CHAPTER -4

Chapter 4

RISK PROFILE OF INDIAN BANKING SECTOR

4.1 Introduction

The policy of economic reform suggested several changes like deregulation of interest rates, reduction of reserve requirements, integration of various segments of financial markets, allowing banks to access capital market for augmenting capital base to meet their capital adequacy, freedom in operational matters, greater emphasis on the use of information technology, moving towards capital account convertibility and others, in the financial sector to make them more competitive. The thrust of the policy is on internal consolidation and restructuring of banks to match with competitive environment. Among the important aspects of such re-engineering are Asset Liability Management (ALM) and Risk Management. These strategies were undertaken with the objective of improving efficiency by managing risk in a proper way and thereby improving the asset quality and profitability of banks.

Maintaining resilience to risk and shock is an integral part of bank management (Chakraborty, 2012). Banks assume risk because risk is pre- requisite for survival (Sabnani, 2002). However, taking higher risks at times may result in loss and brings disaster for the organization. Risk is thus defined as possibility of suffering a loss (Ahmed, 2008). According to David, 1992, by defining risk one can measure the probability and severity of adverse effects. Meyer (2000), expressed that

because taking risk is an integral part of the banking business, Risk exists and banks must accept risk if they are to thrive and meet an economy's needs; but they must manage the risks and recognize them as real. Thus it is extremely important to identify the risks faced by the banks. In this chapter, an attempt is made to identify the prevalent risks, quantifying the same and to check the available policy frame work in the context of risk. This chapter is designed to prepare a risk profile of the banks following Objective 1 of the study which is mentioned below-

Objective 1:-

- To examine the risk profile of Indian banking sector.

4.2 Types of Banking Risks

According to Basle committee on Banking Supervision**, September 1997** the major risks faced by a bank can be grouped as under-

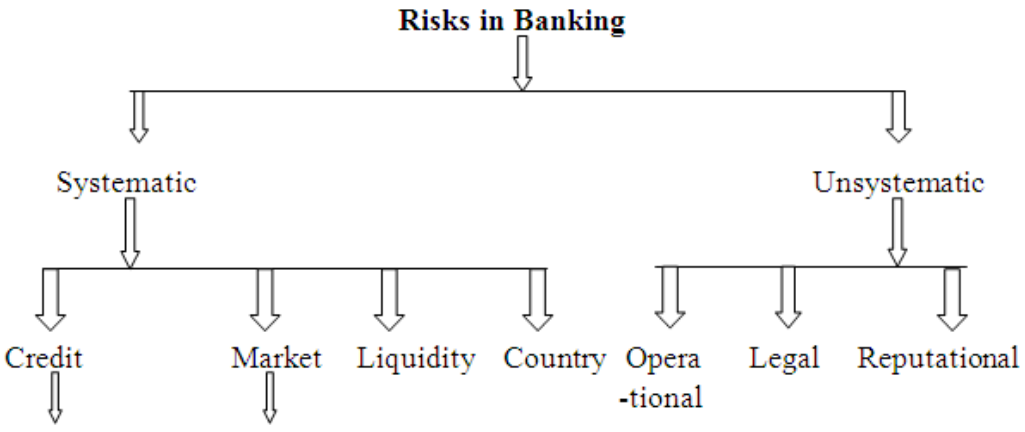


Chart-1: Source-Dutta Purkayastha and Raul (2014)

1. **Credit risk**-

The extension of loans is the primary activity of most banks. Lending activities require banks to make judgements related to the creditworthiness of borrowers. These judgements do not always prove to be accurate and the creditworthiness of a borrower may decline over time due to various factors. Consequently, a major risk that banks face is credit risk or the failure of counterparty to perform according to a contractual arrangement. This risk applies not only to loans but to other on- and off-balance sheet exposures such as guarantees, acceptances, and securities investments. Serious banking problems have arisen from the failure of banks to recognize impaired assets, to create reserves for writing off these assets, and to suspend recognition of interest income when appropriate.(Basle 1997)

Credit risk is thus defined as Risk of Not receiving back its dues, i.e., the risk of not receiving timely cash flow from bank granted facilities (RBI). Credit risk, in terms of possibilities of loss to the bank, due to failure or unwillingness of borrowers/ counter parties in meeting their commitments, is likely to hamper the capability of the bank to meet its commitment to the depositors. Credit risk is the most significant risk, especially in the context of a country like India where NPA level of banking system is relatively high.

