

**A STUDY ON LOAN RISK MANAGEMENT OF  
JOINT VENTURE COMMERCIAL BANKS**

**(With References to Nabil Bank and SBI Bank)**

**A THESIS**

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# RECOMMENDATION

This is to certify that the Thesis

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*Entitled:*

**A Study on Loan Risk Management of Joint Venture Commercial Banks**

(With References to Nabil Bank and SBI Bank)

has been prepared as approved by this department in the prescribed format of Faculty of Management. This thesis is forwarded for examination.

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(With References to Nabil Bank and SBI Bank)

And found the thesis to be original work of the student written according to the prescribed format. We recommended this thesis to be accepted as partial fulfillment of the requirements for the **Master's Degree of Business Studies (M.B.S.)**

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I hereby declare that thesis entitled **A Study on Loan Risk Management of Joint Venture Commercial Banks** (With Reference to Nabil Bank and SBI Bank) submitted to Office of the Dean, Faculty of Management, Tribhuvan University is my original work done in the form of partial fulfillment of the requirements for the Master's Degree of Business Studies (M.B.S.), under the supervision and guidance of Miss Binita Manandhar, Shanker Dev Campus.

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# TABLE OF CONTENT

Recommendation	
Viva Voce Sheet	
Declaration	
Acknowledgement	
Table of Content	
List of Table	
List of Figures	
Abbreviations	

## CHAPTER – 1 : INTRODUCTION

1.1 BACKGROUND OF THE STUDY .....	1
1.2 BRIEF PROFILE OF SAMPLE BANKS .....	4
1.3 STATEMENT OF THE PROBLEM .....	9
1.4 OBJECTIVES OF THE STUDY .....	10
1.5 SIGNIFICANCE OF THE STUDY .....	10
1.6 LIMITATIONS OF THE STUDY .....	10
1.7 ORGANIZATION OF THE STUDY .....	11

## CHAPTER – 2 : REVIEW OF LITERATURE

2.1 CONCEPTUAL REVIEW.....	12
2.1.1 An Overview on Loan Risk .....	13
2.1.2 Common Sources of Major Loan Problems.....	14
2.1.3 Loan Risk Management .....	17
2.1.4 Loan Risk Management Techniques.....	19
2.1.5 General Risk Management Framework .....	20
2.1.6 Loan Risk Management Framework.....	22
2.1.7 Factors affecting loan policy.....	23
2.1.8 Directives of N.R.B. On Loan Aspect .....	24
2.2 REVIEW OF PREVIOUS STUDIES .....	26
2.2.1 Review of Articles and Journals .....	26
2.2.2 Review of Thesis.....	30
2.3 RESEARCH GAP.....	35

## **CHAPTER – 3 : RESEARCH METHODOLOGY**

3.1 RESEARCH DESIGN.....	36
3.2 POPULATION AND SAMPLE .....	36
3.3 NATURE AND SOURCES OF DATA .....	37
3.4 DATA COLLECTING PROCEDURES .....	37

## **CHAPTER 4 : PRESENTATION AND ANALYSIS OF DATA**

4.1 COMPARATIVE ANALYSIS OF LOAN RISK.....	41
4.1.1. Ratio Analysis.....	41
4.1.2 Security-wise Lending of NABIL and SBI.....	50
4.1.3 Correlation Analysis .....	58
4.3 MAJOR FINDINGS OF THE STUDY.....	59

## **CHAPTER 5 : SUMMARY, CONCLUSION AND RECOMMENDATION**

5.1 SUMMARY .....	64
5.2 CONCLUSION.....	66
5.3 RECOMMENDATION.....	68

## **BIBLIOGRAPHY**

## **APPENDICES**

## LIST OF TABLES

Table 2.1. Guidelines of Assessing Risk .....	18
Table No. 2.2 Outstanding Loans and Advances Classifications and Provisioning for Loan .....	26
Table 4.1 Loans and Advances to Total Asset Ratio (%).....	42
Table 4.2 Loans and Advances to Total Deposit Ratio (%) .....	43
Table 4.3 Non-Performing Loan to Total Loans and Advances .....	45
Table 4.4 Loan Loss Provision to Non-Performing loan (%).....	46
Table 4.5 Loan Loss Provision to Total Loan and Advances (%) .....	48
Table 4.6 Return on Loans & Advances (%).....	49
Table 4.7 Ranking of NABIL Collateral on the basis of amount of loan extended.....	51
Table 4.8 Ranking of SBI Collateral on the basis of amount of loan extended.....	52
Table 4.9 Proportion of different category of risk weighted lending of NABIL.....	54
Table 4.10 Proportion of different category of risk weighted lending of SBI.....	54
Table 4.11 Loan Concentration on different Sector on fiscal year 2011/12.....	56
Table 4.12 Sector-wise loan to Core Capital in fiscal year 2011/12 .....	57
Table 4.13 Correlation between LLP and Loans and Advances.....	58
Table 4.14 Correlation between LLP and NPL .....	59

## LIST OF FIGURES

Figure 4.1 Loans and Advances to Total Asset Ratio (%).....	42
Figure 4.2 Loans and Advances to Total Deposit Ratio (%) .....	44
Figure 4.3 Non-Performing Loan to Total Loans and Advances.....	45
Figure 4.4 Loan Loss Provision to Non-Performing loan (%).....	47
Figure 4.5 Loan Loss Provision to Total Loan and Advances (%).....	48
Figure 4.6 Return on Loans & Advances (%).....	50

## **ABBREVIATIONS**

ADB	=	Agricultural Development Bank
ALCO	=	Asset Liabilities Management Committee
ATM	=	Automated Teller Machine
CENMAC	=	Central Management Committee
CEO	=	Chief Executive Officer
CPG	=	Loan Policies Guidelines
C.V	=	coefficient of Variation
e.g	=	Example
EPS	=	Earning per share
etc	=	Etcetera
F/Y	=	Fiscal Year
GDP	=	Gross Domestic Product
GNP	=	Gross National Product
i.e	=	That is
JVB	=	Joint Venture Bank
LLP	=	Loan Loss Provision
MBS	=	Master of Business Studies
NBL	=	Nabil Bank Limited
NEPSE	=	Nepal Stock Exchange
NIDC	=	Nepal Industrial Development Corporation
NPA	=	Non- Performing Asset
NPL	=	Non- Performing Loan
NRB	=	Nepal Rastra Bank
P.E	=	Probable Error
RAROC	=	Risk adjusted return on capital
RBB	=	Rastriya Banijya Bank
ROE	=	Return on Equity
SEC	=	Security Exchange Center
S.D	=	Standard Deviation
SWIFT	=	Society for Worldwide Interbank Financial Telecommunication
USD	=	US Dollars

# CHAPTER - 1

## INTRODUCTION

### 1.1 Background of the Study

Nepalese economy is dominated by the agricultural sector. Approximately 39% of the GDP is obtaining from agriculture and employing about 82% of the population of the country. This sector contributes 82% to export trade of the nation but the figure is going to decline. Nowadays the overall performance of this sector is declining day by day. Due to the declining performance of agricultural sector the economic status of Nepalese people is deteriorating leading to increase in mass poverty. Living standard of Nepalese people is very low and the poverty is growing speedily in the country. World Development Report 2008 shows that the per capita income is \$470, which is very low as per the international standard. The economic growth rate is 5.6% and the average annual growth rate on GNP per capita is negative (i.e. -0.1%).

Approximately 31% of all Nepalese live in absolute poverty. There are no basic infrastructures in rural and semi-urban countries and social service such as modern medical care, pure drinking water and adequate sanitation are very limited. The report shows that the public expenditure on education and health is 3.0% & 2.0% of GNP respectively. Access to safe drinking water is 59% of population and the rate of sanitation is only 25% of the population. About 70% of the children are the victims of malnutrition. Average fertility rate per woman is higher in country. Due to the higher rate and lower medical care, maternal mortality rate is higher which is 500 in per 1, 00,000. The population growth rate is 2.1% and the population is 200 people per square km. Currently the life expectancy at birth of Nepalese people is 61 years of male and 60 years of female.

Employment is a major variable to fight against increasing poverty in the country. Over 100,00,000 people are living below the absolute poverty line. On the other hand, the employment is going to be wider in country. Currently, there are over 16,50,000 job seekers searching for job in Nepal, which is 19.3% of the total labour force. With the problem of unemployment, there is extra burden of external debt in the country.

According to World Development Report 2008, the total amount of external debt is \$2398 millions.

Economic development is the key source of development of any country and it is only possible when the country adapt the process of industrialization. Industrialization, globalization and liberalization are the main things that should be followed by every country to make economic upliftment and that should be establishment of financial institution. There is slow economic development process in Nepal as it had adopted liberalization lately. So the Nepal is counted as least developed country. For passed out the country toward the industrialization, there will be need of huge amount of fund. This means the country have to invest a large amount of capital in the productive sectors. For this, financial institutions play a crucial role in the process of economic development because they help in the capital formation and mobilization. Financial institutions include all those financial intermediaries which accumulate the scattered funds from the public in the form of deposit and utilize them in productive sectors by giving to investors as loans or loan. With liberalization in the financial markets, the risk associated with banks' operation have become complex and large, requiring strategic management.

