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**BASEL BANKING NORMS – A PRIMER**

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## **Basel Banking Norms – A Primer<sup>1</sup>**

### **Abstract**

This paper aims to first build a deeper understanding of the emergence of Basel banking norms (Basel I), and the transition to each of the subsequent regulations (Basel II and Basel III). The primary purpose of developing this understanding is to further analyze the extent of effectiveness of the Basel norms. To explore how such regulations impact an economy, we have specifically looked at five economies of the world (including India), which are geographically apart, in this context. The idea here is to study how, for instance, banking institutions have shaped up to these norms – and whether the effects were favorable or adverse. We then conclude by conceptually looking at the future direction of regulations such as the Basel norms in the banking industry.

**Keywords:** Banking, Financial Services, Regulation, Basel Norms, Capital Adequacy, Liquidity

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## **Introduction**

The birth of the Basel banking norms is attributed to the incorporation of the Basel Committee on Banking Supervision (BCBS), established by the central bank of the G-10 countries in 1974. This came into being under the patronage of Bank for International Settlements (BIS), Basel, Switzerland. The Committee formulates guidelines and provides recommendations on banking regulation based on capital risk, market risk and operational risk. The Committee was formed in response to the chaotic liquidation of Herstatt Bank, based in Cologne, Germany in 1974. The incident illustrated the presence of settlement risk in international finance.

Historically, in 1973, the sudden failure of the Bretton Woods System resulted in the occurrence of casualties in 1974 such as withdrawal of banking license of Bankhaus Herstatt in Germany, and shut down of Franklin National Bank in New York. In 1975, three months after the closing of Franklin National Bank and other similar disruptions, the central bank governors of the G-10 countries took the initiative to establish a committee on Banking Regulations and Supervisory Practices in order to address such issues. This committee was later renamed as Basel Committee on Banking Supervision. The Committee acts as a forum where regular cooperation between the member countries takes place regarding banking regulations and supervisory practices. The Committee aims at improving supervisory knowhow and the quality of banking supervision quality worldwide. Currently there are 27 member countries in the Committee since 2009. These member countries are being represented in the Committee by the central bank and the authority for the prudential supervision of banking business. Apart from banking regulations and supervisory practices, the Committee also focuses on closing the gaps in international supervisory coverage.

The first set of Basel Accords, known as Basel I, was issued in 1988 with the primary focus on credit risk. It proposed creation of a banking asset classification system on the basis of the inherent risk of the asset. Basel II, the second set of Basel Accords, was published in June 2004 – in order to control misuse of the Basel I norms, most notably through regulatory arbitrage. The Basel II norms were intended to create a uniform international standard on the amount of capital that banks need to guard themselves against financial and operational risks. This again would be achieved through maintaining adequate capital proportional to the risk the bank exposes itself to

(through its lending and investment practices). It also laid increased focus on disclosure requirements. The third installment of the Basel Accords (Basel III) was introduced in response to the global financial crisis, and is scheduled to be implemented by 2018. It calls for greater strengthening of capital requirements, bank liquidity and bank leverage. However, critics argue that these norms may further hamper the stability of the financial system by providing higher incentive to circumvent the regulations.

The Indian banking system has remained largely unscathed in the global financial crisis. This is mainly amongst others, on account of the relatively robust capitalization of Indian banks. The Reserve Bank of India (RBI) had scheduled the start date for implementation of Basel III norms over a 6-year period starting April 2013. The recent requirement of infusion of additional equity in view of the low economic growth and increasing non-performing assets of Indian banks paint a gloomy picture.

This paper is arranged in the following sections - The review of literature is presented in Section II. A detailed analysis of Basel I, Basel II and Basel III accords are discussed in Section III. Section IV discusses the cross country analysis of the Basel accords. Cooperation of the Basel Committee with other regulators and with the non-member countries are discussed in Section V. Section VI discusses the understanding of the Indian scenario in the context of implementation of the Basel III accord. Finally, summary and select recommendations are presented in Section VII.

## Section II: Review of Literature

A fairly significant body of research literature exists in the domain of banking regulation, specifically in respect of the Basel regulatory framework. A select number of articles are reviewed in the following paragraphs.

Jayadev (2013) considers the views of senior executives of Indian banks as well as risk management experts on how the challenges of Basel III implementation may be answered in the Indian context. At the outset, estimates of capital infusion requirements are to the tune of USD 50 billion (Fitch) and USD 80 billion (ICRA). In terms of the timing of Basel III, there is a concern that the need for maintaining higher capital coincides with a fast-expanding demand for credit. Moreover, compliance with Basel III implies a lower return on equity (ROE) for banks owing to the fall in leverage. The paper also draws attention to the fact that banks need to make a shift in the perception of the risk management function – from solely for compliance, to a pursuit in building a robust financial institution.

Shah (2013) also agrees that banks' ROE and profitability are bound to fall in the next few years. First, Basel III proposes the phased removal of some components of capital from Tier 1, which implies that banks' capital would decline by approximately 60 percent. Second, the risk weightings are projected to surge by almost 200 percent. Moreover, the transition from short-term liquidity to long-term liquidity inherently implies a higher cost of funds. The paper also brings to light the fact that Indian banks have relatively moderate leverage ratios. Yet, the author summarizes that “with capital dilution, increased risk weightings and ceilings on derivative trading, the new leverage ratio will impact the lending capability of the banks”.

Kumari (2013) pegs the external capital requirement of Indian banks at Rs. 6,00,000 crore over a nine-year period. Since public sector banks (PSBs) constitute a bulk of Indian banking activity, the paper also observes that most of the external capital will be needed by these banks. Mehta (2012) also takes into account the fact that the government is hesitant in disinvesting its shareholding in PSBs, which naturally means that the capital infusion has to come from public money. In the Indian context, where the government is always cash-strapped, it cannot be effortlessly assumed that such capital infusion is practical and/or optimal. The paper thus

proposes that the government should be willing to bring down its shareholding in these PSBs to 51 percent.

Allen et al. (2012) make interesting observations about the ‘real’ cause of concern in relation to Basel III. While they concur that Basel III does threaten to reduce credit supply (and in-turn economic output), they believe the source of this problem is not the need to maintain higher capital. Instead, the challenge lies in “ensuring a coordinated adoption” of these new norms across the breadth of entities in the financial services industry. They further remark that authorities should aim to utilize the long time horizon for Basel III implementation to “engage both banks and investors in constructive dialogue” with regard to changes necessary in business operations.

Yan et al. (2012) undertake an insightful study on the long-term cost-benefit of the Basel III norms for the United Kingdom (UK). They find that the optimal tangible common equity capital ratio is 10 percent of risk-weighted assets (RWAs), as against the Basel III figure of 7 percent. They thus build a case for Basel III having a net positive long-term effect on the UK economy. They also estimate the maximum net benefit when banks meet the Basel III long-term liquidity requirements. Through their study, they actually infer that UK banks should raise common equity in their capital base in excess of the Basel III stipulations.

Blundell-Wignall and Atkinson (2010) find that Basel III would not end up achieving significant results. They believe the banking industry has generally been able to curb “meaningful increases” in equity requirements in excess of what banks usually maintained prior to the 2008 crisis. In addition, implementation is too slow, “with little beginning before 2013 and phasing in running as late as 2023 for grandfathered changes to the definition of capital”. They also look at the crucial issue of Basel II not clearly addressing the problem of ‘promises’ in the financial arena being treated unequally. The implications of this phenomenon on the reform process are profound, especially on aspects such as supervision and the incorporation of the shadow banking system into the regulatory. They also explore modifications in the risk-weighted asset framework so as to address issues of concentration in risk models. As a specific example, they suggest that ‘a quadratic rule applied to deviations from a diversified benchmark portfolio’ is one rational way of enhancing the overall framework.

Demirgüç-Kunt and Detragiache (2010) statistically study whether the compliance with Basel Core Principles (BCPs) can be mapped to ‘bank soundness’. Their study, covering more than 3,000 banks in 86 countries, fails to establish a relationship between compliance with BCPs and systemic risk.

Concrete inputs forming a part of risk models can be critically analyzed as well. Georg (2011) puts forth three possible measures in this regard. First, the risk weights for interbank loans require careful attention on the basis of the prevailing economic scenario. While low risk weights may be appropriate for interbank loans in stable economic conditions, higher risk weights must be assigned during periods of heightened economic stress. This would effectively serve as a handy counter-cyclical measure to take care of the time dimension of systematic risk. Second, the asset value correlation (AVC) multiplier, proposed in the Basel III framework, must be a dynamic input. If banks are provided a dynamic AVC for all asset classes and then made to compute a bank-specific individual asset multiplier, there emerges a natural incentive for portfolio diversification. Banks would be better equipped to manage risk. Third, a stated thrust on market transparency is of critical relevance. A widely-quoted criticism of Basel III is its lack of emphasis on systemically-important banks in tangible terms. Moreover, further capital buffers can help the cause only to an extent, beyond which behavioral finance theories such as herding make their presence. The third pillar of Basel III thus requires strengthening, which includes stringent and well-defined reporting requirements for systemically-important institutions.

