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IMPACT OF CHANGE IN TIER 1 OF BASEL 3 ON THE NIM OF THE BANKS

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Abstract: As the world is coming closer with the economies getting interlinked, the risks associated with doing business are also getting interlinked. Gone are the days when a downfall in economy of a country only affected that country, today it has a chain effect on the other countries. The financial sector of the world is inching closer and closer day by day. The dependence of the nations on each other is increasing. In this changing era it is hard to function in Isolation and save our economy from the dangers arising in the world. The past has the proof that failure of banking system in one country has lead to the failure of the banking system of another country. The proof of 1974 bank failure of Germany is an example of the same, and so as the failure of Bretton Wood Commission. It was then decided to come up with a banking norm which can help the banking sector of the world to identify the right way of working. This decision of G-10 resulted in Basel Accord. Though with time various amendments are done but today voluntarily almost all the countries are accepting the Basel norms for better banking Governance, and thus banking system of the world gets affected by the same. Currently is the era of Basel 3 norms. The researcher covers the implication on Tier 1 of Basel 3 norms on Net Interest Margin of the banks. A case of 5 Banks of India, namely SBI, BOB, Axis, ICICI, and Federal bank is taken and the span of the study is from 2008-09 to 2014-15.

Key Word: Basel 3, Tier 1, NIM, SBI, BOB, Axis, ICICI, Federal

INTRODUCTION

Globalization has changed the dynamics of the world economy, today none of the nation's economies are working in isolation. A major change in one nation has its effect on the economies of other nations. Gone are the days when the effect of any major political or economical shift of a country remained limited to its boundaries, US presidential elections can be seen as an example of the same. While globalization has opened new doors for the developing economies, it has also exposed these countries economies to the new dangers that may arise due to shift in the economies of the developed countries. Banking system in the world is not an exception to it. Rapid change in world's financial markets has affected the banking system of the world. Itsroots can be seen dated back to the failure of Bretton Wood's system which affected the banking all over the world. The withdrawal of licence of BankhausHestatt's bythe Federal bank of Germany not only affected Germany, rather in the same year one of the largest bank of New York Franklin national bank was forced to close due to unsettled trade with Hesttat Bank. This situation of 1974 made the leaders of the world thinking, it was observed that the prudent norms of the country may be able to save the banks in the nation from the internal economic changes, but the international activities of these banks exposed them to the international market risk. The growing proximities in the banking industry have affected the banking system throughout the world.

The world leaders came up with the Basel accord as a solution to these problems. In 1983 the 1st Basel accord was regularized by the G10 nations under the auspices of the Bank of International Settlements, Switzerland. The biggest achievement of the accord can be said that

though it was not forced to be adopted by any country, the countries of the world willingly adopted the same. But with the passage of time it was observed that there were many loopholes which were suffocating the economies of the developing nations thus in 1997 the new accord Basel 2 was proposed. As it is said a solution to one may become a problem to another. On one hand Basel 2 supported the developing economies by its liberal policies on the other had the developed countries took higher risk and higher exposure in the credit market by overlooking the Basel norms, which set the ball in motion and resulted into Sub Prime crises of 2007 and its aftermath, which affected the economies of the world. The leniency of the Basel 2 was reconsidered and the committee came up with its third set of Norms "Basel 3" by the end of 2011. The researcher in this paper talks about one of the important aspect of Basel 3 Accord. Basel 3 has emphasized on Tier 1 Capital of the banks, the accord says that the Tier 1 capital of the bank must be used to make the bank more financially secured. Tier 1 Capital in any bank mainly deals with the Equity share holding of the banks. The Accord says that to manage the risk arising out of the Credit is very high and thus to strengthen the banking system a major part of the Tier 1 capital must be kept as buffer by the banks for risk coverage. The Basel 3 norms has a major focus on the capital buffer creation. The two buffer introduced in the accord i.e. capital conservation buffer and countercyclical buffer are intended to protect the banking sector in the situation of excess credit exposure as can be handled by the bank. Reserve Bank of India has issued its guidelines based on the accord on May 2, 2012 implemented from April 1, 2013 in the phased manner till March 31, 2019.

Banks are required to maintain a minimum Pillar 1 capital to Risk weighted assets ratio (CRAR) at 9% on an ongoing basis. The calculation of the Tier 1 Capital is based on the below mentioned formulas which forms the Pillar 1 of the Basel 3.

$$Common\ Equity\ Tier\ 1\ Capital\ Ratio = \frac{Common\ equity\ Tier\ 1\ Capital}{Credit\ risk\ RWA + Market\ risk\ RWA + Operational\ Risk\ RWA}$$

$$Tier\ 1\ Capital\ Ratio = \frac{Eligible\ Tier\ 1\ Capital}{Credit\ risk\ RWA + Market\ Risk\ RWA + Operational\ Risk\ RWA}$$

$$Total\ Capital\ (CRAR) = \frac{Eligible\ Total\ Capital}{Credit\ Risk\ RWA + Market\ Risk\ RWA + Operational\ Risk\ RWA}$$

Components of capital

i) Tier 1 (going Concern Capital) i.e. the capital of the bank that can absorb losses which includes a) common equity Tier and b) Additional Tier 1 as mentioned by RBI circulars on time to time basis

ii) Tier 2 (Gone concern Capital) is the capital which will be able to absorb losses only if the bank liquidates. As mentioned by RBI circular on time to time basis.

The researcher here tries to test the impact of change in Tier 1 capital on the NIM of the Indian Banks. The researcher has concentrated on 5 Banks of India, the rational for selection of these banks is given in the Research methodology. The Paper further discusses the Rational for calculations and various assumptions underlined to understand the effect on NIM. NIM the Net Interest margin may not be affected directly but the Rational of the study will focus on explaining the Effect of Tier 1 Capital on the NIM of the banks.

LITERATURE REVIEW

Parmeshwara, (2013) in his paper on "Reserve Bank India and Basel Norms" has showed that how RBI is taking proper steps in implementing the accord. "implementation of Basel 2 had been described as a long journey rather than a destination by itself" RBI played the pivotal role during this journey by taking a consultative approach. While implementation of Basel 3 is based on countercyclical impact on the developed countries. This

need not mean that if it is so followed it will not have a negative effect on the economy. Which is done by RBI by making the norms of the accord closely coordinated with the monetary policy of the country.

