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Basel Committee's Reforms and Capitalization of Indian Banking

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ABSTRACT

An important lesson from the financial crisis points to the need for banks to improve and strengthen their capital planning processes. The Basel Committee on Banking Supervision provides a forum for regular cooperation on banking supervisory matters. Its objective is to enhance understanding of key supervisory issues and improve the quality of banking supervision worldwide. The Basel Committee III presents sound practices observed at some banks to foster overall improvement in the capital planning processes of banks required to implement the Basel III framework. It is not intended to outline a one-size-fits-all approach to capital planning, as it is understood that banks would need to adopt solutions that are tailored to their individual circumstances (BCBS, 2010). Indian banking system has withstood the pressure of global financial turmoil because of: (i) upsurge in domestic saving rate, and (ii) improvement in the capital to risk-weighted assets ratio (CRAR). The various factors that led to and precipitated the crisis are now well known and documented. Therefore, this paper does not discuss the causes of the financial crisis but focuses on the actions taken so far by the government, central bankers and regulators over the last one year for strengthening financial regulation and supervision. This paper investigates the proximately explanatory factors behind the cross country differentials in the capital to risk weighted assets ratio. The paper discusses the various risks in the banking systems that they have to face in order to survive in the competitive era.

Keywords: *Basel committee on Banking Supervision (BCBS), Risk Based Supervision (RBS), Capital Assets, Assets Quality, Management, Earnings, Liquidity and System and Control (CAMELS)*

1. CONCEPTUAL FRAMEWORK

Global regulatory reforms initiated in 2009 to strengthen the financial sector and to support sustainable economic growth by reducing future risks progressed in many areas. Formulation of policies regarding the Basel III framework, systemically important financial institutions (SIFIs) and financial market infrastructures have seen substantial progress in the recent period(RBI Report, 2012-13: 26)

The Basel Committee's reforms are to strengthen global capital and liquidity rules with the goal of promoting a more resilient banking sector. The objective of the reforms is to improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spill over from the financial sector to the real economy (BIS, 2013).

The capital adequacy ratio is the percentage of bank's capital funds in relation to the Risk Weighted Assets of the bank. It focused on the total amount of bank capital so as to reduce the risk of bank solvency at the potential cost of bank's failure for the depositors. The concept of capital adequacy in Indian banking system had not gained much attention during the early seventies. The same was not felt to be necessary as ownership of the banks rested with the government, creating the required confidence in the mind of the public. Earlier, various groups of banks were subjected to different minimum capital requirements are prescribed in the statues under which they were set up to operate. Capitalization in Indian banking system by Government has undergone three phases which are as under:

1.1 The First phase

The first phase of capitalization of banks was introduced in the early 1980. The main purpose of this capitalization was to enhance profit/profitability of banks. In this phase, Government provided capital in good measure, but it was provided more to the weaker banks. Under this phase, Government did not act as a prudent investor, since return on capital provided was never a consideration. Moreover, capital infusion did not result in any cash flow as all the capital was required to be reinvested in securities bearing 7.75 per cent interest. The only advantage to the banks was the receipts of interest income from the securities.

1.2 The Second Phase

The second phase of capitalization took place with the introduction of prudential norms in the post Basel Committee recommendation era, when there was worldwide pressure to attain a minimum capital adequacy of 8 percent.

Before new economic policy 1991, the nationalized banks had only two sources of augmenting capital: (i) contribution of the government by virtue of their sole ownership, and (ii) by means of internal accruals i.e., profits.

Augmenting of capital by means of internal accruals was not really an option, as most of the banks

suffered on profitability front owing, inter alia, to (i) high pre-emption of resources through CRR/SLR, (ii) very low returns on CRR/SLR (iii) high levels of subsidized direct lending. Besides, specific directions to pay dividend to the government also came in the way of capital accretions. Consequently, there remained only one sources for capital augmentation for banks i.e., government contribution.

The risk weighted assets approach entered the Indian banking system following the recommendations of the Narasimham Committee (1991), which advocated the application of Bank for International Settlement (BIS) standard of capital adequacy in a phased manner to enable Indian banks to face new market reality, where certain minimum capital adequacy has to be maintained in the face of stiff norms in respect of asset classification, income recognition and provisioning.

1.3 The Third Phase

This phase emphasized on capitalization of weaker banks only. Under this, budgetary provisions were made to the tune of Rs.5600 crore for the recapitalization of loss making banks during 1994-95. Similarly, a budgetary provision of Rs. 909 crore was made for recapitalization of banks during 1996-97, Rs.2700 crore during 1997-98, another Rs.400 crore during 1998-99. The RBI in its Annual Policy Statement of April 2009 has proposed to introduce CRAR for Regional Rural Banks (RRBs) in a phased manner, taking into account the status of recapitalization and amalgamation. The Government of India has consistituted a committee to examine the financials of the RRBs to 9 per cent by March 2012 (RBI Monthly Bulletin, November 2009, 2057).