Among the financial institutions, banking sector has a vital role in national economy as they are the helpful sources for mobilizing the country's financial resources and provide the loan to business and services sectors. Bank can be defined as "financial store house" where the surplus units deposit their money and deficit units take the money on certain criteria. It can also be said that the bank is a financial reservoir of resources for the economic development. According to Oxford Dictionary of Business, 2<sup>nd</sup> Edition, bank is defined as "A commercial institution licensed as a taker of deposit. Banks are accepting deposits and receiving payments on behalf of their customers, accepting deposits making short-term loans to provide individuals, companies and other organizations." There are so many functions which the bank has been performing transaction loan card issuance, import letter of loan, issue of draft, etc. Out of all the above mentioned functions, the main function of every bank is to collect the deposit from public by giving some interest on deposited money and disburse the collected funds as loan and advances for a certain period of time.

The history of banking in Nepal may be described from the age of barter system. But the financial system is still in evolutionary stage in our country. Gold Smiths, Merchants and Money Lenders were the early bankers in Nepal. "Tejarath Addha" was the first institutional development of banking which was established during the period of Rana Prime Minister 'Randeep Singh' in 1933 B.S. Nepal Bank Limited came into existence as a public sector commercial bank with 49% ownership of public and 51% ownership of HMG/Nepal in 1994 B.S. At that time, Nepalese economy was characterized by the prevalence of dual currency system. There were great fluctuations in the open market rate of exchange of the Nepalese rupees face to face the Indian currency which provided great hindrance to the economic stability as well as development of the country. Thus, there was an immediate need of Central Bank. As a result, Nepal Rastra Bank was established as a Central Bank of the country in 2013 B.S. Then in 2016 B.S. the government established Nepal Industrial Development Corporation (NIDC). It worked as an industrial development bank with the package of both type of services such as financial and technical assistance to establish modern industries in private sector. Similarly, Rastriya Banijaya Bank (RBB) was set up in 2022 B.S. With a view of providing financial assistance for agriculture, Agricultural Development Bank of Nepal (ADB) was established in the government sector in 2024 B.S. The Security Exchange Centre (SEC) was set up in 2032 B.S. in order to provide the liquidity to government securities. At the same time, Employee's Provident Fund Corporation, Nepal Insurance Corporation and other institutions were established. These institutions contributed positively to the generation of outputs, employment, revenue and infrastructure in Nepal. These also helped to enhance the private sector but the growth rate of public sector was far faster than that of private sector.

In 1980 AD, government introduced "Financial Sector Reforms" which facilitated the establishment of different private sector financial institutions in Nepal. As a result, different commercial banks, insurance companies, development banks, co-operative societies and other financial institutions came into the scene of Nepalese economy. As of Mid-July 2011, 31 commercial banks, 79 finance companies, 87 development banks, 21 Micro Credit Development banks, 16 saving and Co-operative banks and 38 Non-Government Organization are established. Reforms were introduced with the changes in Commercial Bank Act 2031 B.S. and its amendment in 2041 B.S.

The entry barriers placed on commercial bank were eliminated. This change was introduced to allow both foreign banks and private sector to operate in the banking sector. However, foreign participation in the financial sector is only allowed with the Joint collaboration with domestic partners. The objective was to help transmit banking, managerial and technical knowledge in the economy. The immediate impact of policy was the number of joint venture commercial banks and private sector commercial banks that came into operation.

Nepal Arab Bank Ltd is the first private commercial bank in Nepal, which introduced computerized banking system and other modern technologies in this field. Nepal Arab Bank Ltd was set up in 2041 B.S. as a Joint venture with Dubai Bank Ltd. The door was opened for private sector commercial banks. Then whole lot of commercial banks was opened in Nepal.

## **1.2 Brief Profile of Sample Banks**

### **i) Nabil Bank Limited**

Nabil Bank Limited, the first foreign joint venture bank of Nepal, started operations in July 1984. It was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil bank provides a full range of commercial banking services through its 51 points of representation across the nation and over 170 reputed correspondent banks across the globe.

It was earlier known as Nepal Arab Bank Ltd. It has its head office located at Nabil Center, Durbar marg, which is also a premium location of the capital. With initial paid up capital of NRs.28 Million the bank has grown to become one of the largest capital based banks in the country today. In terms of asset size, net worth, profitability, deposit and lending portfolios the bank is regarded as one of the leading institutions. For financial year ending July 2012 Nabil Bank is perhaps the highest profit making private sector bank in Nepal posting a net profit of NRs.1,696 Million. As on date the bank's asset base and capital fund stand at NRs.63,200 Million and NRs.6,087 Million respectively. It has the largest staff among private commercial banks of Nepal. Paid up capital of Nabil bank as on FY 2068/69 is NRs 2,435,723,280. NB International, a foreign corporate body owns

50% shares of the bank. Financial Institutions and an Insurance company of Nepal own 30 % shares and the remaining is owned by the Nepalese general public.

The bank has 50 branches (including head office), 2 extension counters and 79 ATM scattered in different places in the country. The bank covers 23 districts of Nepal. The districts covered are Baglung, Banke, Bhaktapur, Chitwan, Dang, Dhanusha, Dolkha, Gorkha, Jhapa, Kailali, Kanchanpur, Kaski, Kathmandu, Lalitpur, Lamjung, Kavre, Lamjung, Makwanpur, Morang, Parsa, Rupandehi, Sunsari and Sankhuwasabha respectively.

Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business.

Operations of the bank including day-to-day operations and risk management are managed by highly qualified and experienced management team. Bank is fully equipped with modern technology which includes ATMs, credit cards, state-of-art, world-renowned software from Infosys Technologies System, Bangalore India, Internet banking system and Telebanking system.

The Bank has harnessed the expertise of its staff, taken suggestions from all the concerned including shareholders and NRB whose invaluable guidance has contributed to overall improvement in the Bank's performance. The Bank's strengths rest on its strong capital base, diversified clientele base, strong management and network as well as the trust & confidence earned from its stakeholders since the beginning. Year 2011/12 was full with chaos. Market for good lending remained flat during the year. Since country's main focus was towards drafting the new constitution, business activities and new ventures under the circumstances were experienced at lower level. This did not provide ample space for the Banks for robust growth. The Bank, understanding the ground reality, focused more on overall business consolidation and this gave the result which is one of the best in the industry for the year. The Bank, over the stretch of 28 years of experience, has garnered ideas and strategies to overcome such adverse situations. The best efforts put

in by staff of Nabil bank has enabled to achieve the status of becoming one of the major tax payers to government. This contribution to the nation brought smiles in the faces of those people who need government assistance the most. Nabil is driven by its corporate culture and governance. Nabil goes by international standards accounting and business norms. Nabil Bank has always been disclosure compliant and has received Best Presented Accounts Awards continuously for the last three years from the Institute of Chartered Accountants of Nepal, a regulatory body for Accounting and Auditing of the country. The Bank in true sense of term is following the best business practices and prudent Banking norms. Honors conferred on the Bank are proof of these facts. The Bank is always committed to achieve high and set even higher standards on its way of doing business. It has been possible for the Bank to march with strong footing because of the trust and confidence all our stakeholders have put in the Bank. In any environment Nabil is going far and wide extending its branches and business outlets to large economic zones, thus stimulating industries, trades and agricultures in the nation. This in effect is boosting up entrepreneurial and employment opportunities across diverse socioeconomic segments. There is a mutual and coordinated relation between the board and the management for common objective of the Bank that has always formed a strong bond to uphold the Bank's image. The employees of the Bank form a coordinated team and are given opportunity to be productive. They too grow together with the growth of the organization. The board has encouraged every one for better performance and has also extended its hand at any need of an individual or a group.

Finally, the year 2011/12 has continued to be a year of achievement for Nabil. The former governor late Kalyan Bikram Adhikary had played a key role in shaping its concept. Similarly first chairman of the Bank Mr. Sashi Narayan Shah through his rich knowledge and experience on economics as well as international banking sailed the bank smoothly during the thorny paths of its inception. Mr. G. S. Srivastav and Mr. S. C. Kabadkav, both past Executive Directors of the bank played key roles in taking the bank forward with wide vision and great mission. The past Board Member late Supriya Gupta, a true banker with rich international banking experience also had great contribution in meticulously drafting strategies that provided momentum in the bank's path to success.

## **ii) Nepal SBI Bank**

Nepal SBI Bank Ltd. is a subsidiary of State Bank of India which has 55 percent of ownership and rest is held by a local partner viz. Employee Provident Fund (15%) and general public (30%). In terms of the Technical Services Agreement between SBI and the NSBL, the former provides management support to the bank through its expatriate officers including Managing Director who is also the CEO of the Bank. Central Management Committee (CENMAC) consisting of the Managing Director, Chief Operating Officer, Chief Financial Officer and Chief Credit Officer oversee the overall banking operations in the Bank. The Bank is now having 538 Nepalese employees working in 56 branches, 6 extension counters, 3 Regional Offices & the Corporate Office.

