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Impact of Basel-II on commercecial banking system in India

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Abstract
Basel Accord II on risk management announced in June 04 is revolutionary in matters of credit risk management, market risk management and finally operational risk management. These three risk segments though intertwined in banking financial institution functions, credit risk, no doubt occupies the center stage. Generally, around 90% of the risk existing in the business especially Indian business scenario is captured by credit risk. Hence credit risk mitigation efforts as a natural corollary in banking/financial institutions demand serious attention. This synoptic paper outlines the growth of Indian commercial banking sector and examines impact of Basel norms on the same. In this process, the preparedness of banks and related issues are examined through a survey of bank personnel. The recent trends in CAR and NPA of the banks are also pointed out. A few conclusions are derived and some recommendations are made. The scope for further work is indicated.

Keywords: basel II, commercial banking, CAR, NPA

1. Introduction to Basel Norms

With the beginning of globalization, banks are now facing a number of risks. Hence, in order to mitigate risks, some stringent norms are required. Basel norms are one such internationally accepted model (of rules and regulations) applicable to banks, to overcome the challenges faced by them in performing various activities on routine basis. In order to protect banks from global financial crisis, several guidelines are given by Regulatory Bodies all over the world. One such guideline is laid down by Basel Committee on Banking Supervision (BCBS) for maintaining capital adequacy and supervision of banks.

In India, Reserve Bank of India (RBI) being the regulatory authority has prescribed to follow Basel Norms which are implemented by banks across the world.

1.1 Importance of Basel Norms

Common international rules and frameworks for the Banking Industry are of great importance for the reliability and development of financial system and economies of various countries [1]. Basel II norms has got not only statutory importance, rather it has an interest of policy makers and business world. Basel II norms should not be considered as needs of banks, but it should be viewed as benefits arising from the application, acceptance and implementation of best practices in banking industry.

1.2 The Basel Capital Accords

After disturbances to the international currency and banking markets, a group of ten countries, G-10, founded the Basel Committee in 1974 in an attempt to increase financial stability. G-10 countries were Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom and United States [2]. Their aim was to stabilize the financial system by formulating capital adequacy requirements and supervisory projects for banks. In 1988, Basel I was introduced which consisted of international capital requirements. However, as the financial markets developed and became more complex, the need for a new framework was inevitable and in 2004, the Basel Committee therefore presented Basel II – the New Capital Accord. The Basel Committee on Banking Supervision (BCBS) is one of the reputed committees whose head office is located at Bank for International Settlements (BIS), Basel, Switzerland. The BCBS works for the development of common supervisory standards of banks across nations and is the author of all the Basel Accords.

1.3 Basel I Accord

In 1988, the committee came up with a framework governing capital measurement, which was the first Basel Capital Accord, familiarly known as Basel I norms. Basel I provided for two categories of capital – core capital and supplementary capital. Different categories of assets and off-balance sheet exposures were prescribed for calculation of risk weights. The guidelines for calculating risk were simple and accounted for credit risk only. The committee suggested a target standard ratio for CRAR (Capital to Risk-Weighted Asset Ratio) of 8%, of which core capital was set at 4%. An amendment was made to Basel I in 1996, to incorporate market risks in capital charge. This move was made to protect banks from the risks they were exposed to, especially from the business activities of banking. The amendment was implemented in India in a phased manner in 2005 and 2006.

1.4 Basel II Accord

Basel Capital Accord can be described in one line as, some common rules framed by Basel Committee on Banking Supervision (BCBS), to provide a level playing field for banks across the globe. The intention of Basel II accord is to lower banks' capital requirement, by presenting banks the ability to select a method that reveals their reality when calculating risk.

2.1 Objectives of the Basel II Accord

- To encourage safety and security in the financial system
- To improve competitive equality among banks
- To represent a more comprehensive approach for dealing with risks faced by banks

"Basel II is not intended simply to ensure compliance with a new set of capital rules. Rather, it is intended to enhance the quality of risk management and supervision." Jaime Caruana, Governor of the Banco de España, Former Chairman of Basel Committee.

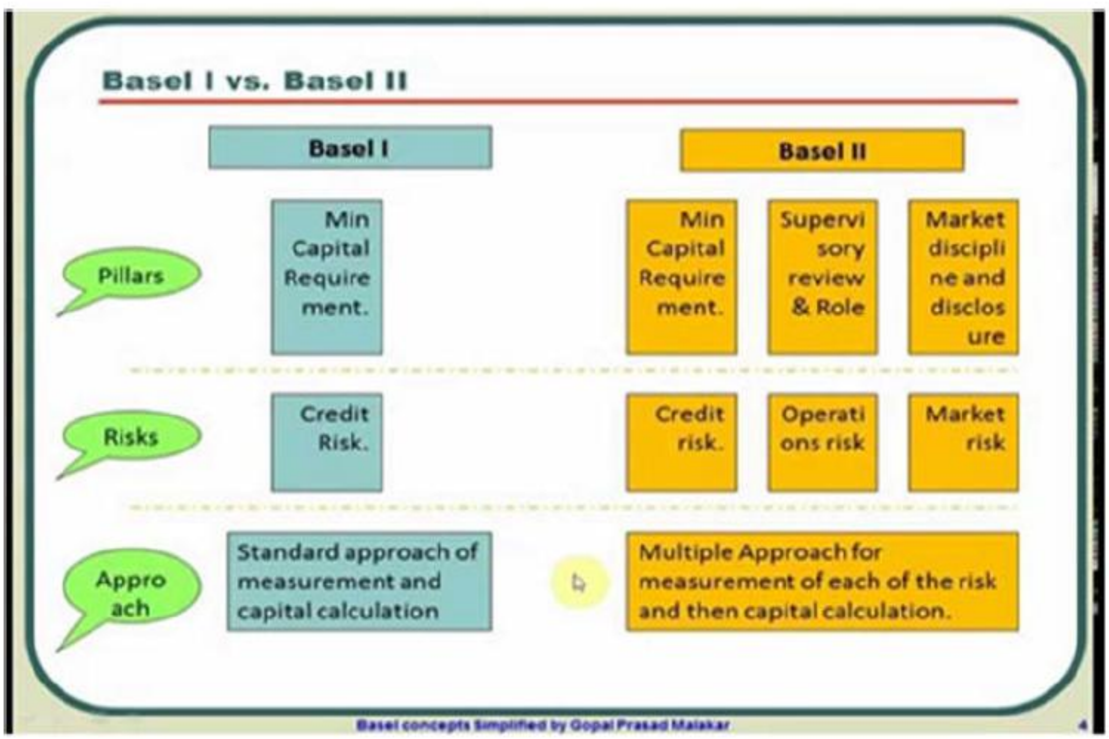
2.2 Difference between Basel I and Basel II Norms

The Basel II is different from the First Accord in three respects - Firstly, the capital formula is being substantially revised. Secondly, guidelines on the supervisory review of bank capital adequacy are being added and thirdly, the concept of market discipline isconcept of market discipline is being introduced through improved disclosure rules [4]. The key principle underlying Basel II, and the basis for the advancement from Basel I, is greater risk sensitivity [5].

The BCBS spend the entire period from 1999 to 2004 in developing and finalizing the second Basel accord, known as Basel II norms, which increased the scope of capturing all banking risks in the capital adequacy framework. The second Basel accord is based on three pillars – Minimum Capital Requirements, Supervisory Review and Market Discipline. A wider range of risk weights for credit risk were introduced, greater recognition for collateral and a capital charge for operational risk was introduced, among other important developments.

Initially, banks are required to follow the Standardised Approach for credit and market risk assessment, and the Basic Indicator Approach for operational risk assessment.

However, as systems and procedure develop with time, banks will be required to shift to the Internal Models Approach for better risk evaluation and mitigation.