"The World Bank will extend $4.3 billion loan to four projects, including $2 billion for recapitalization of public sector banks like OBC, Punjab National Bank, Dena Bank, UCO bank and United Bank of India to recapitalize them through infusion of capital. The assistance would bolster infrastructure investments enable public sector banks to expand credit, and strengthen proper transmission networks to meet the growing demand" (World Bank release 2009). Today's support will help maintain credit growth and continued infrastructure investments. Supporting infrastructure is particularly important during the current crisis, not just to sustain the domestic economy at a time of reduced global demand, but even more to lay the foundations for stronger future growth", (Rober, Sept. 25, 2009).

The forces of globalization and operations of international financial system has evolved rapidly in recent years, under the impact of revolution in information technology and the associated increase in competition, combined with difficult financial conditions in the early 1980s, put downward pressure on profit margins and capital ratio. In this period, national and international financial system have witnessed several significant developments in the area of prudential regulation and banking supervision. The growing concern of commercial banks regarding international competitiveness and capital ratios led to the formation of the Basel Accord of 1988 popularly known as Basel Committee or Cooke's Committee (Pal, Rajesh, 2009, 275).

2. BASEL COMMITTEE ON BANKING SUPERVISION

2.1 Basel I

The 1988 Accord on capital Adequacy stipulated a uniform 100 per cent risk weight for credit risk. In 1988, the Basel Committee on Banking Supervision (BCBS) introduced risk-based capital adequacy norms through the Basel I Accord. The first capital accord of 1988 played a significant role in strengthening the soundness and stability of the financial system by providing a broad framework for making a fair and constant comparison of capital standard across different countries on the basis of a shared and universally accepted definition of capital. Basel I recommended that a bank's capital to risk weighted assets ratio (CRAR) should be at least 8 per cent. There was general dissatisfaction with the 'one-size-fits-all' aspect of the capital adequacy ratio and need for capital based on the riskiness of borrowers was expressed. It was also felt that more capital needed to be allocated for off balance sheet commitments and securitization (Jagirdar, Brinda, 2004, 422-423). Under the initial Basel I norms, assets were risk weighted according to their credit risk. The Committee adopted weighted risk assets approach, which assigns weights to both on and off balance sheet exposures of a bank according to their perceived risk as the method for measuring capital adequacy. The fundamental objectives of stipulating capital adequacy based on risk weighted assets were to:

a. Ensure the strength, soundness , and stability of the banking system; and
b. Ensure a fair and high degree of consistency in its application to banks in different countries with a view to create competitive equality among the international banks (Rai, Rita, 2004, 364).

Through an amendment in 1996, market risk was incorporated in the weighing scheme of Basel I along with credit risk, while other risks were left out. All these concerns have been addressed in the new framework for capital adequacy, popularly known as Basel II.

2.2 Basel II

Basel I required lenders to calculate a minimum level of capital based on a single risk weight for each of the

limited number of assets classes. Under Basel II, the capital requirements are more risk sensitive. In July 1999, BCBS initiated the process of replacing the Basel I framework with a revised version, the Basel II. Under Basel II, the measurement of credit risk and market risk has been retained while the measurement of operational risk has been added in calculating the CRAR.

All commercial Banks in India excluding RRB and Local Area Bank (LAB) have become the Basel II compliant as on March 31, 2009. Out of 80 banks, all banks except Bank International Indonesia and Sonali Bank have reported CRAR under Basel II and 14 banks have not reported CRAR under Basel I. A frequency distribution based on data of 64 banks, which have reported CRAR under both Basel I & Basel II, suggests that 12 per cent to 15 per cent is the modal range of CRAR (Table 1)

Table 1: Distribution of Banks based on CRAR

CRAR (Per cent)	Number of banks as on March 31, 2009					
	Basel I			Basel II		
	Indian	Foreign	Total	Indian	Foreign	Total
9 – 12	12	0	12	6	0	06
12 – 15 (modal range)	26	04	30	29	04	33
15 - 18	02	02	04	05	04	09
18 - 21	02	02	04	02	0	02
21 - 24	01	0	01	01	01	02
24 - 27	0	0	0	0	03	03
27 - 30	0	02	02	0	0	0
30 - 33	0	02	02	0	0	0
33 and above	01	08	09	01	08	09
Total	44	20	64	44	20	64

Source: RBI Report on Trend & Progress of Banking in India, 2008-09.

To begin with Standardized Approach for credit Risk Basic Indicator Approach for operational Risk and Standardized Duration Approach for market risk have been implemented in India for computing their capital requirements under the revised framework at end March 2009. However, the implementation of advanced approaches under the Basel II framework is expected to bring about the up-gradation of risk management framework and also capital efficiency to the Indian Banking System (RBI Report, 2008-09, 66). The Reserve Bank has laid down a timeframe for implementation of these approaches, which is provided in Table 2.