Nepal SBI bank was incorporated as Public Limited Company at the Office of the Company Registrar on 28 April 1993 under Regn. No. 17-049/50 with an Authorized Capital of Rs.12 Crores and was licensed by Nepal Rastra Bank on 6 July 1993 under license No. NRB/I.Pa./7/2049/50. Nepal SBI bank commenced operation with effect from 7 July 1993 with one full-fledged office at Durbar Marg, Kathmandu with 18 staff members. Under the Banks & Financial Institutions Act, 2063, Nepal Rastra Bank granted fresh license to Nepal SBI classifying it as an "A" class licensed institution on 26 April 2006 under license No. NRB/I.Pra.Ka.7/062/63. The Authorized capital is Rs.300 crore and Paid up Capital is Rs.235 Crores.

State Bank of India (SBI), with a 200 year history, is the largest commercial bank in India in terms of assets, deposits, profits, branches, customers and employees. The Government of India is the single largest shareholder of this Fortune 500 entity with 61.58% ownership. SBI is ranked 60th in the list of Top 1000 Banks in the world by "The Banker" in July 2012.

The origins of State Bank of India date back to 1806 when the Bank of Calcutta (later called the Bank of Bengal) was established. In 1921, the Bank of Bengal and two other banks (Bank of Madras and Bank of Bombay) were amalgamated to form the Imperial Bank of India. In 1955, the Reserve Bank of India acquired the controlling interests of the Imperial Bank of India and SBI was created by an act of Parliament to succeed the Imperial Bank of India.

The SBI group, consists of SBI and five associate banks. The group has an extensive network, with over 20000 plus branches in India and another 173 offices in 34 countries across the world. As of 31st March 2012, the group had assets worth USD 359 billion, deposits of USD 278 billion and capital & reserves in excess of USD 20.88 billion. The group commands over 22% share of the domestic Indian banking market.

SBI's non- banking subsidiaries / Joint ventures are market leaders in their respective areas and provide wide ranging services, which include life insurance, merchant banking, mutual funds, credit cards, factoring services, security trading and primary dealership, making the SBI Group a truly large financial supermarket and India's financial icon. SBI has arrangements with over 1500 various international / local banks to exchange financial messages through SWIFT in all business centers of the world to facilitate trade related banking business, reinforced by dedicated and highly skilled teams of professionals.

### **Vision and Mission**

To be a state of the art, customer centric, values driven and professionally managed bank; committed to high standards of good corporate governance practices; perpetual enhancement of the wealth of all stakeholders and the society. Over the years, SBI have grown larger and stronger - in terms of business, geography and resources. This has been achieved by relying on the fundamentals of customer service of top order. The achievements have come through quality, consistency and transparency of capital base, sound liquidity, a robust risk management framework coupled with the practice of good corporate governance and above all, the tireless focus on customer satisfaction.

The Bank's mission is to provide one stop solutions to all the banking needs for the customer through a highly motivated professional and efficient human resource pool. Promoting sustainable business growth by providing High quality customer service, customer care and ensuring efficient use of Information Technology in a cost efficient manner. Meeting the expectations of all stakeholders through transparent, true and fair disclosures and responsive management, practices/principles. Strive to fulfill corporate social responsibility in Nepal with emphasis to growth in business.

### **1.3 Statement of the Problem**

Nepal is small country with small market. Economic condition of the country is degrading due to the conflict since 2052 B.S. Overall economic sectors either manufacturing or commercial have undergone heavy losses. However, the financial institutions are increasing regularly. Liquidity is at maximum level with the financial institutions. Hence, the banks and financial institutions are competing among themselves to advance loan to limited opportunity sectors. Due to the unhealthy competition among the banks, the recovery of bank loan is going towards negatives. Non-performing loan of the banks are increasing year by year. To control such type of state condition, the regulatory body of the banks and financial institutions, N.R.B. has renewed its directives of the loan loss provision. Since the objectives of the commercial banks are wealth maximization and achievement of organizational objectives contribute to the national economy. The success and failure of the commercial banks largely depends on the total loan risk management of the commercial banks. It is important to determine the factors affecting the default risk and its management. This study is focused on how Nabil Bank Ltd and SBI Bank Ltd manage the loan risk. Especially, the study is expected to reveal the following research questions.

- ❖ What are the main causes of highly increasing loan risk in Nabil Bank Ltd and SBI Bank Ltd?
- ❖ How the Nabil Bank Ltd and SBI Bank Ltd are managing the loan risk?
- ❖ Is the proper investment policies and practices does assist to increase the loan risk?
- ❖ How to make optimal management of loan risk?
- ❖ What is the loan management status of Nabil Bank and SBI Bank in general?
- ❖ What are the total compositions of loan of Nabil Bank and SBI Bank?
- ❖ What is the loan loss provision status that has been established by Nabil bank and SBI Bank?
- ❖ What is the effect that has been caused by non-performing assets of Nabil and SBI Bank on their profitability and liquidity managements?

#### **1.4 Objectives of the Study**

The primary objective of this study is to analyze loan risk management of Nabil Bank limited and SBI Bank Limited. The specific objectives of the present study are listed down as follows:

- ❖ To study the loan efficiency of Nabil Bank limited and SBI Bank Limited.
- ❖ To reveal recovery status of the loan disbursement of the Nabil Bank Ltd and SBI Bank Ltd.
- ❖ To compare and analyze the loan risk of Nabil Bank Ltd and SBI Bank Ltd.
- ❖ To analyze the relationship with loan and advances, non-performing loan and net profit of Nabil Bank limited and SBI Bank Limited.

#### **1.5 Significance of the Study**

There are thirty one commercial banks functioning in our country at present. Loan risk management is one of the main functions of Nabil Bank Ltd and SBI Bank Ltd where the whole banking business is rested upon. Thus the study on two commercial banks and especially in their loan risk management carry a great significance to the shareholders of the banks, to the banking professionals, to the students who want to know about loan risk management of Nabil Bank Ltd and SBI Bank Ltd. This study is expected to fill the research gap and add to the input to financial literature relating to loan risk management.

#### **1.6 Limitations of the Study**

This study has laid some hypothetical boundaries that are as below:

- ❖ Only Secondary data is used for study.
- ❖ The study is limited to Loan risk management of NABIL Bank and SBI Bank.
- ❖ The study mainly focuses on the importance and role of the loan risk management of NABIL Bank and SBI Bank.
- ❖ The study is associated only to the financial performance of NABIL Bank and SBI Bank.
- ❖ In this study, only selected financial tools and techniques are used.
- ❖ The data of last five years i.e. FY 2007/08-2011/12 are taken for the analysis.

## 1.7 Organization of the Study

This study has been organized into five different chapters. They are mentioned as below:

**Introduction:** Chapter first has been entitled as "Introduction" which deals with the general ideas about the banking sectors, general background of the study, statement of the problem, significance of the study, objectives of the study, limitation of the study.

**Literature Review:** Chapter second is "Literature Review" which gives the knowledge about the literature that has been studied during the course of the preparation of the thesis. This part portrays about the literature available in the study. It includes review of NRB articles, review of related studies, review of financial journals & economic articles and review of books.

**Research Methodology:** Third chapter is "Research Methodology" which comprises all the tools and techniques those have been adopted in the study. This chapter furnishes information about the research design, source of data, population & samples, method of data analysis employed in the study.

**Data Presentation and Analysis:** In the fourth chapter entitled "Data Presentation & Analysis", the data collected from the various sources are presented and processed it in readable and understandable form. The graphs, bar diagram, pie chart are drawn from the data obtained in this part of the study.

**Summary, Conclusion, and Recommendation:** The last chapter, i.e. fifth, is "Summary, Conclusion, Major Findings & Recommendation" in which the entire study is summed up. The conclusions acquired from the study are presented in this chapter. The major findings, for which the study had been carried, are also the subject matter of this chapter. After conducting the study, the researcher provides extremely vital recommendations to the scholars, relevant organizations and government in this part. Besides above chapters, bibliography and appendixes are also included.

## **CHAPTER - 2**

### **REVIEW OF LITERATURE**

The past decade has seen dramatic losses in the banking industry throughout the world. Firms that had been performing well suddenly announced large losses due to loan exposure that turned sour, interest rate positions taken or derivative exposures that may or may not have been assumed to hedge balance sheet risk. In response to this, commercial banks have almost universally embarked upon an upgrading of their risk management and control systems.

#### **2.1 Conceptual Review**

As this study follows with Loan Risk, here it is most important to open up the conceptual thought behind it.