According to Ahmed (2007), Credit risk depends on both internal and external factors. Some of the important external factors are state of economy, swings in commodity prices, foreign exchange rates and interest rates etc. The internal factors include deficiencies in loan policies and administration of loan portfolio covering areas like prudential exposure limits to various category, appraisal of borrower's financial position, excessive dependence on collateral, mechanism of review and post sanction surveillance etc. Kithinji (2010) expressed that the main

source of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, direct lending, massive licensing of banks, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank.

4.2.1 Components of Credit Risk:

Mckinley&Barrickman,1994 pointed out that the credit risk in a bank's loan portfolio consists of three components;

(i) Transaction Risk

(ii) Intrinsic Risk

(iii) Concentration Risk

(i) Transaction Risk: Transaction risk focuses on the volatility in credit quality and earnings resulting from how the bank underwrites individual loan transactions. Transaction risk has three dimensions: selection, underwriting and operations.

(ii) Intrinsic Risk: It focuses on the risk inherent in certain lines of business and loans to certain industries. Commercial real estate construction loans are inherently more risky than consumer loans. Intrinsic risk addresses the susceptibility to historic, predictive, and lending risk factors that characterize an industry or line of business. Historic elements address prior performance and stability of the industry or line of business. Predictive elements focus on characteristics that are subject to change and could positively or negatively affect future performance. Lending elements focus on how the collateral and terms offered in the industry or line of business affect the intrinsic risk.

(iii) Concentration Risk: Concentration risk is the aggregation of transaction and intrinsic risk within the portfolio and may result from loans to one borrower or one industry, geographic area, or lines of business. Bank must define acceptable portfolio concentrations for each of these aggregations. Portfolio diversify achieves an important objective. It allows a bank to avoid disaster. Concentrations within a portfolio will determine the magnitude of problems a bank will experience under adverse conditions.

Another variant of credit risk is counterparty risk. The counterparty risk arises from non-performance of the trading partners. The non-performance may arise from counterparty's refusal/ inability to perform due to adverse price movements or from external constraints that were not anticipated by the principal. The counterparty risk is generally viewed as a transient financial risk associated with trading rather than standard credit risk.

2. **Market risk**

Banks face a risk of losses in on- and off-balance sheet positions arising from movements in market prices. Established accounting principles cause these risks to be typically most visible in a bank's trading activities, whether they involve debt or equity instruments, or foreign exchange or commodity positions. One specific element of market risk is foreign exchange risk. Banks act as "market-makers" in foreign exchange by quoting rates to their customers and by taking open positions in currencies. The risks inherent in foreign exchange business, particularly in running open foreign exchange positions, are increased during periods of instability in exchange rates.

BCBS June 2006 par 683(i) defined Market risk as the risk of losses in on- and off-balance sheet positions arising from movements in market prices. The risks pertaining to this requirement are:

- for instruments in the trading book:
- interest rate position risk,
- equity position risk.
    - throughout the institution:
- foreign exchange risk,
- commodities risk.

With progressive deregulation, market risk arising from adverse changes in market variables, such as interest rate, foreign exchange rate, equity price and commodity price has become relatively more important. Even a small change in market variables causes substantial changes in income and economic value of banks.

3. **Country and transfer risk**

In addition to the counterparty credit risk inherent in lending, international lending also includes country risk, which refers to risks associated with the economic, social and political environments of the borrower's home country. Country risk may be most apparent when lending to foreign governments or their agencies, since such lending is typically unsecured, but is important to consider when making any foreign loan or investment, whether to public or private borrowers. There is also a component of country risk called "transfer risk" which arises when a borrower's obligation is not denominated in the local currency. The currency of the obligation may become unavailable to the borrower regardless of its particular financial condition.

4.**Interest rate risk**

Interest rate risk refers to the exposure of a bank's financial condition to adverse movements in interest rates. This risk impacts both the earnings of a bank and the economic value of its assets, liabilities, and off-balance sheet instruments. The primary forms of interest rate risk to which banks are typically exposed are: (1) repricing risk, which arises from timing differences in the maturity (for fixed rate) and repricing (for floating rate) of bank assets, liabilities and off-balance sheet positions; (2) yield curve risk, which arises from changes in the slope and shape of the yield curve; (3) basis risk, which arises from imperfect correlation in the adjustment of the rates earned and paid on different instruments with otherwise similar repricing characteristics; and (4) optionality, which arises from the express or implied options imbedded in many bank assets, liabilities and off-balance sheet portfolios. Although such risk is a normal part of banking, excessive interest rate risk can pose a significant threat to a bank's earnings and capital base. Managing this risk is of growing importance in sophisticated financial markets where customers actively manage their interest rate exposure. Special attention should be paid to this risk in countries where interest rates are being deregulated.