Goel. S. ***et al.,*** **(2013)**in her work on the topic "Basel 3: An enhancement of Basel 2 norms" states that the crisis of 2008 paved the way for the new Basel accord in the year of 2010. The major reason for the new accord were the improper condition of the banks of the developed countries. After the sub prime crisis a tough regime was set up to understand the failure of the banks of developed countries during that time it was found that these banks were undercapitalized, overleveraged and had greater dependence on the short term funds as they had used the loop holes of self-regulation of the Basel 2 norms. The older norm was felt insufficient to curtail any further risks so for risk mitigation the new norms were brought in i.e. Basel 3 the main aim of this was to strengthen the trading books of the bank by making it more capital intensive. The guidelines aimed to more flexible banking regime by focusing on four major parameter i.e. capital, leverage, liquidity and funding. For Indian banks the implementation of the norms started from January 1, 2013 in phased manner. RBI the controlling authority in India is issuing guidelines from time to time for the smooth transition of banks. The author observes that the new accord enhances the bank-specific measures and includes macro prudential regulations to create a more stable banking system. The author concludes that the new accord stresses on reducing risk arising from financial and economic stress whatever the source, improve the risk management and governance system and strengthen the banks. The Banks will require to further raisetheir capital in the future but the banks of India are well placed as the norms prescribed by RBI are more stringent than the one prescribed by BIS. In India the concern is towards the PSU banks as private banks are well placed to follow the new norms but PSU may face some road blocks, but in any case Indian banks are ready for the new norms.

Shah. M., (2013) studied the implementation of BASEL 3 on the Indian banking where she has mentioned that on one hand where the capital of the banks will reduce by 60% due to phased removal of certain components of capital from Tier 1. The risk weight age will grow by 200% this two side pressure will affect the profitability of the baking in India. Along with that the long term liquidity requirement will reduce the profit margin more and will grow the cost for the bank. She has mentioned in her paper that a balance is required to be maintained in the lending and borrowing cycle of the banks for the smooth functioning of the banks. The leverage ratio of Indian banks is moderate, and hence, not a cause for concern. However, with capital dilution, increased risk weightings and ceilings on derivative trading, the new leverage ratio will impact the lending capability of the banks. As India is a developing economy, the shrinkage of bank credit can set in recessionary trends. Further, the developmental agenda of the Indian banks will take a backseat in such a situation. While systemic stability is welcome, it cannot be at the cost of the larger economic goals of poverty alleviation, employment generation, priority sector lending and balanced regional growth.

Jain. M., (2013) in his paper critically analysed the implementation of BASEL 3 norms on Indian PSU banks and had tried to understand its effect on them. He had said in his paper that on one hand RBI has extended the date of implementation of BASEL 3 norms on the other hand the capital requirement is now reduced to 20% which will give a relaxing situation to the PSU banks and also time to phase their activity. But then also the road is not smoother ahead, RBI wants to implement the accord to make the financial system safe. Moreover, the 'perception' of a lower standard regulatory regime will put Indian banks at a disadvantage in global competition. Also it's been observed that the PSU banks may suffer a lower profitability as it needs to raise Rs. 5000 trillion to meet the BASEL 3 requirements. The government could consider reducing its majority stakes in a variety of state-owned banks, as it attempts to cut the Rs. 900 billion in recapitalization, needed to maintain present shareholding levels. Indian government has so far rejected suggestions that it might reduce its shareholding in more than two dozen public sector banks, including a stake of approximately 60% in the State Bank of India, the nation's largest lender by market share. The RBI governor had in the recent past suggested that the Indian government

could save Rs. 200 billion in recapitalization costs if it reduced its stakes in all state-owned banks to just 51 per cent. **Barthwal. V.V., (2013)** had concluded in the paper that though the implementation of the BASEL 3 norms is beneficial in the long run and is a required step to maintain the security of the banking system but initially it's going to cost a lot to implement the same. The paper reinstates the fact that the profit of the banks will be squeezed with the implementation of the norms and a requirement of fresh capital will be felt to completely implement the norm. Though the Indian banking is strong to deal with the pressure but still it need to find out ways for new capital infusion especially in the case of Public Sector Banks where the major shareholding is that of the government. RBI director prior also has suggested the government to reduce its share capital in the public sector bank so that the transition can be easy and smooth.

Mirchandani. A. *et al.,* (2013) have concluded in their paper "Basel III Implementation: Readiness of Public Sector Banks in India" that the PSU banks are currently ready and are in position to maintain the CRAR of the Basel 3 accord. But with the phased development of the new accord it is possible that these banks may require new capital infusion. As the focus will be shifting from capital to tier 1 capital.in current situation bank will be able to even achieve its credit growth of 16% but with more emphasis on Tier 1 capital banks may have to think for means to add capital. "Equity requirement up to March 31, 2018 is Rs 1,43,000 Crore and the overall capital requirement is Rs 4,25,000 Crore, Anand Sinha, Deputy Governor of RBI told CNBC-TV18" some critics are telling that this is undervaluation and the banks may require more funds than this. Considering the CRAR position the banks are in no haste and it has 6 years to reach the required change amount. Banks also need to exercise proper control on NPA if they wish to continue business in the long run.

Agarwal. V. *et al.*, (2014) in the review on "Basel 3: comparison of standardized and advanced approaches" for Capgemini have concluded that banks will have to face risk head on. The new method of calculation of risk given in new accord will make it more detailed and clear. One must no doubt evaluate the cost and benefit ratio in moving from standardized to advanced approach. The author clearly states that the banks must look at the larger picture to decide and control the capital. The new IRB approach are better in many aspects. Also Basel 3 capital requirements need to be measured more clearly than the previous accord as it has direct effect on various other ratios. No doubt that banks will have incur higher IT cost for the implementation but it will help banks in maintaining data at a higher level.

Chakrabarti. S. *et al.* (2014) in their work on "Basel norms implementation with respect to Indian Banks: A critical review" had said that the effective and [roper implementation of Basel 3 norms will further strengthen the Indian banking sector. The banks that are currently working on standardized approach will further go ahead and work on advance approaches. The author states that "A change in perception to seeing the capital more efficiently framework as pre requisite instead of compliance function for keeping banks sound, stable and profitable is important. It provides deeper and more broadbased capacity in risk management and ensure adequate and good quality data. It does not mean that the transition will be smooth for sure there are challenges that the Indian banks will face, such as stricter capital definition, increased quality of Tier 1 capital. Elimination of Tier 3 capital etc. which will not make the road smooth. The transmission will require time and proper supervision. Thus it is concluded in the paper that adoption of Basel 3 accord will improve quantity and quality of capital of Indian banks, with stronger supervision, risk management and disclosure standards. The accord has proposed very important ratios and steps which will strengthen the banking industry such as leverage ratios, capital buffers and the proposal to deal with pro-cyclicality through dynamic provisioning based on expected loss.

