A STUDY OF RISK MANAGEMENT IN INDIAN BANKING SECTOR

Dr. K. Mallikarjuna Rao
Lecturer in Commerce
Govt. Degree College, Zaheerabad, Dist-Medak
e-Mail: dr.mallikarjunarao@gmail.com

H. Ranjeeta Rani
Senior Student of Master of Business Administration in ICBM, Hyderabad
e-Mail: Ranjeetarani.h@gmail.com

ABSTRACT
Risk management underscores the fact that the survival of an organization depends heavily on its capabilities to anticipate and prepare for the change rather than just waiting for the change and react to it. The objective of risk management is not to prohibit or prevent risk taking activity, but to ensure that the risks are consciously taken with full knowledge, clear purpose and understanding so that it can be measured and mitigated. It also prevents an institution from suffering unacceptable loss causing an institution to fail or materially damage its competitive position. Functions of risk management should actually be bank specific dictated by the size and quality of balance sheet, complexity of functions, technical/professional manpower and the status of MIS in place in that bank. There may not be one-size-fits-all risk management module for all the banks to be made applicable uniformly. Balancing risk and return is not an easy task as risk is subjective and not quantifiable whereas return is objective and measurable. If there exist a way of converting the subjectivity of the risk into a number then the balancing exercise would be meaningful and much easier. The effectiveness of risk measurement in banks depends on efficient Management Information System, computerization and net working of the branch activities.

Keywords: Risk Management, Credit Risk, capital Adequacy, Operational Risk

INTRODUCTION:
Risk is the potentiality that both the expected and unexpected events may have an adverse impact on the bank’s capital or earnings. The expected loss is to be borne by the borrower and hence is taken care by adequately pricing the products through risk premium and reserves created out of the earnings. It is the amount expected to be lost due to changes in credit quality resulting in default. Whereas, the unexpected loss on account of individual exposure and the whole portfolio is entirely is to be borne by the bank itself and hence is to be taken care by the capital. Banks are confronted with various kinds of financial and non-financial risks viz., credit, market, interest rate, foreign exchange, liquidity, equity price, legal, regulatory, reputation, operational etc. These risks are highly interdependent and events that affect one area of risk can have ramifications for a
range of other risk categories. Thus, top management of banks should attach considerable importance to improve the ability to identify measure, monitor and control the overall level of risks undertaken.

PURPOSE OF THE STUDY

Risk Analysis and Risk Management has got much importance in the Indian Economy during this liberalization period. The foremost among the challenges faced by the banking sector today is the challenge of understanding and managing the risk. The very nature of the banking business is having the threat of risk imbibed in it. Banks' main role is intermediation between those having resources and those requiring resources. For management of risk at corporate level, various risks like credit risk, market risk or operational risk have to be converted into one composite measure. Therefore, it is necessary that measurement of operational risk should be in tandem with other measurements of credit and market risk so that the requisite composite estimate can be worked out. So, regarding to international banking rule (Basel Committee Accords) and RBI guidelines the investigation of risk analysis and risk management in banking sector is being most important.

OBJECTIVES OF THE STUDY

- To identify the risks faced by the banking industry.
- To trace out the process and system of risk management.
- To examine the techniques adopted by banking industry for risk management.

RESEARCH METHODOLOGY

This paper is theoretical modal based on the extensive research for which the secondary source of information has gathered. The main sources of information have been the Website of the Reserve Bank of India, the website of the Basle Committee on Banking Supervision and the websites of several major Banks both in India and abroad. The publications of Academicians engaged in the Risk Management and Central Banking Supervision sphere also throws valuable insights in to the area. The occasional Research papers published by Reserve Bank, the speeches of the Governor and the Deputy Governors of the Reserve Bank of India, the Publications of the Reserve Bank of India, the Indian Banks Association have proved quite relevant to the study.