5. Liquidity risk

Liquidity is the ability to efficiently accommodate deposit and other liability decreases, as well as, funding the growth of loan portfolio and the possible funding of off-balance sheet claims. A bank has adequate liquidity when sufficient funds can be raised, either by increasing liabilities or converting assets, promptly and at a reasonable cost.Liquidity risk arises from the inability of a bank to accommodate decreases in liabilities or to fund increases in assets. The problem may lie in the bank’s inability to liquidate assets or obtain funding to meet its obligations. The

problem could also arise due to uncontrollable factors such as market disruption or liquidity squeeze (Suresh & Paul, 2010). When a bank has inadequate liquidity, it cannot obtain sufficient funds, either by increasing liabilities or by converting assets promptly, at a reasonable cost, thereby affecting profitability. In extreme cases, insufficient liquidity can lead to the insolvency of a bank. It comes from lack of necessary liquidity to cover the short term obligations and unexpected outflow of funds.

Thus, liquidity risk of banks is expected to arise from the funding of long-term assets by short-term liabilities, thereby making the liabilities subject to rollover or refinancing risk (RBI, n.d.).The liquidity risk in banks can be of the following types:

i) **Funding Risk** – In case of this risk, banks need to replace net outflows due to unanticipated withdrawal/nonrenewal of deposits (wholesale and retail);

ii) **Time Risk** –Banks should compensate for non-receipt of expected inflows of funds, i.e., performing assets turning into non-performing assets, in this kind of risk; and

iii) **Call Risk** –It arise due to crystallisation of contingent liabilities and unable to undertake profitable business opportunities when desirable.

6. <u>Operational risk</u>

Generally, operational risk is defined as any risk, which is not categorised as market or credit risk, or the risk of loss arising from various types of human or technical error. It is also Synonymous with settlement or payments risk, business interruption, administrative and legal risks. Basle committee for Banking Supervision has defined the operational risk as 'the risk of loss, resulting from inadequate or failed internal processes, people and systems or from technical

events'. According to Ahmed (2007), the importance of managing operational risk has increased mainly because of two reasons:

- Higher level of automation
- Increase in global financial inter-linkages.

The most important types of operational risk involve breakdowns in internal controls and corporate governance. Such breakdowns can lead to financial losses through error, fraud, or failure to perform in a timely manner or cause the interests of the bank to be compromised in some other way, for example, by its dealers, lending officers or other staff exceeding their authority or conducting business in an unethical or risky manner. Thus risk related to business strategy, internal systems and operations, technical and other aspects of operational risk include major failure of information technology systems or events such as major fires or other disasters.

7. Legal risk

Banks are subject to various forms of legal risk. This can include the risk that assets will turn out to be worth less or liabilities will turn out to be greater than expected because of inadequate or incorrect legal advice or documentation. In addition, existing laws may fail to resolve legal issues involving a bank; a court case involving a particular bank may have wider implications for banking business and involve costs to it and many or all other banks; and, laws affecting banks or other commercial enterprises may change. Banks are particularly susceptible to legal risks when entering new types of transactions and when the legal right of a counterparty to enter into a transaction is not established.

8. Reputational risk

Reputational risk arises from operational failures, failure to comply with relevant laws and regulations, or other sources. Reputational risk is particularly damaging for banks since the nature of their business requires maintaining the confidence of depositors, creditors and the general marketplace.