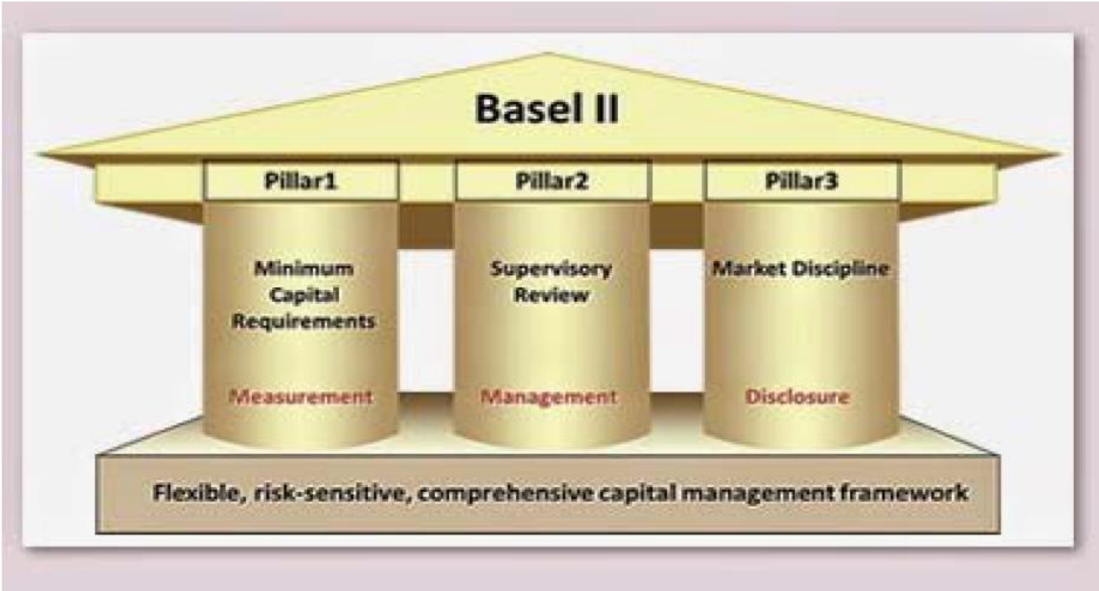


2.3 Details about Basel II norms

The principal reason for adopting Basel II norms was that, it considers both credit and operational risks apart from market risk as the major sources of risks. Basel II norms direct banks to allocate adequate amounts of capital for these types of risks unlike Basel I. The revised framework i.e. Basel II norms presents an array of options for determining the capital requirements for credit risk and operational risk. This facilitates banks and supervisors to identify and implement approaches which are most suitable for their banking operations.

The main structure of Basel II depends on 3 Pillars concept:

1. Minimum Capital Requirements
2. Supervisory Review of Capital Adequacy
3. Market Discipline

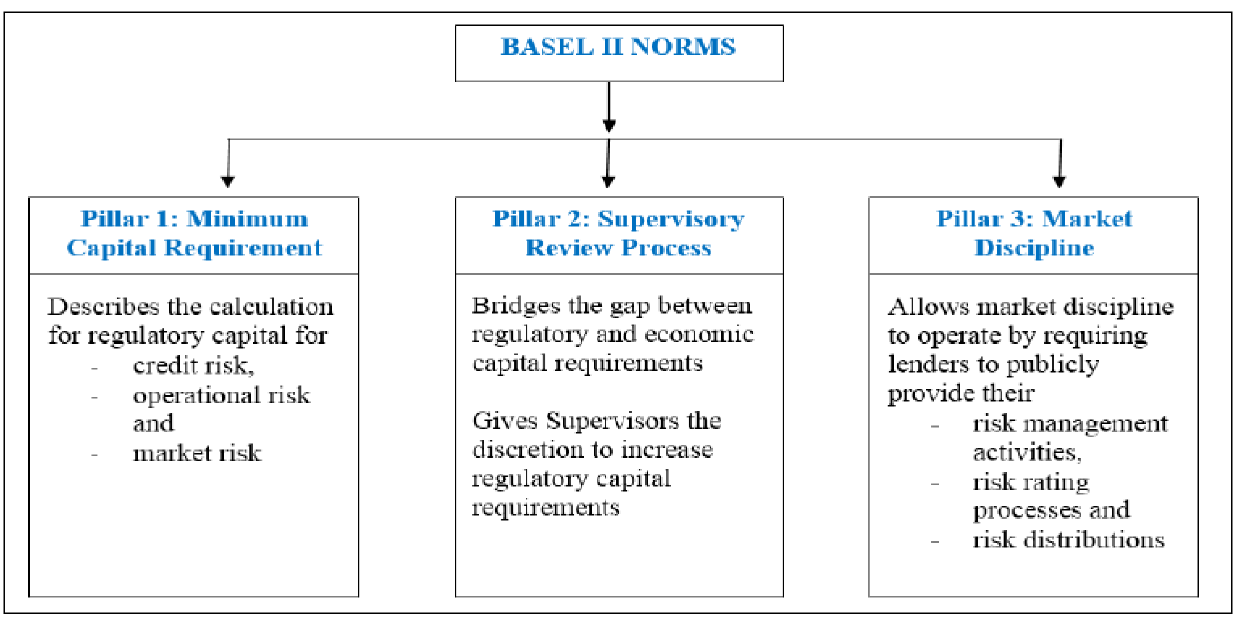


2.3.1 The First Pillar: Minimum Capital Requirement: The first pillar measures the minimum regulatory capital that needs to be maintained by banks after considering three risks namely credit risk, operational risk and market risk.

2.3.2 The Second Pillar: Supervisory Review Process: The second pillar deals with management of various risks faced by banks such as systematic risk, risks related to strategy, reputation, liquidity and legal issues. It provides banks to check and reconsider their Risk Management System by developing their own risk management techniques to administer and manage their risks. Supervisors are assigned the task of evaluating and reviewing the capital requirement of banks with respect to various risks faced by them.

2.3.3 The Third Pillar: Market Discipline: The third pillar focuses on disclosure of various important information of banks which facilitates market participants to consider aspects like risk exposure, techniques of risk assessment and capital adequacy maintained by banks. Market discipline aims to share this vital information of banks which is used to assess bank performance by market participants like investors, customers, financial experts and analysts, other banks and rating agencies. In a nutshell, all the three pillars of Basel II norms focuses on to provide greater stability in the financial system by ensuring adequate capital to manage risks faced by banks, reviewing the risk management by Supervisors and sharing the significant information by way of market disclosure. The same is described in the figure below.

Basel I norms dealt with only parts of the above pillars whereas Basel II norms represents a basic change in how bank capital is to be determined for regulatory purposes.



3.1 Introduction of Basel Norms in Indian Banking System

In response to the Basel I Accord of 1988, Reserve Bank of India issued required guidelines and instructions to all the Indian Banks for implementing the norms as per best international banking practices. RBI issued broad guidelines and directives in an attempt to execute, supervise prudential norms of credit like practices of supervision, licensing, liquidity, risk management and techniques of banking supervision on a regular basis. In India, Basel I framework was put into practice from 1992-93 which was extended for three years. Banks with branches abroad were required to conform completely by March 31, 1994 and other banks were required to abide by the rules by March 31, 1996. In response to the 1996 amendment of Basel I framework, India accepted and made necessary changes for the banks to maintain capital for market risk component, by imposing various reserves and capital charges in the beginning, for these risks between 2000 and 2002. Later on, these were replaced with capital charges as stipulated by Basel I framework in June 2004, which came into existence completely from March 2005. The Indian Banking System has shown considerable improvement on several factors due to the successful implementation of banking sector reforms since 1991. And hence the Indian Banking System is competent enough to shift to Basel II norms efficiently. Commercial banks in India began implementing Basel II framework from March 31, 2007. RBI gave instructions in October 2006 that foreign banks operating in India and Indian banks located abroad would adopt the Standardised Approach for measuring credit risk and the Basic Indicator Approach for calculating operational risk component under Basel II norms, applicable from March 31, 2008 whereas all other scheduled commercial banks are required to move to Basel II framework by March 31, 2009.