REVIEW OF LITERATURE

There is some literature on risk measurement in the field of business. However, before 1970’s risk management was largely based on experience and judgment. Later on several techniques and models were developed (e.g. concept of standard deviation, concept of beta, option pricing models, credit link swap, interest swap, cross asset risk exposure etc.) to tackle the issue of risk in business activities. Some of these techniques and models had been used to assess the risk of banks as well. During mid-1990’s at the initiation of J. P. Morgan Chase, value-at risk (VaR) has been developed to measure portfolio risk of a business entity. The banks preferred VaR to measure the market risk and portfolio risk. Jaschke (2002) and Saita (2007) found the limitations of VaR. Saita (2007) is of the opinion that while the highly technical measurement techniques and methodologies of VaR have attracted huge interest, much less attention has been focused on how VaR and the risk-adjusted performance measures [such as RAROC] are to be used to
manage risk. Anthony (1996) reported about several risk management techniques in the banking industry. He reported the standard practices and evaluated how and why it is conducted in the particular way chosen. He also mentions the elements missed in the existing methodology. Macdonald (1998) described the scope of carrying out quantitative monitoring of banks on the basis of consolidated financial statements and off-balance sheet item. He concluded that bank supervision must respond to the challenge of new developments for banks and consequent additional risks they represent for depositors. There are some studies that dealt with different issues of risk in banks. Applying option-pricing model, Robinovitch (1989) found that the banks in his study have very low insolvency risk. Kotrozo & Choi (2006) used Herfindahl Index (HHI) to measure diversification and found that total risk is increased for those banks that focused on their revenue activities. On the other hand, Boyd et al. (2006) observed that there is no relationship between the bank’s risk of failure and concentration. They further observed that competition fosters the willingness of banks to lend. DeYoung & Roland (2001) conducted a study on different product mix and earning volatility of commercial banks using leverage model. Smith, Chirstos and Geoffery (2003) demonstrated the relationship between non-interest income and income stability. Morton et al. (2005) introduced a general and flexible framework for asset allocation to manage risk using Monte Carlo techniques.

In India, there is dearth of studies on risk of banking. After deregulation, among one of the very few studies in this field, Rao & Ghosh (2008) rightly pointed out that India banking sector is still in its preparatory stage in implementing a sound operational risk management due to lack of quantification. Das (1999) attempted to measure risk preference of different categories of banks. Ramsastri et al. (2004) had conducted a study on scheduled commercial banks and concluded that though average net interest income declined, the stability of income of commercial banks has improved during the period 1997 to 2003. On the other hand, Ghosh et al. (2008) analysed the firm specific abnormal returns using cross-sectional regression. Sadakkadulla (2001) arithmetically added up different types of risk to find out overall risk. Chattopadhyay & Mazumdar (2006) conducted a study on seventeen banks and concluded that the risk of PSU banks have come down significantly while Indian Private Banks assumes to be more risky. On the basis of extensive ratio analysis, Bandopadhyay & Dutta (2006) assessed risk and found that the risk level is low in case of PSU Banks in comparison to Indian private banks.

**TYPES OF RISKS IN BANKING SECTOR**

In view of growing complexity of banks, business and the dynamic operating environment, risk management has become very significant, especially in the financial sector. Risk at the apex level may be visualized as the probability of a bank's financial health being impaired due to one or more contingent factors. While the parameters indicating the bank's health may vary from net interest margin to market value of equity, the factors which can cause the important are also numerous. For instance, these could be default in repayment of loans by borrowers, change in value of assets or disruption of operation due to reason like technological failure. While the first two factors may be classified as credit risk and market risk, generally banks have all risks excluding the credit risk and market risk as operational risk.
VARIOUS TYPES OF RISK

<table>
<thead>
<tr>
<th>Financial Risk</th>
<th>Non-Financial Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Risk</td>
<td>Market Risk</td>
</tr>
<tr>
<td>Counterpart Risk</td>
<td>Liquidity Risk</td>
</tr>
<tr>
<td>Intrinsic Risk</td>
<td>Interest Rate Risk</td>
</tr>
<tr>
<td>Portfolio Risk</td>
<td>Forex Risk</td>
</tr>
<tr>
<td></td>
<td>Country Risk</td>
</tr>
<tr>
<td></td>
<td>Operational Risk</td>
</tr>
<tr>
<td></td>
<td>Strategic Risk</td>
</tr>
<tr>
<td></td>
<td>Funding Risk</td>
</tr>
<tr>
<td></td>
<td>Legal Risk</td>
</tr>
<tr>
<td></td>
<td>Political Risk</td>
</tr>
</tbody>
</table>

FINANCIAL RISK

Financial risk arises from any business transaction undertaken by a bank, which is exposed to potential loss. This risk can be further classified into Credit risk and Market risk.