### **Section III: Decoding the Basel Accords – with Facts and Figures**

#### **Basel I: The Capital Accord**

In 1987, the Committee introduced capital measurement system which focused on the credit risk and risk-weighting of assets. This system is commonly known as the Basel Capital Accord or the Basel I norms as approved by the Governors of G-10 countries which were released to the banks in July 1988. The Committee, by the end of 1992, had implemented the minimum requirement ratio of capital to be fixed at 8 percent of risk-weighted assets not only in the G-10 countries but also other non-member countries with active international banks. Apart from focusing on the credit risk, the committee also issued *Market Risk Amendment to the capital accord* in January 1996 which came into effect at the end of 1997. The reason for such an amendment arose from banks’ market risk exposures to foreign exchange, debt securities, equities, commodities and

options. An important characteristic of this amendment was banks' convenience of measuring their market risk capital requirement with the help of internal value-at-risk models, which were subject to strict quantitative and qualitative standards.

### **Evolution of Basel I Accords**

The pre-Basel era was characterized by increasing globalization, leading to rapid expansion of international financial services sector. The swift proliferation contributed to gradual deregulation, which created new revenue opportunities for banking institutions, and intensified competition. International banks indulged in regulation arbitrage, and relocated to less stringent geographies.

The chaotic bankruptcy of Germany based Bankhaus I. D. Herstatt in 1974 added momentum to harmonize international banking capital standards. The German bank had accepted receipts in Deutsche Marks in exchange for payments in US Dollars. However, Herstatt ceased operations before the time of payment in the USA due to time zone difference. The incident brought to light the significance of counter party risk, in international transactions.

As a response to the cross-jurisdictional implications of a bankruptcy of a multi-national bank, the Basel Committee on Banking Supervision (BCBS) was formed in 1975, under the auspices of Bank of International Settlement (BIS), headquartered in Basel, Switzerland. The Committee had representations from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, The Netherlands, Sweden, Switzerland, United Kingdom and USA. The countries are represented by the respective central banks and lead bank supervisory authority.

The goal of BCBS, as highlighted in the charter, is to “...*extend regulatory coverage, promote adequate banking supervision, and ensure that no foreign banking establishment can escape supervision*”. Since inception, the BCBS issued several best practices papers for the banking industry, having significant impact on banking supervision and bank capital regulation. Since the recommendations of the committee were legally non-binding, it was up to the discretion of the member states to implement and enforce these recommendations.

Inadequate capitalization of banks, varying banking structures and different risk profiles across different countries made agreement on capital standards difficult. However, after years of

deliberation, in July 1988, the *'International Convergence of Capital Measurements and Capital Standards'* (informally known as the Basel I Capital Accord) was created. These norms set minimum level of capital adequacy requirements for banks, and encouraged banks and countries to be more aggressive in implementation of these norms.

### **Features of Basel I**

The Basel I Accord attempted to create a cushion against credit risk. The norm comprised of four pillars, namely Constituents of Capital, Risk Weighting, Target Standard Ratio, and Transitional and implementing arrangements.

#### ***Pillar I – Constituents of Capital***

*Constituents of Capital* prescribe the nature of capital that is eligible to be treated as reserves. Capital is classified into Tier I and Tier II capital. Tier I capital or Core Capital consists of elements that are more permanent in nature and as a result, have high capacity to absorb losses. This comprises of equity capital and disclosed reserves. Equity Capital includes fully paid ordinary equity/common shares and non-cumulative perpetual preference capital, while disclosed/published reserves include post-tax retained earnings. Because of availability of several other legitimate avenues of capital, the accord defines a separate layer of capital (Tier II) to accommodate these elements. However, given the quality and permanent nature of Tier I capital, the accord requires Tier I capital to constitute at least 50 percent of the total capital base of the banking institution. Tier II capital is more ambiguously defined, as it may also arise from difference in accounting treatment in different countries. In principal, it includes, revaluation reserves, general provisions and provisions against non-performing assets, hybrid debt capital instruments, and subordinated term debt.

## ***Pillar II – Risk Weighting***

*Risk Weighting* creates a comprehensive system to provide weights to different categories of bank's assets i.e. loans on the basis of relative riskiness. The capital of the bank is related to risk weighted assets, to determine capital adequacy. The framework of weights was kept simple with five weights used for on-balance sheet assets (*Table 1*).

**Table 1: Risk Weights by Categories of Balance Sheet Assets**

<b>Categories of assets</b>	<b>Risk Weights (%)</b>
Cash and Government bonds of OECD member countries	0
Claims on domestic public sector entities	10
Inter-bank loans to bank headquartered in OECD member countries	20
Home mortgages	50
Other loans	100

Source: Adapted from Prakash (2008)

Off-balance sheet elements, essentially in the nature of contingent liabilities such as letters of credit, guarantees and commitments, and Over-The-Counter (OTC) derivative instruments, were to be first converted to a credit equivalent and then, appropriate risk weights were to be assigned (*Table 2*).

**Table 2: Credit Conversion Factors for Off-Balance Sheet Items**

<b>Instruments</b>	<b>Credit Conversion Factors (%)</b>
Commitments with an original maturity of up to one year, or which can be unconditionally cancelled at any time	0
Short-term self-liquidating trade-related contingencies (such as documentary credits collateralized by the underlying shipments)	20
<ul style="list-style-type: none"> <li>• Certain transaction-related contingent items (for example, performance bonds, bid bonds, warranties and standby letters of credit related to particular transactions)</li> <li>• Note issuance facilities and revolving underwriting facilities</li> <li>• Other commitments (for example, formal standby facilities and credit lines) with an original maturity of over one year</li> </ul>	50
<ul style="list-style-type: none"> <li>• 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)</li> <li>• Sale and repurchase agreements and asset sales with recourse,<sup>1</sup> where the credit risk remains with the bank</li> <li>• Forward asset purchases, forward deposits and partly-paid shares and securities, which represent commitments with certain drawdown</li> </ul>	100

Source: Adapted from Prakash (2008)

The risk weighted method is favored over a simple gearing ratio method due to the following benefits:

- i. Provides for a fair basis of comparison between international banks with different capital structures;
- ii. Enables accountability of off-balance sheet elements; and,
- iii. Avoids discouraging banking institutions to hold liquid and low risk assets to manage capital adequacy.

### ***Pillar III – Target Standard Ratio***

*Target Standard Ratio* acts as a unifying factor between the first two pillars. A universal standard, wherein Tier I and Tier II capital should cover at least 8 percent of risk weighted assets of a bank, with at least 4 percent being covered by Tier I capital.

### ***Pillar IV – Transitional and Implementing Arrangement***

*Transitional and implementing arrangement* sets different stages of implementation of the norms in a phased manner. Switzerland, Luxembourg and G-10 countries endorsed the Basel I Accord in July 1988. Due to widespread undercapitalization of the banking community during that time, a phased manner of implementation was agreed upon, wherein a target of 7.25 percent was to be achieved by the end of 1990 and 8 percent by the end of 1992.

#### **Amendment in 1996**

The Basel Accord was amended in January 1996 for providing an additional buffer for risk due to fluctuations in prices, on account of trading activities carried out by the banks. Banks were permitted to use internal models to determine the additional quantum of capital to be provided. Banks had to estimate value-at-risk (VAR) on account of its trading activities that is the maximum quantum of loss the portfolio could suffer over the holding tenure at a certain probability. The capital requirement is then set on the basis of higher of the following estimate:

- i. Previous day's Value-at-risk; and,
- ii. Three times the average of the daily value-at-risk of the preceding sixty business days.

#### **Transition to Basel II**

Basel II was fundamentally conceived as a result of two triggers – the banking crises of the 1990s on the one hand, and the criticisms of Basel I itself on the other. In the year 1999, the Basel Committee proposed a new, far more thorough capital adequacy accord. Formally, the accord was known as *A Revised Framework on International Convergence of Capital Measurement and Capital Standards* (hereinafter referred to as Basel II). The new framework was designed to improve the way regulatory capital requirements reflect the underlying risks for addressing the recent financial innovation. Also, this framework focuses on the continuous improvements in risk measurement and control. For successful implementation of the new capital framework across borders, the committee's Supervision and Implementation Group (SIG) communicates with the supervisors outside the committee's membership through its contacts

with regional associations. The new framework neatly retained the ‘pillar’ framework of Basel I, yet crucially expanded the scope and specifics of Basel I.

### ***Pillar I – Minimum Capital Requirements***

The first ‘pillar’, namely *Minimum Capital Requirements*, shows the most expansion when compared to Basel I. A primary mandate of this accord was to widen the scope of regulation. This is achieved by including ‘on a fully consolidated basis, any holding company that is the parent entity within a banking group to ensure that it captures the risk of the whole banking group’. This preempts the possibility that a bank will conceal risk-taking by transferring assets to other subsidiaries.

### **Credit Risk**

Basel II aimed to measure the risk-weighted assets (RWAs) of a bank more carefully. This revised framework placed forth three methodologies to determine the risk rating of a bank’s assets – the *Standardized Approach* and two *Internal Ratings Based Approaches* (IRB approaches).

The Standardized Approach directed banks to use ratings from external credit rating agencies to compute capital requirements commensurate with the level of credit risk. There are 13 categories of *individual assets* specifically named in the Basel II accord with risk-weighting norms.