Table 2: Timeframe for the Adoption of Advanced Approaches under Basel II

	Approach	The earliest date of making application by banks to the Reserve Bank	Likely date of approval by the RBI
a.	Internal Model Approach (IMA) for Market Risk	April 1, 2010	March 31, 2011
b.	The Standardized Approach (TSA) for Operational Risk	April 1, 2010	September 30, 2010
c.	Advanced Measurement Approach (AMA) for Operational Risk	April 1, 2012	March 31, 2014
d.	Internal Ratings-Based (IRB) Approaches for Credit Risk (Foundation as well as Advanced IRB)	April 1, 2012	March 31, 2014

Source: RBI Report on Trend & Progress of Banking in India 2008-09.

In the BIA, an estimate of the capital charges for operational risk is provided by averaging over a fixed

percentage of positive annual gross income of the bank over the previous three years. In this estimate, negative incomes are excluded. Under the Standardized Approach at first, the banks' business activities are divided into eight business lines. For each business line, a capital charge is calculated by multiplying the gross income of the business line by a factor. (This factor is called β factor, and pre-fixed by BCBS for each business line. For more refer to BCBS (2006). A capital charge for each business line is thus calculated for three consecutive years. The overall capital is calculated as the three year average of the simple summation of the charges across business lines in each year.

Under the Advanced Measurement Approach, a bank can, subject to supervisory approval, use its own mechanism to determine capital requirement for operational risk. The final formula for CRAR is as follows (Sarma, Mandira, 2007, 3365):

$$\text{CRAR} = \frac{\text{Tier I capital + Tier II capital + other eligible capital}}{\text{RWA for credit risk + RWA for market risk + RWA for operational risk}}$$

The biggest change is proposed in the system of risk weighting so that the rate of interest that a borrower is charged must reflect the riskiness of the underlying assets. Therefore, instead of a one-size-fits-all approach (100 per cent), the committee has proposed reduction in risk weight for certain high quality assets (20 per cent, 50 per cent) and increase in risk weight for lower quality assets e.g. venture capital and private placement (100 per cent and 150 per cent).

In 1996 Goldstein provides capital (Table 3). He argued that governments in developing countries, with few exceptions, have not set national capital standards much above the Basel minimum norm and their banks have not held actual capital much above that for banks in countries with significantly more stable operating environments.

Table 3: Required and Actual Capital Ratios : 1995

Country	Capital Adequacy Ratio (national requirements)	Actual Risk-based Capital Ratio
Argentina	12	18.5
Chile	8[a]	10.7
Brazil	8	12.9
Mexico	8	11.3
Indonesia	8	11.9
Malaysia	8	11.3
Thailand	8	9.3
India	8	9.5[b]
Japan	8	9.1
United States	8	12.8

Note: a. Legislation now before Congress
b. Relates only to public sector banks
Source: RBI Reports on Trend and Progress of Banking in India, 1998-99
Original source: Goldstein (1996)

Such criticism seems to have led the Basel Committee on Banking Supervision to propose the new consultative paper on capital adequacy framework in July 1999 which aims to reduce risk exposure of banks,

strengthen financial soundness and improve profitability of the financial system. Basel II is founded on three pillar approach comprising (a) risk-based capital (b) risk-based supervision, and (c) disclosure of risks to enhance market discipline. It provides spectrum of approaches for the measurement of credit, market and operational risk to determine the required capital (RBI Report 1998-99, 17-18).

Basel II norms, recommended by Basel Committee on Banking supervision require banks to put aside a specified proportion of capital to guard against financially and operational risks. Furthermore, the minimum capital maintained by banks on implementation of the revised framework will be subjected to a prudential floor, which shall be higher of the following amounts: (a) minimum capital required to be maintained as per the revised framework; (b) a specified per cent of the minimum capital required to be maintained as per the Basel I framework for credit and market risks. The specified per cent will progressively decline as indicated in Table 4.

Table 4: Prudential Floor

Financial year ending*	March 2009	March 2010	March 2011
Prudential floor (as % of minimum capital requirement computed as per current (Basel I) framework for credit and market risks)	100	90	80

Note: * The relevant periods shall be March 2009, March 2010 and March 2011 for banks implementing the

revised framework with effect from March 31, 2009.

Source: RBI Report on Trend and Progress of Banking in India, 2008-09.

3. ENHANCEMENT TO THE BASEL II FRAMEWORK

Global financial meltdown brought the growth rate to 5.8 per cent during second half of 2008-09 largely because of lower export demand and shrinking foreign liquidity (Thorat, Usha, 2009, 1717). However, Indian banking system has withstood the pressure of global financial turmoil because of (i) upsurge in domestic saving rate (23.5 per cent in 2001-02 to 37.7 per cent in 2007-08) supporting the step up in investment rate (from 22.8 per cent to 39.1 per cent) in an environment of moderate inflation and macroeconomic stability, and (ii) improvement in the CRAR. The overall CRAR of all SCBs improved to 13.2 per cent at the end March 2009 from 13.0 per cent a year ago, thus, remaining significantly above the stipulated minimum of 9.0 per cent. The rise in CRAR was mainly due to maintenance of high growth rate of Tier II capital of banks (28.9 per cent from 27.2 per cent last year), notwithstanding deceleration in growth rate of both the Tier I capital (17.0 per cent from 41.4 per cent last year and that of risk weighted assets (18.4% from 29.7 per cent last year) Table 5.