Datey. R. *et al.* (2014) have mentioned in their work on " Basel 3 norms and Indian banks- A new definition of risk management". That the impact of the Basel 3 norms on Indian banks can be seen from 4 different perspective which are as follows:

1) Impact of capital adequacy norms on Indian banks: The Indian banks are well placed on the capital till the margin mentioned by BIS are

concerned in specific the private and the foreign banks but with PSU there are some issues as they require a new infusion of funds it is to be seen from where they will rise this capital as the major stake holders in these banks are government and it is presumed that either government will infuse new funds or their will be amendments in Tier 1 and Tier 2 capital of the banks.

2) Impact of Leverage Ratio on Indian Banks: Till this new ratio is concerned the Indian banks are already maintaining SLR. Only problem with it is that SLR considers only moderate risk while market risk and leverage ratio. The tier 1 capital of most of the Indian banks are well placed and these banks also do not hold to large position in derivatives hence the situation in relation to leverage ratio in Indian banks by far are in control.

3) Impact of Liquidity risk management on Indian Banks: Indian banks to fear up in this area. If proper and transparent steps are not taken for mitigation of risk the effects can be devastating. The banks need to see that they have enough HQL to meet the next 30 days requirements. The scenario thus can follow a situation where in there is a partial loss of unsecured wholesale funding capacity, partial loss of secured short term financing. Increase in market volatilities that impact the quality of collateral, potential need by banks to buyback debt or honour non contractual obligations, etc.

4) Impact of counter Cyclical Buffers on Indian banks: The author says that the concept is good but operationalizing the same is bit tough as it will require to redefine the business cycle to global business cycle which itself is not globally synchronized. With Indian banks the setting up of the variables for the buffers will also require a lot of work. The setting up of indicators in an economy like India will be a tough task which is the prerequisite of the ratio.

Thus we can say that the new norms will have a long lasting effect on the Indian banking system, to some part of the norms the banks will be able to adapt easily while it will require an extra effort to comprehend with some.

Fatima. N., (2014) in her work on "Capital Adequacy : A financial soundness Indicators for Banks" had concluded that "Capital adequacy is an important parameter for judging the strength and soundness of banking system. Banks with reasonable CRAR can absorb the unexpected losses easily and their cost of funding is also reduced which ultimately improve the profitability of banks. The given study revealed that top Indian banks are maintaining adequate level of CRAR. The private sector banks as per the study are in good potion as compared to public sector bank in relation to CRAR one of the most important aspect of Basel 3 norms."

Hazarika. D. *et al.,* (2014) in their work " Dissecting Basel 3 by geography" have said that the new accord suffers a major problem from the point of view of the developing economy i.e. with the implementation of the leverage ratio it will made mandatory for the banks led at a certain level of risk only, the developing economies will not be allowed to make the finances on their own wish. Also flow of international fund may stop to some of developing economies due to their rating. Though these economies are ready to face such a situation with their high tier 1 capital base but the norm will affect the industry by and large.

Manish *et al.*, (2015) had concluded in their paper on " Basel 3 and its implementation" that the accord on the front hand is appearing to be tough to be applied to the Indian banking industry due to high capital requirement but the same will be beneficial in the long run for the whole banking industry. It will function as a precautionary approach to make the banks able to face any stressful situation and will prepare them with reserves to meet the same without affecting the depositor's interest. RBI has always remained stringent and conservative in the setting the capital standards for the Indian Banks as compared to the international banks. The phase-in implementation of the accord will impose lower capital burden in early years and higher capital burden in later years. Also, the extended deadline of its full implementation will provide banks some extra time to raise capital and to be Basel III compliant.

Barua. R. *et al.,* (2015) in their work on "Basel Regulatory Capital Norms: Impact on Commercial Banks in India" have concluded that the PSU banks are currently in a situation where they require a huge amount of capital injection according to the announcement done by government an amount of Rs. 6900 crore will be added to the capital of the 9 PSU banks by the government to make their position strong in case of capital. many PSU banks are looking towards the equity market to raise additional capital but it is seen that the banks will face a problem in this as the market is currently in the shares can be issued at the discounted cost and various other structural issues are also there. Thus making the option tough to access. The best way for the PSU banks to come out from this problem is to look inside the bank for the solution wherein they can increase the interest margin and can lower the operational cost. The focus of the banks management must be on increasing the profitability of the banks and reducing the operational cost of the banks. The quality of asset portfolio of PSU banks need to be strengthened substantially through effective appraisal backed by efficient monitoring of the assets. The banks need to do an effective capital planning to effectively manage the impact of the Basel 3 requirements. Long-term view for capital budgeting needs to be taken and additional equity and non-equity to be infused well in time to consolidate capital position. It is observed that the PSU banks are the main players in the credit market with over 70% of share of the total credit supply to the economy. If the banks think to increase the cost of lending it will make the loans costlier and thus will have a negative effect on the growth of the economy. The solution to this is that the PSU banks diversify its portfolio of lending. It is currently observed that the PSU banks are the main lenders to the big corporates and in that also a large amount is given to the telecom and infrastructure sector. While the retail segment is very less in these banks. The retail lending is almost negligible it is suggested to these banks to diversify their loan books by giving weight to retail lending. Along with it bank need to work on its risk management system to mitigate the systematic and unsystematic risk arising due to various forces working in the banking sector.

Pareek N. (2017) in her work titled "Therorotical Camparative analysis of the Basel Accords: A journey from Basel 1 to Basel 3" has compared the all the three Basel Accords and has developed an Indian Perspective on the same. The researcher here has mentioned that all the accords had some short coming's. The author has mentioned in the comparison that Basel 3 covers mostly all the short coming of the previous two accords. Though a bit stringent on Capital ratios the accord has better perspective and monitoring phenomena than the previous accord. The author has also mentioned that Basel 3 on one hand looks very tough for the banking system as it focuses too much on the Capital conservation, but in the long run this will help the banking system of the world to strengthen its hold and thus will help the banking system to grow in a very effective manner.

Shukla, S. (2017) in the paper titled "Basel III : Impact analysis for Indian Banks" stated that the Indian banking system is in a better condition as compared to the world as we are already mainting a higher ration in capital as compared to what is mentioned by the Basel accord. The other ratios like LCR, NSFR etc. are also properly covered by the banks in India as we had a prior base of CRR and SLR. Thus it can be said that the banking of India is ready for the implementation of the Basel accord and thus supports the same.