3.2 Impact of Basel II Norms on Banking System

Basel II framework will increase the volatility of the capital requirements of any developing country. This is because the credit rating process and access is less in a developing country compared to a developed country, where it is very easily put into practice. The same is the case with India where credit rating is less penetrated, so majority of the proportion of bank assets in its balance sheets are unrated claims. As per Basel II norms, less credit rating requires more capital adequacy to mitigate the risk which might arise from the assets. This also means that the operational risk requirement may increase and hence the overall capital requirement of the bank will be more. This may act as a hurdle to implement Basel II norms in some countries. Many countries across the world implemented Basel I Accord, but they had maintained a slightly higher capital than the minimum requirement of 8%. As per second pillar of review process, supervisors with their agency focus on improving the internal risk management of banks so that they can switch to IRB Approach, rather than implementing standard approach of measuring risk, like other competitor banks. Moreover, the supervisors who are in-charge of audit and review of Basel II Norms in banks should aim to check the capital adequacy, size, domestic capital markets, availability and disclosure of information, degree of measuring and monitoring the provision of loans and losses.

Many countries will most likely decide to implement simpler and easier approaches of Basel II like Simplified Standardized Approach and Standardized Approach because the former uses only the ratings of official export credit guarantee agencies for sovereign risk assessment whereas the latter will use the credit ratings from private agencies.

Still the developing countries faced problem in implementing alternative approaches for measuring capital as per Basel II, i.e. there are two versions of Standardized and IRB Approaches, but it does not highlight appropriate reasons or benefits to use the most risk-sensitive approach, thereby developing arbitrage possibilities. Moreover, in countries with less developed capital market and financial system, reliable credit ratings are not available for most of the assets in the bank's credit portfolio. In such cases, the Standardized Approach will assist very little to relate risk with capital requirement and hence it would be a poor replacement of Basel I framework. Hence the capital requirement in developing countries will increase which they are not prepared for. Moreover, the regulatory and supervisory bodies in those countries are not all set to meet the challenge of second pillar of Basel II norms, due to lack of developed infrastructure, insufficient human capital etc.

The implementation of Basel II framework on the Japanese Banking industry resulted in decrease of share prices and reduction of loan provisions for banks that had low capital ratios. This is because second pillar of Basel II norms enforces a large burden on minimum capital requirement to be maintained by banks. Moreover, the second pillar also increases the regulatory capital requirement of banks. Thus, in order to relate the existing literature about the implementation of Basel II in a developing country, the researcher analyzes the impact of Basel II Norms on the Indian Banking sector as India itself is a developing country and has adopted Basel II Norms in its banking system.

3.3 Positive Impact of Basel II on Banks in India

Basel II Norms will have a positive impact on the Indian Banking System in the following ways: Firstly, the implementation of Basel II norms results in reduction of regulatory capital by reducing the credit risk weights, this can be done by suitably altering the bank's portfolios. The Internal Ratings Based (IRB) Approach would provide autonomy to the individual banks to evaluate their own risk and determine the requirement of economic capital. The Standardised and Internal Ratings Based (IRB) Approaches are advanced approaches for calculating credit and operational risk component respectively as per Basel II norms. These methods will help consider most of the risks faced by banks and hence are required to maintain lower capital which will result in lower costs following these approaches.

Basel II framework considers economic risk in line with regulatory risk faced by banks. This will result in easy disbursement of loans to corporate, increase in retail loans and mortgage loans with higher margins. It will also transform the way credit risk is managed by banks because it will make sure that banks have sufficient capital to face operational risk. The other benefit to banks is the development of better risk assessments system, leading to an edge over other banks, by focusing on only those target segments, markets and customers who have high risk and high return ratio.

The other advantage to banks for implementing Basel II norms is superior understanding of risk return trade-off for estimating risks for capital supporting specific business, corporate, customers, products, services and various processes.
The other benefits that the banks would receive by adopting Basel II framework would be the robust risk estimation, measurement and management process, which will result in serving the customers better including small and medium sized businesses. It will lead to liquidity for those small businesses and help them for their growth and expansion needs.
The second pillar of Basel II Accord considers the very important Supervisory Review Process. It brings in the concept of Economic Capital which will assist the banks to decide a minimum capital adequacy requirement based on the level of risk resulted from the transaction. It benefits the bank to achieve an improved relationship between risk and minimum capital required to be maintained by respective banks.
Basel II norms will also offer banks with business benefits like improving corporate governance and allocation of capital. The risk-based pricing will help to improve the bank's competitiveness. Capital will be saved and better decision making will allow counter parties to deal in a better way and increasing the value of stakeholders.
Basel II offers the banks with several alternatives, from which they can select appropriate risk measurement approaches applicable to them. For example, large banks are expected by the market and supervisors to implement advanced risk management techniques whereas small banks with relatively easy operations may use a simple and less expensive risk management system. This is because Basel II framework is drafted flexibly to integrate any changes which may occur in future, the same principles can be included without making changes in the basic arrangement.
Banks will have the autonomy in its operations but has some constraints to ensure a basic minimum capital adequacy requirement. Other additional advantages of Basel II norms are adopting a more active portfolio management system and advanced, progressive risk measurement system. The portfolio of banks is managed by taking into consideration high risk and high return assets, this is possible because banks has access to better, reliable, timelier and higher quality risk information and capital requirement in advance. The pricing of products will be more risk sensitive and proactive which results in overall improvement in the performance management of banks.

3.4 Negative Impact of Basel II on Banks in India
After implementing Basel II norms, Banks in India might face certain negative aspects, which are mentioned as follows:
The first disadvantage with Basel II framework is with reference to higher capital requirement by banks. The Basic Indicator Approach states that banks should maintain capital charge for operational risk component which should be equivalent to the average of the 15% of annual positive gross income of last three years, excluding any year when the gross income was negative. It also indicates that capital required by the banks would depend on the level of Non-Performing Assets (NPAs) of banks.
The second disadvantage of implementing Basel II norms deals with investment and expenditure pattern of banks. The banks in order to be risk aversive, give priority to investment in government securities rather than giving loans to small businesses. This has resulted in negatively affecting the credit disbursed to agriculture and small-scale industries.
The third and the fourth negative aspect is role of rating agencies and regulatory bodies in India. As per the directives of Basel II Accord, banks are required to gather new information and the same is supposed to be disclosed to the general public as a part of Market Discipline, to make sure its transparency. There are only four rating agencies in India, initially they had common rules which will be updated to incorporate new Basel II framework. Regulatory bodies too will encounter challenge as they have to provide same level playing field in terms of jurisdiction at international level, as Basel II norms are adopted in various countries. Moreover, they have to make sure that their auditors and supervisors are sufficiently trained to evaluate banks' compliance as per new capital rules.

4.1 Review of literature
Alfriend (1988) pointed out that a weakness of the minimum capital standards was that they failed to acknowledge the heterogeneity of bank assets and, as a result, banks had an incentive to shift their portfolios from low-risk to high-risk assets.
Jackson (1999) points out that one of the reasons why the Basel Committee adopted a single standard for internationally active banks is that the framework would strengthen the soundness and stability of the international banking system by encouraging organizations to boost their capital positions. Moreover, the framework established a structure that was intended to: (1) make regulatory capital more sensitive to differences in risk profiles among banking organizations; (2) take off-balancesheet exposures explicitly into account in assessing capital adequacy; and (3) lower the disincentives to holding liquid, low risk assets.
Nachane *et al* (2000) examined the impact of capital adequacy norms on public sector banks in India for the period 1997 to 1999 and concluded that capital remains a useful tool in the hands of policy makers for influencing the banks' behaviour and there is no conclusive evidence to support a shift from high risk to low risk assets by banks. Nag and Das (2002) studied the impact of capital requirement norms on flow of credit to the business sector by public sector banks in India and found that in the post reform period, public sector banks did shift their portfolio in a way that reduced their capital requirements.
Rowe (2004) notes that the first pillar defines the minimum regulatory capital for three different risk categories. Apart from credit risk and market risk, it prescribes a capital requirement for operational risk as well.
Hall (2004) states that disclosure of risk-based capital ratios calculated are in accordance with the prescribed methodology and qualitative disclosure about the internal processes are used to evaluate capital adequacy.
Mishra (2004) opines that the new framework seeks to ensure that a bank's capital position is consistent with its overall risk

profile and strategy. Since the new norms stress the need for the bank management to evolve an internal capital assessment process and earmark capital commensurate with the bank's specific risk profile and control environment, a supervisory review to validate such assessment is recommended as a corollary.