##### **Concept of Loan**

Loan is the amount of money lent by the loanors to borrower either on the basis of security or without security. Loan and advances is an important item on the asset side of the balance sheet of commercial bank. Bank earns interests on loan and advances which is one of the major sources of income for banks. Bank prepares loan portfolio; otherwise it will not only effect debts but also affect profitability adversely. (Varshney, N.P .and Swaroop)

Loan is financial asset resulting from the delivery of cash or other assets by a lender to a borrower in return of obligation repay or specified date on demand. Bank generally grants loan on four ways :( Chhabra, T.N .and TANEJA)

- Overdraft
- Cash loan
- Direct loan
- Discounting of bills

For bank's overall corporate strategy and strategic plan at least three critical components are needed. They are :( Joseph)

- Business plan
- Framework for risk management
- Strategies for corporate control

These are the basic components provide a solid foundation for managing value and risk planning, it focuses in just an operating and competing in the financial services industry. The modern strategic approach also includes a framework for risk management and strategic for completing in the component fits for the modern idea of the basic business of banking as measuring, managing and accepting risk. The objective of the bank is to manage value and risk by maximizing those or eliminating those that destroy value.

The main task of commercial bank is to collect funds as deposit through several source and lend them to different sectors like; manufacturing, transportation, trade, construction, communication and other public utilities etc .Doing all these activities every bank has to face so many risks. There are several types of risks prevailed in the banking industry but the major area of the risk are widely recognized, i.e. loan risk, market risk, and operating risk etc.

The loan risk is the potential financial loss resulting from the failure of customers to honors fully the terms of loan or contract. On the other hand, the market risk includes balance sheet risk and trading risk such as potential risk to earn and capital resulting from changes in interest rate liquidity conditions, impact of foreign exchange rate fluctuations etc. Meanwhile operating risk arises from the natural disasters, errors in processing and settlement of transactions safeguarding assets, system failure, fraud and forgery.

### **2.1.1 An Overview on Loan Risk**

Loan risk is defined as the possibility that a borrower will fail to meet its obligations accordance with the agreed forms and conditions. Loan risk is not restricted to lenders doing activities only, but includes off balance sheet and inter bank exposures. The goal of loan risk management is to maximize the bank risk adjusted rate of return by maintaining the C.R.E. within acceptable parameters. For most banks, loan is the largest and most oblivious resources. However other sources of loan risk exist throughout the activities of bank including in the banking book and in the trading book and also in both on and off balance sheet. Banks are increasingly facing loan risk or counterpart risk in various financing, foreign exchange transaction and guarantee and the settlement of transactions.

Loan is regard as the most income generating assets especially in commercial bank. Loan

is regarded as the heart of commercial bank in the sense that, it occupies large volume of transactions. It covers the main part of investment. It is the main factor for creating profit and determining the profitability. It affect the overall economy.

In today's context, it also affects on national economy in some extent because if the bank provides loan to retailer, it will make the customer status. Similarly, it provides cash to trade and industry too. The government will get tax from them and help to increase national economy. It is also the security against depositors. It is supposed from the very beginning that, loan is the wealth maximization derivative. However, other factors can also affect profitability and wealth maximization but the most effective factor is regarded as loan risk. It is the most challenging task because it is the backbone in commercial banking. Thus effective management of loan should seriously be considered. Management is the system which helps to complete the task effectively. Loan risk management is also the system which helps to manage loan effectively. In other words, loan risk management refers the management of loan exposure arising from loans, corporate bodies and loan derivatives. Loan exposures are the main sources of investment in commercial banks and return on such investment is supposed to be main source of income.

### **2.1.2 Common Sources of Major Loan Problems**

Major banking problems have been either explicitly or indirectly caused by weaknesses in loan risk management. Severe loan losses in a banking system usually reflect simultaneous problems in several areas, such as concentrations, failures of due diligence and inadequate monitoring. Some of the most common sources of major loan problems are as follows:

#### **i. Concentration**

Concentrations are the single most important cause of major loan problems. Loan concentrations are viewed as any exposure where the potential losses are large relative to the bank's capital, total assets, and overall risk level. Relatively large losses may reflect not only large exposures, but also the potential for unusually high percentage losses.

Loan concentrations can further be grouped roughly into two categories:

- **Conventional loan concentrations** include concentrations of loans to single borrowers or counterparties, a group of connected counterparties, and sectors or industries, such as commercial real estate, oil and gas.

- **Concentrations based on common or correlated risk factors** reflect subtler or more situation-specific factors, and often cannot be covered through analysis. Disturbances in economic sector because of strikes, curfew, and blockade have also slowed down the business of the banks as well as the borrowers. Similarly, a highly leveraged borrower will produce larger loan losses for a given severe price or economic shock than a less leveraged borrower whose capital can absorb a significant portion of any loss.

## **ii. Loan Process Issues**

Many loan problems reveal basic weaknesses in the loan granting and monitoring processes. While shortcomings in underwriting and management of market-related loan exposures represent important sources of losses at banks, many loan problems would have been avoided or mitigated by a strong internal loan process.

Carrying out a thorough loan assessment (or basic due diligence) is a substantial challenge for all banks. For traditional bank lending, competitive pressures and the growth of loan syndication techniques create time constraints that interfere with basic due diligence.

The absence of testing and validation of new lending techniques is another important problem. Adoption of untested lending techniques in new or innovative areas of the market, especially techniques that dispense with sound principles of due diligence or traditional benchmarks for leverage, have led to serious problems at banks. Sound practice calls for the application of basic principles to new types of loan activity. Any new technique involves uncertainty about its effectiveness. That uncertainty should be reflected in somewhat greater conservatism and corroborating indicators of loan quality.

Some loan problems arise from subjective decision-making by senior management of the bank. This includes extending loans to companies they own or with which they are affiliated, to personal friends, to persons with a reputation for financial acumen or to meet a personal agenda, such as cultivating special relationships with celebrities.

Lack of effective loan review process is also one of the major sources of loan risk in the commercial banks. Loan review at banks usually is a department made up of analysts, independent of the lending officers, who make an independent assessment of the quality of a loan or a loan relationship based on documentation such as financial statements, loan analysis provided by the account officer and collateral appraisals. The purpose of loan review is to provide appropriate checks and balances to ensure that loans are made

in accordance with bank policy and to provide an independent judgment of asset quality, uninfluenced by relationships with the borrower. So, the lack of the effective loan review is also the key factors for higher loan risk.

A common and major source of the loan risk is the failure to monitor borrowers or collateral values. The negligence by the banks to obtain periodic financial information from borrowers or real estate appraisals in order to evaluate the quality of loans on their books and the adequacy of collateral has resulted banks failure to recognize early signs that asset quality was deteriorating and missed opportunities to work with borrowers to stem their financial deterioration and to protect the bank's position. This lack of monitoring led to a costly process by senior management to determine the dimension and severity of the problem loans and resulted in large losses.

In some cases, the failure to perform adequate due diligence and financial analysis and to monitor the borrower can result in a breakdown of controls to detect loan-related fraud. For example, banks experiencing fraud-related losses have neglected to inspect collateral, such as goods in a warehouse or on a showroom floor, have not authenticated or valued financial assets presented as collateral, or have not required audited financial statements and carefully analyzed them.

A related problem is that many banks do not take sufficient account of business cycle effects in lending. As income prospects and asset values rise in the ascending portion of the business cycle, loan analysis may incorporate overly optimistic assumptions. Industries such as retailing, commercial real estate and real estate investment trusts, utilities, and consumer lending often experience strong cyclical effects. Sometimes the cycle is less related to general business conditions than the product cycle in a relatively new, rapidly growing sector, such as health care and telecommunications. Effective stress testing which takes account of business or product cycle effects is one approach to incorporating into loan decisions a fuller understanding of a borrower's loan risk.

More generally, many loan problems reflect the absence of a thoughtful consideration of downside scenarios. In addition to the business cycle, borrowers may be vulnerable to changes in risk factors such as specific commodity prices, shifts in the competitive landscape and the uncertainty of success in business strategy or management direction. Many lenders fail to "stress test" or analyze the loan using sufficiently adverse assumptions and thus fail to detect vulnerabilities.

### **iii. Market and Liquidity-Sensitive Loan Exposures**

Market and liquidity-sensitive exposures pose special challenges to the loan processes at banks. Market-sensitive exposures include foreign exchange and financial derivative contracts. Liquidity-sensitive exposures include margin and collateral agreements with periodic margin calls, liquidity back-up lines, commitments and some letters of loan, and some unwind provisions of securitizations. The contingent nature of the exposure in these instruments requires the bank to have the ability to assess the probability distribution of the size of actual exposure in the future and its impact on both the borrower's and the bank's leverage and liquidity.

### **2.1.3 Loan Risk Management**

Financial environment is dynamic. In this dynamic financial environment fluctuation in interest rates, exchange rates and commodity and real estate price are not something new. These fluctuations in economic and financial variables destabilize the corporate strategies and performance of bank. Thus, it is necessary that bank has a framework of risk management. Effective loan risk management allows a bank to reduce risk and potential non-performing assets. Once bank understand their risk and their cost they will be able to determine their most profitable business. Therefore the bank must have an explicit loan risk strategy by organizational changes, risk measurement techniques and fresh loan processes and system. While talking about the loan risk management, five C'S of loan worthiness should be considered and they are:

#### **I. Character**

The good character and intention of the borrower is very important and thus should be seriously considered. Information about the character of the client can be gathered from his working place, references, neighbor and other places he is associated with. This job is tedious but should be carried out for secured investment.