Research Gap: If we take the Indian Research we find very few studies in context of Basel 3 accord. While the literature found is mainly talking about the complete accord there are very few literature that focus on the Capital conservation and Tier 1 solely. While almost negligible study were found to establish the relation of change in Tier 1 with the Net Interest Margin. Thus the researcher found that there is scope of study in this dimension. We can see from the studies above that a lot of people favour the accord but still people are rarely providing any data. Also majorly all the studies present future forecast while no study is doing past validation and seeing how the NIM has changed.

Problem Statement: The Effect of the change in capital on NIM of the bank. As people are predicting that the capital will go high but not one is giving any view that how it will affect the other variables. So Researcher has taken NIM of bank to understand its effect.

RESEARCH METHODOLOGY

Research Design

Basically the researcher has used combination of Exploratory and Descriptive methods. As a lot of information in theory was available on the topic the researcher tried to find the nuances of the accord through it. The data type used in this study is mainly secondary, as to study the effect on NIM the researcher has used the past balance sheets of the 5 banks for the past 7 years.

Sampling Method

While the probability sampling method was used where in all the banks had equal opportunity to be a part of the study. The selection of banks was done on the basis of size and sector of bank. As can be seen 5 banks are covered in the study Axis, ICICI, SBI, BOB and Federal. Where in if we look at Axis and ICICI on one had they both are amongst the largest private sector banks in India along with it the pattern of establishment of both the banks was almost similar. Both were started by the agencies which were once a part of government schemes / departments be it ICICI or UTI. Researcher would have taken HDFC but the pattern of establishment of it is different from the other two hence a perfect comparison would not be possible. In selection of SBI and BOB the logic was that both are one of the largest banks in the PSU sector. Secondly both the banks are having one of the largest base of branches at both national and international level in comparison to any other public sector bank. The reason why researcher selected Federal is it is one of the oldest private sector bank in existence, secondly it's a mediocre bank as compared to the other four thus providing the researcher a view about other medium banks in the wake of the accord.

While the reason for selection of the bank is already given the reason for selection of specific period of balance sheet is as follows

i) Only balance sheet of normal seven years were used starting from 2008-09 as these were the years of transition after the failure of Basel 2 accord in the year of 2007-08.

ii) The Basel 3 accord is getting implemented in phases and will be applicable by the end of 2019-20 which took a complete seven year in implementation thus to have the original picture exactly preceding seven years are taken.

iii) The last two years of the study are actually the first two years of the phased period. As the study checks if the full phased implementation had taken past what would have been the picture of Indian banking thus these last two years provide a better picture of the same

OBJECTIVE OF THE STUDY

The study is mainly based on Two Objectives:

1. To understand the impact of change in Tier 1 of Basel 3 on the NIM of the selected banks
2. To establish whether the Indian banking is in the condition to accept the norms as given.

HYPOTHESIS OF THE STUDY

The hypothesis set for the study is that there is no significant difference between the change in the capital of tier 1 and NIM of the bank. That is if one changes the other one automatically adjusts to that change.

RATIONAL OF THE STUDY

If we try to find out the direct effect of change in capital requirement on the change in NIM it is something which is not possible as both are derived from the accounts as provided by Elliot (2010). "Elliott provides an accounting-based analysis of how much the interest rate charged on loans will likely increase if banks are required to hold more equity. Elliott does not examine the proposed liquidity requirements. Elliot assumes that the loans are basically funded from equity, deposits and wholesale. Any change in the capital can have a direct effect on the ROE of the bank so to make it stable banks need to increase is loan spread. He says that if the equity required to meet the loan is raised by 2% than it will have an effect of 39 basis point on the loan spread if the bank wishes to keep the ROE constant. This in turn will have an impact of 16 basis point on the loan income. The required increase falls to 9 basis points if ROE is allowed to decline , the

cost of liabilities decreases by 10 basis points, the assumed loan loss provision is marginally lower, and operating costs are reduced by a small amount." Further to this King (2010) has also said that "every rise in equity capital leads to the rise in the loan spread. He has suggested in his study that with every increase of 1% in the CET of the bank will have a direct effect of 0.15% on the lending spread which in turn will have an impact of 0.08% on the interest income and -0.03% on the interest expenditure. He has mentioned in his paper that no banks tries to bring down its ROE as that means losing the investors." This section of the study mainly follows the principles lied down by the king for its calculation. But before going to calculations we will try to have a brief look on the basis of the calculation that is based on various accounting factors. Along with it we will try to draw a stylized balance sheet depicting the complete effect of the Change in Equity.

Mapping the change in equity to various factors

To understand the effect we need to first understand the various components of the bank balance sheet and how they are correlated with each other the below equations will try to provide and insight in the same.

1. Assets= Cash + Inter bank Claim + Loans and advances + investment + other assets

The bank balance sheet is not like the typical balance sheet of the business here the loans and advances are considered as the bank assets. Further to this the bank liabilities are also a combination of various factors as can be seen from the equation below.

2. Liabilities = Deposits + Inter bank funds + trade liabilities + debts + other liabilities.

Shareholder's equity represents the residual claim of shareholders after deducting the liabilities of creditors from total assets. It is to be noted that the best way of calculating the leverage is to find the ratio between the shareholders equity to the total assets of the bank. But calculating RWA is not that simple that it can be just found out by the balance sheet final figures but it requires more sophisticated calculation as one need to see the type of assets the bank is holding and the risk that is associated with it. A change in any of these will have a direct effect on the Net income of the banks. Net income of the banks is basically divided into two major parts i.e. net interest income and noninterest income. Net interest income is further derived from the difference of interest income and interest expenses. Where interest income include income from loans and advances, interbank claim etc. interest expenses includes interest payable on deposits, debts etc. While non-interest income includes the operational income and expenses. The same can be presented in equation as follows

3. Net income = {(Net interest income – net interest expenses) + Non interest income-operational expenses}* (1-tax rate)

So one will think what these formulas have to do with the study. It is to be noted that the change in equity has direct relation with change in net income which further has direct effect on the NIM of the banks. Further this is also to be noted that with change in equity change in debt takes place to know which debt to be replaced one need to find out the short term and long term debts that form the wholesale funding as mentioned in equation below.

