

# Transition from BASEL I to BASEL III: A Critical Review

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## Abstract

Basel Accords are a set of standards and practices developed for global banks to ensure that they maintain adequate capital to withstand periods of economic strain. It is a comprehensive set of reform measures designed to improve the regulation, disclosures and risk management within the banking sector. Basel Accord I was introduced in 1988 by the Basel Committee on Banking Supervision (BCBS) under the auspices of Bank for International Settlements (BIS) and focused almost entirely on credit risk. It defined capital requirement and structure of risk weights for banks. Basel Accord II was introduced in 2004 to address the loopholes of Basel I and laid down guidelines for capital adequacy, risk management and disclosure requirements. The question arises as to why Basel Accord III? It is widely felt that the shortcomings of Basel II led to the global financial crisis of 2008. That is because Basel II did not have any explicit regulation on the debt that banks could take on their books, and focused more on individual financial institutions, while ignoring systemic risk. To ensure that banks don't take on excessive debt, and that they don't rely too much on short term funds, Basel III was proposed in 2010. Through this research paper, I intend to critically analyse the three tiers of banking regulatory reforms namely, Basel I, Basel II and the Basel III and the loopholes of each of the preceding Basel Accords which has given way to the next. An insight into the Indian banking sector with respect to these Accords shall also be given. A case study of the State Bank of India regarding its current position as per Basel II and the necessary shift to Basel III is formulated and explicated here.

**Key Words:** Basel I, Basel II, Basel III, Investment Market, Securitization, Capital Adequacy

## Introduction

Banks play a pivotal role in the economy. They have easy access to funds through ways like collection of saver's wealth, issuing debt securities, or borrowing on the inter-bank markets. These funds mobilized are invested in short-term and long-term risky assets, which consist mainly of credits to various economic agents like individuals, companies, government etc. Banks help maintain the supply of money in the economy by centralizing any money surplus and injecting it back into the economy as and when required. It is therefore obvious that such institutions that play a pivotal role in the management of funds in the economy shall be subject to stringent constraints and regulations.

Bank capital plays an important role in the safety and soundness of individual banks and the banking system. Basel Committee on Banking Supervision (BCBS) under the auspices of Bank for International Settlements (BIS) has prescribed a set of norms for the capital requirement of banks in 1988 known as Basel Accord I. This Accord was formulated after many rounds of discussion by the member states of BCBS.

BCBS, a committee of banking supervisory authorities was established by the governors of central bank of the Group of Ten (G10) countries in 1974 in response to the messy liquidation of a Cologne-based bank (Herstatt Bank) in the same year. On 26 June 1974, a number of banks had released Deutsche Mark (German Mark) to the Herstatt Bank in exchange for dollar payments deliverable in New York. On account of differences in the time zones, there was a lag in the dollar payment to the counterparty banks, and during this gap, and before the dollar payments could be effected in New York, the Herstatt Bank was liquidated by German regulators. This incident prompted the G10 nations to form the Basel Committee on Banking Supervision under the auspices of the Bank for International Settlements (BIS) located in Basel, Switzerland, and hence was coined the name of the committee. The G10 countries included Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States and has now

*been expanded to include Argentina, Australia, Brazil, China, Hong Kong SAR, India, Indonesia, Korea, Luxembourg, Mexico, Russia, Saudi Arabia, Singapore, South Africa, Spain and Turkey also.*

*BCBS provides a forum for regular cooperation on banking supervisory matters and aims at enhancing the understanding of key, supervisory issues and improving the quality of banking supervisions worldwide<sup>1</sup>. Representatives of the central banks of these countries and their banking supervisory authority participated in many rounds of discussions before the Committee came out with the first Basel Accord – Basel I in 1988. It defined capital requirement and structure of risk weights for banks. Basel II was introduced in 2004 in response to the growing level of sophistication of lenders' operations and risk management and to overcome some of the distortions caused by the lack of granularity of Basel I. The lenders, under Basel I, were able to reduce required capital in ways that did not reflect lower real risk. This came to be known as the 'regulatory capital arbitrage'. The intention of Basel II was to align required minimum capital more closely with lenders' real risk profile. However, Basel II also proved to be inadequate as the global economy was hit by the financial crisis of 2008. Thus embarking on a new journey was the Basel Committee, entering into a third and fresh round of discussions on improving and upgrading the Basel Accord II to Basel Accord III. Basel Accord III has been introduced in January, 2013 and is to be implemented in a phased manner tentatively by 2015 but the implementation has been extended upto 2019. Basel III is supposed to strengthen bank capital requirements by increasing bank liquidity and bank leverage and further immune the banking system to financial shocks.*

## Review of Literature

Saidenberg and Schuermann (2003) provide an overview of the objectives of the Basel Accord II, its analytical foundations and also its main features. They have also analysed the impact of the proposals on the global banking system through possible changes in bank behaviour by different uses of the risk measurement framework. The paper also highlights the issues brought about by Pillar 2 (supervisory review) and Pillar 3 (public disclosure) of the Accord.

Elizalde (2006) presents a dynamic model of banking supervision to analyse the impact of the three pillars of Basel Accord II on banks' risk taking ability. This paper finds that while in Pillar II (Supervisory Review) the supervisor audits more frequently low rated banks and restricts their dividend payments in order to build capital, in Pillar 3 (Market Discipline) the supervisor reduces the level of deposit insurance coverage compelling not-fully insured depositors to adjust interest rates contingent on the bank's external rating. The risk sensitiveness of Pillar 1 (Capital Requirements) is also analysed concluding that all three Pillars reduce banks' risk taking incentives.

Herring (2007) analyses the Federal Reserve's bifurcated approach to implement Basel II reflecting inherent weakness in the structure. It also studies the original Basel Accord on Capital Adequacy (Basel I) and a summary of the Basel Accord II approach with emphasis on Pillar I weights on credit risk. It concludes with the consideration of whether it may have been possible to achieve equivalent improvements in risk management with lower

compliance costs and less uncertainty about the impact on financial stability.

Balin (2008), looks to fill the gap between the technicality of the Basel Accords and the lack of understanding by the interested scholars and non-technical policymakers caused due to the same by detailing the origin, regulation, implementation, criticism, and results of both Basel I and Basel II. It also analyses the loopholes of Basel I and Basel II and the often ignored implications of each of the aforementioned norms in emerging market economies which acts as a drawback to each of these norms. It elucidates that the inclusion of the interest of and factors affecting emerging market economies is of paramount importance to make them globally competitive.

Jablecki (2009) attempts to investigate the influence of the 1988 Basel Accord on bank behaviour and monetary policy. He argues that the Accord was successful in that it forced commercial banks in all of G10 countries to maintain higher capital ratios. Tentative research suggests, however, that – at least among American banks – the Accord also encouraged the widespread resort to regulatory capital arbitrage techniques, in particular securitization. The paper also reviews the literature on the transmission mechanism of monetary policy and shows that the Basel Accord has affected the bank lending channel. It concludes on the note that due to adverse selection problems and possible capital depletion resulting from the maturity mismatch, banks mindful of the capital requirements will reduce lending in response to a monetary policy tightening, amplifying the bank

lending channel. This result will be stronger with lower capital-to-risk-weighted-assets ratio. Finally, it has been argued that the new Basel II framework is likely to strengthen monetary policy even further, yet conclusive empirical research to support this hypothesis is still needed.

Atkinson and Blundell-Wignall (2010) look at how the Basel III proposals address the issues of helping to reduce the chance of another crisis like the current financial slowdown. It highlights the key features of Basel III capital proposals like leverage ratio, capital buffer and the proposal to deal with pro-cyclicality through dynamic provisioning based on expected losses that make it stronger than its preceding Accords. However, this report also identifies some major concerns. For example, Basel III does not properly address the most fundamental regulatory problem that the 'promises' that make up any financial system are not treated equally. This issue has many implications for the reform process, including reform of the structure of the supervision and regulation process and whether the shadow banking system should be incorporated into the regulatory framework and, if so, how. Finally, modifications in the overall risk-weighted asset framework are suggested that would deal with concentration issues.