Table 5: Scheduled Commercial Banks – Component wise CRAR
(As at end March)
(

Item / End-March			2008	2009
A.	Capital Funds (i+ii)		4,06,835	4,88,653
	i)	Tier-I Capital	2,83,339	3,31,513
		of which : paid-up capital	41,178	46,339
		Reserves	2,40,248	2,55,793
		Unallocated/Remittable Surplus	23,846	53,336
		Deductions for Tier-I capital	21,933	19,576
	ii)	Tier-II Capital	1,23,496	1,57,141
		of which : Discounted Subordinated Debt	73,297	86,396
B.	Risk-Weighted Assets		31,28,093	37,05,166
	of which : Risk-weighted Loans and advances		21,66,234	25,67,787
C.	CRAR (As per cent of B)		13.0	13.2
	Of which : Tier – I Tier - II		9.1 3.9	8.9 4.2

Source: RBI Report on Trend & Progress of Banking in India, 2008-09.

The various factors that led to and precipitated the crisis are now well known and documented and I do not want to discuss all these. What I would like to do is to discuss the actions taken so far by the governments, central bankers and regulators over the last one year for strengthening financial regulation and supervision. Traditionally, banks held capital as buffer against insolvency, and liquid assets–cash and securities–to guard against unexpected withdrawal by borrowers (Saidenberg and Strahn, 1999). It is now argued that capital that needs to be maintained should be consisted with the risk profile and operating environment. The Basel II framework is a step in this direction as those norms aim at aligning minimum capital requirement to banks' underlying risk profiles (RBI Report 2008-09, 137)

In July 2009, the Basel Committee on Banking Supervision (BCBS) had finalized enhancement and revisions in certain areas of the Basel II framework. The enhanced/revised guidance of BCBS is contained their three documents, which are enumerated below:

a. Enhancement to the Basel II framework
b. Revision to the Basel II Market Risk Framework, and
c. Guidelines for computing capital charge for Incremental Risk in the Trading Book.

These enhancements and revisions are intended to strengthen the framework and respond to lessons learnt from the global financial crisis occurred in August 2007 (RBI Monthly Bulletin, November 2009, 2062).

In August 2009, two important statements were issued- one issued by the Basel oversight body- the Group of Governors and Head of supervision and the other by the G20 Finance Ministers and Governors. The Basel oversight body issue a press released on a comprehensive set of measures to strengthen, regulation, supervision and risk management of the banking sector. These measures include:

- Raising the quality, consistency and transparency of the Tier I capital base. All components of the capital base will be fully disclosed.
- Introduction of minimum global standard for funding liquidity.
- Introduce a leverage ratio as supplementary measure to the Basel II risk-based framework with a view to migrating to Pillar I treatment based on appropriate review and calibration.
- Prescribe a framework for counter cyclical capital buffers above the minimum requirement. The framework will include capital conservation measures such as constraints on capital distributions.
- Assess the need for a capital surcharge to mitigate the risk of systematic banks (Thorat, Usha, October 2009, 1713).

In order to ensure transition to a higher level and quality of capital, supervisors will be encouraged to take actions to limit excessive dividend payment, share buybacks and compensation.

The G20 Finance Ministers and Central Bank Governors issued a statement on 5th September 2009 reaffirming their commitment to strengthen the financial system to prevent the build-up of excessive risk and future crisis and support sustainable growth (Thorat, Usha, October 2009, 1713). In developing the accounting principles, the Basel Committee closely examined the lesson learned from the financial crisis. One of those lessons is that any new accounting rules must be consistent with sound practices in risk management and enhance transparency to help supervisors, banks, investors and other stakeholders achieve their objectives. It also ensures that according standard and setters to work urgently with the supervisors and regulators to improve standards on valuation and provisioning and achieve a single set of high quality global accounting standards (RBI Report 2008-09, 8).

It was recognized that the Basel II framework seriously underestimated the capital needs for the trading book. Therefore, the Basel Committee issued a series of standards, for higher capital for the trading book, which are as follows:

- It has introduced new trading book capital rules that substantially raised trading book capital requirements.
- It prescribes higher capital requirements for resecuritisation and exposures to off-balance sheet vehicles.
- It has incorporated the Financial Stability Board (FSB) compensation standards into the pillar II supervisory review process and has enhanced Pillar III disclosures focusing on trading activities, a securitizations and exposures to off-balance sheet vehicles.
- It has evolved principles for stress testing and valuation of complex products, as also for supervision and management of funding liquidity risk (Thorat, Usha, October, 2009 1713).