Rao (2004) views that Basel I norms aim at ensuring capital adequacy of banks as a proportion of the risk-weighted assets.

Vyas *et al* (2007) studied the impact of capital regulation norms like Basel II on the credit growth of Indian banks and concluded that capital regulations do not seem to affect credit growth in spite of the growing concerns about banks' stability.

Murali and Subbakrishna (2008) are of the view that the twin objectives of the accord were to ensure an adequate level of capital in the international banking system and create a "more level playing field" in competitive terms so that banks could no longer build business volumes without adequate capital backing.

Radhakrishnan and Ravi (2009) state that capital requirements not only protect investors but also safeguard them against the possibility of failure of big banks. They also improve market discipline.

Gupta and Meera (2011) feel that Basel II regulations have led to a significant improvement in the risk structure of banks because their capital adequacy has improved. Also, there exists an inverse relation between CAR and Non-Performing Assets (NPAs), which clearly indicates that due to capital regulation, banks have to increase their CAR which leads to decrease in NPAs.

4.2 Classification of risk under Pillar I

Credit risk: This is defined as the possibility of losses associated with the decrease in the credit quality of the borrower or the counterparties. In the bank's portfolio, losses stem from outright default due to the inability or unwillingness of the customer or the counterparty to meet the commitments; losses may also result from reduction in the portfolio value arising from actual or perceived deterioration in credit quality. While Basel I offered a single approach to calculating regulatory capital for credit risk, one of the main innovations of Basel II is that it offers lenders a choice among the following:

a) **The standardized approach:** This follows Basel I by grouping exposures into a series of risk categories. However, while previously each risk category carried a fixed risk weighting, under Basel II, three of the categories (loans to sovereigns, corporates and banks) have risk weights determined by the external credit ratings assigned to the borrower. Amongst the other categories that continue to attract the fixed risk weights applied by Basel II, loans secured on residential property carry a risk weight of 35% against 50% previously, as long as the loan-to-value (LTV) ratio is up to 80%. This lower weighting is in recognition of the historically low rate of losses typically incurred on residential mortgage loan portfolios across different countries and over a range of economic environments.
b) **Foundation internal ratings based (IRB) approach:** Lenders are able to use here their own models to determine their regulatory capital requirement. Lenders estimate a probability of default (PD) while the supervisor provides set values for loss given default (LGD), exposure at default (EAD) and maturity of exposure (M). These values are plugged into the lender's appropriate risk weight function to provide a risk weighting for each exposure or type of exposure.
c) **Advanced IRB approach:** Lenders with the most advanced risk management and modelling skills are able to move to the advanced IRB approach, under which they estimate PD, LGD, EAD and M. In the case of retail portfolios, only estimates of PD, LGD and EAD are required. Given that a key objective of Basel II is to improve the risk management culture, it is not surprising that the regime encourages lenders to move towards the IRB approach and ultimately, the advanced or retail IRB approach. To this end, most banks can expect to see a modest release of regulatory capital while moving from the standardized to foundation IRB approach and on to the advanced or retail IRB approach.

Market risk: This is the possibility of loss caused by changes in the market variable and includes risks pertaining to interest rate-related instruments and equities in the trading book, foreign exchange risk and commodities risk across the bank in both trading and banking books. Banks have two options: standardized approach (SA) or Internal Model Based (IMB) approach. Under SA, interest rate risk, equity position risk, foreign exchange risk, commodity risk and options risk are the distinct sources identified, and the accord provides the detailed treatment to be applied by banks depending on the extent of risk to which banks are exposed for each of these sources. Banks have adopted the SA for calculation of capital charge for market risk from March 2006. The IMB approach allows banks to develop their own proprietary models to calculate capital charge for market risk by using the notion of Value at Risk (VaR).

Operational risk: The Accord defines this risk as 'the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events'. Similar to the approach to credit risk, it provides three mechanisms for computing operational risk of rising complexity to suit the lenders' varying characteristics. For operational risk, again there are three different approaches – the basic indicator approach (BIA), the standardized approach (SA) and the advanced measurement approach (AMA). Within the IRB approach, there are two subapproaches:

1. **Internal IRB** where banks provide their own estimates of Probability of Default (PD) but rely on supervisors for other inputs. Also maturities are assumed to be 2.5 years.
2. **Advanced IRB:** banks rely more on their own internal estimates for Probability of Default (PD), Loss Given Default (LGD), and Exposure at default (EAD). Banks use their own calculation of the maturity adjustment (M).

The RBI announced in July 2004 that banks in India should adopt the Basic Indicator Approach for operational risk. This was followed by the draft guidelines for the Basel II framework in February 2005 where the methodology for computing the capital requirement was explained.

After adequate skills were developed, both by the banks and the supervisors, some banks may be allowed to migrate to the IRB Approach. The obvious corollary was that only a few banks were expected to migrate to the advanced approaches after some time. The road ahead should lead to AMA as described under Basel II accord and shown in the figure below:

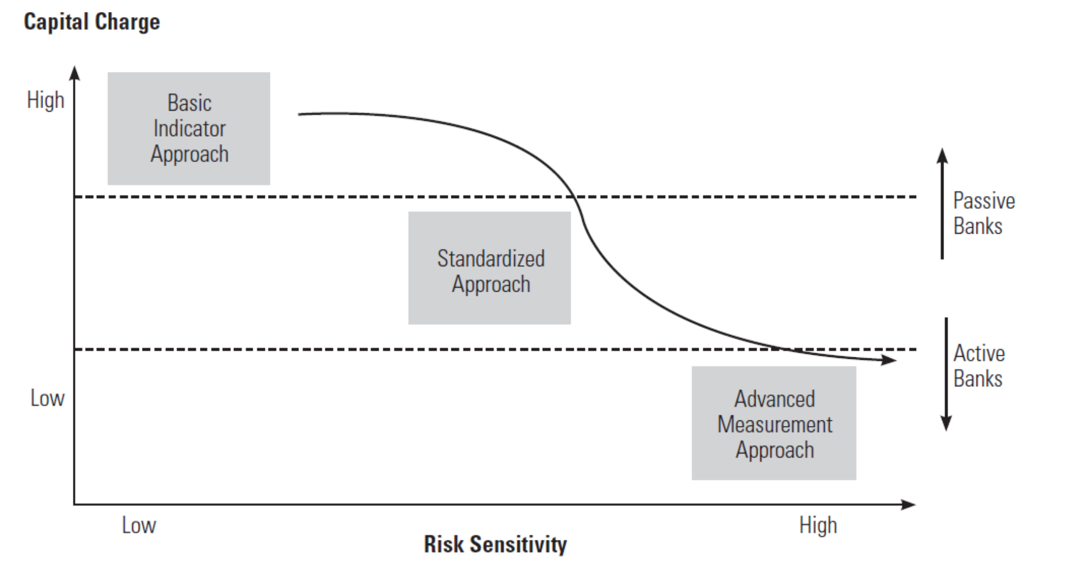


Fig. 2: Approaches under Basel II

Pillar 2 is meant to identify the risk factors not captured in Pillar 1, giving regulators discretion to adjust the regulatory capital requirement against that calculated under Pillar 1. For most lenders, the Pillar 2 process results in a higher regulatory capital requirement. Pillar 2 requires banks to think about the whole spectrum of risks they might face including those not captured at all in Pillar 1 such as interest rate risk.