#### **II. Capacity**

It can be described as customer ability to pay. It is measured by applicants past performance record. For this an interview with an applicants, customers and suppliers will further clarify the situation. The gross income, expenses and net income should be analyzed whether the borrower lives on salary/wages or any other forms of income

sources. Whether the borrower has extra income sources other than usual based which should be used to repay the scheduled installments should be considered.

### III. Capital

Capital provides a caution to absorb operating and assets losses that might otherwise impair debt repayment. Infact, this is the insurance against the loans granted to the borrowers.

### IV. Collateral

Sufficiency of collateral is necessary to ensure the recovery of loan. In case of default, by any cause, the collateral should have kept value enough to recover the loan granted and interest borne by it. It is recommended that only 50% of the value of collateral is granted as loan, but considering other factors like character of borrower and his loan worthiness, this percentage can be made flexible.

### V. Conditions

Borrower may be subjected to unfavorable economic conditions beyond their control. Repayment depends not only upon character, capacity and collateral but those factors over which the borrower exercise little or on control. As for example; natural calamities or drastic economic crises etc.

Risk depends upon the quality found in each ' C' and the combination of these five C's; assuming the same conditions prevails; the following guidelines are suggested.

**Table 2.1. Guidelines of Assessing Risk**

<b>Applicant character</b>	<b>Loan risk</b>
Character +capacity	Very low
Character +capacity without capital	Low to moderate
Character +capacity but insufficient capital	Low to moderate
Character +capital but impaired character	Moderate
Character +capital without character	High
Character +capital without capital	High
Character + No capital + No capacity	Very high
Capital + No character + No capacity	Very high
Capacity+ No character+ No capital	Fraudulent

#### **2.1.4 Loan Risk Management Techniques**

As the majority of the bank assets are in the form of loan, as the lending is function is simple and create the value of the bank. The main danger is the chance of the borrower not to pay the loan amount. So the proper prudent management of the loan risk is very important, Merton and Bodies have suggested three techniques for the management of the loan risk in their article published in the journal of Banking and Finance.

##### **Risk Based Pricing**

A pricing method used by financial corporations to determine the risk involved with a loan with regards to the interest rate. High creditworthiness debt holders will receive a lower interest rate than someone with lower creditworthiness, all else equal.

Risk-based pricing is a methodology adopted by many lenders in the mortgage and financial services industries. It has been in use for many years as lenders try to measure loan risk in terms of interest rates and other fees. The interest rate on a loan is determined not only by the time value of money, but also by the lender's estimate of the probability that the borrower will default on the loan. A borrower who the lender thinks is less likely to default will be offered a better (lower) interest rate. This means that different borrowers will pay different rates. In theory, borrowers who are safer or who are engaged in safer activities should be more likely to borrow and resources should therefore be allocated more efficiently.

##### **Assets Restriction**

Bank lenders and other loaners have a claim on the borrower's assets. As long as the market value of assets exceeds the value of liabilities, loaners are protected because proceeds from sell of assets cover the entire claim alternatively as long as positive net worth exists, business firms are not going to turn over the loaners assets that exceeds the value of claim against them .Thus one way for lenders to protect themselves is try to ensure that the value of assets always exceeds than the value of claims. Restriction amount of debt a borrower takes on and restricting the variability of the value of assets are the basic ways of meeting this objectives. Restricting covenants is long agreement and the strength of the bank's customer relationship are practical ways that lender impose assets restrictions or establish borrowers incentives for compliance.

## **Monitoring**

If lenders have a contractual right to monitor assets value continuously and to seize assets, then loan losses can be minimized either by auditing assets value and seizing assets before short falls exist or by requiring the posted value of collateral asset to equal or exceeds to the promised payment for private loan, which banks have considerable expertise in organization, monitoring without continuous surveillance is costly.

Before providing loan to customer, bank makes analysis of project from various aspects and angles. It will help the bank to see whether project is really suitable to invest or not. For that bank needs to do a project appraisal. The purpose of project appraisal is to achieve the guarantee of reasonable from the project. Project appraisal answers the following questions:

- Is the project technically sound?
- Will the project provide a reasonable return?
- Is the project in line with the overall economic objectives of the country?

Generally, the project appraisal involves the investigation from the following aspects. (Gautam, 2004:258)

- Financial aspects
- Economic aspects
- Management/Organizational aspects
- Legal aspects

### **2.1.5 General Risk Management Framework**

Management of risk begins with identification and its quantification. It is only after risks are identified and measured that may decide to accept the risk or to accept the risk at a reduced level by undertaking step to mitigate the risk either fully or partially. In addition pricing of the transaction. Hence management of risks may be sub-divide into following five processes.

- i. Risk identification
- ii. Risk measurement
- iii. Risk pricing

- iv. Risk monitoring and control
- v. Risk mitigation

Further approach to manage risk at transaction level i.e. at branch level where business transaction are undertaken and at aggregate level i.e. the sum of total of all transactions are undertaken at all branches differs .

**Risk Identification:** All transactions undertaken would have one or more of the major risks i.e. liquidity risk, interest rate risk, loan risk, operational risk, exchange rate risk and others with their manifestation indifferent dimensions. Although all these risks are connected at the transaction level and certain risks such as liquidity risk and interest rate risk can manage at the aggregate or portion level. Loan risk, operational risk and market risk arising from individual transaction, can manage at transaction level on portfolio level.

**Risk Measurement:** The risk measures seek to capture variations in earnings, market value, losses due to default etc. Arising out of uncertainties associated with various risk elements. Quantitative measures of risks can be classified into three categories.

**Sensitivity:** Sensitivity captures deviation of target unreadable due to unit movement of signal parameters. Only those parameters which derive the value of the target variable and relevant purpose. For e.g. change in market value due to 1% change in interest rate would be a sensitivity based measure.

**Volatility:** It is possible to combine sensitivity of target variable with the instability of underlying parameters. The volatility characterized the stability and instability of any random variables. The computations of historical volatility based on defined time series are given below.

$$\text{Volatility over a time horizon 'T'} = \text{Daily volatility} \times \text{Square root of 'T'}$$

**Downside Potential:** Downside only captures possible losses ignoring profit potential. The downside risk has two components potential losses and probability of occurrence. Potential losses may be estimated but difficulty lies in estimating probability hence downside risk measures require prior modeling of the probability distribution of potential

losses. Worst case scenario serves to quantify extreme losses but low probability of occurrence downside risk the most comprehensive measure of risk as it integrates sensitivity and volatility with the adverse effect of uncertainty. The value of risk measures downside risk.

**Risk Pricing:** Risk-based pricing, in the simplest terms, is alignment of loan pricing with the expected loan risk. Typically, a borrower's credit risk is used to determine if a loan application will be accepted or declined. That same risk level may also be used to drive pricing. This means charging a higher interest rate for a higher risk transaction and a lower rate for a lower risk transaction.

**Risk Monitoring and Control :** The key driver in managing a business is seeking enhancement in risk adjusted return on capital (RAROC). Therefore, approach to risk management cannot be isolated or in standalone mode. The approach to risk management centers on facilitating implementation of risk business policies simultaneously in a consistent manner. Modern best practices consist of setting risk limits based on economic measures of risk while ensuring best risk adjusted return. For risk monitoring and control, requires strong management information system/well laid out procedure/comprehensive risk report framework/periodical review and evaluation.

**Risk Mitigation:** Risk reduction is achieved by adopting strategies that eliminate or reduce the uncertainties associated with risk elements. This is called risk mitigation. In banking sector, it comes across a variety of financial instruments and nos. of techniques that can be used to mitigate risk. For mitigating loan risk, banks have been using traditional techniques such as collateralization by security or land property, real estate property and third party guarantees etc.

### **2.1.6 Loan Risk Management Framework**

Fluctuations in interest rate, exchange rate and commodity and real estate prices are not something new. However, fluctuation in economic and financial variables destabilized the corporate strategies and performance of the banks and their client customers. Thus, it is crucial to those banks have a framework for risk management and for selling risk

management services to their clients. Risk management can be conducted on a bank's balance sheet through adjustments in portfolio composition or off the balance sheet by using most of risk management weapons derived from the technology of financial engineering there off balance sheet tools of risk management are known as derivatives contract of activities or simply as 'derivatives'.(Joseph)

The risk management framework rests on three pillars,(Froot) are summarized as follows.

### **Making good investment decision creates corporate value**

For traditional banks, this means making locus and investments and for modern banks, it means this plus making good investment decision regarding their non-traditional activities e.g. investment banking, mutual funds and insurance derivatives.

### **Generating enough cash flows internally is the key to make the good investments**

Companies that do not generate cash flow internally tend to cut investment more substantially than their competitors do. In banking generating enough cash flow internally plays a critical role in maintaining a firm's capital adequacy. Adequate capital in turn is a prerequisite for expansion and making good investment. With respect to cost and control, banks with inadequate capital are subjected to higher deposit insurance premium greater regulatory scrutiny and possible takeover by outsiders.

