Risk And Risk Management Techniques In Bank: A Detail Study Of Basel Accord

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Abstract
Risk measurement and management has become a critical area for each organization in this highly competitive world. Banks and other financial institutes are the most sensitive to various kinds of risk and these institutions are highly involved in financial transaction on daily basis at comparatively much higher volume. In this research study, the researcher has tried to analyze various kinds of risks associated with the banks and their measurement & management techniques. In order to understand conceptual framework and the extent of risk impact on various areas of bank such as market risk, credit risk and operational risk; the Basel II Accord and RBI norms & guidelines are taken as the base. In this research study, all techniques and methods for risk measurement and management are based on as per the guidelines and norms of RBI and the Basel II Accord which is an international committee highly specifically for the risk management in banking systems and operations.

The entire research study has divided into 5 chapters and each chapter has sections and sub-sections. The data analysis has done on both primary and secondary data which has been taken from various sources. The final chapter is highly focused to recommendation and conclusion of the complete research study.

The case company for this research study is an Indian Public Sector Bank “The Bank of Maharashtra”. The primary data and information has been collected from the internal employees of the case company.

Introduction
In today’s competitive and sensitive business environment, risk management has come in prime focus for running any kind of business. The importance of identification and management of risks has become main concern because of past bankruptcies and huge losses occurred in the business. All have been witnessed of many examples of faulty risks management by companies all across the world for example Lehman Brothers (2007), Enron (2000) and World Com (1998) etc. This had led many companies to close their risky businesses. It happened because of complete mismanagement of available resources and business capabilities. In such business situation, organization’s needs to have proper risk mitigation policies and technologies and also integrated risk management framework so that shareholders’ confidence can be maintained for linger period of time. This can be achieved by lowering the cost of capital and maintaining the revenue incoming for the company. (Bakshi, Swapan R. 2008)

Risk can be defined in various ways depending on their respective fields but generally the uncertainty of outcome of certain event. Outcome could be any opportunity, threat, action or an event. It is related with likelihood of any happening and impact of an action to influence the attainment of final outcome or objective of the organization. It is required to perform qualitative and quantitative analysis at least for measuring the inherent risks and threats in the organization so that right approach can be adopted to achieve the objectives of the organization. Risk is described as the uncertainty of outcome of an event in a particular situation. The risk can be involved in an event that is short time period event. Risk is basically connected with variance in certain outcome of an event compared to some expected value in a specific situation and some other time it is related with expected loss. (Jalan, B. 2006)

Various risks that has to be evaluated in banks
Bank is a core financial institute which basically deals in financial transactions in almost all sectors and it possesses various kinds of risks in all these processes. According to the researcher, risks in banks are broadly divided into three categories a) credit risk; b) market risk; and c) operational risk.

Researcher found that risks in banks can be of any type expected or unexpected but in both cases the earning of the bank and capital of banks are directly affected adversely. The expected loss in financial transactions basically arises from the borrowers of the bank loan which can be handled by the bank through adequate and proper pricing policies of the company in which risk premium is used as shield to protect the bank from future loss. The expected loss is basically taken place because of payment defaults and change in credit quality from the borrowers. On the other hand, the unexpected loss happens because of individual exposure to the market and the entire risk portfolio is being carried by the bank itself.
and the loss is handled through capital of the bank/earnings of the bank. So the expected loss is taken care by bank’s provisions/reserves of the banks and the capital allocation is used to take care the unexpected losses. Here the proper capital adequacy ratio helps to handle such losses and risks in the banks.

The researcher has found various methods to determine and to measure the expected and unexpected risks/losses but most prominently used methods are worst case type analytical model or Value at Risk (VaR). In this research study, the researcher has studies various risks and understood the relevance of those risks in the banking system. Each risk is briefly described below:

**Types Of Risks In Banking**

**Credit Risk:** Credit risk is the risk in which the borrower makes default in paying back the borrowed amount to the bank or fails to meet the termed obligations. The default from the borrower can be happen from various reasons. The change in credit quality leads to high chances of defaults from the borrowers. The credit risk is always involved in business and it is closely related to lending of funds to the operations. The business operations and the market risk variables are also related with each other. The proper set up of credit risk management helps to minimize the losses and risks and also adjusts the risk return for the bank through maintaining credit risk expose within acceptable limits.