Pillar 3 is designed to increase the transparency of the lenders' risk profile by requiring them to give details of their risk management and risk distribution systems.
Information is released through the normal mandatory financial statements that lenders are required to publish or through lenders' websites.

4.3 Implications of Basel II norms

The impact of these norms on the banking sector has been a topic on which a lot has been said and done and it is quite interesting. There will be an increased emphasis on risk management, the supervisory review process and market discipline. The three pillars of Basel II are to support the Indian banking system so that the standards match the international standards. Banks in India observe CAR in line with the recommendations of the Basel committee. Prior to this CAR was very low *being at* just 1.5 per cent of the risk-weighted assets.
There has been a considerable amount of debate concerning the potential implications of Basel II. Perhaps the most obvious effect is the change in the return on regulatory capital by altering the denominator. For residential mortgages, the release of regulatory capital under both the standardized and retail IRB approaches should be considerable. Many commentators see this as the basis for significant changes in industry pricing once the Basel I capital floors are removed and lenders move entirely to Basel II as the determinant of regulatory capital, which they believe could alter the competitive landscape and drive consolidation. It is pertinent to note a few key implications of Basel II norms in the Indian banking scenario:

1) **Requirement of Additional Capital:** Banks in India are adhering to a higher CAR than stipulated minimum in order to have a better cushion to absorb possible shocks. Otherwise they may face problems in view of the present competition and risk factors. It is feared that some of the banks may not be able to infuse additional capital to comply with the new regulations and may be thus isolated from the global banking system.
2) **Increased level of NPA:** Though it is claimed that NPA level of banks has come down, the ground reality is that it still remains high. A large number of Indian banks have a significant proportion of NPA in their assets due to the poor quality of loans. Hence there is a danger that banks may not be in a position to survive in the new environment as they will be unable to restructure themselves. Therefore, they may be forced to merge with other banks which would mean loss of capital to the banking system.
3) **Costly database creation:** Improved risk management and measurement are the need of Basel II which aims at giving an impetus to the internal rating system of banks. One of the biggest challenges that Indian banks face is the high cost of database creation as detailed data are required covering at least five years. This is tedious. Banks have to use an internally developed model whose impact may not be certain.
4) **Low Degree of Corporate Rating Penetration:** India has as few as five established rating agencies and the level of rating penetration is not very significant as, so far, ratings are restricted to issues and issuers. While Basel II gives

some scope to extend the rating of issues to issuers, this would only be an approximation and it would be necessary for the system to move to ratings of issuers which poses a challenge.

5) **Cross Border Issues for Foreign Banks:** In India, foreign banks are statutorily required to maintain local capital and hence the following issues are required to be resolved: validation of the internal models approved by their Head Offices and home country supervisor adopted by the Indian branches of foreign banks.

5.1 Need & objectives of the analysis

It is noted that most of the earlier studies focus on Basel II norms for Indian banks and explain the conceptual framework. Little attention is paid to analysis of CAR that can help in (i) identifying why there is a change in CAR between and among banks from one year to the next and (ii) ascertaining how the banks will be affected if the CAR is maintained at lower than the regulatory level. This can be inferred from the recent crises faced by US banks – many were forced to close down. In the year 2008, 25 banks became bankrupt including the big ones like Lehmann Brothers. The present (2011) debt crisis of the US government may also bring in some problems in the banking sector in view of lower ratings awarded by the rating agencies.

This study tries to identify the status of CAR of the commercial banks in India, examine the trends and ascertain the impact of Basel II norms on CAR. It also analyzes the implementation of CAR by banks in India. The situation is displayed through tables and graphs and also discussed. The study pertains to public, private and foreign commercial banks operating in India. The data used for the study are secondary, drawn from published work and the RBI's progress reports on banks and the guidelines issued by the BIS.

5.2 Trends in CAR values in India

Next, we examine the CAR of selected banks (operating in India) for the years 2007 to 2011 as per Basel norms I and II. The banks are grouped into five: *SBI and its subsidiaries, nationalized banks, old private sector banks, new private sector banks and foreign banks.*

Tables 1-5 show the CAR values of *selected banks.* Tables 6 and 7 show the group average CAR and range, respectively, for these banks. Table 8 shows the average CAR for all the banks.

Table 1A : CAR of SBI and Subsidiaries – Basel I – 2007 to 2011

Sl. No.	SBI and Subsidiaries	Capital Adequacy (%) - Basel I as on March 31				
		2007	2008	2009	2010	2011
1	State Bank of India (SBI)	12.34	13.54	12.97	12.00	10.69
2	State Bank of Bikaner & Jaipur	12.89	12.51*	13.18	11.94	11.32
3	State Bank of Hyderabad	12.51	11.97*	10.58	13.71	13.35
4	State Bank of Indore	NA	NA	11.81	12.08	NA
5	State Bank of Mysore	11.47	11.73*	12.41	12.12	12.78
6	State Bank of Patiala	12.38	13.56*	11.43	12.45	12.25
7	State Bank of Travancore	11.68	13.53*	12.13	11.89	10.82

Table 1B : CAR of SBI and Subsidiaries - Basel II – 2009 to 2011

Sl. No.	SBI and Subsidiaries	Capital Adequacy (%) - Basel II as on March 31		
		2009	2010	2011
1	State Bank of India (SBI)	14.25	13.39	11.98
2	State Bank of Bikaner & Jaipur	14.52	13.30	11.68
3	State Bank of Hyderabad	11.53	14.90	11.53
4	State Bank of Indore	13.46	13.53	13.46
5	State Bank of Mysore	13.00	12.42	12.99
6	State Bank of Patiala	12.60	13.26	13.41
7	State Bank of Travancore	14.03	13.74	13.60

Table 2A : CAR of Nationalised Banks - Basel I – 2007 to 2011

Sl. No.	Nationalised banks	Capital Adequacy (%) - Basel I as on March 31				
		2007	2008	2009	2010	2011
1	Allahabad Bank	12.52	11.99*	8.01	8.12	8.57
2	Andhra Bank	11.33	11.61	12.37	13.30	13.48
3	Bank of Baroda	11.8	12.94*	12.88	12.84	13.02
4	Bank of India	11.75	12.04*	13.21	12.63	11.42
5	Bank of Maharashtra	12.06	10.85	10.75	11.33	11.75
6	Canara Bank	13.5	13.25*	N.A	N.A.	N.A.
7	Central Bank of India	10.4	9.39*	11.75	10.82	10.74
8	Corporation Bank	12.76	12.09	13.66	15.00	12.90
9	Dena Bank	11.52	11.09	NA	NA	NA
10	Indian Bank	14.14	12.74	10.73	12.16	13.28
11	Indian Overseas Bank	13.27	11.93	13.27	14.26	13.28
12	Oriental Bank of Commerce	12.51	12.12	12.70	10.88	12.30
13	Punjab & Sind Bank	12.88	11.57	12.00	11.74	11.94
14	Punjab National Bank	12.29	13.46*	11.88	12.97	11.76
15	Syndicate Bank	11.74	11.82*	NA	NA	NA
16	UCO Bank	11.56	11.02*	11.37	11.35	11.87
17	Union Bank of India	12.80	12.51	NA	NA	NA
18	United Bank of India	12.02	11.24*	12.02	11.24	13.28
19	Vijaya Bank	11.21	11.22	11.51	11.79	12.59