Whole sale funding = Debt *pt + Debt * (1-pt)

But this information is never directly available in any balance sheet so to derive he same we require the below information

$$Intexp = r_{deposit} * deposits + r_{debt\ d"1\ year} (\text{Inter bank funds} + \text{Trade liabilities} + debt*pt) + r_{longtermdept} * debt*(1-pt)$$

Where r represents the cost of that particular debt to calculate this it is to be noted that as per norms the cost of deposits can be say x% then the cost of debt less than one year will be x%+100 basis point while that of long term debt will be x%+200 basis point. The final source of bank funding is shareholder's equity. One measure of the expected return for a bank's shareholders is the long-term average ROE, which is the ratio of net income to shareholder's equity.

$$r_{equity} = ROE = \text{Net income/ equity}$$

Where in it is to be noted that $r_{deposit} < r_{debt\ d"1\ year} < r_{longtermdebt} < r_{equity}$

While this relationship may be violated for a bank in financial distress, in normal times this relationship ensures

that different capital providers receive an expected return commensurate with the risk of their investment. Finally, it is important to distinguish between regulatory capital ratios and accounting ratios based on a bank's balance sheet. Under current banking regulations, the quantity of capital that must be held for regulatory purposes is related to the riskiness of the assets. The quantity of RWAs used when calculating capital adequacy ratios, however, may not equal the quantity of total assets shown on a bank's balance sheet. This study focuses on the total capital ratio, defined as qualifying capital divided by RWAs

Total Capital Ratio = E/RWA

Thus this can be seen that it is possible to calculate the effect of the capital requirement on lending spread leading to the calculation of net income and thus NIM.

It is to be noted that according the bank accounting every unit change in bank equity will have the same effect on the bank debt i.e if the equity rises by 1% point the debt will go down by 1% point. Based on this information and the details given by Michel king we can draw that the NIM which is the composition of net income and expenses on average assets get affected proportionately with the change in the equity of the banks. We will try to check this hypothesis by using the data of five banks and calculating the effect of change in Tier 1 capital on the NIM of the banks it is to be noted that

NIM = Net interest margin = Net income – Net expenses / Average assets

Going further to the calculation it is required to specify that the researcher has taken assumptions to check the validity of the hypothesis. The assumptions are as follows

i) The RWA of the bank remains constant for all the years

ii) The ROE remains constant for all the years

iii) Any loan is given from the equity, deposit and wholesale funds of the banks

iv) Any change in equity will have a proportionate effect on the debt of the bank and thus on the interest expenses of the bank.

v) 2009-2010 is considered as the base year of calculation

vi) The first phase of tier 1 capital was introduced in 2010-2011

vii) Calculations are based on the guidelines given by Michel King where 1% increase in Equity has an effect of 0.15% increase in lending spread, 0.08% increase in interest income and -0.03% decrease in interest expenditure.

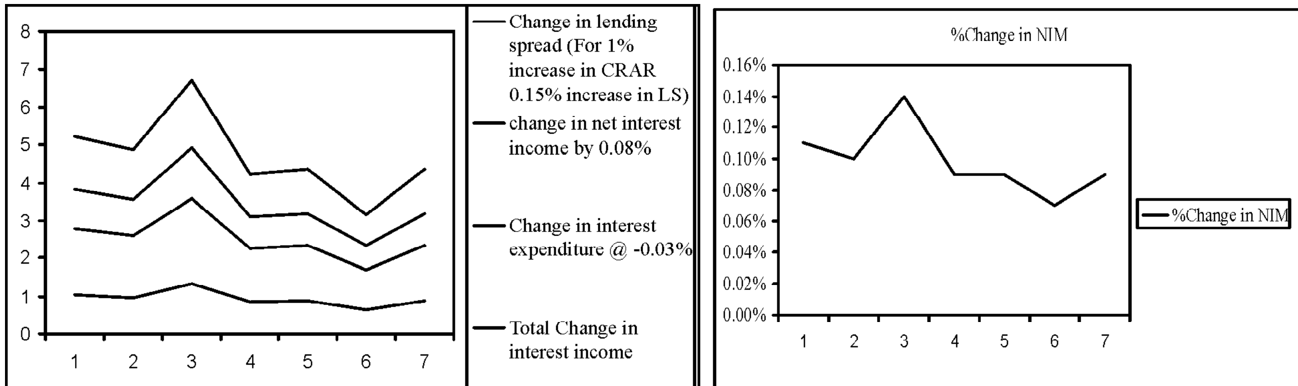
viii) The operation cost of the bank cannot be altered or reduced.

Based on the above assumptions the calculation for five banks are done to check the implication of the norm on the Indian banking and NIM of the Indian banking.

The Case of 5 Banks

Axis Bank

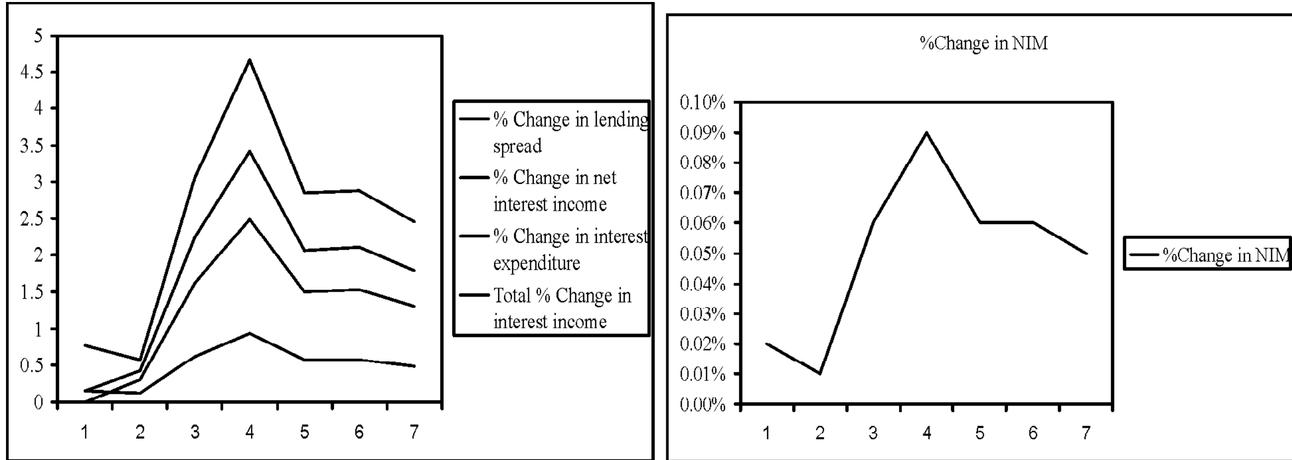
Variables	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*
RWA of total assets	110791.5	135485.9	182035	214221	255421	287433.7	346449.3
TIER 1 as % of RWA	4.50%	5.00%	5.50%	5.50%	5.50%	5.50%	5.50%
Additional Tier 1	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
CCB				0.63%	1.25%	1.88%	2.50%
Minimum Tier 1 +CCB	6%	6.50%	7%	7.63%	8.25%	8.88%	9.50%
Minimum amount of Tier 1 +CCB	6647.492	8806.583	12742.5	16334.3	21072.2	25509.74	32912.68
YOY % change	34.81%	32.47%	44.70%	28.19%	29%	21.06%	29.02%
% Change in lending spread	5.2215	4.8705	6.705	4.2285	4.35	3.159	4.353
% Change in net interest income	2.7848	2.5976	3.576	2.2552	2.32	1.6848	2.3216
% Change in interest expenditure	1.0443	0.9741	1.341	0.8457	0.87	0.6318	0.8706
Total Change in interest income	3.8291	3.5717	4.917	3.1009	3.19	2.3166	3.1922
assuming ROE	20%	20%	20%	20%	20%	20%	20%
%Change in NIM	0.11%	0.10%	0.14%	0.09%	0.09%	0.07%	0.09%



