internationally consistent liquidity approaches for cross-border banks. This will include assessing the scope for further convergence of liquidity supervision.

The Basel Committee on Banking Supervision issued a package of consultative documents to strengthen the Basel II capital framework on January 16, 2009. These enhancements are part of a broader effort the Committee has undertaken to strengthen the regulation and supervision of internationally active banks in light of weaknesses revealed by the financial markets crisis. The proposed changes to capital requirements cover: (i) trading book exposures, including complex and illiquid credit products; (ii) certain complex securitisations in the banking book [for example, collateralised debt obligations (CDOs) of asset backed securities (ABS)]; and (iii) exposures to off-balance sheet vehicles (*i.e.*, asset-backed commercial paper conduits).

The Committee is also proposing standards to promote more rigorous supervision and risk management of risk concentrations, off-balance sheet exposures, securitisations and related reputation risks. Through the supervisory review process, the Committee is promoting improvements to valuations of financial instruments, the management of funding liquidity risks and firm-wide stress testing practices. In addition, the Committee is proposing enhanced disclosure requirements for securitisations and sponsorship of off-balance sheet

vehicles, which should provide market participants with a better understanding of an institution's overall risk profile.

The Committee proposes that the capital requirements for the trading book be implemented in December 2010 while the other improvements, including those related to risk management and disclosures, be introduced by the end of 2009.

The BCBS is developing for consultation by end-2008 proposed guidance to further strengthen Pillar 3 disclosure requirements under Basel II for securitisation and resecuritisation exposures, sponsorship of off-balance sheet vehicles, liquidity commitments to ABCP conduits, valuations with regard to securitisation exposures and pipeline and warehousing risks. This effort is well underway and is also drawing from leading practice risk disclosures that banks are providing in response to the FSF recommendations. The BCBS plans to issue final guidance in 2009.

The BCBS is developing guidance to enhance the supervisory assessment of corporate governance and controls over banks' valuation processes and related risk management and capital adequacy issues. The guidance will reinforce sound bank valuation practices and address approaches supervisors should take when deficiencies are identified. The drafting effort is well underway and further dialogue is planned with securities markets regulators as part of the development process. Furthermore, the BCBS plans to address improved valuation disclosures as part of proposed amendments to the disclosure requirements of Pillar 3 of Basel II. These proposed changes are part of the Committee's broader work programme, as set out in its November 20, 2008 press release, to strengthen in a fundamental way bank capital adequacy, risk management and supervision. In particular, this includes assessing ways to mitigate procyclicality, for example, by promoting capital buffers above the regulatory minimum that can be drawn upon during periods of stress. These efforts are in support of the April 2008 recommendations of the Financial Stability Forum and the G-20's November 2008 action plan.

Section IV

Conclusion

The Capital Accord of 1988, which set global standards for regulation and supervision, has emerged as one of the most significant developments in strengthening the soundness and stability of the international financial system. The biggest contribution of the Basel Accord has been to arrive at a common definition of capital. Though the capital adequacy norms have been adopted in different countries with certain country-specific adaptations, the definition of capital given by the Basel Committee has been adopted almost uniformly across countries and has also been adopted in the new framework. Basel I served regulators and banks well for many years. However, for large and complex banking organisations, it increasingly failed to adequately align regulatory capital required with the underlying risks. There had been growing evidence of reduction in the Accord's effectiveness caused by financial innovations and some risks other than credit risk in the banking business, notably interest rate risk and the investment risk on securities, and operational risk. Subsequently, the Accord was fine-tuned to take in to account factors which were not considered initially for assessing overall capital adequacy. This, together with a better understanding of the conceptual shortcomings in the original Accord, led to a redesign of the framework which finally emerged as Basel II or the New Capital Adequacy Framework.