CREDIT RISK

Credit Risk is the potential that a bank borrower/counter party fails to meet the obligations on agreed terms. There is always scope for the borrower to default from his commitments for one or the other reason resulting in crystallisation of credit risk to the bank. These losses could take the form outright default or alternatively, losses from changes in portfolio value arising from actual or perceived deterioration in credit quality that is short of default. Credit risk is inherent to the business of lending funds to the operations linked closely to market risk variables. The objective of credit risk management is to minimize the risk and maximize bank’s risk adjusted rate of return by assuming and maintaining credit exposure within the acceptable parameters. The management of credit risk includes a) Measurement through credit rating/ scoring, b) Quantification through estimate of expected loan losses, c) Pricing on a scientific basis and d) Controlling through effective Loan Review Mechanism and Portfolio Management

TOOLS OF CREDIT RISK MANAGEMENT.

The instruments and tools, through which credit risk management is carried out, are detailed below:

a. **Exposure Ceilings:** Prudential Limit is linked to Capital Funds – say 15% for individual borrower entity, 40% for a group with additional 10% for infrastructure projects undertaken by the group, Threshold limit is fixed at a level lower than Prudential Exposure; Substantial Exposure, which is the sum total of the exposures beyond threshold limit should not exceed 600% to 800% of the Capital Funds of the bank (i.e. six to eight times).

b. **Review/Renewal:** Multi-tier Credit Approving Authority, constitution wise delegation of powers, Higher delegated powers for better-rated customers; discriminatory time schedule for review/renewal, Hurdle rates and Bench marks for fresh exposures and periodicity for renewal based on risk rating, etc are formulated.
c. **Risk Rating Model:** Set up comprehensive risk scoring system on a six to nine point scale. Clearly define rating thresholds and review the ratings periodically preferably at half yearly intervals. Rating migration is to be mapped to estimate the expected loss.

d. **Risk based scientific pricing:** Link loan pricing to expected loss. High-risk category borrowers are to be priced high. Build historical data on default losses. Allocate capital to absorb the unexpected loss. Adopt the RAROC framework.

e. **Portfolio Management:** The need for credit portfolio management emanates from the necessity to optimize the benefits associated with diversification and to reduce the potential adverse impact of concentration of exposures to a particular borrower, sector or industry. Stipulate quantitative ceiling on aggregate exposure on specific rating categories, distribution of borrowers in various industry, business group and conduct rapid portfolio reviews. The existing framework of tracking the non-performing loans around the balance sheet date does not signal the quality of the entire loan book. There should be a proper & regular on-going system for identification of credit weaknesses well in advance. Initiate steps to preserve the desired portfolio quality and integrate portfolio reviews with credit decision-making process.

f. **Loan Review Mechanism:** This should be done independent of credit operations. It is also referred as Credit Audit covering review of sanction process, compliance status, review of risk rating, pick up of warning signals and recommendation of corrective action with the objective of improving credit quality. It should target all loans above certain cut-off limit ensuring that at least 30% to 40% of the portfolio is subjected to LRM in a year so as to ensure that all major credit risks embedded in the balance sheet have been tracked. This is done to bring about qualitative improvement in credit administration. Identify loans with credit weakness.