### Research Objective

This research paper focuses on the following objectives:

1. Evaluate the three tiers of Basel Accords namely Basel I, Basel II and Basel III with respect to:
  - a. Reasons for the formation of Basel Committee on Banking Supervision
  - b. Guidelines of Basel Accords I, II and III as stipulated by Bank for International Settlements and Reserve Bank of India
  - c. Loopholes in the Basel I and II that gave way to the next tier of Basel Accord
  - d. Implementation of the three tier of Basel Accords
2. Case Study on State Bank of India as a transition from Basel II to Basel III

### Analysis and Discussions

#### *Brief History of the Indian Banking Sector since the (post-liberalisation) Banking Sector Reforms*

The foundation for the growth of the banking sector in India post-liberalisation was laid with the introduction of the financial sector reforms as per the

first Narasimham Committee<sup>2</sup> (chaired by Mr. M. Narasimham) in November 1991, which made path breaking recommendations with focus on increased competition and prudential regulations to increase efficiency and productivity.

These reforms resulted in a tremendous transformation of the banking sector in the economy. The reforms had a major impact on the overall efficiency and stability of the banking system. The outreach of banks increased in terms of the number of branch and ATM (Automated Teller Machine) presence geographically across the country and amongst various segments of the population.

Banks' balance sheet and the overall banking activities coupled with financial and investment banking services grew in size and scope. The financial performance of the Indian banks improved by leaps and bounds with increased competition between public sector banks and the new generation technology-oriented private sector banks. This was reflected in their profitability, Net Interest Margin (NIM), Return on Asset (ROA) and Return on Equity (ROE). The capital position improved significantly and the banks were able to bring down their Non Performing Assets (NPAs) sharply. This reform phase also introduced technology which in turn helped improve customer service and customer base.

The progressive growth of banks was reviewed by the second Narasimham Committee<sup>3</sup> (chaired by Mr. M. Narasimham) in accordance with their recommendations submitted to the Government in April, 1998. They also designed a programme for further strengthening the financial system of India. Since this time the Basel Accord I had been introduced by BCBS. The committee recommendations focused on various areas such as capital adequacy, bank mergers, bank legislation, etc. The concept of narrow banking was introduced to rehabilitate weak banks with high NPAs (as a percentage of their assets) by allowing them to place funds only in short term and risk free assets. To improve the inherent strength of the Indian banking system the committee recommended that the government should continue with the prescribed capital adequacy norms as it would also improve the banks' shock absorbing capacity. Reserve Bank of India (RBI), with effect from 1992 introduced Basel I in India with a conservative Capital Adequacy Ratio (CAR) of 9%, a per cent above the global norms of the Basel Committee at 8%.

While financial stability is not explicitly stated as an objective under the RBI Act, 1934, various measures



were undertaken from time to time to strengthen the financial stability in the system which covered a wide arena. This approach has evolved from past experiences and a constant interaction between the micro level supervisory processes and macroeconomic assessments. In the Indian context, the multiple indicator approach to monetary policy as well as prudent financial sector management, together with a synergetic approach through close coordination between RBI and other financial sector regulators has ensured financial stability. Some of the other policy measures include capital account management, management of systemic interconnectedness, strengthening the prudential framework and initiatives for improving and broadening the financial marketing infrastructure. Systemic issues arising out of interconnectedness among banks and between banks and Non Banking Financial Companies (NBFCs) and from common exposures were addressed by placing prudential limits on aggregate inter-bank liabilities as a proportion of banks' net worth, restricting access to uncollateralized funding market for banks and primary dealers with caps on both borrowing and lending, increasingly subjecting NBFCs to contain regulatory arbitrage. The other noticeable aspect regarding policy measures has been the innovative use of countercyclical policies to address the pro-cyclicality issues. The counter cyclical policies were introduced as early as 2004 by using time varying sectoral risk weights and provisioning, though RBI had used them sporadically even earlier. These unconventional measures taken in response to emerging risks are now widely acknowledged to have played a significant role in protecting the Indian Financial system from key vulnerabilities<sup>4</sup>.

### Basel Accord I Introduced

Rapid transformation of the financial system around the globe has brought about sweeping changes in the banking sector across the countries. Though new avenues and opportunities have been opened up for increasing the revenue generation for banks, yet new processes and technological progress has also exposed the banks to higher risk. Therefore, the need was felt for strengthening the soundness and stability of banks and to protect the depositors and the financial system from disastrous developments which could threaten the banks' solvency. Basel Committee on Banking Supervision (BCBS) under the auspices of Bank for International Settlements (BIS) took the initiative of putting in place adequate safeguards against bank failure with central banks across the globe.

Basel Accord I, II and III, drafted in 1988, 2004 and 2010 respectively are products of the Basel Committee on Banking Supervision (BCBS) – a group of eleven nations that, after the messy 1974 liquidation of the Cologne-based Herstatt Bank, decided to form a cooperative council to harmonize banking standards and regulations within and between all member states<sup>5</sup>. It provides a forum for regular cooperation and discussions on banking supervisory matters. Its objective is to enhance understanding of key supervisory issues and improve the quality of banking supervision worldwide.

As stated in the first Basel Concordat of the Basel Committee, the need for cooperation between banks across the globe has been stated as '...it is desirable not only that all foreign banking establishments are supervised but that this supervision is adequate, judged by the standard of both host and parent authorities<sup>6</sup>'. The second Concordat states '...that no foreign banking establishment should escape supervision; and ...that the supervision should be adequate<sup>7</sup>'. To achieve this goal, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, the United States, and Luxembourg agreed in Basel, Switzerland to form a quarterly committee comprising of each country's central banker and lead bank supervisory authority. At each meeting, the authorities of each country discussed the status of the international banking system and proposed common standards that can assist the Committee in achieving its goals. But as the Concordat states, the Basel Committee cannot enact legally binding banking standards and it is entirely up to the member states themselves to implement and enforce the recommendations of the Basel Committee

Drafted with the purpose of advocating codes of bank supervision and promoting financial stability amidst economic crisis, these Accords have initiated a new era of international banking cooperation. Through quantitative and technical standards, the three accords have helped harmonize banking supervision, regulation, and capital adequacy standards across the member countries of the Basel Group and many other emerging market economies.

Soon after the creation of the Basel Committee, its member states started discussing a formal standard to ensure the proper capitalization of internationally active banks. During the 1970s and 80s, some international banks were able to escape regulatory norms by exploiting the inherent geographical limits of national banking legislation. Moreover, these banks

also encouraged a regulatory ‘race to the bottom’, where they would relocate to countries with less strict regulations, thus pushing developing economies to loosen their regulatory norms. With the end of the petrodollar boom<sup>8</sup> and the resultant banking crises of the early 1980s, this desire for a common banking capitalization standard came to the forefront of the agendas of the Basel Committee’s member states. Six years of deliberations followed. In July of 1988, the Committee’s member countries came to a final agreement: the *‘International Convergence of Capital Measurements and Capital Standards’*, known informally as Basel Accord I.

This first of its kind initiative from BIS identified with Basel Accord I with over 100 central banks in different countries accepting the framework stipulated by the agreement, provided a structure for fair and reasonable degree of consistency in the capital standards in different countries, on a shared definition of capital.

#### The four ‘Pillars’ of Basel I

The 1988 Basel Accord (Basel I), established minimum capital standards for the banking industry by linking the banks’ capital requirement to their capital exposures. Basel I primarily focused on credit risk.

The Basel Accord I is divided into four ‘pillars’:

The first ‘pillar’, known as *‘The Constituents of Capital’*, defines both what types of on-hand capital are counted as a bank’s capital and how much of each type of the on-hand capital a bank can hold. The accord divides capital into two tiers. Capital in the first tier, known as ‘Tier 1 Capital’, consists of only two types of funds—disclosed cash reserves (general and legal reserves) and the capital paid for by the sale of bank equity, i.e. stock and preference shares. ‘Tier 2 Capital’ is a bit more ambiguously defined. This capital can include reserves created to cover potential loan losses (general loan-loss provision), holdings of subordinated term debt (with a maturity of over 5 years), hybrid debt/equity instrument holdings, undisclosed reserves (i.e. other provisions against probable losses) and potential gains from the sale of assets purchased through the sale of bank stock. The deductions allowed from the capital thus mentioned include investments in unconsolidated banking and financial subsidiary companies and investments in the capital of other banks and financial institutions as also goodwill. To follow the Basel Accord, banks must hold the same quantity (in dollar terms) of Tier 1 and Tier 2 capital.