Basel II leans towards the two *Internal Ratings Based Approaches* – the *Foundation IRB* (abbreviated as F-IRB) and the *Advanced IRB* (abbreviated as A-IRB). *Foundation IRB* gives banks the freedom to develop their own models to ascertain risk weights for their assets. These are, however, subject to the approval of the banking regulator. Further, the regulators provide the model assumptions – loss given default<sup>2</sup> (LGD), exposure at default<sup>3</sup> (EAD), and effective maturity<sup>4</sup> (M). Banks are, however, allowed to use their own estimates of the probability of default<sup>5</sup> (PD). *Advanced IRB* is fundamentally the same as Foundation IRB, except that banks are

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<sup>2</sup> Loss given default is the percentage of loss (of the total exposure) when the borrower defaults.

<sup>3</sup> Exposure at default is the extent to which a bank is exposed, if and when its counterparty (borrower) defaults.

<sup>4</sup> Effective maturity refers to the ‘contractual maturity’ of the transaction or loan facility.

<sup>5</sup> Probability of default is the degree of likelihood that the borrower is unable to repay debt over the specified time horizon.

free to use their own assumptions (of LGD, EAD and M) in the models they develop. Understandably, this approach can be used only by a select set of banks.

It is noteworthy here that the IRB approaches yield merits for both bankers and regulators. Clearly, lower risk weights imply lower reserve requirements, and in-turn higher profitability for the bank. By design, the IRB approaches are ‘self-regulating mechanisms’. From a regulatory standpoint, this ‘self-regulating mechanism’ translates into lower legal and regulatory costs. Another interesting contribution of the IRB approaches is that of greater capital being routed to the private sector, giving an impetus to economic growth.

### Operational Risk

Here again, Basel II introduces measures to assess and reduce operational risks. Three methods for this measurement are proposed – *Basic Indicator Approach*, *Standardized Approach* and *Advanced Measurement Approach*.

The *Basic Indicator Approach* suggests that banks hold 15 percent of their average annual gross income (over the past three years) as capital. On the basis of risk assessments of individual banks, regulators may adjust the 15 percent threshold.

The *Standardized Approach* basically splits a bank into compartments based on its business lines.<sup>6</sup> The idea is that business lines with lower operational risk (asset management, for instance) would translate into lower reserve requirements. *Table 3* details the actual percentage of profits (technically referred to as the *beta factor*) that needs to be set aside in the form of reserves.

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<sup>6</sup> Here, each business line is weighted by its relative size in the firm.

**Table 3: Beta factors for various business lines under the Basic Indicator Approach**

<b>Business Line</b>	<b>Beta Factor (%)</b>
Corporate finance	18
Trading and sales	18
Retail banking	12
Commercial banking	15
Payment and settlement	18
Agency services	15
Asset management	12
Retail brokerage	12

Source: Basel II accord, 2006 Revision

The *Advanced Measurement Approach* gives banks the freedom to perform their own computations for operational risk. Once again, these are subject to regulatory approval. There is a striking similarity between this approach and the IRB approaches outlined earlier, especially in terms of their self-regulating nature.

### Market Risk

Market risk is simply the risk of loss as a result of movements in the market prices of assets. In this regard, Basel II makes two clear distinctions – one in respect of asset categories, and the other regarding types of principal risks. In terms of assets, fixed income products are treated differently as compared to others<sup>7</sup>. In terms of principal risk, there are two segments specifically identified – interest rate risk<sup>8</sup> and volatility risk. These risks come together in overall market risk.

As far as fixed income assets are concerned, the Value at Risk (VaR) measure is put forth. Banks can use their own computations (subject to regulatory approval) to ascertain reserve requirements to guard against interest rate risk and volatility risk. Further, these computations are made on a position-by-position basis for the fixed income assets. Once again, this measure is similar in nature to the IRB approaches and the *Advanced Measurement Approach* mentioned earlier.

In the case of those banks that either cannot or opt not to use the VaR measure, Basel II proposes two distinct risk protection methods. In respect of interest rate risk, the reserve requirements are

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<sup>7</sup> Examples of the ‘others’ are equity, foreign exchange and commodity products.

<sup>8</sup> Interest rate risk captures the risk of fluctuating interest rates that may reduce the value of a fixed income asset.

mapped to the maturity of the asset. *Table 4* illustrates this aspect. In terms of volatility risk, the correspondence is established through credit risk ratings of the assets.

**Table 4: Interest rate risk weights for market risk**

<b>Time to Maturity</b>	<b>Risk Weight</b>
1 month or less	0.00
6 months or less	0.70
1 year or less	1.25
4 years or less	2.25
8 years or less	3.75
16 years or less	5.25
20 years or less	7.50
Over 20 years	12.50

Source: Basel II Accord, 2006 Revision

For all market-based assets other than fixed income assets, another set of methods are to be applied. The *Simplified Approach* puts assets into compartments based on certain parameters: type, origin, maturity, and volatility. It then gives risk weights – from 2.25 percent for the least risky assets to 100 percent for the most risky assets. In *Scenario Analysis*, the risk weights are assigned by taking into consideration the scenarios that could exist in each country’s markets. This method is clearly less conservative, and thus allows banks to be more experimental. Yet, it comes with its complexity. The *Internal Model Approach* gives banks the choice to design their own market risk models.

### **Total Capital Adequacy**

Once the asset base is adjusted based on credit risk, and reserves in respect of operational risk and market risk are computed, a bank can readily calculate its reserve requirements to meet the capital adequacy norms of Basel II. As in the case of Basel I, a bank must maintain equal amounts of Tier 1 and Tier 2 capital reserves. Further, the reserve requirement continued at 8 percent. In effect, the final requirement may be calculated as:

$$\text{Reserves} = 0.08 * \text{Risk-Weighted Assets} + \text{Operational Risk Reserves} + \text{Market Risk Reserves}$$

### ***Pillar II – Regulator-Bank Interaction***

Pillar II focuses on the aspect of regulator-bank interaction. Specifically, it empowers regulators in matters of supervision and dissolution of banks. For instance, regulators may supervise internal risk evaluation mechanisms outlined in Pillar I – and change them to more conservative or simpler ones, as the case demands. Regulators are permitted to create a *buffer capital requirement* over and above the minimum capital requirements as per Pillar I.

### ***Pillar III – Banking Sector Discipline***

Pillar III aims to induce discipline within the banking sector of a country. Basel II suggested that, disclosures of the bank's capital and risk profiles which were shared solely with regulators till this point should be made public. The premise was that information to shareholders could be widely disseminated. They would be able to ensure prudence in the risk levels of banks.

### **A Short Note on Basel 2.5**

The financial crisis of 2007 and 2008 exposed the limitations of Basel II, wherein certain risks were not under the purview of this regulation. Amendments were made to the Basel II in 2009 to make it more robust. The revisions were as under:

- Augmenting the value-at-risk based trading book framework with an additional charge for risk capital, including mitigation risk and default risk.
- Addition of stressed value-at-risk condition. This condition takes into account probability of significant losses over a period of one year.

The implementation date was set at December 31, 2010. However, since BCBS introduced Basel III norms within 2 years, the above conditions were incorporated into the Basel III regulation.

### **Emergence of Basel III**

Basel II indeed had its share of criticism. To begin with, the Basel Committee declared that the committee's recommendations were for G-10 member states. This leaves out emerging economies, and actually implied potential unfavorable impact on these economies. To begin with, the scope of responsibilities for regulators (in emerging economies) may be too much for

them to handle. Central banks might not be stringent enough in regulating private banks, thus letting them raise their risk exposure – defeating the entire purpose.

Banks in emerging economies were at a disadvantage in terms of receiving loans from global banks. This was so because rating agencies<sup>9</sup> might either be unaffordable, or prone to assigning lower ratings anyway to such banks. The consequence here was that global banks would need to maintain more capital for a loan to an emerging market bank.

The inclusion of internal risk measurements when calculating the capital reserves of bank gives rise to another drawback. Since risk weights are fundamentally a factor of expected economic performance, banks would call back credit prior to and during recessionary times, and pump in credit in favorable periods or recovery periods. This effectively means that recessions would be made worse, and growth periods could be accompanied by even higher inflation.

The issues surrounding Basel II together contributed to the emergence of the Basel III accord. The essence of Basel III revolves around two sets of compliance:

- i. Capital
- ii. Liquidity

While good quality of capital will ensure stable long term sustenance, compliance with liquidity covers will increase ability to withstand short term economic and financial stress.

### **Liquidity Rules**

One of the objectives of Basel III accord is to strengthen the liquidity profile of the banking industry. This is because despite having adequate capital levels, banks still experienced difficulties in the recent financial crisis. Hence, two standards of liquidity were introduced.