**MARKET RISK**

Market Risk may be defined as the possibility of loss to bank caused by the changes in the market variables. It is the risk that the value of on-/off-balance sheet positions will be adversely affected by movements in equity and interest rate markets, currency exchange rates and commodity prices. Market risk is the risk to the bank’s earnings and capital due to changes in the market level of interest rates or prices of securities, foreign exchange and equities, as well as the volatilities, of those prices. Market Risk Management provides a comprehensive and dynamic framework for measuring, monitoring and managing liquidity, interest rate, foreign exchange and equity as well as commodity price risk of a bank that needs to be closely integrated with the bank’s business strategy.

a. **Liquidity Risk:** Bank Deposits generally have a much shorter contractual maturity than loans and liquidity management needs to provide a cushion to cover anticipated deposit withdrawals. Liquidity is the ability to efficiently accommodate deposit as also reduction in liabilities and to fund the loan growth and possible funding of the off-balance sheet claims. The cash flows are placed in different time buckets based on future likely behaviour of assets, liabilities and off-balance sheet items. Liquidity risk consists of Funding Risk, Time Risk & Call Risk.

b. **Interest Rate Risk:** Interest Rate Risk is the potential negative impact on the Net Interest Income and it refers to the vulnerability of an institution’s financial condition to the
movement in interest rates. Changes in interest rate affect earnings, value of assets, liability off-balance sheet items and cash flow. Hence, the objective of interest rate risk management is to maintain earnings, improve the capability, ability to absorb potential loss and to ensure the adequacy of the compensation received for the risk taken and effect risk return trade-off. Management of interest rate risk aims at capturing the risks arising from the maturity and re-pricing mismatches and is measured both from the earnings and economic value perspective.

c. **Forex Risk:** Foreign exchange risk is the risk that a bank may suffer loss as a result of adverse exchange rate movement during a period in which it has an open position, either spot or forward or both in same foreign currency. Even in case where spot or forward positions in individual currencies are balanced the maturity pattern of forward transactions may produce mismatches. There is also a settlement risk arising out of default of the counter party and out of time lag in settlement of one currency in one center and the settlement of another currency in another time zone. Banks are also exposed to interest rate risk, which arises from the maturity mismatch of foreign currency position.

d. **Country Risk:** This is the risk that arises due to cross border transactions that are growing dramatically in the recent years owing to economic liberalization and globalization. It is the possibility that a country will be unable to service or repay debts to foreign lenders in time. It comprises of Transfer Risk arising on account of possibility of losses due to restrictions on external remittances; Sovereign Risk associated with lending to government of a sovereign nation or taking government guarantees; Political Risk when political environment or legislative process of country leads to government taking over the assets of the financial entity (like nationalization, etc) and preventing discharge of liabilities in a manner that had been agreed to earlier; Cross border risk arising on account of the borrower being a resident of a country other than the country where the cross border asset is booked; Currency Risk, a possibility that exchange rate change, will alter the expected amount of principal and return on the lending or investment.

e. **Non-Financial Risk:** Non-financial risk refers to those risks that may affect a bank's business growth, marketability of its product and services, likely failure of its strategies aimed at business growth etc. These risks may arise on account of management failures, competition, non-availability of suitable products/services, external factors etc. In these risk operational and strategic risk have a great need of consideration.

f. **Operational Risk:** Operational risk involves breakdown in internal controls and corporate governance leading to error, fraud, performance failure, compromise on the interest of the bank resulting in financial loss. Putting in place proper corporate governance practices by itself would serve as an effective risk management tool. Bank should strive to promote a shared understanding of operational risk within the organization, especially since operational risk is often intertwined with market or credit risk and it is difficult to isolate.

**TECHNIQUES OF RISK MANAGEMENT**

a. **GAP Analysis** It is an interest rate risk management tool based on the balance sheet which focuses on the potential variability of net-interest income over specific time intervals. In this method a maturity/re-pricing schedule that distributes interest-sensitive
assets, liabilities, and off-balance sheet positions into time bands according to their maturity (if fixed rate) or time remaining to their next re-pricing (if floating rate), is prepared. These schedules are then used to generate indicators of interest-rate sensitivity of both earnings and economic value to changing interest rates. After choosing the time intervals, assets and liabilities are grouped into these time buckets according to maturity (for fixed rates) or first possible re-pricing time (for flexible rates). The assets and liabilities that can be re-priced are called rate sensitive assets (RSAs) and rate sensitive liabilities (RSLs) respectively. Interest sensitive gap (DGAP) reflects the differences between the volume of rate sensitive asset and the volume of rate sensitive liability and given by, $\text{GAP} = \text{RSAs} - \text{RSLs}$ The information on GAP gives the management an idea about the effects on net-income due to changes in the interest rate. Positive GAP indicates that an increase in future interest rate would increase the net interest income as the change in interest income is greater than the change in interest expenses and vice versa. (Cumming and Beverly, 2001)