The second ‘pillar’ of the Basel I Accord, *‘Risk Weighting’*, creates a comprehensive system to risk-weight a bank’s assets, or in other words, its loan book. Five risk categories (0%, 20%, 50%, 100% and variable risk percentage) encompass all assets on a bank’s balance sheet.

The first category weights assets at 0%, effectively characterizing these assets as ‘riskless’. Such ‘riskless’ assets are defined by Basel I as cash held by a bank, sovereign debt held and funded in domestic currency, all OECD (Organisation for Economic Cooperation and Development) debt, and other claims on OECD central governments.

The second risk category weights assets at 20%, showing that instruments in this category are of low risk. Securities in this category include multilateral development bank debt, bank debt created by banks incorporated in the OECD, non-OECD bank debt with a residual maturity of less than one year, cash items in collection, and loans guaranteed by OECD public sector entities.

The third, ‘moderate risk’ category only includes one type of asset – residential mortgages – and weights these assets at 50%.

The fourth, ‘high risk’ category is weighted at 100% of an asset’s value, and includes a bank’s claims on the private sector, non-OECD bank debt with residual maturity of more than one year, claims on non-OECD dollar-denominated debt or Eurobonds, 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 (unless deducted from capital), and all other assets.

The fifth, ‘variable’ category encompasses claims on domestic public sector entities, excluding central governments, and loans guaranteed by securities issued by such entities and can be valued at 0, 10, 20, or 50% depending on the central bank’s discretion.

The third ‘pillar’, *A Target Standard Ratio*, unites the first and second pillars of the Basel Accord I. It sets a universal standard whereby 8% of a bank’s risk-weighted assets must be covered by Tier 1 and Tier 2 capital reserves. Therefore, to calculate the required capital, a bank would multiply the assets in each risk category by the category’s risk weight and then multiply the result by 8%.

Mathematically,

$$\text{Cooke Ratio} = \frac{\text{Total Regulatory Capital (Tier I + Tier II)}}{\text{Risk Weighted Assets (Credit Risk)}}$$

The Cooke Ratio, thus calculated must be at least 8%. The ratio is named after Peter Cooke (Bank of England) who was the chairman of the Basel Committee.

Moreover, Tier 1 capital must cover 4% of a bank's risk-weighted assets. This ratio is seen as 'minimally adequate' to protect against credit risk in deposit insurance-backed international banks in all Basel Committee member states.

The fourth 'pillar', *Transitional and Implementing Agreements*, sets the stage for the implementation of the Basel Accords. Each country's central bank is requested to create strong surveillance and enforcement mechanisms to ensure the Basel Accords are followed, and 'transition weights' are given so that Basel Committee banks can adapt over a four-year period to the standards of the accord.

### Implementation

Basel I's adaptation and implementation occurred rather smoothly in the Basel Committee states. With the exception of Japan (which, due to the severity of its banking crisis in the late 1980s, could not immediately adopt Basel I's recommendations), all Basel Committee members implemented Basel I's recommendations—including the 8% capital adequacy target—by the end of 1992. Japan later harmonized its policies with those of Basel I in 1996. Although they were not intended to be included in the Basel I framework, other emerging market economies also adopted its recommendations. In contrast to the pointed warnings written into Basel I against implementation in industrializing countries, the adoption of Basel I standards was seen by large investment banks as a sign of regulatory strength and financial stability in emerging markets, causing capital-hungry states such as Mexico to assuage to Basel I in order to receive cheaper bank financing. By 1999, nearly all countries, including China, Russia, and India, had – at least on paper – implemented the Basel Accord.

### Criticism of Basel I

The critics of the Basel Accord I argue that Basel I only covers credit risk and only targets G10 countries, and therefore is seen as too narrow in its scope to ensure adequate financial stability in the international

financial system. Also, Basel I's omission of market discipline is seen to limit the accord's ability to influence countries and banks to follow its guidelines.

The second group of criticisms deals with the way in which Basel I was publicized and implemented by banking authorities. The inability of these authorities to translate Basel I's recommendations properly into 'layman's terms' and the strong desire to enact its terms quickly caused regulators to over-generalize and oversell the terms of Basel I to the G10's public. This, in turn, created a misconception that Basel I was the primary and last accord a country needed to implement so as to achieve banking sector stability. While G10 regulators saw this result as rather benign because they already had most of the known regulatory foundations for long-term growth in place, they did not realize that the 'over sale' of Basel I would influence large private banks in such a way that they would begin to demand that emerging market economies follow Basel I.

Thirdly, those critical of Basel I concentrates on the misaligned incentives the Accord gives to banks. Due to the wide breath and absoluteness of Basel I's risk weightings, banks have found ways to wiggle around Basel I's standards to put more risk on their loan books than what was intended by the framers of the Basel Accord.

### This is Done in Two Ways

In the first strategy, banks securitize their corporate loans and sell off the least risky securitized assets. By splicing the least risky bank loans from its loan book, a bank makes its assets more risky in *de facto* terms, but, in the *de jure* terms of Basel I, the risk weight given to the bank's corporate loans does not change. Moreover, the money gained through this securitization can be added to a bank's asset reserves, allowing it to give out even more risky loans. This method creates on paper that banks are properly protecting themselves against credit risk, but in reality are taking on quantities of risk far greater than what Basel I intended.

The second method through which banks can cosmetically maintain a low risk profile under Basel I while taking on increasing amounts of risk is through the sale and resale of short-term non-OECD bank debt. Since short-term bank debt created by non-OECD banks is weighted at 20% and long-term debt in this category is weighted at 100%, banks can 'swap' their long-term debt holdings for a series of short-term debt instruments. Therefore, the risk associated with holding longer-term debt—namely, the risk of default



in volatile emerging markets—remains, while the bank's risk weighting is reduced.

Fourthly, it has been pointed out that credit risk assessment under Basel I is not risk-sensitive enough. Capital based assessment under Basel Accord I was not being able to differentiate between banks with lower risks and banks with higher risks. For example, exposure on a company with AAA rating and a company with B rating are treated identically for the purpose of capital adequacy. Both will be placed in 100% risk weight category, although risks associated with them would be quite different. It also promotes financial decision-making by banks on the basis of regulatory constraints rather than on the basis of economic opportunities. The risk weights were based on what the parties to the Accord negotiated rather than on the actual risk of each asset. Risk weights did not flow from any particular insolvency probability standard and were for most part, arbitrary.

Although these standards were not legally binding, they have made substantial and significant impact on banking supervision in general, and bank capital provisioning and adequacy in particular. However, Basel I comprised of some rigidities, as it did not discriminate between different grades of risks for the same loan type. As a result, a loan to an established corporate borrower was considered as risky as a loan to a new business. So, all loans given to corporate borrowers were subject to the same capital requirements, without taking into account the ability of the counterparties to repay. It also did not take cognizance of the credit rating, credit history and corporate governance structure of all corporate borrowers (explained in previous paragraph). As mentioned above, it did not adequately address the risk involved in increasing the use of financial innovations like securitization of assets and derivatives and credit risk inherent in these developments. The important category of risk i.e., operational risk also was not given the attention it deserved. All these shortcomings gave way to a new Capital Accord which later came to be known as the Basel Accord II.

### Basel I Replaced by Basel II

Recognizing the need for a more comprehensive, broad based and flexible framework, Basel committee proposed an improved version of the Basel Accord I in 1999, which provides for better alignment of regulatory capital with underlying risk and also addresses the risk arising from financial innovation thereby contributing to enhanced risk management

and control. It was also in response to the banking sector crisis of the 1990s that a more comprehensive capital adequacy accord was proposed. This sophisticated and superior framework was formally endorsed by central bank governors and heads of banking supervisory authorities of various countries on June 26, 2004 under the name '*Revised Framework on International Convergence of Capital Measurement and Capital Standards*', popularly known as Basel Accord II or New Basel Capital Accord. While maintaining the "pillar" framework of Basel I, each pillar is greatly expanded in Basel II to cover new approaches to credit risk, adapt to the securitization of bank assets, cover market, operational, and interest rate risk, and incorporate market-based surveillance and regulation.

