CHAPTER -3

Chapter 3

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a way to systematically solve the research problem (Kothari, 2004). In the context of Indian Banking Sector, some serious issues remained unanswered. Thus, to figure out the unresolved queries, the following objectives were framed-

3.1.1 Objectives of the Study-

The major objective of the study is to assess the nature and quantum of risks of Indian banking sector with special reference to Credit Risk. The specific objectives of the study are:

- To examine the risk profile of Indian banking sector.

- To study asset quality of Indian banking sector over time.

- To assess the credit risk of the banks over time and the impact of the risk on growth of Indian banking sector.

- To suggest some remedial measures for minimizing the credit risk of the banks.

3.2 Hypothesis of the Study:

Considering the research gap based on extensive review of literature with regard to policy frameworks, following hypothesis are framed aligning with objectives of the study.

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

- ▸ H_0 = There is no significant difference in asset quality of banks before and after 2008

3.3 Scope of the Study

The study has delved on the Indian banking Sector consisting Scheduled and non-scheduled banks. For the purpose of study, only scheduled commercial banks are identified as they account for more than 90percent of the assets of banking system. The study is conducted in the time span of **2002-03 to 2013-14** i.e., for12 years. Again risk profile is estimated for the time frame of pre global financial crisis i.e., 2003-2008 and post global financial crisis i.e., 2009-2013 separately.

Some parameters were identified for selecting the number of banks in operation during the time frame with a view to have uniform data set. The criterion used for selecting number of banks is outlined below. Shukla and Malusare (2013) have considered revenue as the sole criterion for bank selection. Sharma (2012) has considered contribution of assets of banks in the total assets of the banking industry as the criteria. In this backdrop, for a bank to be considered as a part of the proposed study, a) It must be in operation for at least last 10 years and still maintaining its separate identity. b) It contributes atleast2 percent towards the overall banking business. c) Are listed in BSE and/or NSE. d) It must have a constant ranking by independent rating agencies over the years. e) It also should have consistency in terms of its paid up capital during the period.

In this study Credit risk is examined for Indian Banking Sector along with calculation of their risk profile. Further an attempt is also made to analyze the asset quality of the Indian Banking Sector.

3.4 Type of Research

The type of research is descriptive in nature as the study delves especially on credit risk in Indian banking sector, its nature, quantum and mitigation mechanism.

3.5 Unit of Analysis

The study takes into consideration only scheduled commercial banks operating in India. For this purpose, the banks were chosen using the criteria mentioned below, with a view to have proper representation of the sector and to have uniform data set. The following parameters were identified based on earlier researches like Ahooja, 2012, Sharma, 2012,Shukla and Malusare,2013and expert advice.

a. It must be in operation for atleast last 10 years (as on March 2013) and still maintaining its separate identity.

b. It contributes atleast2 percent towards the overall banking business.

c. It must be listed in BSE and/or NSE.

d. It must have a constant ranking by independent rating agencies over the years.

e. It also should have consistency in terms of its paid up capital during the period.

For a bank to be included in the study, the rankings awarded by World Bank, The Banker and The Economic Times for the years2010, 2011,2012,2013,2014 were looked upon. Using the parameters listed above, the following 14 banks were considered for the purpose of the study.

Table 3.5.1 - List of Banks Under Study

Sl. Number	Name of the Banks	Parameters Fulfilled or Not				
		Criteria1	Criteria 2	Criteria3	Criteria 4	Criteria 5
1	State Bank of India	Y	Y	Y	Y	Y
2	Bank of Baroda	Y	Y	Y	Y	Y
3	Bank of India	Y	Y	Y	Y	Y
4	Canara Bank	Y	Y	Y	Y	Y
5	Indian Overseas Bank	Y	Y	Y	Y	Y
6	Allahabad Bank	Y	Y	Y	Y	Y
7	Punjab National Bank	Y	Y	Y	Y	Y
8	Corporation Bank	Y	Y	Y	Y	Y
9	Oriental Bank of Commerce	Y	Y	Y	Y	Y
10	Syndicate Bank	Y	Y	Y	Y	Y
11	Union Bank	Y	Y	Y	Y	Y
12	Axis Bank	Y	Y	Y	Y	Y
13	HDFC Bank	Y	Y	Y	Y	Y
14	ICICI Bank	Y	Y	Y	Y	Y

3.6 Type and Source of Data

The data required to accomplish the intended work is secondary in nature as the data related to the factors impacting credit risk and their consequence is available with the report of central banks viz., RBI in this case and IMF, Basel Committee report and so on.

3.7 Identification of the Relevant Variables

For the purpose of studying Credit Risk the variables identified by different researchers are mainly macroeconomic variables and bank specific variables which

include GDP growth rate, Real loan growth rate, Inefficiency of banks, Capital to Risk Weighted Assets. Another set of variables are grouped with respect to measuring risk in terms of financial soundness indicators. These groups of variables are listed below.

Researchers like Dhouibi (2009), Pettway (1976), Saeed & Zahid (2016), Pettway (1976), Jahankhani & Lynge (1980), Brewer & Lee (1986), Hoseininassabet.al. (2013), Ahmad and Ariff (2007), Das and Ghosh (2007) have suggested the following variables to examine the nature of credit risks of the Indian banking sector.

Table 3.7.1- Variables identified for measuring impact of credit risk on the growth of the Banking sector

Variables	Definition
GDPGR	Growth rate of real GDP
INFLA	Rate of inflation
RIR	Real interest rate (Interbank interest rate-Inflation of the period)
OETA	Other Expense To Total Assets
TLTD	Total Loans To Time Deposits
CAR	Capital To Risk Weighted Assets,
RGGR	Real GDP Growth Rate

For analysing asset quality of various banks, Asset Quality Indicator (Chisti (2012), Aspal & Malhotra (2013), Alhassan et al.(2014), Ibrahim & Thangavelu (2014) has been used after the descriptive analysis of the set of variables are undertaken. As Dutta Purkayastha & Ghosh (2016) substantiated that GNPA ratio

can effectively compute asset quality of banks, hence GNPA ratio is treated as the indicator of asset quality.

To identify the quantum of risk both systematic and unsystematic, standard deviation and coefficient of variation will be used over the following variables, besides percentage change over the previous year and CAGR.

Table 3.7.2- Variables identified for measuring Composite 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 (LIQR)	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)

3.8 Tools and Techniques of the Study

The collected secondary data will be analyzed by both qualitative and quantitative techniques. The data collected from the reports will be analyzed by appropriate statistical techniques.

For analysing risks of banking sector, CAGR will be used. For analysing asset quality of various banks, multiple regression will be used after the descriptive analysis of the set of variables are undertaken.

Panel regression analysis approach will be employed in determining the impact of underlying factors of credit risk. The following econometric model will be used in this case-

$$CR_t = a + \sum_{i=1}^{14} \beta_i x_{i,t} + u_i; \text{ whereas,}$$

CR_t= dependent variable (CR) in time t, a=constant, u_i=residual value, $x_{i,t}$ is the explanatory variable of ith component in time t, x_1, x_2, ….,x_{14} denotes the variables identified (in Table 1).

3.9 Significance of the Study

This study is an attempt to understand the position of Indian Banking Sector in terms of various Risk components and also to ascertain the level of risk Indian Banks are exposed to. This in turn will help to gauge and identify the viability of risk based methods in the wake of mounting level of NPA.

3.10 Limitation of the Study

The study is based on secondary data where the reliability of the research depends on the source of data and the chance of error may also exist. The scope of the study could not be enlarged further due to the limitation of time, resources and availability of information to some extent.