4.3 Available Approaches of Risk Management

Theory of Risk suggests that as the financial system develops its ability to assess and bear risks increases (Rao, 2013). Risk Management Systems in Indian Banks existed even during the pre-reform period, and predominantly covered the Assets-Liabilities Management (ALM) area. But they became more evolved during the 90's. Guidelines for a comprehensive Risk Management System were first issued by the RBI on October 21, 1999. The guidelines broadly cover management of credit risk, market risk and operational risk. The existing ALM mechanism was already covering liquidity risk and interest rate risk. The guidelines emphasise the role of the Board of Directors is putting in place the methodologies for measuring and monitoring credit risk. The guidelines have placed the primary responsibility of laying down risk parameters and establishing the risk management and control systems on the Board of Directors. The Reserve Bank has also advised that the Credit Policy Committee and the Assets and Liabilities committee should work in an integrated manner. (Mohan, 2009)

The investment committee should approve proposals for investment after subjecting them to the same degree of credit risk and analysis as if it were a loan proposal. RBI suggested that Banks follow prudential limits on inter-bank borrowings, call funding, core deposits, core assets etc. As per these guidelines

Banks were asked to follow the value at risk (VaR) and duration approaches for measurement of interest rate risk. The Reserve Bank over a period of time has guided and insisted on setting up proper Risk Management Systems in Banks (Mohan, 2007).

The evolution of financial instruments and markets has enabled Banks to undertake varied risk exposures. The objectives of Risk Management can be summarised as disaster prevention by setting Capital Adequacy Standards and prudential limits. This will lead to allocation of supervisory resources in accordance with the risk profile prepared by the Bank and focuses on areas exposed to greater risk. For the Bank supervised this may result in less supervisory intervention. As the focus would shift from transaction based audit and inspection to systems, Banks would be encouraged to develop systems and procedures and understand and perceive awareness of risks more accurately. Under the new approach the Audit methodology also will undergo a radical change. The Internal Audit of the Banks will now be Risk based so as to make it more forward looking with emphasis on identification of potential risks if any with suggestions for risk mitigation.

Hence, Reserve Bank has been maintaining a stance of conscious gradualism in fostering innovation and permitting sophisticated products in the markets. Reserve Bank's approach is more guided by the imperatives of ensuring that finance remains linked to the real sector and does not derive dynamics of its own. Given the nature of our economy, with wide disparities in the income levels, education and sophistication and the pressing need for ensuring inclusive growth, the market development strategy has been carefully calibrated so as to avert any excesses which could lead to market failures. New products were introduced taking into account the preparedness of the financial markets in particular and the economy in

general. The products are initially made open to a select set of well regulated participants and only after the products are stabilised and fine tuned, other participants are permitted. Only regulated entities such as banks have been permitted market making in derivate markets while others are permitted to use such products for only hedging risks on their balance sheet and not for punting. (Sinha, 2012).