This new set of international standards requires banks to maintain a minimum level of capital, to ensure that they can meet their obligations, cover unexpected losses and improve public confidence. Basel II captures the risk on a consolidated basis for internationally active banks and attempts to ensure that capital is recognized and set aside in capital adequacy measures and provides adequate protection to depositors. It brings into focus the contemporary risk management techniques and seeks to establish a more risk responsive linkage between the bank operations and their capital requirements. It also provides strong incentive to banks to upgrade their risk management standards. The accord is a cornerstone of the current international financial architecture. Its overriding goal is to promote safety and soundness in the international financial system. The provisioning of adequate capital cushion is central to this goal and the committee ensures that this framework maintains the overall level of capital currently in the banking system.

The objectives of the new Basel Accord as enunciated by BIS are fivefold:

1. Promoting safety and soundness of financial system
2. Enhancing competitive equality
3. Greater sensitivity to the degree of risk involved in banking activities
4. Constituting a more comprehensive approach to addressing risk; and
5. Focusing on internationally active banks with capability of the Accords being applicable on banks with varying level of complexity and supervision

### The three 'Pillars' of Basel II

The structure of Basel II framework has its foundation on three mutually reinforcing pillars that allow banks and their supervisors to evaluate properly the various risks that banks face and realign regulatory capital more closely with the inherent risks. These three pillars are:

1. Pillar I: Minimum Capital Requirement
2. Pillar II: Supervisory Review Process
3. Pillar III: Market Discipline

The Basel I dealt with only parts of each of these pillars such as with respect to the first Basel II pillar, only one risk, credit risk, was dealt with in a simple manner while market risk was an afterthought; operational risk was not dealt with at all.

While Basel I required lenders to calculate a minimum level of capital based on a single risk weight for each of a limited number of asset classes, e.g., mortgages, consumer lending, corporate loans, and exposures to sovereigns, Basel II goes well beyond this, allowing some lenders to use their own risk measurement models to calculate required regulatory capital whilst seeking to ensure that lenders establish a culture with risk management at the heart of the organisation up to the highest managerial level.

#### These Pillars Are

Pillar I: The first 'pillar', known again as '*Minimum Capital Requirements*', shows the greatest amount of expansion since Basel I. As in Basel I, Basel II also has same provisions relating to regulatory capital requirements i.e. 8 % Capital Adequacy Ratio (CAR). CAR under Basel II is the ratio of Regulatory Capital to risk weighted assets that is the amount of regulatory capital to be maintained by banks to guard from various risks of the banking system. However India is following a conservative approach on this front and has maintained the CAR at 9%, a per cent higher than Basel II guidelines.

Mathematically,

$$CAR = \frac{\text{Total Regulatory Capital (Tier I + Tier II)}}{\text{Risk Weighted Assets (Credit Risk + Market Risk + Operational Risk)}}$$

The risks covered under CAR in Basel II are credit risk, market risk and operational risk. Pillar I focuses on new approaches for calculating minimum capital requirements under credit risk, market risk and operational risk which vary from simple to sophisticated and allow bank supervisors to choose

an approach that seems most appropriate according to their risk profile, activities and internal control. Other risks are not considered fully quantifiable at this stage.

In response to Basel I's critics, Basel II creates a more sensitive measurement of a bank's risk-weighted assets and tries to eliminate the loopholes in Basel I which allowed banks to take on additional risk while cosmetically assuaging to minimum capital adequacy requirements. Its first mandate is to broaden the scope of regulation to include assets of the holding company of an internationally active bank. This is done to avoid the risk that a bank will hide risk-taking by transferring its assets to other subsidiaries and also to incorporate the financial health of the entire firm in the calculation of capital requirements for its subsidiary bank.

The New Basel Accord or Basel II has included the measurement of two more risks in calculation of the Risk Weighted Assets (RWA). These include the market risk and the operational risk apart from the credit risk which was already a part of the RWA in Basel I.

These risks and their computation has been given below:

1. **Credit Risk:** If the counter party does not settle the dues within the stipulated time or thereafter, this type of risk arises. It includes risk on derivatives, replacement risk and principal risk. For measuring the risk the following approaches have been used:
  - i. Standardised Approach
  - ii. Internal Rating Based Foundation Approach
  - iii. Internal Rating Based Advanced Approach
2. **Market Risk:** This is the risk or loss arising on or off Balance Sheet due to the movement of prices in foreign currencies, commodities, equities and bonds. With regards to market risk, there are two methods for computation.
  - i. Standardised Duration Approach
  - ii. Internal Model Approach
3. **Operation Risk:** This type of risk or loss results from inadequate failure in the corporate governance or internal processes, people or system. Following techniques can be adopted for its calculation.



- i. Basic Indicator Approach
- ii. Standardised Approach
- iii. Advanced Measurement Approach

While the standard method uses external rating for determining risk weights, the Foundation or Basic Internal Ratings Based Approach requires bank to compute only the probability of default and the Advanced Ratings based Approach requires bank to compute all risk components (except effective maturity).

Banks in India have been calculating credit risk capital charge under the Standardised Approach. As per the Annual Monetary Policy Statement 2011-12, announced on 3<sup>rd</sup> May, 2011, it was mentioned vide paragraph 109 on 'Implementation of Advanced Approaches under Basel II Framework' that Guidelines for Internal Rating based Approach (IRB) for credit risk was under preparation. As on 10<sup>th</sup> August, 2011, RBI has advised banks that they can apply for migrating to Internal Rating Based Approach (IRB) for Credit Risk from 1<sup>st</sup> April, 2012 onwards.

The Market Risk in India is measured through the Standardised Duration Approach from 31<sup>st</sup> March, 2009 as per RBI guidelines. No particular type of VAR model (e.g. variance-covariance, historical simulation, or Monte Carlo) is prescribed. However, the model

used must be able to capture adequately all of the material risks embodied in equity returns including both general market risk and specific risk<sup>9</sup> exposure of the institution's equity portfolio<sup>10</sup>.

Operations Risk is calculated on the basis of the Basic Indicator Approach in India from 31<sup>st</sup> March, 2008 as per RBI guidelines.

Having regard to the necessary up-gradation of risk management framework as also capital efficiency likely to accrue to the banks by adoption of the advanced approaches envisaged under the Basel II Framework and the emerging international trend in this regard, it is considered desirable to lay down a timeframe for implementation of the advanced approaches in India. This would enable the banks to plan and prepare for their migration to the advanced approaches for credit risk and operational risk, as also for the Internal Models Approach (IMA) for market risk<sup>11</sup>. However all banks have been advised by RBI to undertake an internal assessment of their preparedness for mitigation to advanced approaches, in the light of the criteria envisaged in the Basel II document as per the aforesaid time schedule, and take a decision, with the approval of their Boards, whether they would like to migrate to any of the advanced approaches. The time schedule for the implementation of the advanced approaches for the regulatory capital measurement has been tabulated below (Table 1):

**Table 1: Advanced Approaches for the Regulatory Capital Measurement**

S. No.	Approach	The earliest date of making application by banks to the RBI	Likely date of approval by the RBI
a.	Internal Models Approach* (IMA) for Market Risk	1 <sup>st</sup> April, 2010	31 <sup>st</sup> March, 2011
b.	The Standardised Approach (TSA) for Operational Risk	1 <sup>st</sup> April, 2010	30 <sup>th</sup> September, 2010
c.	Advanced Measurement Approach (AMA) for Operational Risk	1 <sup>st</sup> April, 2012	31 <sup>st</sup> March, 2014
d.	Internal Ratings-Based (IRB) Approaches for Credit Risk (Foundation- as well Advanced IRB)	1 <sup>st</sup> April, 2012	31 <sup>st</sup> March, 2014

**Source:** Introduction of Advanced Approach of Basel II Framework in India – Time Schedule (Reserve Bank of India, dated 7<sup>th</sup> July, 2009)

Total Capital Adequacy: Once a bank has calculated the reserves it needs on hand to guard against operational and market risk and has adjusted its asset base according to credit risk, it can calculate the on-hand capital reserves it needs to achieve "capital

adequacy" as defined by Basel II. Because of the wide range of methodologies used by banks and the diversity of bank loanbooks, Basel II allows a great deal of variation in its calculated reserve requirements. Additionally, no change is given to both the

requirement that Tier 2 capital reserves must be equal to the amount of Tier 1 capital reserves and the 8% reserve requirement (as per global guidelines) for credit-default capital adequacy, making these two regulations applicable in Basel II. In sum, a bank's needed reserves for 'capital adequacy' is calculated as follows:

Mathematically,

Capital Adequacy

= (0.08) \* (Risk Weighted Assets

+ Operational Risk Reserves

+ Market Risk Reserves)

2. Pillar II: Also known as the '*Supervisory Review Process*', the Second Pillar of Basel II provides key principles for supervisory review, risk management guidance and supervisory transparency and accountability as under:

- a. Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels.
- b. Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios and should take appropriate action if they are not satisfied with the result of this process.
- c. Supervisors should expect banks to operate above the minimum regulatory capital ratios.
- d. Supervisors should intervene at an early stage to prevent capital from declining below benchmark level.