#### ***Liquidity Coverage Ratio (LCR)***

LCR was introduced with the objective of promoting efficacy of short term liquidity risk profile of the banks. This is ensured by making sufficient investment in short term unencumbered high quality liquid assets, which can be quickly and easily converted into cash, such that it enables the

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<sup>9</sup> Rating agencies assign ‘credit ratings’, which capture the borrower’s ability to repay debt, and the interest it bears, on time. Moody’s, S&P and Fitch Ratings are the three most prominent rating agencies.

financial institution to withstand sustained financial stress for 30 days period. It is assumed, within 30 days, the management of the bank shall take corrective actions to deal with the adverse situation.

$$LCR = \frac{\text{Stock of high quality liquid assets}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\text{percent}$$

The explanations of stock of high quality liquid assets and total net cash outflows over the next 30 calendar days are given in *Annex 1*.

### ***Net Stable Funding Ratio (NSFR)***

Long term stability of financial liquidity risk profile is an important objective to be achieved. The Net Stable Funding Ratio incentivizes banks to obtain financing through stable sources on an ongoing basis. More specifically, the standard requires that a minimum quantum of stable and risk less liabilities are utilized to acquire long term assets. The objective is to deter reliance on short term means of finance, especially during favorable market periods.

$$NSFR = \frac{\text{Amount available of stable funding}}{\text{Required amount of stable funding}} > 100\text{percent}$$

The NSFR has a time horizon of one year. The explanations of amount available of stable funding and required amount of stable funding are given in *Annex 2*.

### **Capital Rules**

These rules have been updated to continue to ensure that banking institutions maintain a sound and stable capital base. Enhancement of risk coverage is the objective of Basel III accords and the same is achieved by introduction of capital conservation buffer and countercyclical buffer.

#### ***Capital Conservation Buffer***

The intention behind the capital conservation buffer is to make certain that banks accumulate capital buffers in times of low financial stress. Such a buffer is handy when banks are hit by losses, and aims to prevent violations of minimum capital requirements. When the buffer is

utilized (say, in a period of financial stress), banks need to recreate it by pruning their discretionary distribution of earnings. Banks facing reduced capital buffers must certainly not signal their financial strength by way of distributing earnings.<sup>10</sup> The other option available here is to raise fresh capital from the private sector.

Basel II incorporates a capital conservation buffer of 2.5 percent above the minimum capital requirement. This buffer is built out of Common Equity Tier 1 (CETI)<sup>11</sup>, only after the 6 percent Tier 1 and 8 percent total capital requirements have been fulfilled. While the bank’s operations remain unaffected when its capital falls short of the 2.5 percent threshold, the accord enforces constraints on distribution of earnings.

*Table 5* below illustrates the minimum capital conservation ratio that a bank must maintain for different levels of the Common Equity Tier 1 (CET1) ratio. For instance, a bank having a CET1 ratio between 5.75 percent and 6.375 percent may only distribute up to 40percent of its earnings.

**Table 5: Individual bank minimum capital conservation standards**

<b>Common Equity Tier 1 Ratio (%)</b>	<b>Minimum Capital Conservation Ratio (expressed as a percentage of earnings)</b>
4.5 - 5.125	100
>5.125 - 5.75	80
>5.75 - 6.375	60
>6.375 – 7	40
> 7	20

Source: Basel III Accord, 2011 Revision

### ***Countercyclical Buffer***

The underlying premise of the countercyclical buffer is that capital requirements in the banking sector must take into consideration the macroeconomic environment in which banks operate. When a financial downswing succeeds a period of excess credit growth, banks incur huge losses. This can create massive disorder in the banking sector. Banks must thus arm themselves with capital buffers in times of rapidly-growing financial stress.

<sup>10</sup> Modes of distributing earnings would basically include “dividends and share buybacks, discretionary payments on other Tier 1 capital instruments and discretionary bonus payments to staff” as per the Basel III accord (2011 Revision).

<sup>11</sup> CETI refers to equity capital and reserves, but excludes all preference shares. It is part of Tier 1 capital.

The countercyclical buffer will be enacted by national authorities, when they believe that the excess credit growth potentially implies a threat of financial distress. The buffer for internationally-active banks is computed as a weighted average of the buffers for all jurisdictions where the bank bears a credit exposure. Considering the fact that credit cycles are generally not highly correlated across jurisdictions, such banks would need to maintain a small buffer (quite frequently) in most circumstances.

Banks would be subject to a countercyclical buffer between zero and 2.5 percent of their total risk-weighted assets. The countercyclical buffer mandated for a bank “will extend the size of the capital conservation buffer”, as per the accord. Further, banks failing to maintain the required countercyclical buffer would face restrictions on distributions. Also, banks should mandatorily calculate (and disclose) their countercyclical buffer requirements with minimally the same frequency as their minimum capital requirements.

*Table 6* below captures the calibration of the capital framework in Basel III in terms of the minimum capital requirements and the respective buffers.

**Table 6: Calibration of the Capital Framework in Basel III**

<b>Capital Requirement / Buffer</b>	<b>Common Equity Tier 1 (%)</b>	<b>Tier 1 Capital (%)</b>	<b>Total Capital (%)</b>
Minimum	4.5	6.0	8.0
Conservation buffer	2.5		
Minimum plus conservation buffer	7.0	8.5	10.5
Countercyclical buffer range	0 - 2.5		

Source: Basel III Accord, 2011 Revision

### ***Leverage Ratio***

A critical characteristic of the 2007-08 financial crisis was the overuse of on- and off-balance sheet leverage<sup>12</sup> in the banking sector. On the other hand, banks portrayed healthy risk based capital ratios. However, when banks had no choice but to reduce leverage in the worst part of the crisis, a vicious circle was created.

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<sup>12</sup> Off-balance sheet leverage, also known as incognito leverage, refers to a financing activity, asset or debt, which does not appear on the entity’s balance sheet.

The leverage ratio was incorporated in order to have a non-risk based metric in addition to the risk based capital requirements in place. Of course, the primary intentions were thus to throttle the tendency of excessive leverage and strengthen risk based requirements.

The occurrence of financial crisis of 2008 highlighted the failure of Basel II norms to contain the widespread shock. This led to more stringent definition of capital and capital requirements. Besides, liquidity standards were introduced to ensure stable source of short term (30 days) and medium term funding (one year) of the bank of its assets. Thus, the liquidity coverage ratio and net stable funding ratio made its way into the refined Basel III accord.

Since the implementation of Basel III involves significant changes in capital structure, the same shall be implemented in a phase wise manner. The phases of implementation of Basel III are presented in *Annex 3*.

#### **Section IV: A Global View of the Basel Accords – Cross Country Analysis**

##### **Global Overview**

The recent global financial meltdown brought to fore the limitations of Basel II accord. The norms failed to capture losses on off-balance sheet items leading to decline in return on equity, in spite of meeting capital adequacy ratios. The new Basel III accord intends to proactively plug leakages from the previous norms.

Cosimano and Hakura (2011), estimate an increase of 16 basis points in the lending rates to raise equity-to-asset ratio by 1.3 percent, which would lead to compliance with the Capital Adequacy ratio of 7 percent as per the Basel III accords. The cost of equity is estimated to be 16 basis points more than debt and other alternative sources of finance, available to banking and financial institutions. A further increase in the cost of equity will lead to decline in advances and loans by 1.3 percent, after considering an estimated elasticity of demand for loan of 0.33 percent in relation to lending rates of banks. However, these impacts shall vary across economies, as a result of difference in application of these regulations, capital markets constraints, cost of equity of banks in different countries and demand elasticity of loan with respect to lending rates.

A cross-country analysis (done by the IMF) reveals that while the net cost of raising equity to achieve 1.3 percent increase in equity-to-asset ratio is estimated to be 26 basis points for Japan,

the same for Canada is estimated at 0 basis points. Similarly, the USA experienced an estimated elasticity of loan demand of 0.92 percent, while Denmark is more sensitive to interest rates, with elasticity of 6.6 percent. Thus, for a country in crisis, it is estimated that, on an average, the impact of increasing equity-to-asset ratio by 1.3 percent is 4.9 percent, while the estimates are substantially higher for non-crisis countries. Given the impact that regulations on capital adequacy can potentially have on a country, it is imperative for policy makers to recognize reasons for high elasticity and high cost of equity.

An important feature of the Basel III norms is the introduction of the countercyclical capital, which can mandate a banking institution to create an additional buffer of capital to the tune of 2.5 percent under a declaration of “excessive credit growth.” Estimates suggest a reduction of 2.5 percent of bank loans as a result of this compliance. Hence, the pronouncement of “excessive credit growth” could itself lead to a significant countercyclical impact on the developed economies. Thus, it is important for countries to coordinate decisions and monetary policies with declaration under these norms. Declaration of an ‘excessive credit growth’ along with austere monetary policy could result in significant tightening. Hence, it is prudent for central bank of a country to consider the capital adequacy norms and requirement of additional capital as an important tool to regulate monetary policy.

### **Select Country Examples:**

#### ***Australia***

As mentioned earlier, the 2008 global financial crisis exposed the gaps in the Basel II accord. While it resulted in widespread institutional failure across geographies, there was no Australian financial crisis as such. Two measures probably saved Australia in this regard – the preventive actions taken prior to 2008, and the extraordinary public sector intervention since 2008.

The 2008 global crisis affected liquidity in the Australian banking system and monetary and fiscal measures were undertaken to aid the economy. In this context, public sector interventions were made during the crisis, such as Reserve Bank of Australia (RBA) liquidity support and certain government guarantee programs.