The RBI had issued guidelines on Asset Liability Management (ALM) in February 1999, which, inter alia, covered aspects relating to interest rate risk measurement. These guidelines to banks approached interest rate risk management from the 'earning perspective' using the traditional gap analysis (TGA). The Reserve Bank had, however, indicated its intention to shift to modern techniques of interest rate risk measurement such as Duration Gap Analysis (DGA), simulation and value at risk over a period of time, when banks acquire sufficient expertise and sophistication in this regard. With this move, banks would migrate to the application of the economic perspective 'to interest rate risk management. It is proposed to issue detailed guidelines on the use of DGA for management of interest rate risk by end November 2009 (RBI Monthly Bulletin, November 2009, 2063).

The RBI in its Annual Policy Statement of April 2009 has initiated discussions with the SEBI to assess the rating agencies (CRISIL, CARE, ICRA Ltd.) compliance with the enhanced code of conduct fundamentals of the International Organist ion of Securities Commission (IOSC).

4. MEASUREMENT OF RISK

The measurement of risk viz. credit risk, market risk, and operational risk is to be followed either through what is called the standardized approach (SA) and The Internal Rating Based Approach (IRBA). The approaches for each one of these risks are described below:

4.1 Standardized Approach

As per the standardized approach, credit risk is measured in the same manner in Basel I but in a more risk sensitive manner, i.e., by linking credit ratings of credit rating agencies to the risk of the assets of the bank. Thus, according to the Basel Committee on Banking Supervision (BCBS), it is an improvement over Basel I, where the

categorization of the assets into five risk-weight categories was an adhoc one (Table 6).

Table 6: Risk-Weights of Assets Categories under Basel I

Risk Weight	Asset Category (On-Balance Sheet Assets)
0 per cent	• Cash • Claims on central government and central banks denominated in national currency and funded in that currency. • Other claims on OECD* central governments and central banks. • Claims collateralized by cash of OECD central government securities or guaranteed by OECD central governments.
10, 20 or 50 per cent (at the discretion of national authorities)	• Claims on domestic public sector entities, excluding central, and loans guaranteed by or collateralized by securities issues by such entities.
20 per cent	• Claims on multilateral development banks and claims guaranteed by or collateralized by securities issued by such banks. • Claims on banks incorporated in the OECD and claim guaranteed by OECD and claim guaranteed by OECD incorporated banks • Claims on securities firm incorporated in the OECD subject to comparable supervisory and regulatory arrangements..
	• Claims on banks incorporated in countries outside the OECD with a residual maturity up to one year guaranteed by banks incorporated in countries outside the OECD. • Claims on non-domestic OECD public sector entities, excluding central governments; and claims guaranteed by or collateralized by securities issued by such entities. • Cash items in process of collection.
50 per cent	• Loans fully secured by mortgage on residential property that is or will be occupied by the borrower or that is rented.
100 per cent	• Claims to private sector • Claims on banks incorporated outside the OECD with a residual maturity of over one year. • Claims on central governments outside the OECD (unless denominated in the national currency and funded in that currency). • Claims on commercial companies owned by the public sector premises, plant and equipment; and other fixed assets. • Real estate and other investments. • Capital instrument issued by other banks. • All other assets.

Note: * Organization for Economic Cooperation & Development
Source: E.P.W. Mandira Sarma, "Understanding Basel Norms, EPW, August 18, 2007,

Table 6 provides the risk weights for different asset classes under Basel I. The BCBS has provided guidelines for linking credit ratings to the risk-weights of various assets under the standardized approach. Based on the BCBS (2006), the risk weights for different asset categories in the standardized approach under Basel II are presented in Table 7.

Table 7: Risk Weights in Standardized Approach of Credit Risk Under Basel II

Risk Weight (Per cent)	Asset Category (On-Balance sheet Asset)
	Claims on Sovereign **Option 1 : Use of Sovereign Credit Rating**
0	AAA to AA-
20	A+ to A-
50	BBB+ to BBB-

100	BB+ to B-
150	Below B-
100	Unrated
	Option 2 : Use of export credit agencies (ECA) score
0	0 – 1
20	2
50	3
100	4 to 6
150	7
	Claims on banks*
	Option 1 : By sovereign rating:
20	AAA to AA-
50	A+ to A-
100	BBB+ to BBB-
100	BB+ to B-
150	Below B-
100	Unrated
	Option 2 : By rating of the entity
	(i) For long term claims
20	AAA to AA-
50	A+ to A-
50	BBB+ to BBB-
100	BB+ to B-
150	Below B-
50	Unrated
	(ii) For short term claims
20	AAA to AA-
20	A+ to A-
20	BBB+ to BBB-
50	BB+ to B-
150	Below B-
20	Unrated
	Claims on Corporate
20	AAA to AA-
50	A+ to A-
100	BBB+ to BBB-
150	BB+ to B-
150	Below B-
100	Unrated
75	Claims in regulatory retail portfolio
35	Claims secured by residential property
100	Claims secured by commercial real estate

Note: Claims on non-central government public sector entities, multilateral development banks (except for World Bank Group, IFC, ADB, EBRD, AFDB, IADB, EIB, EIF, NIV, CDB, IDB, and CEDB, which will have zero weight) and securities firms will be rich weighted according to one of the options for claims on banks.