Pillar II cast responsibility on the supervisors to exercise best ways to manage the risks specific to that bank and also to review and validate banks risk measurement modes.

All the supervisors should evaluate the activities and risk profiles of individual banks to determine whether those organizations should hold higher levels of capital than the minimum requirements and to see whether is any need for remedial action to ensure that each financial institution adopts effective internal processing for risk management.

### Pillar III:

The objective of Pillar III or '*Market Discipline*' is to improve market discipline through effective public disclosure to complement requirements under Pillar I and Pillar II. Pillar III relates to periodical disclosures to regulators, board of bank and market about various parameters which indicate risk profile of the bank. It introduces substantial new public disclosure requirements and allows market participants to analyse key pieces of information on the scope of application, risk exposures, risk assessment and management processes and hence the capital adequacy of the institution. The disclosures provided under Pillar III must fulfil the criteria of comprehensiveness, relevance, timeliness, reliability, comparability and materiality of disclosure to enable the interested parties to make informed decision about the bank.

The three pillars of Basel II framework provides a kind of "triple protection " by encompassing three complementary approaches that work together towards ensuring the capital adequacy of institutional practices prevalent in the banks .Taken individually each pillar has its merits, but they are even more efficient when they are synergized in a common framework.

### Implementation

After its drafting in 1999, Basel II underwent seven years of deliberation and two revisions—one in September and another in November of 2005—before a final agreement was agreed upon by all G10 nations and representatives from Spain in July 2006. Regulators in most jurisdictions around the world plan to implement the new accord, but with widely varying timelines and use of the varying methodologies being restricted. The United States' various regulators have agreed on a final approach. They have required the Internal Ratings-Based approach for the largest banks, and the standardized approach will be available for smaller banks. March 2009 has been set as the deadline for U.S. banks. The deadline set by RBI for adoption of Basel II for banks in India initially was 31<sup>st</sup> March 2007 though it was later extended to 31<sup>st</sup> March, 2009. Indian banks with overseas branch operations need to comply with Basel II norms by March 2008.

Table 2 below gives the latest update on CAR values for some important public or private sector banks of India as on 30<sup>th</sup> September, 2012

Table 2: Capital Adequacy Ratio (Basel II)

Capital Adequacy Ratio (Basel II) as on September 30, 2012	
Bank Name	CAR (%)
State Bank of India	1263.00%
ICICI Bank	18.28
HDFC Bank	17
Axis Bank	12.99
Kotak Mahindra Bank	15.4
IndusInd Bank	11.76
YES Bank	17.5
Canara Bank	13.07
Federal Bank	15.79
Bank of India	11.1
Bank of Baroda	12.91
Union Bank of India	11.39
IDBI Bank	13.91
Punjab National Bank	11.73

Source: [http://files.shareholder.com/downloads/ONE/0x0x617685/7587291B-D488-4CC8-80C4-4B4BC973817A/Basel\\_II\\_Pillar\\_III\\_disclosure\\_-\\_Sep\\_12.pdf](http://files.shareholder.com/downloads/ONE/0x0x617685/7587291B-D488-4CC8-80C4-4B4BC973817A/Basel_II_Pillar_III_disclosure_-_Sep_12.pdf)

### Criticism

The recent global financial crisis of 2008 has revealed weaknesses in the whole approach to risk management that has been developed through the Basel II process. Risks have come from sources that Basel II did not adequately anticipate such as a collapse in market liquidity as investor confidence disappeared, and deep losses in the market value of securities held by banks.

Assumptions about the liquidity of financial instruments such as mortgage backed securities (MBS) that were based on past performance have proven to be unfounded as has the reliability of credit ratings on many of these MBS.

The financial crisis has also shown that at times of severe stress the inter linkages amongst banks and between banks and other financial institutions have the potential to create a domino effect whereby seemingly safe lenders can be put at risk by exposures to counterparties that turned out to be less safe than thought.

As a result of the above, policymakers have proposed and are implementing changes to Basel II. These changes are being considered by both the Basel

Committee and at an European Union level, where the Capital Requirement Directive (CRD), which implements Basel II, is being updated through a range of changes embodied in legislative revisions known as CRD2, 3 and 4.

### Another Round of Revision: Basel III –The Newest Accord

Basel III is the regulatory response to the causes and consequences of the global financial crisis of 2008. From the macroeconomic perspective, the global financial crisis has been attributed to the persistence of global imbalances. It is often said that the solution to a previous crisis becomes the cause for the next crisis. The previous crisis was the Asian crisis of 1997-98 and one of the important lessons learnt by Asian countries was to build a war chest of foreign exchange reserves to fight against the attack of the country's currency. Therefore, Asia and in particular, China and some other emerging economies produced goods at a cheaper rate and pursued a policy of export-led growth and accumulated huge foreign exchange reserves. As a corollary, the USA and Europe consumed that produce and became net importers.



The foreign exchange reserves accumulated by Asian and other emerging economies were necessarily to be invested in advanced economies which have deep markets. The huge amount of capital that flowed from the emerging economies, depressed yields in the financial markets of advanced economies. In the 'search of yield' to improve returns on investment market, players indulged in financial innovation and engineering. They developed structured financial products like securitization and re-securitization based on sub-prime mortgage backed securities (MBS), collateralized debt obligations (CDOs) and CDO squared etc. Credit default swaps (CDS) were also used to create synthetic structures which increased their illiquidity and complexity. Without realizing the inherent risks created by these features, securitizations continued to grow by leaps and bounds, leading to the spiralling of subprime lending with impending disastrous consequences.

At the micro level, the business models of banks and financial institutions also were causal to the crisis. The over reliance on financial innovation or securitization type instruments did not create any incentive for banks for better appraisal and supervision of such mortgages. Their reliance on wholesale funding markets created gaps in liquidity risk management. Short term funds were used for creating long term assets. The availability of plenty and cheap funds encouraged banks to be highly leveraged, that too, by borrowing short term funds. The crisis has also been attributed to the inadequate corporate governance and inappropriate compensation system for senior management in the banks, a failure of Pillar II and ineffective measurement of the Operation Risk under Pillar I of the Basel Accord II.

Post crisis, the global initiatives to strengthen the financial regulatory system are driven by the leadership of G20 under the auspices of Financial Stability Board (FSB) and the Basel Committee on Banking Supervision (BCBS). Immediately after the crisis, the Basel Committee, in July 2009 came out with certain measures as enhancement to Basel II to plug the loopholes in its capital rules, which were exploited to arbitrage capital by parking certain banking book positions in the trading book which required less capital. The Basel committee published its Basel III rules in December 2010.

The key elements in Basel III include the following:

1. The definition of capital is made more stringent, capital buffers introduced, and loss absorptive

capacity of Tier I and Tier II capital instrument of internationally active banks is proposed to be enhanced

2. Forward looking provisioning is prescribed
3. Modifications are made in counterparty credit weights
4. New parameter of leverage ratio is introduced
5. Global liquidity standard is prescribed

The aforementioned points have been elucidated below:

The proposed Basel III guidelines seek to enhance the minimum core capital (after stringent deductions), introduce a capital conservation buffer (with defined triggers) and prescribe a counter-cyclical buffer (to be built in times of excessive credit growth at the national level).