**Market Risk:** Market risk is the risk in which the investment portfolio or the trading portfolio of the bank gets changes on the basis of market risk factors. The market risk factors are interest rate risks, stock price risks, commodity prices risk and the foreign exchange risks. The investment of bank in various stocks and well managed portfolio can also affected by these market risk factors. Banks have to realize the volatility of the stocks and the interest rate at the global level before it can prepare the least risk affected portfolio.

**Operational Risk:** Operational risk is basically arises from the business operation of the company. It is generally related with the process, system and the people of the company who are the medium to operate the business functions of the company. According to Basel II and the guidelines of RBI, the operational risk in banks has its own relevance and it has major impact on the overall risk portfolio of the bank.

**Cost of risk = Value without risk – Value with risk**

The above expression can shown with respect to risk involved to shareholders of the organization

**Value with risk = Value without risk – cost of risk.**

It is noted that if organization is been successful in lowering the cost of risk then they can maximize the value to the shareholders.

Apart from the above mentioned risks, the researcher found other risks that are prevalent in the banking system. Each bank face lot of risks with respect to their assets/liabilities/financial transactions and to determine the reliability of these entities following risk has to be determined:

1. **Country Risk:** This is a risk which is based on failure of settlement of obligations of counter parties and foreign customers. This risk is influenced by social, economic and political factors of home country of counter party.

2. **Credit Risk:** This is a risk which is related with default of customer in settling the borrowed amount from the lender. This happens because of not focusing on diversification in terms of customers, industry and geographical area. (Myers, Stewart C., 2005)

3. **Currency Risk:** This risk is related with fluctuation of exchange rates in future and it is applicable with foreign currency assets, liabilities, obligations and rights.

4. **Fiduciary Risk:** It is a risk which is related to negligence or failure in assets management on behalf of counter parties. (Gordy, M.B., 2010)

5. **Interest Rate Risk:** This risk is related with high movement of interest rate and its adverse impact on value of assets and liabilities and also adverse impact on interest based cash flows.

6. **Legal and Documentary Risk:** This risk is related with incorrectness of documents under the contracts which is also not legally enforceable.

7. **Liquidity Risk:** This risk is related with loss incurred due to change in ability of a bank to dispose off an asset.

8. **Modeling Risk:** This risk is related with subjectivity and imperfection of valuation model which is used to assess the real values of assets or liabilities.

9. **Operational Risk:** This risk is associated with loss/failure of internal process, system or people of the organization or external events/factors. (Wang, Shaun S., 2006)

10. **Price Risk:** This risk is associated with movement of market prices and its adverse impact on equity, interest rates, commodity prices, forex rates and other similar investments in the market.

11. **Regulatory Risks:** This risk is associated with failure of the organization in meeting legal/regulatory requirements.

12. **Replacement Risk** (Performance Risk): This risk is associated with failure of counter party/customer to meet the requirements of the term of a contract.

13. **Reputational Risk:** This risk is associated with the reputation of the business in matching the public
expectations. Negative opinion of public may lead to loss of reputation of the company.

[14] Settlemen t Risk: This risk is associated with failure of settlement of counter party or customer in terms of receiving the value from other side.

[15] Solvency Risk: This risk is associated with failure of maintaining the sufficient funds by the banks to meet the necessary obligations. It leads to inaccessibility of a bank to capital market.

[16] Transfer Risk: This risk arises because of inability of counter party to denominate certain obligations in home currency of counter party.

(Stein, Jeremy C., 2004)

Basel Norms and RBI Regulatory Framework for Banking Sector
In this research, the researcher has explained the necessity of regulatory framework on banking industry and its importance in banking operation efficiently. Researcher has found that RBI and Basel norms have been followed by the banks in framing the regulation and the guidelines for the banks. The detail guidelines of Basel and RBI has been discussed in other chapters, here the introduction of these frameworks have been mentioned.