b. Duration-GAP Analysis It is another measure of interest rate risk and managing net interest income derived by taking into consideration all individual cash inflows and outflows. Duration is value and time weighted measure of maturity of all cash flows and represents the average time needed to recover the invested funds. Duration analysis can be viewed as the elasticity of the market value of an instrument with respect to interest rate. Duration gap (DGAP) reflects the differences in the timing of asset and liability cash flows and given by, $\text{DGAP} = \text{DA} - \text{DL}$. Where DA is the average duration of the assets, DL is the average duration of liabilities, and $u$ is the liabilities/assets ratio. When interest rate increases by comparable amounts, the market value of assets decrease more than that of liabilities resulting in the decrease in the market value of equities and expected net-interest income and vice versa. (Cumming and Beverly, 2001)

c. Value at Risk (VaR) It is one of the newer risk management tools. The Value at Risk (VaR) indicates how much a firm can lose or make with a certain probability in a given time horizon. VaR summarizes financial risk inherent in portfolios into a simple number. Though VaR is used to measure market risk in general, it incorporates many other risks like foreign currency, commodities, and equities. (Jorion, 2001)

d. Risk Adjusted Rate of Return on Capital (RAROC) : It gives an economic basis to measure all the relevant risks consistently and gives managers tools to make the efficient decisions regarding risk/return trade off in different assets. As economic capital protects financial institutions against unexpected losses, it is vital to allocate capital for various risks that these institutions face. Risk Adjusted Rate of Return on Capital (RAROC) analysis shows how much economic capital different products and businesses need and determines the total return on capital of a firm. Though Risk Adjusted Rate of Return can be used to estimate the capital requirements for market, credit and operational risks, it is used as an integrated risk management tool (Crouhy and Robert, 2001)

e. Securitization It is a procedure studied under the systems of structured finance or credit linked notes. Securitization of a bank’s assets and loans is a device for raising new funds and reducing bank’s risk exposures. The bank pools a group of income-earning assets (like mortgages) and sells securities against these in the open market, thereby transforming illiquid assets into tradable asset backed securities. As the returns from
these securities depend on the cash flows of the underlying assets, the burden of repayment is transferred from the originator to these pooled assets.

f. **Sensitivity Analysis** It is very useful when attempting to determine the impact, the actual outcome of a particular variable will have if it differs from what was previously assumed. By creating a given set of scenarios, the analyst can determine how changes in one variable(s) will impact the target variable.

g. **Internal Rating System** An internal rating system helps financial institutions manage and control credit risks they face through lending and other operations by grouping and managing the credit-worthiness of borrowers and the quality of credit transactions.

**CONCLUSIONS**

Risk is inherent in any walk of life in general and in financial sectors in particular. Till recently, due to regulated environment, banks could not afford to take risks. But of late, banks are exposed to same competition and hence are compelled to encounter various types of financial and non-financial risks. Risks and uncertainties form an integral part of banking which by nature entails taking risks. There are three main categories of risks; Credit Risk, Market Risk & Operational Risk.

The effectiveness of risk measurement in banks depends on efficient Management Information System, computerization and net working of the branch activities. The data warehousing solution should effectively interface with the transaction systems like core banking solution and risk systems to collate data. An objective and reliable data base has to be built up for which bank has to analyze its own past performance data relating to loan defaults, trading losses, operational losses etc., and come out with bench marks so as to prepare themselves for the future risk management activities. Any risk management model is as good as the data input. With the onslaught of globalization and liberalization from the last decade of the 20th Century in the Indian financial sectors in general and banking in particular, managing Transformation would be the biggest challenge, as transformation and change are the only certainties of the future.

**REFERENCE**