Basel II represents a fundamental shift in the regulatory capital framework by aligning the capital requirements with underlying risks through enhanced risk measurement techniques and encouraging banks to develop a more disciplined approach to risk management. Recognizing the need for a more broad-based and flexible framework, the new framework calls for better alignment of regulatory capital with underlying risks by replacing the earlier broad-brush approach with preferential risk weighting treatment. The framework provides for explicit capital charge for other risks *viz.*, operational risk and interest rate risk in the banking book for banks where interest rate risks are significantly above average (outliers). The revised framework

also aims at promoting the adoption of stronger risk management practices by the banking industry, and provide for a menu of options to be adopted by the banks and the regulators, the biggest challenge remains that of differential treatment to different groups of financial institutions, while at the same time preserving the benefits of a framework that can be applied as uniformly as possible at the national level.

The Basel II framework is a significant improvement over the Basel I rules in the incentives it provides for sound risk management practices, its alignment of minimum capital requirements with risks banks face, and its flexibility to be adapted to and address evolving risks from financial innovation. It is critical that the minimum capital requirements of the first pillar be accompanied by a robust implementation of the second, including efforts by banks to assess their capital adequacy and by supervisors to review such assessments. The second pillar is aimed at enabling early supervisory intervention if capital does not provide a sufficient buffer against risk. In addition, the disclosures provided under the third pillar of this Framework is intended to enhance the role of market participants in monitoring banks, and thereby ensuring that market discipline serves as an effective complement to the other two pillars. Supervisors should assess the need for additional capital buffers or supplementary measures of capital strength as a complement to risk-based measures. Basel II, therefore, would help in promoting the safety and soundness of the banking system. However, in view of the recent financial market turmoil, a number of modifications have been suggested in the Basel II framework. These measures need to be evaluated in terms of their ability to prevent future crises. Several countries have proposed or are considering such supplementary measures, including in the form of a balance-sheet leverage ratio, to better contain leverage in the system, guard against risk measurement errors and strengthen banks' overall shock absorption capacity. However, the insistence on holding higher capital by banks may lead to deepening of recession, as cautioned by Jean-Claude Trichet, the President of the European Central Bank at the World Economic Forum Meet, 2009. In this context, the observation of the Reserve Bank of India Deputy

Governor 'understanding Basel II concepts is one step away from agreeing to it in principle. Implementing Basel II is another long step away from understanding it' appears to be pertinent[7]. The recent turmoil in credit markets has displayed some of the deficiencies in the Basel II framework, and even after the changes recently announced by the Basel Committee are formalised, it is still uncertain whether the amendments could provide a complete solution for evaluating bank capital objectively. However, as Caprio and Honohan (1999) remind us, 'bank regulation must be seen as an evolutionary struggle and regulatory innovation will remain a constant challenge'.

Note :

1 It consisted of senior representatives of bank supervisory authorities and central banks from 13 countries, *viz*., Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States.

2 *Core Principles for Effective Banking Supervision*, which the Basel Committee on Banking Supervision (the Committee)1 originally published in September 1997 was revised in October 2006 in view of the significant changes in banking regulation, experience gained with implementing the Core Principles in individual countries, and new regulatory issues, insights and gaps in regulation since 1997.

3 The revised and updated document was released in 1998 and apart from the July 1988 text of the Basel Capital Accord contains five textual changes reflecting the November 1991 amendment (concerning general provisions);? the July 1994 amendment (concerning the qualification for the OECD risk weighting); ?the April 1995 amendment to Annex 3 (concerning certain off-balance-sheet items) and claims collateralised by securities issued by OECD non-central government public-sector entities; the April 1998 amendment (concerning the list of assets eligible for a 20 per cent risk weighting); and removal of references to transitional and implementation arrangements.

4. The objective of the impact study is to assess whether the Committee has met its goals with regard to the New Basel Capital Accord.

5. (Total capital) / (Credit risk + market risk + operational risk) >= 8 per cent minimum capital ratio.

6 A forum of select senior representatives of national financial authorities including central banks, supervisory authorities and treasury departments, international financial institutions, international regulatory and supervisory groupings and committees of central bank experts.

[7] Kishori J. Udeshi, Deputy Governor, Reserve Bank of India at the World Bank/ IMF/US Federal Reserve Board 4th Annual International Seminar on Policy Challenges for the Financial Sector : Basel II at Washington on June 2, 2004.

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