Table 2B : CAR of Nationalised Banks - Basel II - 2009 to 2011

Sl. No.	Nationalised banks	Capital Adequacy (%) - Basel II as on March 31		
		2009	2010	2011
1	Allahabad Bank	13.11	13.62	12.96
2	Andhra Bank	13.22	13.93	14.38
3	Bank of Baroda	14.05	14.36	14.52
4	Bank of India	13.01	12.94	12.17
5	Bank of Maharashtra	12.05	12.78	13.35
6	Canara Bank	14.10	13.43	15.38
7	Central Bank of India	13.12	12.24	11.64
8	Corporation Bank	13.61	15.37	14.11
9	Dena Bank	12.07	12.77	13.41
10	Indian Bank	13.98	12.71	13.56
11	Indian Overseas Bank	13.20	14.78	14.55
12	Oriental Bank of Commerce	12.98	12.54	14.23
13	Punjab & Sind Bank	14.35	13.10	12.94
14	Punjab National Bank	14.03	14.16	12.42
15	Syndicate Bank	12.68	12.70	13.04
16	UCO Bank	11.93	13.21	13.71
17	Union Bank of India	13.27	12.51	12.95
18	United Bank of India	13.28	12.80	13.05
19	Vijaya Bank	13.15	12.50	13.88

Table 3A – CAR of Old Private Sector Banks - Basel I - 2007 to 2011

Sl. No.	Old private sector banks	Capital Adequacy (%) - Basel I as on March 31				
		2007	2008	2009	2010	2011
1	City Union Bank Ltd.	12.58	12.48*	12.49	12.09	11.09
2	Dhanalakshmi Bank	9.77	9.21	14.44	12.47	10.81
3	Federal Bank Ltd.	13.43	22.46	20.14	17.27	15.39
4	Jammu & Kashmir Bank	13.24	12.80	13.46	14.81	13.30
5	Karnataka Bank Ltd.	11.03	12.17	12.17	13.54	11.85
6	Karur Vysya Bank Ltd.	14.51	12.58	12.58	13.08	12.48
7	Lakshmi Vilas Bank	12.43	12.73	10.09	14.21	12.09
8	Nainital Bank Ltd.	12.89	12.32	13.89	15.53	17.49
9	South Indian Bank Ltd.	11.08	13.80	13.89	14.73	13.17
10	Tamilnad Mercantile Bank	16.77	15.35	14.48	14.09	13.87

Note: For 2008, some of the banks have reported CAR under Basel II, identified by * in the tables. From 2009 onwards all banks have reported CAR under Basel I and II.

5.3 Trends in CAR Values

A careful glance at the tables shows that there is a noticeable increase /decrease in CAR values in the case of Indian banks during the years 2007 and 2011 under both the norms. But for foreign banks, this change is often substantial. This is a direct consequence of risk dependent weights assigned to the different types of loans. In any case, the CAR is safely above the prescribed minimum. Also as compared to Basel I, the CAR is higher under Basel II possibly due to operational risk being included under the latter. Surprisingly this is not the case with foreign banks.

Table 3B - CAR of Old Private Sector Banks - Basel II - 2009 to 2011

Sl. No.	Old private sector banks	Capital Adequacy (%) - Basel II as on March 31		
		2009	2010	2011
1	City Union Bank Ltd.	12.69	13.46	12.75
2	Dhanalakshmi Bank	15.38	12.99	11.80
3	Federal Bank Ltd.	20.22	18.36	16.79
4	Jammu & Kashmir Bank	14.48	15.89	13.72
5	Karnataka Bank Ltd.	13.48	12.37	13.33
6	Karur Vysya Bank	14.92	14.49	14.41
7	Lakshmi Vilas Bank	10.29	14.82	13.19
8	Nainital Bank Ltd.	13.10	15.68	16.35
9	South Indian Bank Ltd.	14.76	15.39	14.01
10	Tamilnad Mercantile Bank	16.05	15.54	15.13

Table 4A - CAR of New Private Sector Banks - Basel I - 2007 to 2011

Sl. No.	New private sector banks	Capital Adequacy (%) - Basel I as on March 31				
		2007	2008	2009	2010	2011
1	Axis Bank Ltd.	11.57	13.73	NA	NA	NA
2	Development Credit Bank	11.34	13.38	13.44	NA	NA
3	HDFC Bank Ltd.	13.08	13.60	15.09	16.45	15.32
4	ICICI Bank Ltd.	11.69	13.96*	15.92	19.14	17.63
5	Indusind Bank Ltd.	12.54	11.91	12.33	13.40	14.39
6	Kotak Mahindra Bank Ltd.	13.46	18.65	19.86	18.05	18.73
7	YES Bank	13.60	13.60	14.50	NA	NA

Table 4B - CAR of New Private Sector Banks - Basel II - 2009 to 2011

Sl. No.	New private sector banks	Capital Adequacy (%) - Basel II as on March 31		
		2009	2010	2011
1	Axis Bank Ltd.	13.69	15.80	12.65
2	Development Credit Bank	13.30	14.85	13.25
3	HDFC Bank Ltd.	15.69	17.44	16.22
4	ICICI Bank Ltd.	15.53	19.41	19.54
5	Indusind Bank Ltd.	12.55	15.33	15.89
6	Kotak Mahindra Bank Ltd.	20.01	18.35	19.92
7	YES Bank	16.60	20.60	16.50

The cases of SBI & its subsidiaries and nationalized banks are more or less similar Tables 1 and 2). The gap between the attained CAR and the prescribed minimum shows the safety cushion for better management of risk. When we examine the case of old private sector banks (Table 3), the CAR values are slightly higher than their counterparts in the first two groups. In particular, the Federal bank had a rather high value of CAR during these years, sometimes being even more than twice the prescribed minimum. The new private sector banks work with a generally higher CAR (Table 4), occasionally with CAR higher than 20%, indicative of preference for a higher risk margin. Table 5 reveals that the CAR of foreign banks tends to be quite high going up to 100%

Table 5A - CAR of Foreign Banks - Basel I - 2007 to 2011

Sl. No.	Foreign banks	Capital Adequacy (%) - Basel I as on March 31				
		2007	2008	2009	2010	2011
1	AB Bank Ltd.	100.00	43.09*	134.51	43.52	37.68
2	Bank of America NA	13.33	13.45*	13.83	17.16	16.03
3	Bank of Ceylon	63.21	55.97*	63.67	83.30	57.86
4	BNP Paribas	10.76	12.66*	12.60	16.37	14.67
5	Citibank N.A..	11.06	12.00*	14.81	20.76	18.32
6	DBS Bank Ltd.	29.24	18.15*	18.40	13.64	12.11
7	Deutsche Bank AG	10.62	15.05*	15.44	16.58	15.12
8	Shinhan Bank	89.26	48.66*	51.70	58.20	72.17
9	Societe Generale	31.82	20.77*	32.50	29.32	18.56
10	State Bank of Mauritius	38.99	41.66*	34.62	35.10	45.87

Table 5B - CAR of Foreign Banks - Basel II - 2009 to 2011

Sl. No.	Foreign banks	Capital Adequacy (%) - Basel II as on March 31		
		2009	2010	2011
1	AB Bank Ltd.	50.67	30.01	30.57
2	Bank of America NA	12.73	15.49	14.51
3	Bank of Ceylon	45.18	50.85	42.09
4	BNP Paribas	12.37	15.78	11.92
5	Citibank N.A.	13.23	18.14	17.31
6	DBS Bank Ltd.	15.70	16.96	14.98
7	Deutsche Bank AG	15.25	16.45	15.03
8	Shinhan Bank	36.80	40.85	50.73
9	Societe Generale	22.47	22.77	16.23
10	State Bank of Mauritius	38.01	34.40	45.66

Table 6A – Group Average CAR for Banks - Basel I : 2007 to 2011

Sl.No.	Group	Average CAR (%)				
		2007	2008	2009	2010	2011
1	SBI & Subsidiaries	12.21	12.81	12.07	13.31	11.87
2	Nationalized banks	12.21	11.84	11.87	12.03	12.15
3	Old private sector banks	12.77	13.59	13.76	14.18	13.15
4	New private sector banks	12.47	14.12	15.19	16.76	16.52
5	Foreign banks	39.83	28.15	39.21	33.40	30.84

This may be because these are operating in a foreign country and pursue aggressive marketing policies. It may be noted that the variation in CAR is minimal in for public sector banks, followed by private sector banks. It is the highest for the foreign banks.