## ***Brazil***

The Central Bank of Brazil (Banco Central do Brasil, BCB) adopted Basel III norms in October 2013. Of the fourteen components of assessment, Brazil was already compliant with eleven. The requirement of additional capital to comply with Basel III norms is quite low in Brazil, and hence, is unlikely to have a negative impact on economic growth. Except 3 banks, most of the banks comply with the capital requirement of 11 percent. The capital adequacy shall be raised to 13 percent under Basel III norms, in which case, 9 banks shall have a shortfall, while 18 banks shall be uncomfortably close to the regulation. However, banks shall have until 2019 to comply with this regulation.

## ***United Kingdom***

Across the EU, the Basel norms are implemented under the legal name of Capital Requirements Directives (CRD). In UK, the responsibility of convergence to CRD is equally shared between Financial Services Authority (FSA) and HM Treasury. Following the 2008 financial turmoil gripping UK, the Prudential Regulation Authority (PRA) was formed as a successor to Financial Services Authority (FSA), the banking regulator, in April 2013, as a part of restructuring efforts for more effective supervision and governance. CDR IV, which directs implementation of Basel III, has been approved by the EU parliament, with implementation commencing from January 2014. This creates an obligation for adoption of Basel III norms on all the member countries including the United Kingdom.

## ***United States***

Banking regulation is highly fragmented in U.S., with multiple regulatory bodies having interest in the same issue. For e.g. Board of Governors of the Federal Reserve System, Federal Reserve Bank of New York, Office of the Comptroller of the Currency and Federal Deposit Insurance Corporation together are the institutions that represent the United States on the Basel Committee on Banking Supervision. Policy making and implementation thus tends to be a time consuming process.

The financial crisis of 2008 called for sweeping changes in banking supervision and regulation standards in the country. The Dodd Frank Act was enacted in 2010, in the middle of the

consultative process of Basel III. The Act is largely consistent with Basel III requirements in terms of capital and leverage ratios and liquidity ratios. The Board of Governors of Federal Reserve System announced implementation of Basel norms in July 2013.

Basel III is being implemented in the US in a phased manner starting from January 1, 2013 to January 1, 2019. Implementation of Basel III norms in USA will require an additional Core Tier I Capital to the extent of \$700 billion, and total Tier I capital of \$870 billion, with the gap in long term funding estimated at \$3.2 trillion. These shortfalls are expected to bring down Return on Equity (ROE) of banks by 3 percent<sup>13</sup>.

Internationally, Basel III is in different stages of implementation in different countries. (*Table 7*).

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<sup>13</sup> McKinsey & Company (2010), "Basel III and European banking: Its impact, how banks might respond, and the challenges of implementation," *McKinsey Working Papers on Risk*, No. 26.

**Table 7: Status of Adoption of Basel III (capital) regulations (as of end - March 2013)**

Country	Risk-based Capital <sup>14</sup>		Country	Risk-based Capital	
	Status of regulation	Status of adoption		Status of regulation	Status of adoption
Argentina	3,4	2	Germany	2	2
Australia	4	3	Hong Kong SAR	4	3
Belgium	2	2	India	4	3
Brazil	3	2	Indonesia	2	2
Canada	4	3	Italy	2	2
China	4	3	Japan	4	3
France	2	2	Korea	2	2
Luxembourg	2	2	Spain	2	2
Mexico	4	3	Sweden	2	2
The Netherland	2	2	Switzerland	4	3
Russia	3	2	Turkey	2	2
Saudi Arabia	4	3	United Kingdom	2	2
Singapore	4	3	United States	2	2
South Africa	4	3	EU	2	2

Source: Bank for International Settlements, April 2013

The Chairmen of the Basel committee, till date, are Heads of Central Bank of the different advanced countries such as England, Italy, Sweden, Netherland, Spain, and New York. The majority of Chairmen belong to Europe and U.S. especially England, Netherland and New York (refer *Annex 4*).

### **Section V: Cooperation of the Committee with Other Standard Setters**

In the year 1996, the Committee formed a Joint Forum of Financial Conglomerates which includes supervisors such as International Organisation of Securities Commissions (IOSCO) and the International Association of Insurance Supervisors (IAIS). The forum aims to enhance supervisory coordination and develop principles for more effective supervision of financial conglomerates by exchanging information between supervisors. Furthermore, the committee has worked jointly with IOSCO and other outside bodies and issued joint reports which deal with a number of activities such as management, reporting, derivative activities of banks and securities firms, capital adequacy of trading activities, technical banking, accounting and auditing issues.

<sup>14</sup> Number code for status of regulation: 1 = draft regulation not published; 2 = draft regulation published; 3 = final rule published; 4 = final rule in force

Number code for status of adoption: 1 = no progress; 2 = regulatory adoption in process; 3 = regulatory adoption completed

### ***Cooperation of Basel Committee with non-member countries***

The Basel Committee works in coordination with not only its member countries but also other banking supervisory authorities for encouragement of contacts and better cooperation and the strengthening of such cooperation takes place through biennial International Conferences of Banking Supervisors. The committee also assists its non-member countries by providing suitable documentation, participating as appropriate in the meetings, offering limited Secretariat assistance and hosting meetings between the principals for future work coordination.

### ***Basel Committee Secretariat***

The Bank for International Settlements provides the Secretariat of Basel Committee. The Secretariat is appointed by the supervisors of member countries for temporary assistance in order to ensure that the non-member countries are well informed about the work of the committee. The responsibility of the Secretariat includes organising annual supervisory seminars, conducting training courses on annual basis at regional locations, etc.

## **Section VI: Understanding the Indian scenario**

The implementation of Basel III norms commenced in India from April 1, 2013 in a phased manner, with full compliance initially targeted to be achieved by March 31, 2018 but extended to March 31, 2019.

The Reserve Bank of India specified minimum Tier 1 leverage ratio of 4.5 percent during the parallel run period as against the Basel Committee's minimum Tier 1 leverage ratio of 3 percent. This leverage ratio has been revised based on the recent proposals of the Basel Committee. Again, as the biggest concern for the financial sector and the real sector is associated with the growing volume of the restructured assets and non-performing assets, a *framework for revitalizing distressed assets* has been implemented in the economy which has come into effect from April 2014. The guidelines of the framework include early recognition of financial distress, information sharing among lenders and co-ordinated steps for prompt resolution and fair recovery for lenders. It focuses on the formation of lenders' forums and incentives for lenders and borrowers for the improvement of the current restructuring process such as mandating

independent evaluation of large value restructuring which emphasizes on the viability and fair sharing of gains and losses between creditors and promoters. Finally, a more liberal regulatory treatment of distressed asset sales, for bringing non-bank lenders under its ambit for better effectiveness, has been provided. Further, the Reserve Bank of India proposed to create a Countercyclical Capital Buffer (CCCB). This framework would build up a buffer of capital for achieving the broader macro prudential goal by restricting the banking sector's wide range of lending in the excess credit growth period which has the possibility of building up system-wide risk. The proposed framework is based upon the credit to GDP gap which is related to other indicators such as Gross Non-Performing Assets (GNPA) growth. The CCCB should increase from 0 to 2.5 percent depending upon the banks' risk weighted assets (RWA) on the position of the gap between the points of 3 percent and 15 percent. (Gandhi, 2013)

The Indian banking system faces the challenge of complying with the stringent requirements of Basel III framework, while at the same time maintaining growth and profitability. The RBI prescribes a minimum Capital to Risk Weighted Asset Ratio (CRAR) at 9 percent, higher than 8 percent prescription of Basel III accord.

Even though the Indian banks look well-capitalized at 13 percent CRAR (overall as on June 2013), it still faces immense challenges to adopt Basel III. Banks will face increasing capital requirements due to increasing credit requirements for financing growth. Also, there will be a fiscal burden, if majority shareholding has to be retained by the Indian government.

In order to comply with the Basel III norms there is a requirement to raise large amount of capital by the Indian banks in the next five years. According to the CARE's estimate, the total equity capital requirement for Indian banks till March 2019 (when Basel III would be fully implemented) is likely to be in the range of Rs.1.5-1.8 trillion assuming that the average GDP growth will be 6 percent and the average credit growth will be in the range of 15 percent to 16 percent over the next five years. Again, it is also estimated that a return on total assets at 0.6 percent will be earned by the bank and would maintain a minimum regulatory requirement of CAR.

The capital adequacy levels for the select banks continued to be comfortable during FY14. However, the public sector banks would require to raise additional equity in order to meet the

more stringent Basel III norms and also maintain the minimum regulatory requirement. (CARE 2014)

As per estimates, public sector banks in India will require additional capital to the extent of Rs.4.15 trillion, of which, Rs. 1.4-1.5 trillion shall be in the form of equity and Rs. 2.65-2.75 in the form of non-equity capital. This implies additional capital infusion from the Government of India. The Indian government may not be able to fund entire capital due to the precariously placed fiscal deficit. The government has already infused Rs. 477 billion in the last five years, and will further infuse Rs. 140 billion in financial year 2013-14. However, govt. shareholdings in public banks presently range from 55 percent to 82 percent. Hence, there exists sufficient scope for raising capital through dilution of stake.