Capital Conservation buffer – The Basel Committee suggests that a new buffer of 2.5 % of risk weighted assets (RWA) over the minimum capital requirement of core capital requirement of 4.5 % be created by banks. Although the Committee does not view the capital conservation buffer as the new minimum standard, considering the restrictions imposed on banks and also because of the reputational issues, 7 % is likely to become the new minimum capital requirement.

The main purpose of the proposed capital conservation buffer is two-fold:

1. It can be dipped into in times of stress to meet the minimum regulatory requirement on core capital
2. Once accessed, certain triggers would get activated conserving the internally generated capital. This would happen as in this scenario, the bank would be restrained in using its earnings to make the discretionary pay-outs. (e.g. dividends, share buybacks and discretionary bonus)

Countercyclical buffer – The Basel committee has suggested a countercyclical buffer constituting of equity or fully loss absorbing capital that can be fixed by the central bank upon the constituent commercial banks once a year and the buffer could range from 0 to 2.5% of RWA depending on the changes in credit to GDP ratio. The primary objective of having the Counter cyclical buffer is to protect the banking sector

from system wide risks arising out of excessive aggregate credit growth. This could be achieved through a pro cyclical build-up of the buffer in good times. Typically, excessive credit growth could lead to the requirement for building up a higher countercyclical buffer; however the requirement could reduce in times of stress, thereby releasing the capital for absorption of losses or for protection of banks against the impact of potential problems.

### Deductions from Core Tier 1

Minority interest - The excess capital above the minimum of a subsidiary that is a bank will be deducted in proportion to the minority interest share. Investments in other financial institutions - The gross long positions may be deducted net of short and the proposals now include an underwriting exemption. Minority interest in a banking subsidiary is strictly excluded from the parent bank's common equity if the parent bank or affiliate has entered into any arrangements to fund directly or indirectly minority investment in the subsidiary whether through an SPV or through another vehicle or arrangement.

### Other Deductions

The other deductions from Common Equity Tier 1 are:

- a. Goodwill and other intangibles (excluding Mortgage Servicing Rights), Deferred Tax Assets, investments in own shares, other investments in financial institutions, shortfall of provision to expected losses, cash flow hedge reserve, cumulative changes in own credit risk and pension fund assets.
- b. The following items may each receive limited recognition when calculating the common equity component of Tier 1, with recognition capped at 10% of the bank's common equity component:
  - Significant investments in the common shares of unconsolidated financial institutions (banks, insurance and other financial entities). "Significant" means more than 10% of the issued share capital;
  - Mortgage servicing rights (MSRs); and
  - Deferred tax assets (DTAs) that arise from timing differences.
- c. A bank must deduct the amount by which the aggregate of the three items above exceeds 15% of its common equity component of Tier 1.
- d. Certain regulatory deductions (material holdings, deferred tax assets, mortgage servicing

rights etc.) that are currently applied to Tier I capital and/or Tier II capital or treated as RWA will now be deducted from core equity capital. This will also be progressively phased in over a five year period commencing 2014.

### Implementation

With the RBI flagging off the implementation of Basel III guidelines, Indian banks have to plan for more capital in the years ahead. They are well placed to meet the higher capital requirements and can strengthen their competitive positions vis-à-vis international banks – provided the government can deliver on its own responsibilities towards public sector banks. The RBI has set a more demanding schedule for Basel III implementation than BIS. The BIS has set the deadline for the full implementation as 2019. The RBI would like the Indian banks to comply by 2017

The minimum capital for common equity, the highest form of loss absorbing capital, will be raised from the current 2% level, before the application of regulatory adjustments to 4.5%, after the application of regulatory adjustments. This increase was to be phased in to apply from Jan 1, 2013 but the deadline has been extended to 1<sup>st</sup> April, 2013. In addition to the above, the committee recommended a 2.5% of additional core equity capital as a conservation buffer above the regulatory minimum taking the aggregate minimum core equity required to 7%. The conservation buffer is phased in to apply from Jan 1, 2016 and will come into full effect from Jan 1, 2017. Hence, as per Basel III norms the total capital requirement of 10.5% has been set that includes Tier I and Tier II capital along with capital buffer. However, RBI has yet again chosen a conservative approach and proposed even more stringent guidelines than the Basel III guidelines to set the Tier I capital requirement of 6.5% and Tier II also of 6.5%, making it equal to 13%. The total capital requirement of 13% is inclusive of the capital buffer of 2.5% which can form a part of wither Tier I or Tier II.

Table 3 gives the tier wise calibration of the capital framework as to how much (in percentage terms) of Tier I and Tier II CAR must be maintained to abide by the global standards for Basel III. It also gives the capital buffer requirement as per Basel III (also in percentage terms). Table 4 talks about the phase-wise implementation of Basel III over the stipulated time period of six financial years from 2013 to 1<sup>st</sup> January 2019

Table 3<sup>12</sup>: Tier Wise Calibration of the Capital Framework

Calibration of the Capital Framework			
Capital Requirements and Buffers (all numbers in percent)			
	Common Equity Tier 1	Tier 1 Capital	Total Capital
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		

Table 4<sup>13</sup>: Phase-wise implementation of Basel III  
Phase-in arrangements  
(shading indicates transition periods-all dates are as of 1 January)

	2011	2012	2013	2014	2015	2016	2017	2018	As of 1 January 2019
Leverage Ratio	Supervisory monitoring		Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015					Migration to Pillar 1	
Minimum Common Equity Capital Ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer						0.625%	1.25%	1.875%	2.50%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1 (including amounts exceeding the limit for DTAs, MSRs and financials )				20%	40%	60%	80%	100%	100%
Minimum Tier 1 Capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum Total Capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum Total Capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.25%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital	Phased out over 10 year horizon beginning 2013								
Liquidity coverage ratio	Observation period begins				Introduce minimum standard				
Net stable funding ratio	Observation period begins							Introduce minimum standard	



**Leverage Ra**

The major highlights of the draft guidelines released by the Reserve Bank of India on Basel III Capital Regulations are<sup>14</sup>:

**Minimum Capital Requirements**

- Common Equity Tier 1 (CET1) must be at least 5.5% of risk-weighted assets (RWAs)
- Tier 1 capital must be at least 7% of RWAs; and
- Total Capital must be at least 9% of RWAs

**Capital Conservation Buffer**

- The capital conservation buffer in the form of Common Equity of 2.5% of RWAs

**Transitional Arrangements**

- It is proposed that the implementation period of minimum capital requirements and deduction from Common Equity will begin from January 1, 2013 and be fully implemented as on March 31, 2017
- Capital Conservation Buffer requirement is proposed to be implemented between March 31, 2014 and March 31, 2017
- The implementation schedule indicated above will be finalized taking into account the feedback received on these guidelines
- Instruments which no longer qualify as regulatory capital instruments will be phased-out during the period beginning from January 1, 2013 to March 3q, 2022

**Enhancing Risk Coverage**

- For Over-the-Counter (OTC) derivatives, in addition to the capital charge for counterparty default risk under Current Exposure Method, banks will be required to compute an additional credit value adjustments (CVA) risk capital charge.

**Leverage Ratio**

- The parallel run for the leverage ratio will be from January 1, 2013 to January 1, 2017 during which banks would be expected to strive to operate at a minimum Tier 1 leverage ratio of 5%. The leverage ratio requirement will be finalized taking into account the final proposal of the Basel Committee

Learning the lessons from the crisis, the objectives of Basel III has been to minimize the probability of

recurrence of a crisis of such magnitude. Towards this end, the Basel III has set its objectives to improve the shock absorbing capacity of each and every individual bank as the first order of defence. Basel III has measures to ensure that the banking system as a whole does not crumble and its spill-over impact on the real economy is minimized. Basel III has in effect, some micro-prudential elements so that risk is contained in each individual institution and macro prudential overlay that will 'lean against the wind' to take care of issues relating to the systemic crisis. The Basel III framework sets out higher and better quality capital, enhanced risk coverage, the introduction of a leverage ratio as a back-stop to the risk-based requirement, measures to promote the build-up of capital that can be drawn down in times of stress and the introduction of compliance to global liquidity standards.