As we have already seen that Basel 3 will be implemented in the phased manner the researcher has tried to understand the changes it will make in the Axis bank structure by implementing the change on the already existed data. We can also see the impact of calculation of CET based on RAW. In the year of 2008-2009 the YOY growth of axis bank in Minimum CET and CCB was 34.81% which was highest in the year of 2010-11 @ 44.70%. This does not mean that every time new capital was infused in the system to increase the ratio it depicts that the assets were better managed and along with it the loan spread was also in a better condition. The lowest of the all can be observed in the year of 2013-14 i.e 21.06%. we can also see that the net interest income and expenditure are following the same trend as that set by the Capital. The NIM being the proportionate effect of the net interest income and net expenditure it is moving in the same direction as that of capital. The researcher wants to draw attention towards the fact that the calculations above are just representing the minimum capital requirement of the Axis bank. If the original capital that is considered by the bank in Tier one is taken it is much higher than the minimum required. While the minimum required CET in the year of 2014-15 was calculated @ of 9.5% while that bank actually maintained CET of tier 1 @ 15%. Also to be noted the NIM is a proportionate change in net interest income and net interest expenditure to average assets. If any unprecedented volatility sets in or if banks plan to shift form the method of replacing the equity to debt than it can be affected.In one of the assumptions it is mentioned that operational cost will remain constant it is to brought to the notice that if operational cost change than capital will not be affect and thus there will be no change in net interest income and net interest expenditure and thus NIM of the bank will also not get affected. Thus the hypothesis gets accepted in this case.

ICICI Bank

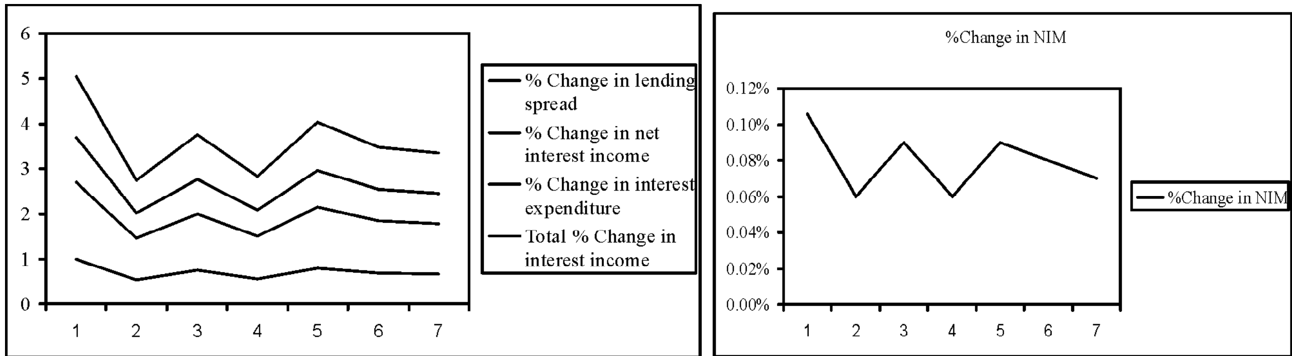
Variables	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*
RWA of total assets keeping it stable	284476	272550	304676	366802	402596	445982	484597
TIER 1 as % of RWA	4.50%	5.00%	5.50%	5.50%	5.50%	5.50%	5.50%
Additional Tier 1	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
CCB				0.625%	1.25%	1.875%	2.50%
Minimum Tier 1 +CCB	6%	6.50%	7%	7.625%	8.25%	8.875%	9.50%
Minimum amount of Tier 1 +CCB	17068.5	17715.8	21327.3	27968.6	33214.2	39580.9	46036.7
YOY % change	5.12%	3.79%	20.39%	31.14%	19%	19.17%	16.31%
% Change in lending spread	0.77	0.57	3.06	4.67	2.85	2.88	2.45
% Change in net interest income	0.0041	0.30334	1.63088	2.49121	1.50041	1.53348	1.30484
% Change in interest expenditure	0.1536	0.1137	0.6117	0.9342	0.57	0.5751	0.4893
Total % Change in interest income	0.1495	0.41704	2.24258	3.42541	2.07041	2.10858	1.79414
assuming ROE	20%	20%	20%	20%	20%	20%	20%
%Change in NIM	0.02%	0.01%	0.06%	0.09%	0.06%	0.06%	0.05%



As we have already seen that Basel 3 will be implemented in the phased manner the researcher has tried to understand the changes it will make in the ICICI bank structure by implementing the change on the already existed data. We can also see the impact of calculation of CET based on RAW. As we all know that ICICI bank also saw a bad phase in the same duration when the banking crises affected the western economy banks this becomes very evident from the data of the bank. We can see that in the year of 2009-10 the YOY growth of the bank on CET front was only 3.79% which was much lower than the industry average but he bank tried to take pace in the coming years with the highest YOY growth in the year of 2011-12 i.e. 31.14%. The CET of the bank had remained higher as compared to the guide lines given by the RBI .We can see that lending spread being an integral part of the system also moved at the slower pace as in relation to CET tier 1. This resulted in the net income and expenditure to further slowdown their growth. But if the actual data are referred than also one will find that the bank is maintaining a lower capital than its counterpart. The bank is the best example to prove our hypothesis that where the Capital growth is slow in equity its NIM growth is also slow as can be seen from the above data analysis and the actual data of the bank where the NIM growth is lower than the industry standards as the Banks Capital is growing at a slower pace. Thus the hypothesis gets accepted that there is no significant difference between the change in the capital of tier 1 and NIM of the bank. That is if one changes the other one automatically adjusts to that change. Also the researcher would like to draw attention towards the fact that the bank is actually making non-interest income by cutting the operational expenses. This is also a technique as given in the Basel 3 accord