The need for additional capital also stems from the fact that there has been a steady increase in the restructured and non-performing assets. Depending upon the challenging environment, India's banks are required to inject a large number of capital over the next few years which will be combined with the new Basel III capital requirements. The public sector banks in India will be exposed to a change in classification which is based on a significant share of restructured loans to non-performing assets (NPAs). (IMF 2014)

The RBI is a member of the Large Exposure Group and has initiated a Quantitative Impact Study (QIS) in December 2013 with regards to large exposures. The study was conducted to assess the banks' preparedness for the new liquidity ratios of Basel III. The findings of the study showed that the average liquidity ratio of the banks was varying from 54 percent to 507 percent. (RBI 2013) Historically, it has been proved that large exposure to a single counter party has also played a part in several financial crisis. BCBS in 1991 set 25 percent of total capital as a target for upper limit for single party exposures. However, no guidance on measurement and aggregation of these exposures were provided, resulting in varied practices across geographies. BCBS set up the Large Exposure Group in March 2011 to update these norms. The group issued a draft document on 'Supervisory Framework for Measuring and Controlling Large Exposures' in March 2013 and solicited comments. These norms will be brought under implementation by January 1, 2019. A consultative document published by this group in March 2013 has prescribed large exposure limit of 5 percent of bank's eligible capital and 25 percent of Common Equity

Tier 1 (CET1), instead of use of total capital as per incumbent regulation. RBI guidelines on large exposure risks have evolved over time. They prescribe a ceiling limit of 15 percent and 40 percent of bank's capital on credit exposure to a single borrower and borrowers belonging to the same group. A bank's exposure to capital markets for both fund based and non-fund based, has been capped at 40 percent of net worth, with a maximum ceiling of 20 percent on bank's direct investment in shares, convertible debentures or bonds, units of equity oriented mutual funds and venture capital funds. India is ranked poorly on Basel Core Principle 10 regarding 'Large Exposure Limits'. The FSR report indicates that "*the large exposure limit of 40 percent, which can be exceptionally brought up to 50 percent for infrastructure exposures for a group borrower, is significantly higher than large exposure limits of 25 percent which is considered good international practice*" (Subbarao, 2013),<sup>15</sup> earning India an assessment of 'materially non-compliant'.

India is working towards implementation of capital framework which warrants margin requirements for non-centrally-cleared derivatives. This is seen as a push towards central clearing.

Further, government securities having the minimum and mandated SLR requirement, according to the Reserve Bank's Marginal Standing Facility (MSF), should be treated as level 1 assets for the computation of LCR. When the LCR requirement increases incrementally, the availability of quality liquid assets and its access may become a challenge as the funding preferences of the Indian banks changes with the adoption of the Basel III liquidity standards. In the process of adopting Basel III capital norms, the banks will have a relatively comfortable capital adequacy position. However, the increase in the required amount of capital can become a challenge. Though the public sector banks, according to various estimates, would mobilize the additional capital because of the phased implementation of Basel III capital requirements, the required amount of capital for the full implementation would be substantial. Government has infused 586 billion in the public sector banks in the last four years and also a provision has been made of 112 billion in the interim budget for 2014-15. The capital infusion from the Government may not be sufficient as the public sector banks hold more than 70 percent of the banking assets. It is also

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<sup>15</sup> Financial Stability Report (December 2013) published by Reserve Bank of India

important to note that, despite of having headroom for the management of the banks to raise equity from market, the banks have relied more on the Government to infuse equity. The public sector banks did not shore up their equity capital base from the markets based on the Basel III capital adequacy requirements. The low quality asset has resulted in the sufferings of the internal generation of capital. Further pressure would be created on the equity of banks with the growing pressure on banks' asset quality and threat of downgrade rating. Again, there would a requirement of capital for the supervisory review and evaluation process under Basel Pillar II framework. (Khan, 2014)

In January 2014, an Expert Committee to Revise and Strengthen the Monetary Policy Framework recommended reduction of SLR to be consistent with Liquidity Coverage Ratio, as required under the Basel III framework. This recommendation is aimed at improving the transmission of monetary policy in India.

In addition to Basel III framework, RBI intends to employ its new Risk Based Supervision (RBS) framework, which includes an internal Supervisory Program for Assessment of Risk and Capital (SPARC) and regular stress tests. Systematically Important Financial Institutions (SIFIs) will be regulated and subject to supervision and scrutiny. The Indian Banking systemically recorded a Return on Equity of 13 percent, before implementation of Basel III. However, the same was starkly low under the stress test carried out by RBI. This underscored the importance of strengthening of the Indian banking system.

RBI had earlier issued draft regulations on Liquidity Risk Management (LRM) in February 2012. The final regulation was issued in November 2012 after incorporating comments and feedback. It was then indicated, in the regulation, that the final rules based on Basel III liquidity standards i.e. Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools (January 2013) will be issued once the same has been finalized by the Basel Committee.

A crucial motive of banking sector reforms of 1990s was to bring about an improvement of profitability and operational efficiency of banks. Cost to Income ratio (CI), Net Interest Margin (NIM) and Return on Assets (RoA) indicates a decline in CI and NIM for the entire banking system over this period, but an improvement in RoA. Basel II norms indicate that banks should aim to attain CI of 40 percent, and RoA of more than 1 percent. India's performance compares

favorably in these two benchmarks in the decade starting 2000, indicating an improvement in the efficiency of the Indian banking sector in recent years.

*Table 8* captures the indicators of profitability and efficiency across select countries in the world.

**Table 8: Indicators of Profitability and Efficiency across Select Countries**

Country	Cost-to-income ratio (%)	NIM (%)	RoA (%)
<b>Selected advanced countries</b>			
USA	60.59	3.64	0.83
Japan	61.65	1.01	0.28
UK	67.79	1.09	0.16
Denmark	70.32	1.12	0.07
France	75.37	0.90	0.11
Germany	83.62	0.78	0.02
Italy	89.63	1.37	-1.10
<b>BRICS</b>			
China	38.48	2.74	0.77
<i>India</i>	<i>44.53</i>	<i>3.02</i>	<i>0.95</i>
Brazil	57.28	4.97	1.21
South Africa	57.34	2.76	1.10
Russia	90.03	3.93	1.27

Source: Bankscope, Financial Structure Database, World Bank

The Capital to Risk Weighted Asset Ratio (CRAR) remained above the stipulated 9 percent for the entire banking system in 2012-13, but indicates a declining trend mainly due to deteriorating capital positions of the public sector banks.

*Table 9* reflects the capital to risk-weighted assets ratio under Basel I and II clubbed as per bank groups, while *Table 10* shows the component-wise capital adequacy of scheduled commercial banks (SCBs).

**Table 9: Capital to Risk-Weighted Assets Ratio***(Per cent, as at end-march)*

Item/Bank Group	Basel I		Basel II	
	2012	2013	2012	2013
1	2	3	4	5
<b>Public Sector banks</b>	<b>11.88</b>	<b>11.31</b>	<b>13.23</b>	<b>12.38</b>
Nationalised banks	11.84	11.39	13.03	12.26
SBI Group	11.97	11.14	13.70	12.67
<b>Private sector banks</b>	<b>14.47</b>	<b>15.10</b>	<b>16.21</b>	<b>16.84</b>
Old private sector banks	12.47	12.33	14.12	13.73
New private sector banks	14.90	15.71	16.66	17.52
<b>Foreign banks</b>	<b>17.30</b>	<b>18.76</b>	<b>16.75</b>	<b>17.87</b>
<b>Scheduled commercial banks</b>	<b>12.94</b>	<b>12.77</b>	<b>14.24</b>	<b>13.88</b>

Source: Trends and Progress of Banking in India 2012-13, RBI

**Table 10: Component-wise Capital Adequacy of SCBs (As at end-March)***(Amount in Rs. billion)*

Item	Basel I		Basel II	
	2012	2013	2012	2013
<b>1. Capital funds (i + ii)</b>	<b>7,810</b>	<b>8,906</b>	<b>7,780</b>	<b>8,879</b>
i. Tier I capital	5,686	6,595	5,672	6,580
ii. Tier II capital	2,124	2,311	2,109	2,299
<b>2. Risk-weighted assets</b>	<b>60,376</b>	<b>69,742</b>	<b>54,621</b>	<b>63,969</b>
<b>3. CRAR (1 as % of 2)</b>	<b>12.94</b>	<b>12.77</b>	<b>14.24</b>	<b>13.88</b>
<i>Of which:</i> Tier I	9.42	9.46	10.38	10.29
Tier II	3.52	3.31	3.86	3.59

Source: Trends and Progress of Banking in India 2012-13, RBI

Declining capital adequacy of public sector banks is a matter of great concern for the government, considering the fiscal implications of further capital infusion. Though the public sector banks conform to statutory CRAR target, the quality and quantity of (common equity) shall have to be improved, upon migration to Basel III norms.

## Section VII: Summary and Recommendations

The Basel norms, at some level, aim to create a global banking system that is fairly homogenous. While this very aim purports to build a more robust financial system, it may actually be its undoing. In other words, such a homogeneous banking system could potentially be more

vulnerable to a mass failure or collapse. Simply speaking, a diverse group is an advantage since an attack only affects a certain percentage of its constituents. A banking system that is too homogenous is, in fact, dangerous for the future of countries the world over.