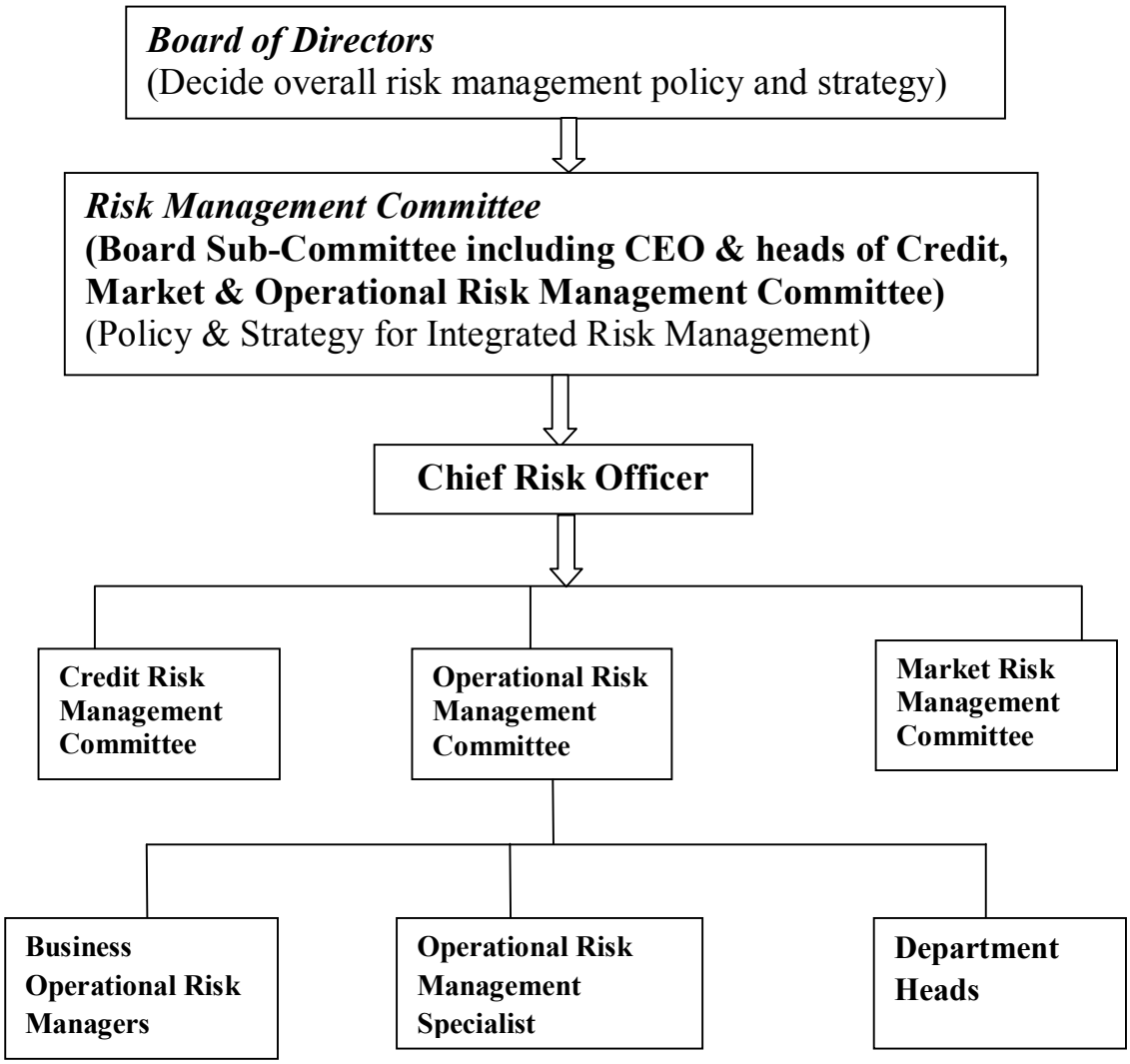
Even in the context of prudential regulation of financial system, Reserve Bank adopted a considered approach of limiting the systemic risk originating from both the pro-cyclicality as well as interconnectedness dimensions. The countercyclical measures were adopted as back as 2004 when specific sectors were observed to be heating up. The risk weights and provisioning ratios were increased for sensitive sectors such as capital market, housing, commercial real estate during the period when the boom was building up. The ratios were brought down post Oct 2008 when the economy started slowing down on the back of global turmoil. Such macro-prudential approach, which was not widely prevalent at that time, saved the domestic economy from the adverse shocks during the height of the crisis. Several measures have also been taken to reduce the inter-connectedness among banks on the one hand and between banks and NBFCs on the other, and limits have been placed on exposures to sensitive sectors to address the cross-sectional dimension of systemic risk.

In the implementation of Basel III guidelines also, RBI has adopted a cautious approach inasmuch as the minimum capital requirement has been kept at 1 percentage point higher than that stipulated under Basel III to address the possible inadequacies in the capital allocation process and also the model risks in banks. The implementation schedule is also marginally advanced by 9 months, to be complied by March 31, 2018 against the Basel requirement of January 01, 2019.

Risk Management is an integrated process, involving various functional members across different verticals of the organisation, hence it is extremely important to know the design of common structure which is designed to take care of the functioning of Risk Management Network.

In order to know the prevailing Risk management structure of Indian banks, General Structure of Risk Management Framework is identified based on the studies of previous researches, which is presented in the form of following chart-

Chart 4.2- General Structure of Risk Management Framework



Source- Rao (2013)

Thus, at the apex level, there is the Supervisory Committee of Directors on Risk Management, which is a Board level Committee and oversees the Risk Management functioning of the Bank. Next come the Executive level Committees such as Asset Liability Management Committee (ALCO) for Market Risk, Credit Risk Management Committee for Credit Risk and Operational Risk Management Committee for Operational Risk function at the Bank. These Committees meet regularly to supervise and monitor the risks in various areas on an ongoing basis. Some Banks have appointed Consultants for advising and assisting the Management in implementing the Risk Management Systems and making the Bank Basel compliant.

4.4. Risk Profile of Indian Banking Sector

In line with the banks across the global banking fraternity, Indian banking sector is also facing a number of risks quite similar to those present worldwide. However, it is pertinent to know up to what extent Indian banks are experiencing these risks, so as to remain defiant against sudden upheaval.