Basel I Framework
Basel I Framework is known guidelines and regulations for the banking system. This committee had proposed certain necessary guidelines so as to make the banking system financially sound and secure from any financial crisis. One of the major terms “Capital Adequacy” was brought in the picture which is related with the adequacy of required capital resources in a bank. This is a tool to avert the risk that exists in business operations. The capital adequacy has been an important question of concern for banks from last several decades. The risk has been assessed with the help of adequacy of capital after the international banking authority accepted this as important tool to determine the risk level. (Bakshi, Swapan R. 2008).

Basel II Framework
Basel II Framework is extended version of Basel I Framework. The main objective of this committee is to seek more effective and sensitive approach related to new capital adequacy framework. The revised framework is an approach to make efficient and advanced risk management system, to align regulatory capital with economic capital and to promote better utilization of capital resources in the system. (Jalan, B. 2006)

Aims and Objectives
[1] To identify various inherent risks in banks and techniques to manage those risks

[2] To measure the impact of certain risks on overall bank’s risk portfolio.

[3] To analyze the implementation of RBI norms and Basel II accord on the banking operation.

Research Question and hypothesis
The research questions involved in this research have been discussed below with the hypothesis.

Research Question 1:
1. How much it is important to measure various risks in banks?

Hypothesis:
H₀: Risks measurement and management is highly essential for the banks to efficiently operational it.
H₁: Risk measurement and management does not impact much on the efficiency of the bank’s operation.

Research Question 2:
Does particular risk change the complete portfolio of bank’s risk?

Hypothesis:
H₀: The overall risk portfolio may be directly impacted by a particular risk factor.
H₁: The overall risk portfolio may not be directly impacted by a particular risk factor.

Research Question 3:
3. How much risk management techniques are effective in banking sector?

H₀: The risk management techniques are always effective to manage risk in banks.
H₁: The risk management techniques in banks are not always effective to manage risk.

Literature Review
The process of risk management is very important for the proper management of any organization but the basic concept of the risk management ignores a very important fact that success of a particular organization depends on its abilities to adapt to the changes rather than reacting to the change that happens. Risk management aims at taking the risk and it does not state that the risks should not be taken but risk should be taken by having the appropriate knowledge of it beforehand and understanding the possible implications of that particular risk so that risk mitigation could be done in an effective manner. It also provides a shield to an organization against the losses which may otherwise be unacceptable to that particular organization thereby resulting in the collapse or the failure of an organization or damage its brand image or the competence. (Wang, Shaun S., 2006)

Banking can also be described as the financial intermediary with the investors/savers on one side and the corporate or the fund seekers on the other side so it acts as a
kind of bridge between the two. When the banks offer financial services they take into account both financial as well as non financial risks. There exists an international practice of the committee approach which could be adopted for managing the various types of risks prevalent in the market. Few of such committees are asset liability, credit policy committee which handles the various aspects related to the process of risk management. In order to monitor the risk a centralized department could be made but the control of risk should take place the functional department level. In order to ensure its implementation there is a need for the integration of various systems in the organization. (Myers, Stewart C., 2005)

Research Methodology
Comparison of qualitative and quantitative data
There is both weaknesses as well as strengths of the research methods opines Oburai in 2005. The qualitative methods gives information that is real comprehensive and rich however on the contrary Miles and Huberman in 1194 said that the qualitative data may over strengthen the researcher with small quantity of time required, notes to e recorded, observations analysis and codification etc. Oburai said that qualitative research provide the researcher with the information which is subjective in nature and user friendly as well. (Stein, Jeremy C., 2004)

The Sample
The research incorporates 1 year of time horizon, which can be the traditional way of analyzing the bank’s total economic capital. The final objective is to get yearly losses distribution. Though to reach their research have founded to use the model with finer resolution of risk type (two in numbers) namely ownership and market risk. The model used details the dependency of the market and ownership risk factor on credit risk factors and visa versa on resolutions at yearly basis which will serve the purpose to reach the destination that is the conclusions.

The various test which were conducted in the research were accomplished using SPSS software which gives the meaningful results after keying in the relevant data in the required format related to the hypotheses formulated which needs to be tested. Therefore the final results of the research will be discussed in details in the data analysis part which will prove that the formulated hypothesis holds validity or not in other words can be said are correct or incorrect.