**Case Study on State Bank of India**

State Bank of India (BSE: SBI), a public sector bank, is the largest banking and financial services company (by turnover and total assets) in India, with its headquarters in Mumbai, India and accounts for almost one-fifth of the nation's loans. One of the oldest commercial bank in India, it is a massive organization with its own 21 subsidiaries and associate branches all across the country and offices in as many as 32 other countries. Besides personal and corporate banking, SBI is also involved in in NRI services through its network in India and overseas.

This case study has been formulated on SBI and deals with the transition of the bank from Basel II to Basel III in terms of various components of its Balance Sheet and the CAR (Capital Adequacy Ratio) or the CRAR (Capital to Risk Weighted Assets Ratio). The data for the same has been obtained from the Annual Reports of SBI which is readily available on its website [www.sbi.co.in](http://www.sbi.co.in). The data has been taken for the preceding five financial years (FY) that is from FY 2007-08 to FY 2011-12. Data from the Annual Reports have been obtained for (with the Schedules mentioned alongside):

- Capital (Schedule 1)
- Reserves and Surplus (Schedule 2)
- Advances (Schedule 9)
- Investment (Schedule 8)
- CRAR Ratio as per Basel II (Schedule 18 – Notes on Accounts)

Table 5: Projection of the RWA for FY 2012-13

Year Ending	Capital (in Rs. '000)	Reserves and Surplus (in Rs. '000)	Total Regulatory Capital (in Rs. '000)	CRAR	RWA (in Rs. '000)
2008	6314704	484011911	484013919	12.64%	3829224043
2009	6348802	573128162	573130171	14.25%	4021966112
2010	6348826	653143160	653145170	13.39%	4877857879
2011	6349990	643510442	643512453	11.98%	5371556369
2012	6710448	832801610	832803622	13.86%	6008684141

Firstly, Total Regulatory Capital was calculated by summing up the values in the column Capital with those in Reserves and Surplus for all the FY. The CRAR or CAR has been listed alongside. Using the formula given below, the Risk Weighted Assets (RWA) has been calculated for various years.

$$\text{Risk Weighted Asset} = \frac{\text{Total Regulatory Capital (Capital + Reserves and Surplus)}}{\text{Capital Adequacy Ratio (Car or CRAR)}}$$

A projection of the RWA has been made for FY 2012-13 as the annual reports have yet not been prepared for the same. All this has been listed in Table 5 and the technique for projecting RWA for FY 2012-13 is explained later.

In Table 6 given below, the year-on-year growth of Capital, Advances, Investment and CRAR is calculated. Here we have taken the Risk Weighted Assets to comprise of variable Credit Risk and variable

Market Risk, keeping Operation Risk Constant. The Credit Risk is indicated by the Advances and the Market Risk by the Investments. To compute the RWA projection for FY 2012-13, firstly the year-on-year growth rate of Advances and Investments is calculated. The average of the year-on-year growth rate of the Advances and Investments is then found out. The average growth rate for advances was computed to be 20.26% and that for investment to be 14.56%. Finally the growth rate for FY 2012-13 of the RWAs is calculated as the mean of the average growth rate of Advances and Investments (since Operation Risk is taken as constant). This comes out to be 17.41%. The percentage finally obtained is used to forecast the value of RWA for FY 2012-13 using the RWA value of FY 2011-12. Thus an increment of 17.41% to RWA of Rs. 60,57,08,55,56,000 gives us a projected RWA of Rs. 71,11,62,41,51,000.

Table 6: The Year-On-Year Growth of Capital, Advances, Investment and CRAR

Year Ending	Capital (in Rs. '000)	Capital YOY Growth Rate (%)	Advances (in Rs. '000)	Adv. YOY Growth Rate (%)	Investment (in Rs. '000)	Inv. YOY Growth Rate (%)	CRAR	CRAR YOY Growth Rate
2008	6314704		4,16,76,81,962.00		1895012709		12.64%	
2009	6348802	0.539978%	5,42,50,32,042.00	30.17%	2759539569	45.62%	14.25%	12.74%
2010	6348826	0.000378%	6,31,91,41,520.00	16.48%	2857900706	3.56%	13.39%	-6.04%
2011	6349990	0.018334%	7,56,71,94,480.00	19.75%	2956005690	3.43%	11.98%	-10.5%
2012	6710448	5.676513%	8,67,57,88,901.00	14.65%	3121976103	5.61%	13.86%	15.69%

The objectives to achieve from this computation are:

- Comparative analysis of year-on-year growth rate of Capital, Advances and Investment with itself for various years
- Inter component analysis of the above mentioned items and their effect on CRAR
- Additional capital required for the next FY to abide by Basel III norms

d. Ways of raising the additional capital

- Comparative analysis of year-on-year growth rate of Capital, Advances, Investment and CRAR with itself for various year and also with each other

**Advances:** The Advances of SBI has increased from Rs. 41,67,68,19,62,000 to Rs. 86,75,78,89,01,000 over the five years period from FY 2007-08 to FY 2011-12. The overall growth rate has been 108.16% which means

an increase by 2.08 times. The average rate of growth has been 20.26% (calculated as an average of the year-on-year growth rate). The highest percentage increase over the years has been over FY 2008-09 at a rate of 30.17% and the lowest over FY 2011-12 at a rate of 14.65%. Over these years, the trend has been marked by fluctuating change in this percentage with an absolute increase in the value of Advances. The marked decrease in year-on-year growth of Advances that took place from 30.17% for FY 2008-09 to 16.48% for FY 2009-10 can be attributed to the major decrease in Advances to banks from Rs. 3,34,21,74,000 to Rs. 2,65,69,38,000, bills purchased and discounted (which is due outside India) from Rs. 2,93,08,58,76,000 to Rs. 2,52,94,02,88,000 as well as in syndicated loans due from outside India which saw a decline from Rs. 2,70,94,47,16,000 to Rs. 2,64,75,21,13,000.

**Investments:** This component has increased from Rs. 18,95,01,27,09,000 to Rs. 31,21,97,61,03,000 over the five years period by 64.75% or by 1.65 times. The average rate of growth has been 14.56% (calculated as an average of the year-on-year growth rate) mainly attributed to major investments by SBI in FY 2008-09. The highest percentage increase has been over FY 2008-09 by a massive 45.62%. Since then the percentage increase has been maintained at a level of around 4% showing that no further large-scale investments have been made. The tremendous growth rate of 45.62% in FY 2008-09 can be attributed to huge investment in government securities which had also offset the divestment in other approved securities, shares, debentures and bonds and subsidiaries and/or joint ventures. Investment in government securities has been increased from Rs. 14,07,34,03,68,000 to Rs. 22,62,17,47,04,000. The investments outside India also almost doubled in this time frame from Rs.

3,94,23,41,000 to Rs. 7,42,59,28,000 for government securities and from Rs. 6,13,80,25,000 to Rs. 12,55,45,95,000 for subsidiaries and/or joint ventures.

**Capital:** Major capital infusion has taken place in FY 2011-12 with the year-on-year growth rate reaching a high of 5.67% from less than 1% year-on-year growth rate in preceding four years to FY 2011-12. Average growth rate is at 1.5588%. This sudden increase in capital is marked by an increase of the issue of equity share by 3,60,45,243 units (i.e. from 63,50,83,106 units to 67,11,28,349 units. The total outstanding equity shares as of now is 67,11,28,349 units of Rs. 10 each.

b. CRAR or CAR can be mathematically written as:

CRAR year-on-year growth decreased and in fact observed to be negative for FY 2009-10 and FY 2010-11. However the required CRAR rate of 9% as per RBI guidelines was sufficiently maintained for all these years. As mentioned before, as a component of RWA Advances are taken to cover Credit Risk and Investments to cover Market Risk while Operation risk is taken to be constant. Total Regulatory Capital is taken as the sum of Capital and Reserves & Surplus. The negative year-on-year growth of CRAR in FY 2009-10 means that the CRAR over this period has decreased or Total Capital as a percentage of RWA has decreased. It can put this way also: the percentage increase in Advances and Investments taken together has been more than the percentage increase in Total capital for the same year. In other words, increase in Capital has not been commensurate with the increase in RWA. As the Total Capital sees a negative year-on-year growth of (-) 1.46%, the CRAR year-on-year growth dips even further to (-) 10.53%. The year-on-year growth of Total Capital along with relevant figures is shown in Table 7 below.