Source: Mandira Sarma, "Understanding Basel Norms", EPW, August 18, 2009,

5. THE NEW FRAMEWORK

The primary objective of the new framework include (a) the promotion of safety and soundness in the financial system (b) the enhancement of competitive equality; and (c) the constitution of a more comprehensive approach to address risks. The current accord is based on three pillars which are as under:

I. Minimum Regulatory Capital Requirements
II. Supervisory Review Process, and
III. Effective use of Market Discipline

5.1 Pillar I: Minimum Regulatory Capital Requirements:

When the Accord was first established, it was primarily concerned with minimum regulatory capital standards to cover credit risk. Regulatory capital is the actual capital funds held by the bank against the risk weighted assets (RWA). As against this, economic capital is the amount of the capital (besides regulatory capital) that the firm has to put at risk so as to cover the potential loss under the extreme market conditions.

In view of the increasing internationalization of activities of banks, the committee has proposed to develop explicit risk weights for other risk categories such as operational risk and interest rate risk, which have assumed significant importance in the deregulated environment. Under Basel II, while the definition of capital fund remains the same, the method of calculation of capital to risk-weighted assets ratio has been shifted to market risk and operational risk, in addition to the credit risk that alone was reckoned in the Basel I (1988). Credit risk, market risk and operational risk under Basel II are described below:

5.2 Credit Risk

Credit risk is inherent to the business of lending funds to the operations linked closely to market risk variables. It consists of two components, viz, quantity risk and quality risk. Quantity risk is nothing but the outstanding loan balance as on the date of default and the quality risk, viz. the severity of loss that is defined by both Probability of the Default (POD) as reduced by the recoveries that could be made in the event of default. Thus, credit risk is a combined outcome of Default Risk and Exposure Risk.

At present credit rating is required for debt instrument but under the new framework, credit rating will be extended to bank loan also. Therefore, besides their own internal rating to assess credit risk, banks will have to take into account external credit ratings also. Further, since the borrowing costs of banks will be determined by the rating

they receive, banks rated A and below will have increased cost of funding borrowing in the inter-bank market. Besides, country rating will determine credit rating for sovereign risk, which means that countries rated AA or better, will have zero risk weight.

5.3 Market Risk

As far as market risk is concerned. Basel II retains the recommendations of the 1996 amendment. Market risk is the possibility of loss to the bank's earnings and capital caused by the changes in the market level of interest rate or prices of securities, foreign exchange and equities as well as the volatilities of those prices. To measure market risk, banks were given the choices of two options : (a) standardized approach using building block methodology; and (b) an 'in-house approach" allowing banks to develop their own proprietary models to calculate capital charge for market risk by using the notion of value at risk.

5.4 Operational Risk

Parameters indicating the bank's health may vary from net interest margin to market value of equity, the factors which can cause the impairment are also numerous. For instance, these could be default in repayment of loans by borrowers, change in value of assets or disruption of operations due to reasons like technological failure. While the first two factors may be classified as credit risk and market risk, generally banks have classified all risks excluding the credit and market risk as operational risk. However, this is only a general definition; operational risk may be defined as "operational risk is the risk of direct or indirect loss resulting from inadequate or failed internal processes, people, and system from external events".

The subject of operational risk is highly complex and varied. Therefore, operational risk management addresses the issue of measuring the composite probable loss due to the operational factors viz., relationship risk, human risk, technology risk, physical risk and other external risks. With changes in business environment, the profit of operational risk is changing rapidly. For instance, risk of loss of reputation, intellectual property, commercial espionage and risk relating to information technology etc.

5.5 Pillar II: Supervisory Review Process

Supervision is generally conducted both off-site surveillance by monitoring call reports that banks submit to the supervisory authority, and on-site, by actually verifying the adequacy of asset valuation, the accuracy of prudential reports, and the quality of internal controls. The accuracy of reported capital adequacy can only be verified on-site inspection. The major objective of on-site inspection is to evaluate the accuracy of a bank's reports and the quality of the bank's assets valuation systems and ensure that the balance sheet accurately reflects the bank's net worth (Kaul, Reeta, 2004, 359). Supervisors ensure that the prudential regulations prescribed are properly enforced, that markets have reliable information at their disposal and that there is a backstop. The back stop facility would assist the eligible financial institutions and banks to source private funds to meet the increasing demand for US $ term loans to internal governance and market discipline.