Data Analysis
Data Analysis has always been an integral part of any research, my research on “Risk and Risk Management Techniques in Bank with reference to Basel Accord” has it major focus on the data analysis part. The Data Analysis has always been an integral part of any research, my research on “Risk and Risk Management Techniques in Bank with reference to Basel Accord” has it major focus on the data analysis part.
Question 2: Does your bank meet the minimum required financial ratio of banking operations and what is the capital adequacy ratio for your bank?
The financial ratios like any other banks play a very important role in the routine operations of Bank of Maharashtra and the managers for the respective branches across Mumbai possessed healthy knowledge about these ratios. The responses recorded for the above mentioned question were that 22 that is approximately 90% of the managers interviewed had confirmed that their bank meets the minimum required financial ratio for routine operations at all times therefore it can be observed that the Bank of Maharashtra across locations is meeting up with the requirements of the RBI’s average financial ratio and the performance in term of the trade is appreciable. It is observed that the major portion of the branches visited for interview indicate that the capital adequacy ratio for Bank of Maharashtra is 35% of it total net-worth which is at a good level as per the banking industry. (Wang, Shaun S., 2006)

Question 3: Does your bank Follows the guidelines as per the Basel Accord II? Comment on stability of your banking operations.
Looking at the brighter side of the Basel Accord II guidelines it is interesting to observe that the 20 out of 25 managers that is 80% of respondents confirmed that their banking operations are in line with the Basel Accord II which includes the focus on all Credit, Market and Operational risk respectively. However it is noticeable that 20% respondents which is 5 out of 25 managers did not confirm on their following for the Basel Accord II guidelines and one of the major reasons for the same was observed to be the less importance to the operational risk. These branches were more focused towards the other two that is the Credit and Market risk. When asked about the stability factor post following the Basel Accord II guidelines the responses were unanimous and uniform across the respondents where in 100% of the sample found their banking operations to be more stable as compared to pre Basel Accord II time frame. It has been observed that the stability of the banking operations across the branches of Bank of Maharashtra have increased and the default rate in their routine operations have gone down to considerable extent and the onus for the same is on Basel Accord II guidelines. (Singh, Ranbir. 2005)

Question 4: Do you understand by the meaning of word “Risk”?
When asked about the understanding of respondents towards the term “risk” the responses for all the manager were differing as they define risk related to banking operations in their own different styles and the possible reason for the same can be that all these respondents perceive risk in a different way. At one side where all 25 respondents understood the importance of risk in their banking operations simultaneously all of them gave importance to different kind of risk based on their understanding of the term “risk”. Fact noticeable is that the Bank of Maharashtra has an edge in the banking industry as the risk factors can be efficiently managed as almost all the managers have an understanding about risk and its importance in the business (banking) operations. (Myers, Stewart C., 2005)

Question 5: As per your preference put the below mention risks in order of their importance and their association with banks.

a) Credit Rate Risk
b) Operational risk
c) Market Risk
d) Currency Risk

When asked about the risk associated with a bank the respondent gave preference to the following risks associated with the banks Operational risk, Credit rate risk, Market risk, Currency risk and operational risk. Majority of the respondents (10 out of 25 managers) gave first preference to Credit Rate risk. The second preference given to Operational risk wherein 7 out of 25 respondents gave these responses, the third preference was given to Market risk where 5 out of 25 respondents preferred Market rate risk. Fourth preference is Currency risk (fluctuation in the currency rate) 3 out of 25 respondents responded for Currency risk. The preference to operational risk is outcome of cause and effect relationship of this risk when compared with other risk factors. The capital being the major financial resources for the bank has been the major driving force for the banks and is mainly affected by the credit rate risk. (Bakshi, Swapan R. 2008)

Question 6: How much it is important to measure various risks in banks?
When asked about the importance of measurement of various risks in banks, the respondents has given good response of the questions and 25 out of 25 respondents said that measurement of various risks is highly important as it is highly required to take appropriate actions once the risks are measured and risks can be controlled properly by the banks. The risk measurement has always been a crucial step in making the system efficient and to make the system risk free. No one out of all respondents had opinion that risk measurement does not have any importance in banking system. (Gordy, M.B., 2010)

Question 7: Does particular risk change the complete portfolio of bank’s risk?
Out of 25 respondents, 16 respondents believes that particular risk brings changes in entire portfolio of risk and rest 9 respondents believes that particular risk does not have impact on complete risk portfolio of bank. People
who were in favor said that particular risk creates a cascading impact on the system which later on starts to make the impact on entire risk portfolio. They believes that each risk has its own impact on the system and it shows the degree of losses on the system as the time process provided any steps are not taken to eradicate it. On the other hand, those respondents who were not supporting this fact believes that particular risk is limited to a certain area and it does not make any impact on the entire risk portfolio of the bank.