State Bank of India

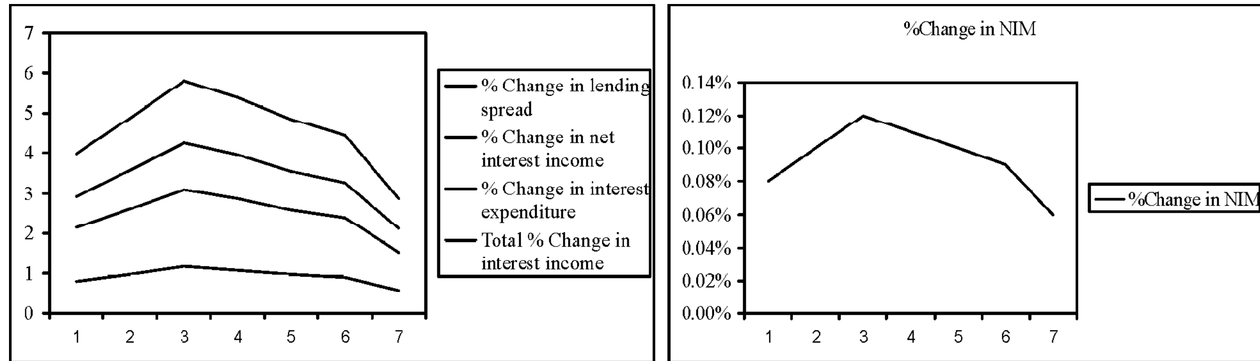
Variables	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*
RWA of total assets	723324	790061	917802	1001639	1174696	1344561	1536059
TIER 1 as % of RWA	4.50%	5.00%	5.50%	5.50%	5.50%	5.50%	5.50%
Additional Tier 1	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
CCB				0.625%	1.25%	1.875%	2.50%
Minimum Tier 1 +CCB	6%	6.50%	7%	7.625%	8.25%	8.875%	9.50%
Minimum amount of Tier 1 +CCB	43399.4	51353.9	64246.1	76375	96912.4	119330	145926
YOY % change	33.67%	18.33%	25.10%	18.88%	27%	23.13%	22.29%
% Change in lending spread	5.0505	2.74928	3.76569	2.83181	4.03353	3.46974	3.34315
% Change in net interest income	2.6936	1.46628	2.00837	1.5103	2.15122	1.85053	1.78301
% Change in interest expenditure	1.0101	0.54986	0.75314	0.56636	0.80671	0.69395	0.66863
Total % Change in interest income	3.7037	2.01614	2.76151	2.07666	2.95792	2.54448	2.45164
assuming ROE	20%	20%	20%	20%	20%	20%	20%
%Change in NIM	0.11%	0.06%	0.09%	0.06%	0.09%	0.08%	0.07%



Too big to fail that is the tag associated with the State bank of India. State bank of India is not only the biggest PSU bank India but rather it is the biggest bank of India in all the dimensions. It is prominently discussed that the banks that will be worst affected by the Basel accord are the PSU banks which lead the researcher to include the two PSU banks in the study. It remains as the fact with SBI that it has a high operational cost. But one cannot negate the fact that it has one of the highest capital base in the Indian banking system. Further in the study we can see that the highest YOY growth in the ratio of the bank was in the year of 2008-09. One of the causes of the same was the non-reliability of the general public on the private sector bank. And during that time the bank enjoyed the highest NIM. One thing more that can be observed that the banks growth is never stable and does not follow the same trend it has a zigzag pattern. It is said that in the PSU banks the norms are such that its NIM cannot follow the same pattern as that of CET1 and interest income and interest expenditure here though in the study it was found that it follows the same but to check further the researcher validated the same from the bank data and it was found that though SBI cannot change its operational cost much and though it has to sometime lend at the concessional rate which affects the net interest margin still it maintains a stable approach and the NIM of the bank follows the trend as set by CET 1. Thus the hypothesis gets accepted that there is no significant difference between the change in the capital of tier 1 and NIM of the bank. That is if one changes the other one automatically adjusts to that change. The researcher would like to draw the attention to one of the major point in acceptance of the hypothesis that thought he SBI is considered to be one of the most costly bank up till operational cost is concerned but it is able to cover the same from its capital and thus maintaining the net interest margin.

Bank of Baroda

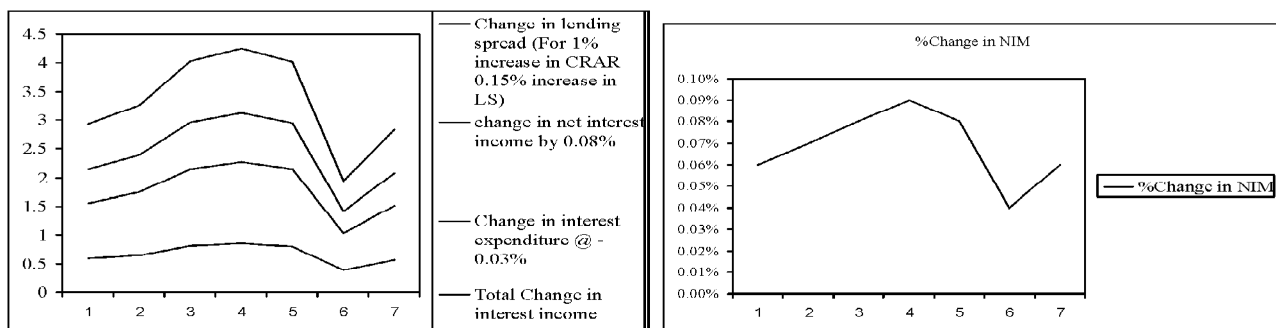
Variables	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*
RWA of total assets	170555	208738	268798	335491	410352	494628	550483
TIER 1 as % of RWA	4.50%	5.00%	5.50%	5.50%	5.50%	5.50%	5.50%
Additional Tier 1	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
CCB				0.625%	1.25%	1.875%	2.50%
Minimum Tier 1 +CCB	6%	6.50%	7%	7.625%	8.25%	8.875%	9.50%
Minimum amount of Tier 1 +CCB	10233.3	13567.9	18815.9	25581.2	33854	43898.3	52295.9
YOY % change	26.62%	32.59%	38.68%	35.96%	32%	29.67%	19.13%
Change in lending spread	3.993	4.88792	5.80182	5.39333	4.85091	4.4504	2.86946
% Change in net interest income	2.1296	2.60689	3.0943	2.87644	2.58715	2.37355	1.53038
% Change in interest expenditure	0.7986	0.97758	1.16036	1.07867	0.97018	0.89008	0.57389
Total % Change in interest income	2.9282	3.58447	4.25467	3.95511	3.55734	3.26363	2.10427
assuming ROE	20%	20%	20%	20%	20%	20%	20%
%Change in NIM	0.08%	0.10%	0.12%	0.11%	0.10%	0.09%	0.06%