The second pillar of supervisory review of capital adequacy envisages a more pro-active role for the regulator by requiring that they ensure that the bank's capital position is consistent with its overall risk profile and strategy. This is to be achieved through supervisory review of bank-specific internal capital assessment processes. RBI endorses the view of the committee that the national supervisors should intervene at an early stage to prevent capital from falling below prudent levels. At the same time, the burden of estimating economic capital may not be mandated to smaller bank, which are not offering complex products and operating largely in domestic/segmented markets. RBI also supports the committee's view that supervisors should have the mandate to require banks to hold capital in excess of minimum regulatory capital ratio.

The new Accord therefore place significant emphasis on the supervisory authorities for identifying, reviewing and evaluating a bank's internal capital adequacy assessment as well as its compliance with regulatory capital ratios, failing which supervisors are supposed to intervene so as to ensure that banks are able to withstand normal business shocks.

5.6 Pillar III: Effective use of Market Discipline

The third pillar of market discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner. Market discipline is used for greater transparency and disclosure and encouraging best international practices. Towards this end, the committee has urged banks to disclose to the public, in a timely fashion, all key features of the capital held as cushion against losses. However, at the same time, national supervisory authority should also consider the ability of the market to logically interpret the available information; otherwise, there is a possibility of overreaction to insignificant events or factors which can destabilize the system. An important rationale behind the pillar of market discipline is to provide sufficient information to enable the user to access whether the available capital is sufficient to meet credit risk, market risk and other risk requirements. To aid market discipline, the requirement of disclosures by banks has been strengthened. For instance, banks will have to disclose additional details of the way in which they calculate their capital adequacy, their risk assessment method, as also the credit assessment institutions that they use for the risk weighting of their assets, including the percentage of their assets' risk weightings based on assessments by each institution.

To the extent that such disclosures are comprehensive and objective. It is expected to assist market participant in judging how a bank's management of its capital adequacy related to its other risk management processes and how well it is able to withstand future volatility. It thus seeks to create a feedback loop from market assessment (Pillar III) to the credit weighing structure (Pillar I), which is to be monitored through the supervisory review of capital adequacy (Pillar II).

6. BASEL III FRAMEWORK

The Basel III framework developed by the Basel Committee on Banking Supervision (BCBS) is a comprehensive set of reform measures to strengthen the regulation, supervision and risk management of the banking sector. In January 2013, BCBS issued revised guidelines on liquidity coverage ratio, which promotes the resilience of banks by ensuring that they maintain an adequate stock of high-quality liquid assets to withstand reversals in funding conditions. The implementation of Basel III reforms has been phased-in between January 2013 and December 2018.(RBI Report, 2012-13: 26) The Basel Committee is raising the resilience of the banking sector by strengthening the regulatory capital framework, building on the three pillars of the Basel II framework. The reforms raise both the quality and quantity of the regulatory capital base and enhance the risk coverage of the capital framework. They are underpinned by a leverage ratio that serves as a backstop to the risk-based capital measures, is intended to constrain excess leverage in the banking system and provide an extra layer of protection against model risk and measurement error. Finally, the Committee is introducing a number of macro-prudential elements into the capital framework to help contain systemic risks arising from pro-cyclicality and from the interconnectedness of financial institutions (BCBS, 2010). The Committee is introducing a framework to promote the conservation of capital and the build-up of adequate buffers above the minimum that can be drawn down in periods of stress. Strong capital requirements are a necessary condition for banking sector stability but by themselves are not sufficient. A strong liquidity base reinforced through robust supervisory standards is of equal importance. The Basel Committee is therefore introducing internationally harmonised global liquidity standards. As with the global capital standards, the liquidity standards will establish minimum requirements and will promote an international level playing field to help prevent a competitive race to the bottom.

In addition to further refining the capital adequacy regulations under Basel II and making other adjustments, Basel III introduced some new requirements. One of these was the Basel III Leverage Ratio, which acts as a control on the amount of banks' indebtedness. In the Basel Committee's recent paper, it stated that this "non-risk based 'backstop' measure" is intended to restrict the build-up of leverage in the banking sector to avoid destabilizing deleveraging processes that can damage the broader financial system and the economy".

The Leverage Ratio is calculated by taking a bank's "capital measure" and dividing this by its "exposure measure". It is measured as a percentage and the minimum requirement is 3 percent from 1 January 2013 to 1 January 2017. The "capital measure" is the Tier 1 capital as that definition has been reinforced under Basel III. The "exposure measure" consists of the total of: (i) on-balance sheet exposures; (ii) derivative exposures; (iii) securities financing transaction exposures; and (iv) off-balance sheet items. Off-balance sheet items are as defined under Basel II and include short-term self-liquidating trade letters of credit arising from the movement of goods now with a credit conversion factor (CCF) of 20 percent. A CCF is a percentage that is applied to the value of the relevant instrument or transaction, which results in a "credit exposure equivalent". Such percentage reflects how likely the instrument may become an exposure on the bank's balance sheet. The CCF effectively therefore gives a value for the amount that the bank is exposed to on its balance sheet in respect of such instrument or transaction. Before this change, a CCF of 100 percent applied to all off-balance sheet items. The recent changes, however, under the Basel Committee's paper have brought the levels of CCFs back to the same as those applicable under the standardized basis of assessment for credit risk under Basel II (Geraldine Butac and Robert Parson, (2013).