5.4 Summary

For the sake of clarity and conciseness, we examine only the average CAR (Table 6) and the range (Table 7) for each group of banks. The CAR is obtained from the Reports on Trend and Progress of Banking in India. It is interesting to note that the average CAR shows a rising

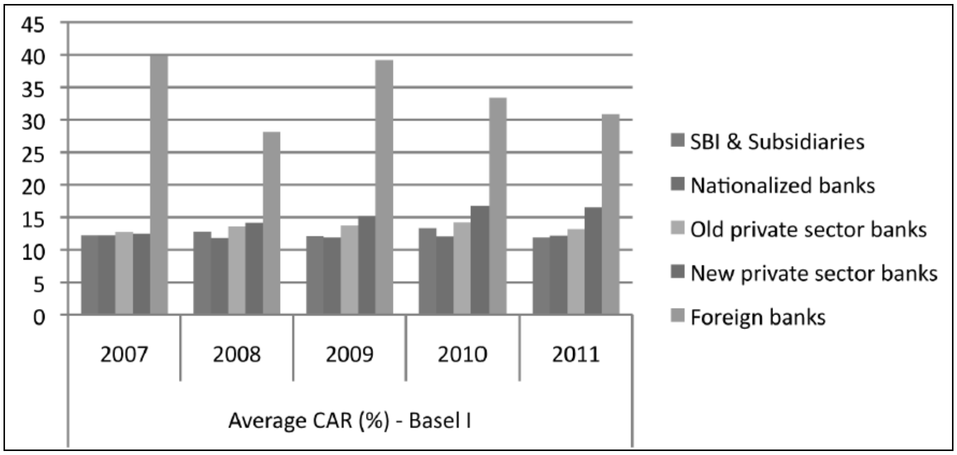


Fig 3A: Group Average CAR For Banks – Basel I: 2007 To 2011

Table 6B : Average CAR for Banks as per Basel II : From 2009 to 2011

Sl. No.	Group	Capital Adequacy (%) - Basel II as on March 31		
		2009	2010	2011
1	SBI & Subsidiaries	13.34	13.51	12.66
2	Nationalized banks	13.22	13.29	13.49
3	Old private sector banks	14.54	14.90	14.15
4	New private sector banks	15.34	17.40	16.28
5	Foreign banks	26.24	26.17	25.90

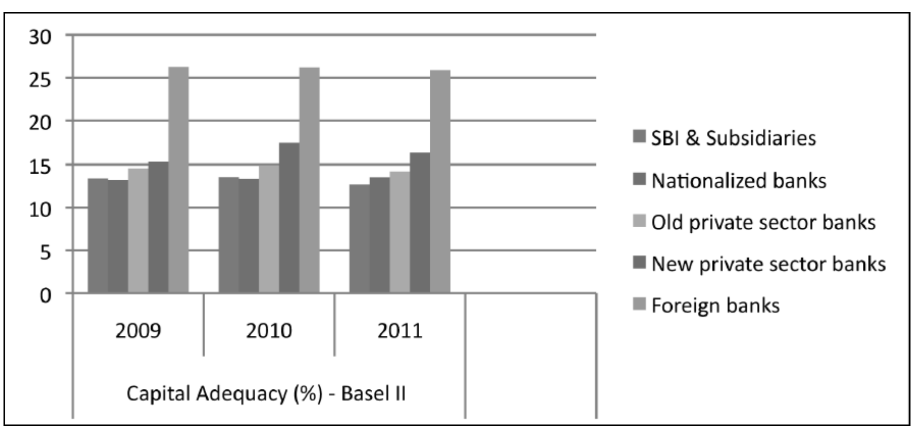


Fig 3B: average car for group of banks – basel II: 2009 to 2011

Table 7A – Range of CAR for Banks - BaseII : 2009 to 2011

Sl. No.	Group	Range of CAR (%)				
		2007	2008	2009	2010	2011
1	SBI & Subsidiaries	1.42	1.83	1.75	1.82	2.66
2	Nationalized Banks	3.74	4.07	5.65	6.14	4.91
3	Old Private Sector Banks	7.00	13.15	10.05	5.18	6.68
4	New Private sector Banks	2.26	6.74	7.53	5.74	4.34
5	Foreign Banks	89.94	43.97	121.91	44.56	60.06

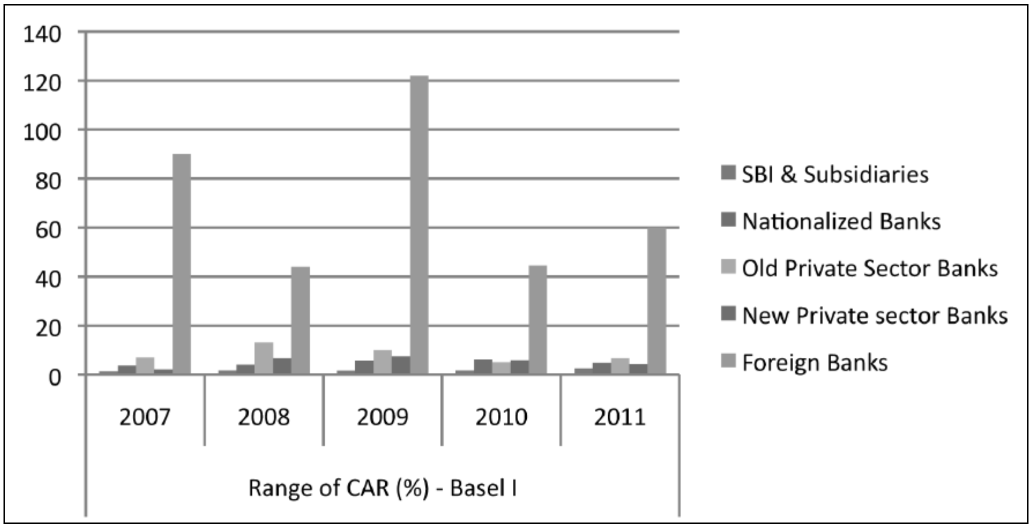


Fig 4A: Group Range of Car for Banks – Basel I: 2007 To 2011

Table 7B – Group Range of CAR for Banks - Basel II : 2009 to 2011

Sl. No.	Group	Range of CAR (%)		
		2009	2010	2011
1	SBI & Subsidiaries	2.99	2.48	2.15
2	Nationalized banks	2.42	3.13	3.74
3	Old private sector banks	7.53	5.99	4.99
4	New private sector banks	7.46	5.75	7.27
5	Foreign banks	38.30	35.36	38.81

Trend when we move from one group to the next. This is true for all the 5 years. Thus the SBI and its subsidiaries and the nationalized banks have the least average CAR and range. Foreign banks, on the other hand, have the highest average and also maximum variability in CAR, followed by the old and new private sector banks. The former may be explained by the high volume and the wide spectrum of banking services offered by SBI and its subsidiaries within the country. Figures 3 and 4 convey the same summary pictorially. To get a comprehensive view, we have also computed the average CAR for *all the banks* operating in India during the period under consideration.

6.1 Conclusions

a. Indian banks have adhered to a *de facto* CAR of above 9% to ensure a better safety cushion. In fact most of the banks have maintained their CAR at various levels over the years depending on the risk weight assigned to each type of loan. Since all the commercial banks in India have ensured a CAR which is above the minimum set by the regulator, they are in a position to comfortably withstand the shock arising from a possible emergency. In the hypothetical case of a bank having a CAR lower than the prescribed minimum, it will be exposed to greater financial risk which can lead to even its collapse. Thus, CAR is a crucial determinant of banks' ratings, in the short run and this has implications for Indian banks in terms of the BCBS proposals which are built on ratings.
b. Given the wide heterogeneity across the banks in terms of their product sophistication and customer orientation as well as their adjustment response, the regulatory framework is designed so as to encourage individual banks to maintain higher CAR than the stipulated minimum that reflects their differential risk profiles.
c. The analysis reveals that capital remains a useful regulatory tool in the hands of policy makers for influencing bank's behaviour. However there is no conclusive evidence to support a shift from high-risk towards low-risk asset category by banks.