### ***Local expertise showcased on a global platform***

In this context, Persaud (2000, 2001) had remarked that a market being large is not sufficient for it to be highly stable and liquid. It must also exhibit a broad range of participants having diverse objectives as one of the key characteristics. He further elucidates that local knowledge is a key competitive advantage to a bank. Moreover, a successful financial institution endeavors to know its customers better, lend to them when others would not, and withdraw from them when others do not realize the potential threat. This competitive advantage of local knowledge is completely disregarded by the Basel norms, as it attempts to bring banks globally on the same platform. The credit risk management of *Grameen Bank of Bangladesh* epitomizes this point, wherein the bank has been successful in lending to poor women without high non-performing assets (NPAs), despite the fact that such loans were otherwise considered high risk assets due to inadequate credit history.

### ***National competencies in the international arena***

The Basel norms also fail to consider national competencies. We have a global scenario where individual countries vastly differ in their extent of development. Given the differing development in the banking systems and economies of countries, the norms do not specifically take measures to put various countries on a level-playing field. Take, for instance, a bank branch operating locally in a particular country. In the context of that country, it could see profitability suffer. The Basel norms in general demand a high amount of capital, and are thus quite stringent. In an age where international banks are so prevalent, such differences across geographies can become tricky to deal with. The Basel accords need to incorporate, in some form, the element of national competencies so as to create a level-playing field.

### *Coordinated adoption and streamlined implementation*

While the Basel accords aim to bring along a host of benefits, they inevitably imply high costs for adopting nations. This is especially true because countries implementing the norms earlier would need to maintain greater capital base as stipulated by the new norms. In turn, the banking systems of such countries start bearing a higher cost before others who implement the norms later do. This lack of synchronization in the adoption of the norms dilutes their efficacy. The proposal of phases and timelines for implementation should be put forth in a manner that ensures a fair amount of coordinated adoption. Of course, this needs to be looked at in conjunction with the previous paragraph to take into consideration national competencies.

Compliance with Basel norms requires a high level of capital, which brings down the competitiveness of a bank. Adoption of Basel norms in countries having inadequate resources could result in the inadvertent diversion of capital from more vital avenues.

## References

- Allen, Bill, Ka Kei Chan, Alistair Milne, and Steve Thomas (2012), “Basel III: Is the cure worse than the disease?” *International Review of Financial Analysis*, Vol. 25, pp. 159-166.
- Australian Prudential Regulation Authority (2011), “Regulation Impact Statement: Implementing Basel III capital reforms in Australia,” *Australian Prudential Regulation Authority (APRA) Working Paper*.
- Bank of International Settlements (1988), “International Convergence of Capital Measurement and Capital Standards,” *Bank of International Settlements Publications*.
- Bank of International Settlements (2006), “International Convergence of Capital Measurement and Capital Standards,” *Bank of International Settlements Publications*.
- Bank of International Settlements (2009), “Revisions to the Basel II market risk framework,” *Bank of International Settlements Publications*.
- Bank of International Settlements (2010), “Basel III: International framework for liquidity risk measurement, standards and monitoring”, *Bank of International Settlements Publications*.
- Bank of International Settlements (2011), “Basel III: A global regulatory framework for more resilient banks and banking systems”, *Bank of International Settlements Publications*.
- Bank for International Settlements (2013), “Report to G20 Finance Ministers and Central Bank Governors on monitoring implementation of Basel III regulatory reform”, Bank for International Settlements publications
- Blundell-Wignall, Adrian, and Paul Atkinson (2010), “What Will Basel III Achieve?” *Groupe d'Économie Mondiale*.
- CARE (2014), “*Banking Sector Performance Study FY 14*”, CARE Ratings, July.
- Chabanel, Pierre-Etienne (2011), “Implementing Basel III: Challenges, Options & Opportunities,” *Moody's Analytics White Paper*.
- Cosimano, Thomas F., and Dalia S. Hakura (2011), “Bank Behavior in Response to Basel III: A Cross-Country Analysis,” *IMF Working Paper*.

- Demirgüç-Kunt, Asli, and Enrica Detragiache (2010), “Basel Core Principles and bank soundness: Does compliance matter?” *Journal of Financial Stability*, Vol. 7, pp. 179-190.
- Financial Services Faculty (2012), “Basel III: New Bank Capital and Liquidity Requirements,” *Briefing Paper*.
- Gandhi, R. (2014), “*Indian Banking at crossroads- Challenge of Risk Management from Globalization to Financial Inclusion*”, Valedictory address, Seminar on Banking, Indian Merchant’s Chamber, Mumbai, May.
- Georg, Co-Pierre (2011), “Basel III and Systemic Risk Regulation – What Way Forward?” *Working Papers on Global Financial Markets*.
- Getter, Darryl E. (2012), “U.S. Implementation of the Basel Capital Regulatory Framework,” *Congressional Research Service*.
- International Monetary Fund (2012), “Brazil: Detailed Assessment of Observance of Basel Core Principles for Effective Banking Supervision,” *International Monetary Fund Publications*.
- International Monetary Fund (2014), “India: IMF Country Report No. 14/57”, *International Monetary Fund Publications, February*.
- Khan, H.R. (2014), “*Banks in India- Challenges and Opportunities*”, Keynote address, BFSI Conference, Mumbai, June.
- McKinsey & Company (2010), “*Basel III and European banking: Its impact, how banks might respond, and the challenges of implementation*,” *McKinsey Working Papers on Risk*, No. 26.
- Jayadev, M. (2013), “Basel III implementation: Issues and challenges for Indian banks,” *IIMB Management Review*, Vol. 25, pp. 115-130.
- Kumari, Raj (2013), “Basel III Accord in Indian Perspective,” *International Journal on Global Business Management and Research*, Vol. 1, No. 2, pp. 92-100.
- McKinsey & Company (2010), “*Basel III and European banking: Its impact, how banks might respond, and the challenges of implementation*,” *McKinsey Working Papers on Risk*, Number 26.
- Mehta, Meera (2012), “Demystifying Basel III for Indian Banks,” *International Conference on Technology and Business Management*, pp. 268-274.

- Prakash, Anupam (2008), “Evolution of the Basel Framework on Bank Capital Regulation,” *RBI Occasional Papers*, Vol. 29, No. 2.
- PricewaterhouseCoopers (2012), “US Basel III Regulatory Capital Regime and Market Risk Final Rule,” *PricewaterhouseCoopers Ongoing Series*.
- Reserve Bank of India (2001), “Reports of Committee on Banking Sector Reforms (Narasimham Committee II) - Action taken on the recommendations,” *Reserve Bank of India Publications*.
- Reserve Bank of India (2012), “Report on Trend and Progress of Banking in India 2012-13,” *Reserve Bank of India Publications*.
- Reserve Bank of India (2012), “Reserve Bank of India Annual Report 2012-13,” *Reserve Bank of India Publications*.
- Reserve Bank of India (2013), “Reserve Bank of India Annual Report 2013-14”, *Reserve Bank of India Publications*.
- Shah, Mamta (2013), “Basel-3 and its Impact on Indian Banking Sector,” *Journal of Indian Research*, Vol. 1, No. 1, pp. 53-58.
- Sobreira, Rogerio, and Tarciso Gouveia da Silva (2012), “Basel III and Brazilian Banks,” *Associação Keynesiana Brasileira*.
- Subbarao, D (2013), Speaking Notes, FICCI-IBA Annual Banking Conference, Mumbai, August.
- Yan, Meilan, Maximilian J. B. Hall, and Paul Turner (2012), “A cost–benefit analysis of Basel III: Some evidence from the UK,” *International Review of Financial Analysis*, Vol. 25, pp. 73-82.

## Annexure 1

### Stock of high quality liquid assets

Assets are considered to be highly liquid if they can be easily and quickly converted into cash and are of high quality if the conversion results in no or low loss in realization. The characteristics of such assets are as follows-

#### **i. Fundamental characteristics**

- a. *Low market and credit risk:* Less risky assets tend to be highly liquid
- b. *Ease and certainty of valuation:* Liquidity of an asset is directly proportional to ease in its valuation. The pricing of the product should be easy and exclude many assumptions. Thus, exotic and structured products are excluded.
- c. *Low correlation with risky assets:* These assets should not be subject to high correlation risk. For e.g., assets issued by a company in a particular sector might not be as liquid during times of stress.
- d. *Listed on developed and recognized stock market:* Ensures liquidity and transparency in its valuation.

#### **ii. Market-related characteristics**

- a. *Active and sizable market:* There should exist an active and large market for sale or purchase of these assets at all times
- b. *Presence of committed market makers:* Quotes from significant participants in the market should be available
- c. *Low market concentration:* Large and assorted mix of buyers and sellers in the market will act as a barrier to bias in valuation of these assets
- d. *Flight to quality:* Markets historically, park their investments in safe assets during periods of crisis.

High quality assets should also comply with operational requirements, enumerated hereunder:

- i. *Assets should be unencumbered.* Thus, they should not be pledged or act as collateral or used to enhance credit of any transaction.