The Table 8 below shows the minimum capital conservation ratios a bank must meet at various levels of the Common Equity Tier 1 (CET1) capital ratios. For example, a bank with a CET1 capital ratio in the range of 5.125 per cent to 5.75 per cent is required to conserve 80 per cent of its earnings in the subsequent financial year (i.e., payout no more than 20 per cent in terms of dividends, share buybacks and discretionary bonus payments). If the bank wants to make payments in excess of the constraints imposed by this regime, it would have the option of raising capital in the private sector equal to the amount above the constraint, which it wishes to distribute. This would be discussed with the bank's supervisor as part of the capital planning process. The Common Equity Tier 1 ratio includes amounts used to meet the 4.5% minimum Common Equity Tier 1 requirement, but excludes any additional Common Equity Tier 1 needed to meet the 6 per cent Tier 1 and 8 per cent Total Capital requirements. For example, a bank with 8 per cent CET1 and no additional Tier 1 or Tier 2 capital would meet all minimum capital requirements, but would have a zero conservation buffer and therefore by subject to the 100 per cent constraint on capital distributions (BCBS, 2010).

Table 8: Individual bank minimum capital conservation standards

Common Equity Tier 1 Ratio (In per cent)	Minimum Capital Conversion Ratio (Expressed as a percentage of earnings)
4.5% - 5.125%	100
>5.125% - 5.75%	80
>5.75% - 6.375%	60
>6.375% - 7.0%	40
> 7.0%	0

Source: Basel Committee on Banking Supervision (BCBS), 2010

The Reserve Bank is entrusted with the responsibility of supervising the Indian banking system under various provisions of the Banking Regulation Act, 1949 and the RBI Act, 1934. While the banking landscape has witnessed considerable changes over the last two decades, supervisory resources and processes based on the CAMELS framework within the Reserve Bank have remained more or less the same. This has resulted in a mismatch between supervisory responsibilities and available resources necessitating a review of the supervisory processes and the rationalisation of the organisational structure for bank supervision. Post the global financial crisis, there has been a shift towards RBS away from the erstwhile CAMELS approach. CAMELS is essentially a scorecard based approach which is more of a backward looking methodology and transaction testing model operating with a lag. RBS, on the other hand, is a forward looking approach inasmuch as it assesses the risk build up in banks. Risk based supervision (RBS) also enables conserving supervisory resources by more efficient allocation based on risk perception (RBI Report, 2012-13: 04).

7. EPILOGUE

The capital adequacy position of the top 100 banks reveals that the number of banks in the higher bracket of the capital adequacy ratio, that is, more than 17 per cent, showed an increase, reflecting global initiatives at strengthening the capital position of banks. All the top 100 banks are maintaining a higher capital adequacy level than the Basel Committee on Banking Supervision (BCBS) norm of 8 per cent CRAR under the Basel II framework. Capital adequacy is not only important for banking institutions to survive in the fast changing global economic order but also for the development of an economy. The Basel Committee III recognises that there is a variation across jurisdictions related to the scope of authority of supervisors in the area of capital planning. The Committee believes that they are broadly applicable to banking organisations required to implement the Basel III framework. More broadly, the provision of better capital planning practices furthers the Basel Committee's objective of consistently implementing the Basel III framework as a means of maintaining the resilience of the global financial system. Basel III is a comprehensive set of reform measures aim to improve the banking sector's ability to absorb shocks arising from financial and economic stress, improving risk management, and strengthen bank's transparency and disclosures.

Financial conditions in the global banking system improved following monetary easing measures by central banks in advanced economies. Banks in the US are in an advanced stage of repairing their balance sheets. Concerns, however, remain for European banks' asset quality. While the fundamentals of banking sectors in emerging economies were relatively robust, deceleration in growth may pose challenges. Significant progress has been made on the regulatory front regarding Basel III, systemically important financial institutions (SIFIs) and derivative reforms. Moving forward, the risks to the global banking system remain. The most important being the upturn in the global interest rate cycle when the Fed exits from its quantitative easing programmes resulting in an increase in credit risk. Early completion of balance sheet repair by banks and implementation of regulatory reforms will strengthen the stability of the banking system in the medium term. Deteriorating capital positions of public sector banks is a matter of concern given the fiscal implications of capital infusion in these banks. Public sector banks remain above the statutory norm for CRAR. However, as they migrate to the advanced Basel III framework, both the quantity and quality (common equity) of capital will need to be improved, while meeting the growing credit needs of the economy and maintaining the floor for public ownership.

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