6.2 Scope for further work

With ever increasing globalization, banking is becoming more and more complex and managing the associated risks is a challenge. The use of CAR is seen to be quite handy in this context. However there is a need for developing optimal risk weighting systems, with greater uniformity across the banks, while computing CAR. Also a few supplements and alternatives to this critical ratio are called for. Likewise, a stringent evaluation of impact of Basel II norms and anticipated implications of Basel III, which are in the offing, are needed. All these provide avenues for useful work by analytical minds.

6.3 Recommendations

The Age-old proverb 'necessity is the mother of invention' holds good in credit risk management with its tool of CRM. It has for the first time been recognized by the international authorities in 80s that credit risk was a major threat to the safety and soundness of the banking system. In consequence, the concept of capital adequacy, risk weighted assets was born in 1988 by way of Basel I Accord.

24th June 04 is the birth date of Basel II Accord and of the new 'avatar' by way of CRM. No doubt the concept of CRM is innovative and a right enabler for any bank who pursues sound credit risk management policy by insisting on eligible collateral (together with appropriate disclosures) and thereby reducing volume of risk weighted Assets and finally quantum of minimum capital requirements for such banks.

It is however submitted that CRM techniques as prescribed are biased in favour of advanced country banking. In the context of banking system in under developed/developing countries the techniques may need some refinements. Hence eligible collaterals may be enlarged upon a review of legal/social system and practices of the concerned countries. An appropriate way may be to empower regulatory authorities of the countries to implement CRM techniques as may be best suited in the Banking System of their jurisdiction.

7. References

1. Alfriend M. nternational Risk-based Capital Standards; History and Explanation, Federal Reserve Bank of Richmond Economic Review. 1988, 28-34.
2. Gupta and Meera Mehta. Indian banks and Basel - II: An Econometric Analysis, Indian Journal of Finance, 2011, 11-19.
3. Hall M. Basel II: Panacea or a Missed Opportunity? 2004.
4. Jackson P. Capital Requirements and Bank Behaviour: The Impact of the Basle Accord, Basle Committee on Banking Supervision Working Papers, Bank for International Settlements Basle, Switzerland, 1999.
5. Jehan TR. *et al.* Indian Business Environment V.K. Enterprises, New Delhi, 2010.
6. Kasturi Nageshwara Rao. The New Basel Accord, ICFAI University Press, Hyderabad, 2005.
7. Kotreshwar G, Risk Management-insurance and derivatives, Himalaya Publishing House, Mumbai, First Edition, 2005.
8. Leeladhar V. Indian Financial Sector reform, Annual Washington conference of the Institute of International Bankers, 2007.
9. Malgorzata Bialas & Adrian Solek, "Evolution of capital adequacy ratio. *3*, Journal of Scientific Paper, Economics & Sociology, 2010.
10. Mishra RN. Basel II: Pillar 2 - The Supervisory Review process, Professional Banker, 2004.
11. Murali S, Subbukrishna KR. New Capital Framework in India", Bank Credit Management, First Edition, Himalaya Publishing House, Mumbai 2008.
12. Murthy, Bhaskar Sharma, Implications on Banking System, The Analyst, IUP, 2011.
13. Nachane DM, Narain A, Ghosh S, Sahoo S. Capital adequacy requirement and the Behaviour of commercial banks in India: An analytical and Empirical study, DRG Study No.22, Reserve Bank of India, Mumbai, 2000.
14. Nag A, Das A. Credit Growth and Response to capital requirements: Evidence from Indian Public sector Banks, Economic and Political Weekly. 2002, 10-16, 61-68.
15. Narasimham Committee Reports on Banking: 1991.
16. Radhakrishnan and Ravi, "Adoption of Basel II norms: Are Indian Banks Ready? 2009.
17. Rowe D, The Continuing Saga - Basel II Developments: Bank Capital Management in the Light, Balance Sheet. 2004; 12(3).
18. Subbulakshmi V. The New Basel Accord - Implementation Perspectives, ICFAI University Press, Hyderabad, 2004.
19. Johansson E, Ekstrom F. The development of Swedish Banking Industry during the implementation of Basel II, dissertation submitted to University of Gothenburg, Gothenburg, 2011.
20. Basel Committee on Banking Supervision (BCBS) Guidelines issued by Bank for International Settlements (BIS), 2009
21. Basel Committee on Banking Supervision (BCBS) Guidelines issued by Bank for International Settlements (BIS), 2004.
22. Illing M, Paulin G. Basel II and the cyclicality of bank capital, Canadian Public Policy. 2005; 31(2):161-180.
23. Gilleran EJ. Testimony on Basel II Capital Accord, 2003
24. Gupta V. Basel II accord: Impact on Indian Banks. ICRA rating feature, 2005.
25. Leeladhar V. Demystifying Basel II, FICCI-IBA Conference, 2006.
26. Chandrasekhar PC, Ghosh J. Basel II and India's Banking Structure, Macroscan, 2007.
27. Powell, A. Basel II and Developing Countries: Sailing through the Sea of Standard, The World Bank, 2004.
28. Manjoni G, Powell A. Reforming Bank Capital Requirements: Implications of Basel II for Latin American Countries, Journal of Banking and Finance, 2005; 25(1):115-48.
29. Rixtel VA, Alexopoulou I, Harada K. The New Basel Accord and Its Impact on Japanese Banking: A Qualitative Analysis, Centre for Economic Institution Working Paper Series, Institute of Economic Research. 2003, 25.
30. (www.ibase.br/userimages/FLGG%20-20Chalapurath%20Chandrasekhar.pdf).
31. Francis S. The Revised Basel Capital Accord: The Logic, Content and Potential Impact for Developing Countries, 2006 (http://www.networkideas.org/featart/aug2006/Capital_

32. Accord.pdf)
33. Crockett A, The Economic Consequence of Basel II, Financial Market group, 2005. (http://www.fmg.lse.ac.uk/upload_file/384_A_Crockett.pdf for)
34. (www.us.kpmg.com/microsite/FSLibraryDotCom/docs/Basel_AWorldwide%20Challenge_web%20(2)).
35. Oosthuizen C. Basel II: An Introduction to the nuts and bolts, 2005.
36. (http://www.banking.org.za/documents/2005/FEBRUARY/Basel Workshop Nuts Bolt s_070205.pdf for basel workshop)
37. Lind G. Basel II: The new Framework for Bank Capital, Economic Review, 2005.
38. (www.kpmg.com.mx/gobiernocorporativo//libreria_gc/rrr/Basilea%20II/basel_ii.pdf)
39. Basel II – A Challenge and an opportunity to Indian Banking: Are we ready for it? (www.ficci.com/surveys/II.pdf)
40. Mittal S. How will Basel II change banking in India? dissertation submitted to IIM Lucknow, 2008 21. Mathew M. How will Basel II change banking in India?
41. dissertation submitted to, Loyola Institute of Business Administration, Chennai, 2008.
42. Harlalka S. A Study on an analysis of Impact of Basel II in India: A Qualitative Approach, dissertation submitted to University of Nottingham, UK, 2007.
43. Hasmi S. A Study on the factors affecting the Internal Capital Adequacy Assessment Process (ICAAP) of banks in India with respect to Basel Guidelines.
44. submitted to Jagdishprasad Jhabarmal Tibrewala University, Rajasthan.
45. http://www.rbi.org.in, (different dates)
46. http://www.bis.org, 2011.
47. http://www.banksofindia.com, 2011.
48. http://www.iupindia.org, 2011.
49. http://www.economictimes.com, 2012.
50. http://www.thehindubuisnessline.com, 2011.
51. http://www.answers.com/topic/credit-risk, 2011.
52. http://www.booksrags.com/standard_approach, 2011.
53. http://www.economics-sociology.eu, 2012.
54. http://Websites of selected banks, (different dates)