The second PSU bank to be included in the study is Bank of Baroda. The banks had the highest YOY growth in the year of 2010-11 at the rate of 38.68%. it needs to be stated that though the YOY growth of the CET 1 of the bank in the years of 2014-15 is lowest at the rate of 19.13% but then also it is much higher than expected. The researcher also finds that the change in NIM is in exact proportion as that of the change in equity capital of the bank. It is to be noted that being a PSU bank it is very tough for the bank to reduce the operational cost to meet the requirements of the Basel 3 accord. But the banks base is much stronger. The researcher has just calculated is the required common equity tier 1 for the bank which showed a stable growth while the Actual position of common equity tier 1 for the bank is much higher as compared to the one given. The banks are in much stable position than what is required according to the accord. Also with it the researcher is able to prove the hypothesis set for the industry that is there is no significant difference between the change in the capital of tier 1 and NIM of the bank. That is if one changes the other one automatically adjusts to that change.

Federal bank

Variables	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*
RWA of total assets	29138.2	32756.8	38592.3	45470.1	53287.2	55945.6	62137.9
TIER 1 as % of RWA	4.50%	5.00%	5.50%	5.50%	5.50%	5.50%	5.50%
Additional Tier 1	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
CCB				0.625%	1.25%	1.875%	2.50%
Minimum Tier 1 +CCB	6%	6.50%	7%	7.625%	8.25%	8.875%	9.50%
Minimum amount of Tier 1 +CCB	1748.29	2129.19	2701.46	3467.09	4396.19	4965.17	5903.1
YOY % change	19.52%	21.79%	26.88%	28.34%	26.80%	12.94%	18.89%
% Change in lending spread	2.928	3.26806	4.03159	4.25123	4.01964	1.94139	2.83351
% Change in net interest income	1.5616	1.74297	2.15018	2.26732	2.14381	1.03541	1.5112
% Change in interest expenditure	0.5856	0.65361	0.80632	0.85025	0.80393	0.38828	0.5667
Total % Change in interest income	2.1472	2.39658	2.9565	3.11757	2.94774	1.42368	2.07791
assuming ROE	20%	20%	20%	20%	20%	20%	20%
% Change in NIM	0.06%	0.07%	0.08%	0.09%	0.08%	0.04%	0.06%



The federal bank is one of the oldest private sector banks in India and we can also say one of the smallest banks in the study. As the researcher has taken the leaders in the industry it can be assumed that only the big banks are doing well according to the common equity tier 1 capital of the Basel 3 norms but here the researcher wants to bring to the notice that not only the big banks but the mediocre banks of India are also showing a growth trend in maintain the ratio. While here the growth in the last year was 18.89% the actual growth of the bank in the same year had been just 10.80% which though is lower than the other banks but we cannot say that it is not enough to meet the requirements of the accord. Secondly the hypothesis set by the researcher is also proved here that the capital and NIM move in the same direction. With the proportionate change in the capital the NIM also changes proportionately. Thus the hypothesis is accepted that there is no significant difference between the change in the capital of tier 1 and NIM of the bank. That is if one changes the other one automatically adjusts to that change.

Complete analysis of all the banks

As can be seen from the above details when we compare all the five banks we can see that the Change in the equity have the proportionate effect in the NIM of the banks the hypothesis set in the start of the study was that there is no significant difference between the change in the capital and of tier 1 and NIM of the bank. That is if one changes the other one automatically adjusts to that change, which was established in the process of the study.

CONCLUSION

The researcher had taken certain key parameters of Basel 3 norms and tried to study their effect on the NIM of the bank which is one of the major factors which affects the working of the banks. Here the factor that is considered from the accord is the phased implementation of Tier 1 capital, and CCB along with additional tier 1 capital. As all the three work on the parameter of common equity, a relationship was established between the change in the equity capital and change in the lending spread of the bank and was studied with 5 banks in view which are Axis, ICICI, SBI, BOB and Federal. By establishing the relationship it can be concluded that a change in 1% point of the equity does have a effect of 0.15% on the lending spread of the banks which was well evident from the data derived from the banks where it was proved that whenever the equity has gone high by 1% to meet its cost the lending spread was increase by 0.15%. This could be seen from the derived relation by the figures of the five banks. Also it is to be noted that a change in equity had equivalent impact and change in the debt of the banks, thus reducing the interest expenditure of the bank by 0.03%. Along with this it is important to point that as the lending spread has increased the interest income will have an equivalent effect of 0.08% rise. Subsequently, NIM being a factor of interest income and interest expenditure to average will also get affected. Thus we can say that there is an indirect correlation between the change in the equity and movement in the NIM. Also while doing these calculations it was found that the capital position of the Indian banks is far stronger than what is required by the Basel accord and thus we can say that the implementation of the Basel 3 is very comfortable for the Indian banking industry.

Limitations of the Study and Future Scope

One cannot say that the work is 100% perfect there will always be some limitations the limitations of this study are as follows

1. The researcher has used assumptions in the calculation of the relation between the change in Equity and NIM. There are chances that if the assumptions changes the result will also change.
2. Being too complicate to calculate the accord norms can be easily misrepresented.
3. The sample of years was limited to 2014-15 and years after that were not takes as one of the case under study was SBI bank which was going through an abnormal period in the preceding years, thus the years of 2015-16 and 2016-17 were not considered, also for other banks year of 2015-16 is not normal

Future Scope

1. A separate study can be conducted on PSU banks after the phased capital infusion in the banks.

2. Only between two parameters were established during the time of study, and therefore a future study can be carried out using more parameters.
3. Only past data calculation are done future projection study can also be done in this manner

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