### **Proper and prudent look at major market indicator**

Bank should look properly at major market indicator because adverse movements in external factors such as interest rate and commodity prices can disrupt cash flow, a company ability to invest be jeopardized.

### **2.1.7 Factors affecting loan policy**

The loan policy of a firm provides the framework to determine whether or not to extend loan and loan such to extend. The loan policy decisions of banks have two broad dimensions; loan standard and loan analysis. A firm has to establish and use standards to make loan decision, develop appropriate sources of loan information and methods of loan analysis.

Loan risk management strategy or the loan policy is a tool for analyzing and managing

the loan risk. Generally the following factors are to be considered to make effective loan risk management. It is also called the factors of loan policy. It helps to get effective loan worthiness.

### **Industry environment**

It determines the nature of the industry structure its attractiveness and the company's position within the industry, structural weakness of a company which is disadvantage, theaters first way out and security value

### **Financial conditions**

It determines the borrower's capacity to repay through cash flow as first way out. The strength of second way out i.e. through collateral liquidation is also assessed. Further the possibilities to fall bank an income of sister concern incase of financial crunch of the company condition threatens repayment capacity.

### **Management quality**

It determines the integrity, competence and nature of alliances of borrower's management team. Weakness in replacement needs to be evaluated.

### **Technical strength**

It determines the strength and the quality of the technical support required for sustainable operation of the company in terms of manpower, the viability of the technology uses, availability of after sale services, cost of maintenance and replacement need to be evaluated.

### **Security realization**

It determines the control over various securities obtained by bank to secure the loan provided excitability of the security documents and present value of the properties mortgaged with the bank. Weakness in security threatens the bank's second way out.

## **2.1.8 Directives of N.R.B. On Loan Aspect**

Commercial banks are heavily regulated than its non-bank competitors in the financial service industry. They are subjected to follow the operated regulation issued by the

regulation authority. N.R.B. is the regulating authority of Nepal. As per directives issued by N.R.B, loans and advances should be classified into the following four categories:

**Pass loan**

Pass loan and advances whose principle amounts are not past due for a period up to three months shall be included in this category. Those are classified and defined as performing loans.

**Substandard loan**

All loans and advances that are past due for a period of three to six months shall be included in this category. Those are classified non- performing loans.

**Doubtful loan**

All loans and advances which are past due for period of six months to one year shall be included in this category. Those loans are classified as non performing loan.

**Loss**

All loans and advances which are past due for a period of more than 1 year as well as advances which have at least possibility of recovery or considered unrecoverable and those having thin possibility of even partial recovery in future shall be included in this category. Those loans and advance are also classified as non performing loans.

The loan loss provision for performing loan is termed as general loss provision where as the loan loss provision for non performing loan is termed as specific loan loss provision. Auditor has to correctly rate the loan and ensure that accurate loan loss provision has been made. The auditor should examine whether the bank has obtained the complete documentation, so that the bank interest is secured. In addition audit is made to inspect compliance of terms and conditions laid down. Loan audit is required to check whether the loan is given within authority, drawing power etc. Loan audit helps the bank to adopt corrective measures where weakness has been pointed out and to focus further on strength.

On the basis of outstanding loans and advances classifications and provisioning for loan as per directives shall be provided as follows:

**Table No. 2.2**

**Outstanding Loans and Advances Classifications and Provisioning for Loan**

<b>Classification of loan</b>	<b>Loss provision</b>
Pass	1%
Substandard	25%
Doubtful	50%
Loss	100%

**2.2 Review of Previous Studies**

**2.2.1 Review of Articles and Journals**

*Mr. Shobha Bdr. Rana* explains in his article, "Risk management in banks: Tough and challenging", that Banking business by nature involves tradeoff between risk and return. Over-emphasis on return at the cost of increased level of risk beyond a limit is not appropriate from the risk management prospective. Similarly, from a business perspective, inability to take calculated risk for achieving best returns is also not a good situation. The ideal situation is to manage the business by achieving best returns and at the same time to manage the risks well.

Banks should continuously strive for a fine balance between risk and return. Based on the global, regional and our in-country experience of the last few years, it is quite obvious that the success/sustainability or failure of banks largely depends on how well various risks are managed under a highly competitive, challenging and fast-changing business environment. The saying "survival of the fittest" appears true for banking business under this kind of environment. Accordingly, banks have a lesson to learn from the past, and manage the risks in line with the changing business and risk environment.

Proper risk management helps in keeping the bank's financial results and reputation intact. It also helps in ensuring stakeholder's expectations, e.g. shareholders get return on investments; employees get rewards in line with their contribution, and regulatory requirements are met as prescribed. If the banks fail to manage their risks properly, it not only impacts the related banks and their stakeholders but also the country's economy.

There are various types of risks banks should manage to avoid negative impact on performance and sustainability. A simple example can be taken of the public notices issued by banks in newspapers relating to loan repayments and auctioning; these are directly linked to the credit risk of a bank.

**Mr. Sagar Raj Sharma** explains in his article, “Joint Venture Banks in Nepal coexisting of crowding out.” that it would be definitely un-wishful for Nepal not to let J.V.B. to operate in the country and not to take advantage of additional means of resources mobilization as well as harbingers of new in banking. But it will certainly be unfortunate for the country to let the development of the J.V.B. at the cost of the domestic banks so far one should admit frankly no differential treatment has been made to the domestic and J.V.B. at least from the latter’s bargaining.

If the Joint venture bank shows strength and weakness to come forward to share the trails and tribulation of this poor country, both types of bank will collapse and co-exist complementing each other, contributing to the nation’s accelerated development. On the contrary if the J.V.B. use their strength against treading to the cumber some path of development along with the domestic banks and government , they will eventually throw out the domestic banks from the more profitable and lucrative urban sectors unless reincarnated by the determination of the government. Mr. Sharma has read a comparative study of two different natures of banks; especially on nature of transaction and expertise in banking network J.V.B.’s basically were oriented in urban areas where the local banks are setup and conducted their transaction both in urban and remote areas. Moreover a number of commercial banks are situated in rural rather than urban areas.

**Mr. Tulashi Prasad Ghimire** describe in his article titled “ Loan Sector Reform and NRB”, has tried to explore the effect of change or amendment in NRB directives regarding loan classification and loan loss provisioning. “Although the circumstances lending to financial problems or crises in many Nepali bank differ in many respect what is common across most of bank is increased size of non performing assets. To resolve the problem of the loses or likely losses of this nature facing the industry NRB has as the central bank amended several old directives and issued many new circulars in the recent years.”

As opined by Mr. Ghimire, since majority of the loan, most of the commercial banks of the country at present fall under substandard doubtful and even loss categories. Loan loss provisioning now compared to previous arrangement would be dramatically higher. The new classification and provisioning norm help to strengthen bank financially. He added that we also most remember the old system from 1991 to 2001, which was probably the most volatile decade of the business operation of the country. He has indicated that loan loss provision as a percentage of total loan is 5.2% in fiscal year 2001 but in fiscal year 2003, it has jumped to 18.39%. If only private banks are considered, it is 2.12% in fiscal year 2001 where as it is 30% in fiscal year 2003. Mr. Gimire has also stated that tightening provisioning requirement on NPA is essential to ensure that banks remain liquid even during economic downturn.

**ShivaRaj Shrestha**, Director of NRB in his article titled “Modus Operand of Risk Appraisal in Bank Lending” has tried to highlight different aspect of loan risk management. As per Shrestha view, as the effective risk management central to good banking, the trade off between risk and return is one of the prime concern of any investment decision whether long-term or short term. He concludes effective loan risk management allows a bank to reduce risk and potential NPAs. It also offers the benefits. Once the banks have understand their risk and their costs, they will be able to determine their most profitable business. Thus price products must be charged according to their risks. Therefore, the bank must have an explicit loan risk strategy and supported by organizational changes, risk measurement techniques and fresh loan process and system. There are five crucial areas that management should focus on:

- a) Loan sanctioning and monitoring process
- b) Approaches to collateral
- c) Loan risk arise from new business opportunity
- d) Loan exposures relatives to capital or total advantages
- e) Concentration on correlated risk factors

Apart from these, the bank management should regularly review all assets quality issues including portfolio composition, big borrower exposures and development in loan

management policy and process. Mr. Shrestha is hopeful that the bankers adopt good risk management practices and will be able to reap both strategic and operational benefits.

**Mr. Ganesh Bahadur Thapa** in his article, "Financial System of Nepal" has expressed his view that the commercial banks including foreign J.V.B.'s seem to be doing pretty well in mobilizing deposits. Likewise, loan and advantages of these banks are also increasing but compared to the high loan needs particularly by the newly emerging industries, the banks still seem to lack adequate funds. The banks are increasing their lending to non-traditional along with traditional sectors.