**Table 7: Year-On-Year Growth of Total Capital**

Year Ending	Capital YOY Growth Rate (%)	Total Capital (in Rs. '000)	Total Cap. YOY Growth in %	Adv. YOY Growth Rate (%)	CRAR Growth Rate	CRAR YOY
2008		490326615			12.64%	
2009	0.539978%	579476964	18.18%	30.17%	45.62%	12.74%
2010	0.000378%	659491986	13.81%	16.48%	3.56%	-6.04%
2011	0.018334%	649860432	-1.46%	19.75%	3.43%	-10.53%
2012	5.676513%	839512058	29.18%	14.65%	5.61%	15.69%

Otherwise, CRAR has been at a safe 13.86% which is well above the RBI guidelines of 9% and the global benchmark of a minimum 8%.

c. Additional capital required for the next FY to abide by Basel III norms



It is assumed that the CRAR will remain constant for FY 2012-13 as well at 13.86%. Out of this SBI already maintains a core capital of 4.5% as per RBI guidelines. So, the remaining value is 9.36%. As per RBI guidelines, banks are supposed to maintain a minimum of 9% for capital adequacy. 4.5% has already been accounted for. So further, 4.5% is subtracted and the remaining value is 4.86%.

As per Basel III, changes have taken place with respect to increasing core capital by a minimum of 2% as a component of Tier I capital and introducing a capital buffer of 2.5%

As per Basel II, Indian banks maintain Tier I capital adequacy at 4.5%. This has to be increased by 2% that gives 6.5%. This is higher than the BCBS norms of a minimum of 6% CRAR for Tier I capital as per Basel III. Capital buffer requirement has already been taken care of by the extra 4.86% CRAR maintained by Indian banks as mentioned above. Note that capital buffer is not a separate component and

can be maintained from Tier I or Tier II capital.

Thus the fourth objective is to raise this additional 2% of core capital as a component of Tier I capital.

d. Ways of raising the additional core capital of 2%

Tier I capital consists of two components: equity capital and non-equity Tier I capital. SBI can easily raise the equity capital with the only constraint being that market is bearish at present. But with its strong presence across the country, this does not look difficult. However to raise the non-equity Tier I capital, SBI might find it difficult as it could be hard to convince investors about the safety of the hybrid instruments which form part of non-equity Tier I capital. It is the complex nature of these debt instruments which have many underlying risks that dissuades investors from investing. This is also because the instruments' features are riskier under Basel III than was under Basel II. The instrument carries higher risk, given their equity-like features such as discretion on coupon payments and the likelihood of coupon non-repayment and principal loss if a bank's equity capital falls below the prescribed thresholds. This will limit investor appetite for such instruments and reduce their attractiveness for banks as these will be costlier to raise than those under Basel II. However, non-equity tier I capital will still be cheaper than Tier II capital under Basel III.

It is therefore imperative to develop the country's bond market and build investor confidence in the efficacy of these instruments to help banks like SBI

raise non-equity capital component and find the proportion in which they can raise both the equity and non-equity Tier I capital so that the overall cost incurred is minimum.

The various year-on-year graphs can be shown for the various year ending below:

- Capital year-on-year growth
- Total Capital year-on-year growth
- Advances year-on-year growth
- Investment year-on-year growth
- CRAR for various years
- CRAR year-on-year growth

### Recommendations

- a. Following the debacle of new and innovative instruments, there is a need to assimilation and watch than creating an overlay and urge by RBI to expect all the Indian Banks to comply with Basel III standards in hurry, even before the full compliance with Basel II by some weak banks in the Indian economy. Before the onslaught of the global financial crisis originating from the west, even the US and Europe was not seriously concerned about compliance with Basel Accords. Now, the US and Europe are forced to do so, due to the international pressure. Given the above background, it is rather surprising that RBI would expect the Indian banks to be ready to comply with Basel standards so early by March 2017, earlier than the 2019 time frame laid down in the original Basel III framework.
- b. Risk management in banks is abstract and draws heavily on advances in statistics and financial economics. Much of the risk management within banks is carried out using internally developed proprietary models. The data on these aspects is not disclosed by the banks for reasons citing 'confidentiality' or 'competitiveness' and the prudent investor or saver or borrower loses out on critical information that would help him make the best choice between various banks suiting his needs as also reducing the cost to him.
- c. The link between nonperforming assets (NPAs), capital adequacy and provisioning is well known to be highlighted here. The challenge is to provide incentives for banks or financial institutions to recognize losses on account of NPAs as per Basel Accords. More than four years after the financial crisis began, it is so widely

accepted that many of the world's banks are burying or hiding losses and overstating their asset values; even the BIS is saying so in writing. It fully expects the taxpayers to pick up the tab, should the need arise.

- d. The lack of transparency, credibility in banks' balance sheet fuels a vicious circle. When investors cannot trust the books, lenders can't raise capital and may have to fall back on their home countries 'governments for help. This further pressures sovereign finances, which in turn, weaken the banks even more. The adage 'too big to fail' does not easily become applicable to banks often as the size of the bank's capital, operations, NPA and provisioning increases. This issue needs separate discussion as the challenge is greater and real.
- e. Finally, it is significant to note that new and private sector banks, with their high capital adequacy ratios, enhanced proportion of common equity and better IT and other modern financial skills of the personnel, are well placed to comply with Basel III Accords in general. PSU banks although dominant banks in the Indian financial system may take more time and face challenges in following the Basel III guidelines.

### Conclusion

Basel standards, by and large, were an outcome of international cooperation among central banks on the face of indiscriminate cross – border bank lending and debt repudiation from certain debtor countries. India had always set an example in implementing these standards, but the compliance was gradual and easy-paced, so as not to disrupt the banking system. The compliance levels were relaxed from time to time to accommodate even the weakest link in the banking chain. The idea was to enable the entire system to adapt these standards over a fixed time line in a way that the overall investor response and the capital market in the economy is ready for the huge resource mobilization requirements posed by the compliance by the Indian banks . However, the real issue is now whether the banks would be able to raise funds from the capital market when the investors are rather wary about the performance and returns from the banks or industries in general in the context of a general slowdown in industries coupled with inflation prevailing in the economy. The loopholes in this new Accord – Basel III can only be pin-pointed once banks globally accept this as the standard norm and make amendments to the capital requirements accordingly.

### Endnotes

1. As quoted in: *Basel Committee on Banking Supervision (BCBS) Charter, 2013*
2. Narasimham Committee Report on the Financial System, 1991
3. Narasimham Committee on Banking Sector Reforms (1998)
4. The Reserve Bank of India Act, 1934 (RBI Occasional Publications) ; Source: [www.rbi.org.in](http://www.rbi.org.in)
5. Refer to Introduction for more details on the Herstatt Bank liquidation case
6. Report on the Supervision of Banks' Foreign Establishments-Concordat, 26th September 1975
7. Principles for the Supervision of Banks' Foreign Establishments (Concordat), May 1983
8. The flow of dollars to oil exporting countries (most of whom are Organization of the Petroleum Exporting Countries) in exchange for their oil to meet the rising demand in developed and developing countries
9. Specific Risk = Instruments Exposed to Interest Rate Risk and Equity Price Risk
10. Implementation of the Internal Rating Based Approaches (IRB) for Calculation of Capital Charge for Credit Risk – Draft Guidelines (Reserve Bank of India, Dated 10th August, 2011)
11. Introduction of Advanced Approaches of Basel II Framework in India – Time Schedule (Reserve Bank of India, dated 7th July, 2009)
12. Source: Basel III: A global regulatory framework for more resilient banks and banking systems
13. Source: Basel III: A global regulatory framework for more resilient banks and banking systems
14. RBI Releases Draft Guidelines on Basel III Capital Regulations, dated 30th December, 2011

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8. *Introduction of Advanced Approach of Basel II Framework in India – Time Schedule*. Reserve Bank of India, 2009.
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15. *Report on the Supervision of Banks' Foreign Establishments-Concordat*. Basel Committee on Banking Supervision, 1975.
16. Saldenberg, MR, and T Schuermann. "The New Basel Capital Accord and Questions for Research." *Wharton Financial Institutions Center Working Paper No. 03-14*, 2003.
17. *The Reserve Bank of India Act, 1934*. RBI Occasional Publications, n.d.