For preparing a composite profile of the Indian Banking Sector, following variables are identified.

Variables identified for measuring quantum of risk

Variables	Definition
Credit Risk (CR)	Gross NPA/ Total Loans (Dhouibi (2009), Pettway (1976),Salkeld,2011,Agusman,et.all(2008), Hassan (1993)
	Loan loss Provision/ Total Loans Pettway (1976), Salkeld, 2011,Agusman,et.all (2008), Hassan(1993)
Market Risk (MR)	Book value of equity/ Total Assets (Jahankhani & Lynge (1980),Brewer & Lee (1986))
Liquidity Risk (LIQ)	CA/TA (Agusman, et.all(2008),Michel (2011)
Operational risk (OPR)	Operating expense/ Net Operating income Agusman, et.all (2008),Salkeld,2011, Awojobi and Amel (2011)

Calculation and Analysis-

For the purpose of discussing the said objective, following model is being used.

$$\text{Risk}_{\text{Net(0-4)}} = 0.85\,(0.3\,\text{Risk}_{\text{Net (Credit)}} + 0.2\,\text{Risk}_{\text{Net (market)}} + 0.2\,\text{Risk}_{\text{Net (Operational)}} + 0.2\,\text{Risk}_{\text{Net (Liquidity)}} + 0.1\,\text{Risk}_{\text{Net (Pillar 2)}}) + 0.15\,(\text{Risk}_{OG})$$

Using this model, the risk scores of each individual bank under study as well as the summated scores of all the banks over the years were calculated. As it is aptly required to figure out the occurrence of the risk and also to measure the quantum of each risk group, for smooth reprisal of the same, hence it is attempted to check the risk scores of the banks. Following tables summarise the risks prevalent in the Indian banking sector. As it is aptly required to figure out the occurrence of the risk and also to measure the quantum of each risk group, for smooth reprisal of the same, hence it is attempted to check the risk scores of the banks. For this using twelve years data from 2002-03 to 2013-14, an attempt is made to figure out the position of the banks in terms of diverse risk categories present.

A bank specific as well as over the year development of the risk score is attempted to be measured using the aforesaid variables.

Table 4.1- Calculation of Bank wise Composite Risk Score during 2003-2014

Name of Banks	Credit Risk	Market Risk	Liquidity Risk	Operational Risk	Composite Risk
SBI and its subsidiaries	3.5	0.080758686	0.09307	0.041052	1.09
BANK OF BARODA	3.2	0.206771801	0.119584	0.041814	1.03
ORIENTAL BANK OF COMMERCE	3.7	0.288743431	0.089702	0.040722	1.19
CORPORATION BANK	2.0	0.240238671	0.097496	0.042751	0.68
CANARA BANK	1.9	0.231844841	0.089795	0.037921	0.64
UNION BANK	3.2	0.424690536	0.076759	0.038054	1.07
BANK OF INDIA	2.8	0.309713271	0.102092	0.034552	0.93
SYNDICATE BANK	3.2	0.579325614	0.091241	0.037566	1.10
ALLAHABAD BANK	3.6	0.593202638	0.073996	0.039696	1.22
INDIAN OVERSEAS BANK	3.4	0.663345605	0.085237	0.034491	1.18
PUNJAB NATONAL BANK	3.9	0.159337382	0.090265	0.034315	1.23
AXIS BANK	1.2	0.358690856	0.109088	0.090647	0.47
HDFC BANK	1.4	0.324072186	0.09506	0.107699	0.53
ICICI BANK	3.2	0.450632242	0.081354	0.056643	1.08

Source- Researcher's Own Calculation

The risk scores indicate credit risk of a bank is highest among entire risk groups studied, followed by Market risk and/ or liquidity risk on a case to case basis. Also, it is the highest contributor in total risk, indicating more stress to be given on the measures concerning credit risk. Further, over the years study among the banks risk scores signifies, Indian Banks are still within the specified limit 0-4, as stipulated by RBI, which suggests even after the opening up of economy, introduction of innovative products and a grappling situation of most of the banks with regard to controlling the menace of a mounting NPA, banks under the jurisdiction of the norms and standards levied by RBI, are having the capacity to withstand risk.