He has also studied that out of all commercial banks operating in the country, Nepal Bank Ltd. and Rastriya Banijaya Bank are operating with nominal profit, the later turning towards negatives from time to time. Because of non-recovery of accrued interest, the margin between interest income and interest expenses is declining. They have heavy burden of personal and administrative overhead. On the other hand, foreign J.V.B.'s are functioning in an extremely efficient way. They are making huge profit year after year. Because of their effective persuasion on long recovery, overdue and defaulting loans have been limited resulting in high margins between interest income and interest payment.

**Krishna D. Bhattarai** has presented an article about the "Non- Performing Assets (NPA) Management". According to him, a loan is a very easy term for a borrower when he has already taken and for a lender not availed. It is equally difficult for a borrower to avail and for lender to recover. From a banker's view, it is just like a stone to roll down from the top of the hill while sanctioning, but too difficult to roll back the same stone to the top of the hill while recovering. A loan not recovered within the given timeframe either in the form of interest servicing or principal repayment is called non-performing loan. There are other parameters as well to quantify a NPL. Security not to the extent of loan amount with specified safety margin, value of security not realizable, possession not as per the requirement of bank, conflict of charges are some of the reasons which causes difficulties while recovering the loan.

According to Mr. Bhattarai, NPL of a bank is like a cancer in a human body, which will collapse the entire bank if not taken care in time. This is an important discipline in

banking to prevent the entire NPL or avoid situation for a loan to turn into NPL. Loan for banks is very essential to generate revenue for operational expenses as well as to provide return to the shareholders.

When a loan advanced from good money turns into a bad loan, the chances of shareholders return as well as the survival of the bank is at stake. Ailing banks cannot portray a better image in public. When a public loses the confidence on a bank and does not deposit, the bank will be in the verge of extinction. Therefore, deposits are the essence for a bank. A loan disbursed as good loan does not turn into bad overnight. It has certain course to turn into bad.

### **2.2.2 Review of Thesis**

*Lila Prasad Ojha (2002)*, has carried out research on “Lending practices: A study in Nabil Bank , Standard Chartered bank, and Himalayan Bank Limited.” The main objective of this study is :

- To analyze the various aspects of bank’s lending in various sector of economy, the individual banks performance regarding the lending quantity, quality, efficiency and its contribution in total income.

The findings of this study are:

- Over liquidity causes due to lack of good lending opportunities, risk arising to mismanagement of lending portfolio, increasing non- performing assets etc are some of the problem that is facing by Nepalese banking sector.
- The highest growth rate, proportionately high volume of loans and advances, the best contribution in priority and agricultural sector and the high level of deposits mobilization of HBL has put this bank in the top position in the lending function.
- However the better activity ratio of SCBNL has proved this bank the best in managing the lending portfolio according to the demand of profit oriented business.
- The high volume of lending activities and high volume of productive sector loan of NABIL has put the bank in the top position in absolute terms.

- The increasing provision on loan loss and high volume of non performing assets in NABIL & HBL certainly attracts the high attention of any person interested with these banks.
- The high volume of NPA of HBL may have caused due to the failure of industrial and agricultural sector. NABILs increased NPA may have caused due to the accumulated bad debts that is kept behind the curtain to show the high efficiency of management.”

**Niva Shrestha,(2004)**, entitled with “A study on Non Performing Loan and Loan Loss Provisioning of commercial Banks: with reference to Nepal Bank Limited, Nabil Bank Limited and Standard Chartered Bank Limited.” aims following objectives:

- The main objectives is to find out the proportions of non-performing loan, relationship between loan loss provision and loan and loss provision and profitability factors that affects to accumulate the nonperforming loans in selected banks.
- To point out the problems on commercial banks as Commercial banks/ financial institution in Nepal have been facing several problems like lack of smooth functioning of economy , different policies and guidelines of NRB , political instability , security problem , poor information system , over liquidity caused by lack of good lending opportunities, increasing non performing assets etc.

The findings of this study are:

- NBL has very high portion of non –performing loan resulting higher provision on comparison to NABIL and SCBNL. Even the NBL has highest investment in the most income generating assets i.e. Loans higher non- performing loans and provision which is higher than acceptable during the study period.

**Bikash Karki, (2006)**, entitled with "Lending Practices: A Study on NABIL Bank Ltd., SCBL Nepal Ltd. and Himalayan Bank Ltd." aims following objectives :

- To determine the liquidity position, the impact of deposit in liquidity and its effect on lending practices.
- To measure the bank's lending strength.

- To analyze the portfolio behavior of lending and measuring the ratios and volume of loans and advances made in agriculture and productive sector.
- To measure the lending performances in quality, efficiency and its contribution in total income.
- The study was conducted on the basis of secondary data.

The findings of the study are:

- The measurement of liquidity has revealed that the mean current ratio of all the three banks is not widely varied. All of them are capable in discharging their current liability by current assets.
- The measurement of lending strength in relative terms has revealed that the total liability to total assets of SCBNL has the highest ratio. The high ratio is the result of high volume of shareholder equity in the liability mix. Himalayan Bank Ltd. has high volume of saving and fixed deposits as compared to current deposit resulting into low ratio of non-interest bearing deposits to total deposits ratio compared to the combined mean.
- The loan advances, and investment to deposit ratio has shown that NABIL Bank Ltd. has developed the highest proportion of its total deposits in earning activities. This is the indicative of that in fund mobilizing activities NABIL Bank Ltd. is significantly better.
- The lending in commercial purpose is highest in case of NABIL Bank Ltd. and least in case of SCBNL has highest contribution in service sector lending. It has contributed 25.47% of its total loan in general use and social purpose.

**Mahesh Joshi (2008)**, entitled with “*A Study on Loan Practices of Joint Venture Commercial Banks with reference to Nepal SBI Bank Ltd. and Nepal Bangladesh Bank Ltd.*”

The basic objectives of this study are:

- To determine impact of deposit in liquidity and its effect on lending practices.
- To know the volume of contribution made by both bank in lending.
- To examine lending efficiency and its contribution in profit.
- To analyze trend of deposit utilization towards loan and advances and net profit and their projection for next five years.

The major findings of this study are:

1. In terms of liquidity ratio, current ratio of NSBL is higher than that of NBBL. The ratio of liquid fund to current liability of NSBL is higher than NBBL. This shows that NBBL has less consistency than NSBL. The ratio of cash and bank balance to deposit of NSBL is higher than that of NBBL. Cash and bank balance to interest-sensitive deposit measures the liquidity risk arising from fluctuation of interest rate in the market. The ratio of cash and bank balance to interest sensitive deposit of NSBL is higher than NBBL. NSBL has poor position due to high volume of interest sensitive liability in deposit mix.
2. The ratio of loans and advances to total assets of NBBL is higher than NSBL. Likewise mean ratio of loans and advances to total deposit of NBBL is higher than NSBL. Likewise the ratio of total investment to total deposit of NSBL is higher than that of NBBL.
3. The ratio of loan to government enterprises to total loan of NBBL is higher than that of NSBL. The mean ratio of loan to bills paid and discount to total loan ratio of NBBL is higher than that of NSBL. NSBL has contributed 95.91% in private sector loan, 2.51% in government sector loan and 1.56% in bills paid and discounts. Likewise NBBL has contributed 90.83% in private sector loan, 4.29% in government sector loan and 4.84% in bills paid and discounts.
4. Among the various measurement of profitability ratio return on equity (ROE) and earnings per share (EPS) reflects the relative measure of profitability. The performance of NBBL is better than NSBL. Return on equity and earnings per share of NBBL are higher than that of NSBL in all years.
5. Co-efficient of correlation between deposit and loans & advances of both banks have positive value. Also co-efficient of correlation between total income and loans & advances of both bank have positive relation. Coefficient of correlation between net profit and loans & advances of NSBL is negative as other variables like increase in interest suspense and loan loss provision affects net profit.

Coefficient of correlation between net profit and loans & advances of NBBL is positive.

6. Trend analysis of total deposit of NSBL and NBBL are found in increasing trend. The increment ratio on deposit of NSBL is lower in comparison to NBBL.

**Sunil Giri, (2012)**, entitled with *"Lending policy of Joint Venture Banks"*. The main objective of his study is to analyze the fund mobilizing policy adopted by NABIL and Himalayan Bank Limited. The specific objectives of the study are as follows:

- To measure the relationship of total deposits with total investment, loan and advances and net profit.
- To evaluate the comparative growth ratio on total investment, loans and advances, total deposits and net profit of HBL and NABIL Bank Limited.
- To evaluate financial and investment efficiency, profitability and liquidity position of HBL and NABIL Bank Limited.
- To analyze the sources and uses of funds of HBL and NABIL Bank Limited.

The major findings of this study are:

- The mean ratio of cash and bank balance to total deposits and investment on government securities of HBL is more consistent and that of NABIL.
- The average study of cash and bank balance to current assets ratio, investment on government securities, the mean ratio of loan and advances to total deposits, the mean ratio of investment on government securities to total working fund, return on loan and advances and return on working funds HBL is more consistent than that of NABIL.
- The mean ratio of total interest paid to total working fund, liquid funds, correlation coefficient between deposit and total investment, between deposit and loan and advances, growth rate of loan and advances and liquidity risk ratio of HBL is higher than NABIL.
- But the capital fund, yearly growth rate of net profit of NABIL is better in comparison to HBL. The total deposits to total investment ratio of HBL and NABIL are in increasing trend.