Question 8: Arrange the order of the below risk measurement techniques as per your preference of measuring the risk for your banks.

a) Standardized Approach  
b) Foundation Internal Rating Based Approach  
c) Advanced Internal Rating Based Approach  
d) Value at Risk (VaR)

The question related to risk measurement is very important for the research and the responses for the same are mentioned below most of the respondents preferred the VaR technique of measurement 14 out of 25 respondents (more than 50% of the total sample size). According to the respondents VaR models helps to measure the risk at value. The second preference for the respondents was Standardized Approach (7 out of 25 approx 30% of total sample size) and finally the Foundation Internal Rating Based Approach is the third in the row for measurement of risk (4 out of 25 that is approx 20% of the total sample size). The Advanced Internal Rating Approach is still not used for measurement of risk. Mainly respondents were of the opinion the VaR is the best technique to measure risk associated with the banks. (Wang, Shaun S., 2006)

Question 9: Which of the below mentioned methods is best to manage the risks associated with banks?

a) Hedging  
b) Following the norms and guidelines as per the RBI & Basel Accord II  
c) Credit Administration  
d) Risk Review

The data collected for the above mentioned questions is analyzed in a way where the researcher have checked the various methods of managing the risk and the outcome of the same is 10 pot of 25 respondents that is 40% of the total sample size chose following the norms and guidelines as per the RBI and Basel Accord II. 7 out of 25 that is approx 30% of the total sample size chose hedging as their option for managing the risk for their banks. 5 chose the option risk review and remaining 3 chose credit administration as their option to manage the risk for their banks therefore its clear that the Following the norms and guidelines as per the RBI and Basel Accord II and Hedging are the best options to manage the risk for the Bank of Maharashtra as per the opinion of the managers of the banks reason being it manages the risk in the most efficient and effective way and minimizes the risk associated with the banks. (Llewellyn, David T., 2008)

Question 10: How much risk management techniques are effective in banking sector?

Out of 25 respondents, 21 respondents believe that there is dire requirement of risk management techniques and it is highly effective in risk management of the bank. They believes that good risk management techniques gives better results in terms of producing the effective and efficient result for the bank and it have long term results on the performance bank. 4 respondents there is not much requirements of high end risk management techniques as most of the methods are of similar result and produce same kind of results. (Myers, Stewart C., 2005)

Conclusion

Risk in a bank is very common and very frequent. Bank is an institution where all financial transactions are taken place and each transaction involves certain risk. Risk in a bank could be of any kind for example credit risk, default risk, investment risk, market risk and currency risk etc. Risk is invariably shows the possibility of uncertain outcome of any event. When bank expects certain return from any financial transaction and if it does not appear at the end then it is described as banking loss. For example, a loan borrower from the bank makes default in paying back the loan amount to the bank then it is treated as default and the risk involved in such cases are known as default risk. Therefore risk is a condition where the outcome deviates from its expected value. (Talwar, S.P. 2007)

Each bank has to meet the minimum capital requirement as per the Basel Accord and this capital is the minimum resources which are required to run the banking operations. The Bank of Maharashtra should ensure that the bank has adequate capital so that branches can work hassle free. The Basel Accord has been recommended by all banking authorities at international level to measure the capital adequacy of the banks and Bank of Maharashtra is following those requirements as per the rules. The basic approach of the Bank of Maharashtra should be to have capital adequacy framework which can ensure that bank has sufficient capital to meet the future losses and absorb the financial shock that may arises from bank operation risks. (Bakshi, Swapan R. 2008)

Bank should ensure that there should be proper framework and sensitive approach to meet the capital requirements. The bank should attempt to adopt the advanced risk management approach that align to regulatory capi-
tal and more closer to economic capital so that the capital can be utilized more efficiently. (Jalan, B. 2006)

References