Out of the 14 banks under study, nationalised banks are having more or less nearing score as the NPA level of all these banks are quite high compared to the private players. Thus the highest risk score (1.23) is observed in case of Punjab

National Bank, followed by Allahabad Bank (1.22) and Oriental bank of Commerce (1.19). In each cases, credit risk can be identified as the significant contributor to the total risk quotient. In the category of private sector banks, ICICI bank is having the highest risk score(1.08), due to the higher credit risk score.

Axis bank is the best performer as far as the lower risk is concerned. It is having a score of 0.47 indicating strong internal control mechanism and selective customer base. HDFC bank (0.53) can be treated as second best performer in the league, followed by CANARA Bank (0.64). These banks have exercised control over its loan portfolio, and thus having a comparatively lower level of NPA in its book.

Again a look at the over the years risk scores of the banks is essential to identify the volatility of the risks of banks with respect to time. Following table represents the cumulative risk scores of all the 14banks over the years.

Table 4.2-Calculation of Year wise Composite Risk for Banks

Year	Credit Risk	Market Risk	Liquidity Risk	Operational Risk	Composite Risk
2003	6.43	0.75693	0.09356	0.04448	2.10799
2004	5.6	0.64439	0.10439	0.05071	1.83990
2005	4.2	0.58235	0.09122	0.05818	1.40635
2006	2.8	0.47626	0.09327	0.06124	0.96615
2007	1.9	0.38454	0.10265	0.05415	0.67827
2008	1.6	0.31089	0.10289	0.04871	0.57250
2009	1.5	0.25710	0.09621	0.04480	0.52962
2010	1.7	0.23674	0.09476	0.04729	0.58576
2011	1.6	0.20389	0.08861	0.04608	0.54772
2012	1.8	0.18176	0.07402	0.03902	0.59896
2013	2	0.17337	0.07571	0.03799	0.65741
2014	2	0.001550	0.08313	0.03874882	0.62469
CAGR (%)	-0.101	-0.430	-0.011	-0.012	-0.105

Source- Researcher's own calculation

The results obtained reveal that during the period under study, the entire banking sector has witnessed many upheavals in terms of volatility of many macroeconomic and bank specific components, however the risk of each individual bank as well as across the entire banking sector has always remained within the

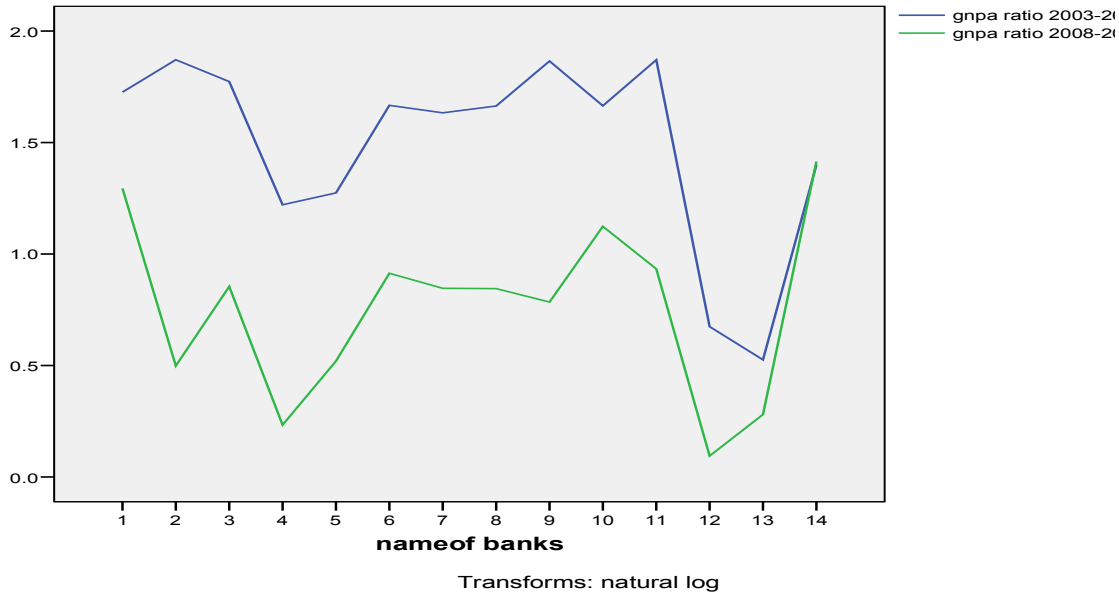
specified limit i.e., 0-4. Also, the risk scores indicate lowering of net risk over the years till the year 2011, post which again some surge in Risk scores is observed. Also, it is being observed that credit risk has always remained as highest, thereby supporting the views expressed by other researchers (Luy, 2010, Pettway,1976) that 'Credit risk is the most important risk in all risk groups' and assigning of more weight age (30%) by RBI for Credit risk.