- ii. These assets *should not be treated as a hedge* against trading positions or as collateral in a structured transaction.
- iii. These assets should be managed with the sole intention of using as a *cover against contingent liabilities*.

Banks are expected to maintain LCR with respect to every currency individually.

High quality assets can be divided in two categories, Level 1 asset and Level 2 asset. Level 1 asset comprise of cash, central bank reserves and marketable securities of sovereign central banks, non-government PSE's or multilateral development bank. There is no cap on proportionate holding of level 1 asset, while level 2 assets can be held to the maximum extent of 40 percent of overall assets. A 15 percent discount is applied to the market value of every level 2 asset, while including its value in total liquid assets. Level 2 assets comprise of marketable securities of sovereign central banks, non-government PSE's or multilateral development bank with a risk weight of 20 percent as per Basel II norms and corporate bonds.

Total net cash outflow over the next 30 calendar days

It refers to expected cash outflows reduced by expected cash inflows during periods of specified stress for 30 calendar day tenure. Expected cash outflows are arrived at by estimating the proportion of run-down of various balance sheet liabilities and off-balance sheet commitments.

Expected cash inflows are computed by multiplying outstanding receivables with expected proportion of flow or realization during this period, capped at 75 percent of expected cash outflows.

<p><i>Total net cash outflow over the next 30 calendar days</i></p> <p><i>= Outflows – min(inflows or 75percent of outflows)</i></p>
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Liquid assets can be included only once in the equation. Hence, if it is considered as liquid assets, the same cannot be included as expected cash inflow.

Banks are expected to comply with this ratio on an ongoing basis. This standard is built to protect banks against any contingent liabilities occurring due to peculiar shock on a large scale resulting in losses.

List of result of contingent events for which Liquid Coverage Ratio is to be maintained:

- i. The run-off of a proportion of retail deposits;
- ii. A partial loss of unsecured wholesale funding capacity;
- iii. A partial loss of secured, short-term financing with certain collateral and counterparties;
- iv. Additional contractual outflows that would arise from a downgrade in the bank's public credit rating by up to and including three notches, including collateral posting requirements;
- v. Increases in market volatilities that impact the quality of collateral or potential future exposure of derivative positions and thus require larger collateral haircuts or additional collateral, or lead to other liquidity needs;
- vi. Unscheduled draws on committed but unused credit and liquidity facilities that the bank has provided to its clients; and
- vii. The potential need for the bank to buy back debt or honor non-contractual obligations in the interest of mitigating reputational risk.

Assets which retain liquidity and value even in times of crisis are considered to be high quality assets. Lower quality assets would fail the test of flight to quality. Even if a bank attempts to increase liquidity for a low quality asset in period of stress, the same would not be possible without accepting a reduction in its value, thus accepting a loss in its financial statement due to mark to market treatment and adding pressure on its liquidity position. Thus, only high quality assets which comply with these characteristics can be easily converted into cash even in periods of adversity.

## Annexure 2

### Available Stable Funding (ASF)

Available stable funding comprises the following:

- i. Capital including preferred stock with maturity greater than one year
- ii. Liabilities with maturity greater than one year
- iii. Proportion of non-maturity deposit or wholesale funding with maturities of less than one year, but are expected to be retained by the bank for an extended tenure during period of stress.

The aim of this standard is to safeguard stable source of finance on an ongoing basis, for a period of one year in a period of firm-specific stress. Such stress scenario includes:

- i. Significant reduction in profitability or solvency
- ii. Downgrade in credit rating
- iii. Any other event which questions the reputation or credit of the bank

*Table 2.1* enumerates components of available stable funding and associated ASF factors.

**Table 2.1: Components of Available Stable Funding**

ASF Factor (%)	Component of ASF Category
100	<ul style="list-style-type: none"> <li>• Tier I and Tier II capital as defined under existing global capital standards by BCBS</li> <li>• Preferred stock not included in Tier II capital with outstanding maturity of more than one year</li> <li>• Secured and unsecured liabilities with unexpired maturity of more than one year</li> </ul>
90	Stable non-maturity demand deposit or term deposit of retail or small business customers with unexpired maturity of less than one year
80	Less stable non-maturity demand deposit or term deposit of retail or small business customers with unexpired maturity of less than one year
50	Unsecured wholesale funding, non-maturity deposits and term deposits provided by sovereigns, central banks, multilateral development banks, having residual maturity of less than one year
0	All other liabilities and equity categories

Source: Basel III Accord, December 2010

### Required Stable Funding (RSF)

The required amount of stable funding is computed by multiplying various asset values with the respective stable funding factor. *Table 2.2* enumerates a list of such factors.

**Table 2.2: Components of Required Stable Funding (RSF) based on factor**

<b>RSF Factor (%)</b>	<b>Component of RSF Category</b>
0	<ul style="list-style-type: none"><li>• Cash immediately available</li><li>• Unencumbered short term unsecured assets</li><li>• Unencumbered assets with residual maturity of less than one year</li></ul>
5	Unencumbered assets with residual maturities of more than one year representing claims of sovereigns, central banks, multilateral development banks and has a risk weight of 0 percent under Basel II norms
20	<ul style="list-style-type: none"><li>• Unencumbered AA- and higher rated corporate bonds with remaining maturity of more than one year</li></ul> Unencumbered assets with residual maturities of more than one year representing claims of sovereigns, central banks, multilateral development banks and has a risk weight of 20 percent under Basel II norms
50	<ul style="list-style-type: none"><li>• Unencumbered gold</li><li>• Unencumbered equity securities, listed on recognized exchange and a part of the market index. Excludes securities issued by financial institutions</li><li>• Unencumbered corporate bonds rated below AA- and traded actively on exchanges</li><li>• Unencumbered advances to non-financial corporations, governments, and central banks, with residual maturity of less than one year</li></ul>
65	<ul style="list-style-type: none"><li>• Unencumbered residential mortgages with a risk weight of less than 35percent as per Basel II norms</li></ul> Other encumbered loans with residual maturity of more than one year and attracts a risk weight of less than 35 percent under Basel II accord
85	Unencumbered loans to retail or small business customers with unexpired maturity of less than one year
100	All other assets

Source: Basel III Accord, December 2010

Further, the composition of off-balance sheet categories has been stated with their respective RSF factors as depicted in *Table 2.3*.

**Table 2.3: Composition of Off-balance sheet categories and associated RSF factors**

<b>RSF Factor (%)</b>	<b>RSF Category</b>
5	Conditionally revocable and irrevocable credit and liquidity facilities
Discretion of national regulators	<ul style="list-style-type: none"><li>• Guarantees</li><li>• Letter of credits</li><li>• Other trade finance instruments</li></ul>

Source: Basel III Accord, December 2010

Both the liquidity standards include identified parameters, which are internationally harmonized. However, national regulators can apply discretion in case of certain parameters, such that the standard is more suited to the national economic environment.

### Annexure 3

#### Phases of Basel III Implementation

Phases	2013	2014	2015	2016	2017	2018	2019
<b>Capital Ratio</b>							
Leverage ratio						Migration to Pillar I	
Minimum common equity capital ratio	3.5%	4.0%	4.5%				<b>4.5%</b>
Capital conservation buffer				0.625%	1.25%	1.875%	<b>2.5%</b>
Minimum common equity plus capital conservation buffer	3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	<b>7.0%</b>
Phase-in of deductions from CET1		20%	40%	60%	80%	100%	<b>100%</b>
Minimum Tier I Capital	4.5%	5.5%	6.0%				<b>6.0%</b>
Minimum Total Capital		8.0%					<b>8.0%</b>
Minimum total capital and conservation buffer		8.0%		8.625%	9.25%	9.875%	<b>10.5%</b>
Capital instruments that no longer qualify as non-core Tier I or Tier II capital		Phase out over 10 year horizon beginning 2013					
<b>Liquidity ratio</b>							
Liquidity coverage ratio – (minimum)			60%	70%	80%	90%	<b>100%</b>
Net stable funding ratio						Introduce minimum standard	

Source: Basel III Phase-in arrangements, Basel Committee on Banking Supervision

## Annexure 4

### Basel Committee

<b>Year</b>	<b>Name of the Chairman</b>	<b>Position</b>	<b>Name of the Central Bank</b>	<b>Country</b>
1974-77	Sir George Blunden	Executive Director	Bank of England	England
1977-88	Peter Cooke	Associate Director	Bank of England	England
1988-91	Huib J Muller	Executive Director	Netherlands Bank	Netherland
1991-93	E Gerald Corrigan	President	Federal Reserve Bank of New York	New York
1993-97	Tommaso Padoa-Schioppa	Deputy Director General	Bank of Italy	Italy
1997-98	Tom de Swaan	Executive Director	Netherlands Bank	Netherland
1998-2003	William J McDonough	President	Federal Reserve Bank of New York	New York
2003-06	Jaime Caruana	Governor	Bank of Spain	Spain
2006-11	Nout Wellink	President	Netherlands Bank	Netherland
2011-present	Stefan Ingves	Governor	Sveriges Riksbank	Sweden

Source: A Brief History of the Basel Committee, Basel Committee on Banking Supervision, BIS