Also, the deterioration of risk scores over the years, till the year 2011, post which it again started increasing may be due to the alarming increase of the NPA in banks.

Further to test the Hypothesis 1, which is mentioned below paired sample t-test is administered.

- H_0 = There is no significant difference in Risk of banks before and after 2008

Chart 4.3- Movement of Asset quality between 2003-08 and 2009-14



Name of the Banks, 1= SBI&its Associates, 2= Bank of Baroda, 3= Oriental bank of Commerce4= Corporation bank, 5= CANARA bank 6= Union bank 7= Bank of India 8= Syndicate bank 9= Allahabad bank 10=Indian Overseas bank, 11=Punjab National bank, 12= Axis bank 13= HDFC bank 14= ICICI bank

After using Paired t- test, the following result is obtained.

Paired Samples Statistics

		Mean	N	t	Std. Deviation	Std. Error Mean
Pair 1	composite risk 2003-08	1.261860	6	2.458	.6283615	.2565275
	composite risk 2009-14	.590692	6		.0474905	.0193879

Further, the hypothesis is tested at 95% level of confidence using paired t test, which depicts calculated value of t at 5% level of significance with 5df is 2.458> table value of t at 5% level of significance with 5df is 2.132. Thus we reject the null hypothesis and accept the alternative hypothesis that there is significant difference in terms of risk of banks before and after 2008. Further, MSE (Std. error mean) of the period 2009-14 is less than MSE (Std. error mean) of the period 2003-08 indicating comparatively less risk in 2009-14 period.

4.5 Chapter Findings

This chapter reveals the following details-

- The risk scores indicate, credit risk of a bank is highest among the entire risk groups studied, followed by Market risk and/ or liquidity risk on a case by case basis. e.g. in the year 2012, the cumulative credit risk scores of Indian banks was 1.8, whereas, market risk score was 0.18176, in 2014, the cumulative credit risk scores of Indian banks was 2, whereas, market risk score was 0.01550.
- The study has revealed that Composite Risk Scores of Indian Banks are still within the specified limit 0-4, as stipulated by RBI, highest being 2.11 in the year 2003 and 0.53 being lowest in the year 2009.

- Post 2011, risk scores again started increasing (in the year 2012, composite risk score was 0.59896 compared to 0.54772 in 2011). This may be due to the alarming increase of the NPA in banks since the year 2011.
- Out of the 14 banks under study (Table 4.1), nationalised banks are having more or less nearing score as the NPA level of all these banks are quite high compared to the private players. Thus the highest risk score (1.23) is observed in case of Punjab National Bank, followed by Allahabad Bank (1.22) and Oriental bank of Commerce (1.19). In each cases, credit risk can be identified as the significant contributor to the total risk quotient. In the category of private sector banks, ICICI bank is having the highest risk score(1.08), due to the higher credit risk score.
- Also, it is observed that in case of composite risk score is 2 and very near to 2, Credit risk is high and also GNPA ratio is high.
- Axis bank is the best performer as far as the lower risk is concerned. It is having a score of 0.47 indicating strong internal control mechanism and selective customer base. HDFC bank (0.53) can be treated as second best performer in the league, followed by CANARA Bank (0.64). These banks have exercised control over its loan portfolio, and thus having a comparatively lower level of NPA in its book.
- In spite of the volatility of many macroeconomic and bank specific components, the risk of each individual banks as well as across the entire banking sector has always remained within the specified limit i.e., 0-4.
- Also, the risk scores indicate lowering of net risk over the years till the year 2011, post which again some surge in Risk scores can be observed. Also, it

is being observed that credit risk has always remained as highest, thereby supporting the views expressed by other researchers (Luy, 2010, Pettway, 1976) that 'Credit risk is the most important risk in all risk groups' and assigning of more weight age(30%) by RBI for Credit risk.

- Also, the deterioration of risk scores over the years, till the year 2011, post which it again started increasing may be due to the alarming increase of the NPA in banks and the deterioration of asset quality of banks.