- There is significant difference between mean ratios of loan and advances to total deposits and total investment to total deposit of HBL and NABIL.

### **2.3 Research Gap**

From the study of previous thesis it has found that increasing loan risk management is one of the major challenges faced by Nepalese commercial banks in the present context. Some researchers were done in which matter relating to loan loss provision for loan risk management or not. Some researcher was done what is the internal and external factors affect the loan risk management to increase from the loan advances. The previous thesis covered only upto the fiscal year 2010/11 but this thesis also based on secondary data provided by concerned Nepalese commercial banks up to the fiscal year 2011/12. Hence this thesis had attempted to fill this research gap by taking the reference of Nabil Bank limited and SBI Bank Limited. This research will be able to deliver some of the present issue, latest information and data relating to loan risk management.

## **CHAPTER - 3**

# **RESEARCH METHODOLOGY**

Research methodology is a way to systematically solve the research problem. It refers to the various sequential steps that are to be adopted by a researcher during the course of studying the problem with certain objectives. This chapter refers to the overall research method from the theoretical aspects to the collection and analysis of data. This study covers quantitative methodology in a greater extent and also uses the descriptive part based on both technical aspects and logical aspect. This research tries to perform a well-designed quantitative and qualitative research in a very clear and direct way using both financial and statistical tools

### **3.1 Research Design**

A research design is the specification of methods and procedures for acquiring the information needed. It is the overall operational pattern of framework for the project that stipulates what information is to be collected, from which sources and by what procedures. Thus a research design is a plan for the collection and analysis of data. There exists different types of research design like; historical research, descriptive research, case study research, field study research, analytical research, true experimental research and so on.

This study is the combination of historical, descriptive and analytical type of research. The main objective of research design is to make analysis in loan risk of Nabil Bank and SBI Bank and provide valuable recommendation. Since only two banks have been selected for the study, this study is a comparative study between these two banks in loan risk management system.

### **3.2 Population and Sample**

A research population is also known as a well-defined collection of individuals or objects known to have similar characteristic. It is the collection or the aggregate of objects or the set of results of an operation. Sample is the representative part of population selected from it with the objective of investigating its properties. If some elements are selected with the intention of finding out something about the population from which they are

taken then that group of element is called a sample. Thus, a sample is just a portion of the universe selected with a view to draw conclusions about the universe under study. Hence, it is a representative selection of a population that is examined to gain statistical information about the whole. At present, the total number of object in the general topic deals with the commercial banks. There are all together 31 commercial banks in Nepal .Out of these total commercial banks some selected banks are selected as the sample.. Nabil Bank limited and SBI Bank Limited are taken as a sample for this study.

### **3.3 Nature and Sources of Data**

This study is based on secondary data. The annual reports of Nabil bank and SBI bank are the major sources of the data for the study. However, beside the annual reports of the respective banks, the following sources of data are also considered.

1. NRB reports
2. Various publications dealing in the subject matter of study
3. Various Articles published in the newspaper
4. Different websites
5. Previous related Thesis

### **3.4 Data Collecting Procedures**

Secondary data collected from the above mentioned sources are presented systematically in tabular and graphical form. The secondary data of Nabil bank and SBI bank are analyzed by using both financial and statistical tools.

### **3.5 Data Analysis Tools**

For the achievement of the study various financial and statistical tools are applied. The analysis of data is done according to the pattern of available data. The descriptions of financial as well as statistical tools are as follows:

**Arithmetic Mean:**

Arithmetic mean or simply a 'Mean' of a set of observation is the sum of all the observation divided by the number of observation. It is the best value, which represent to the whole group.

The Arithmetic Mean of loan, deposits, net profit, non-performing loan, loan loss provision etc. have been calculated in this study. It is computed by using following formula:

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} \quad \text{Where } \bar{X} = \text{Mean}$$

$$\sum X = \text{Sum of all the Variable X}$$

$$n = \text{Variables involved}$$

**Standard Deviation:**

Standard Deviation has been used wherever the mean is calculated to study the deviation of the data from the mean. Here, standard deviation is used as a measure of dispersion. It has also been used as a measure to identify the risk. Higher the deviation greater the risk and vice versa. Mathematically, it is defined as the positive square root of their arithmetic mean of squares of the deviation of the given observations from their arithmetic mean of a set of value. Here, it is denoted by the letter sigma ( $\sigma$ ).

It can be computed by using following formula

$$S.D(.) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2}$$

Greater the magnitude of standard deviation, higher will be the fluctuation and vice versa.

**Coefficient of Correlation:**

For making inference about the relationship between loan and loan loss provisioning, non-performing loan and loan loss provisioning correlation coefficient has been computed. Here, Coefficient of Correlation has been used as a tool to measure the degree of relationship between two variables. In other words, this tool is used to describe the degree to which one variable is linearly related to other variables. Two or more variables

are said to be correlated if change in the value of one variable appears to be linked with the change in the other variables. Pant and Chaudhary (2000) define correlation analysis as the closeness of the relationship between the variables. Correlation may be positive or negative and ranges from -1 to +1.

- Correlation may be positive or negative and ranges from -1 to +1. When  $r = +1$ , there is perfect positive correlation; when  $r = -1$ , there is perfect negative correlation; when  $r = 0$ , there is no correlation and when  $r < 0.5$  then there is low degree of correlation.
- When 'r' lies between 0.7 and 0.999 (or -0.7 and -0.999), there is high degree of positive (or negative) correlation.
- When 'r' lies between 0.5 and 0.699, there is a moderate degree of correlation.

The simple correlation coefficient,  $r$ , is calculated by using following formula:

$$\text{Simple Correlation Coefficient (r)} = \frac{n\sum X_1 X_2 - (\sum X_1)(\sum X_2)}{\sqrt{n\sum X_1^2 - (\sum X_1)^2} \sqrt{n\sum X_2^2 - (\sum X_2)^2}}$$

Alternately,

$$r = \frac{\text{Cov}(X_1, X_2)}{\sqrt{\text{Var}X_1} \sqrt{\text{Var}X_2}}$$

Where,

$$\text{Covariance (X}_1, \text{X}_2) = \frac{1}{n} \sum (X_1 - \bar{X}_1)(X_2 - \bar{X}_2)$$

$n$  = Total number of observations.

$X_1$  and  $X_2$  = two variables, correlation between them are calculated.

### **Probable Error**

In this study, Probable Error has been used for testing the reliability of value of correlation coefficient of non-performing loan and loan loss provisioning, loan and loan loss provisioning. Though it is an old measure of ascertaining the reliability of the value of coefficient of correlation, the technique has been used because of its simplicity. The test of probable error has been made by following ways:

If  $r$  is the calculated correlation coefficient in a sample of  $n$  pairs of observations then its standard error, usually denoted by S.E. ( $r$ ) is given by,

$$\text{S.E.} = \frac{1-r^2}{\sqrt{N}}$$

Where,

$r$  = correlation coefficient

$n$  = Number of observation

Probable Error (P.E.) of the coefficient of correlation can be calculated from Standard Error of the coefficient of correlation by the following formula,

If  $r < P.E.$  , the value of  $r$  is not all significant

$P.E. = 0.6745 \times S.E.$

P.E. may be used to test if calculated value of sample correlation coefficient is significant. A few rules for the interpretation of the significance of correlation coefficient are as follows,

- i. If  $r > P.E.$  , the value of  $r$  is definitely significant
- ii. In other situations, nothing can be calculated with certainty.

P.E may lead to fallacious conclusions particularly when the number of pairs of observation is small. Also the probable error of correlation coefficient may be used to determine the limits within which the population correlation coefficient may be expected to lie. Limits for population correlation coefficient are  $r = \pm P.E.$

### **Ratio Analysis**

In this study, various ratios have been used as per requirement. The major ratios used in this study includes:

- i. Loans and advances to Total Asset Ratio
- ii. Loans and Advances to Total Deposit Ratio
- iii. Non-performing Loan to Total Loans and advances Ratio
- iv. Loan Loss Provision to Non Performing Loan Ratio
- v. Loan Loss Provision to Total Loans and Advances
- vi. Return on Loan & Advances

## **CHAPTER 4**

### **PRESENTATION AND ANALYSIS OF DATA**

This is the section where, the filtered data are presented and analyzed. This is one of the major chapters of this study because it includes detail analysis and interpretation of data from which concrete result can be obtained. This chapter consists of various calculation made for the analysis of loan risk management of the Nabil bank and SBI bank. To make our study effective, precise and easily understandable, this chapter is categorized in three parts; presentation, analysis and interpretation. The analysis is fully based on secondary data. In presentation section data are presented in terms of table. The presented data are then analyzed using different statistical tools mentioned in chapter three. At last the results of analysis are interpreted.

#### **4.1 Comparative Analysis of Loan Risk**

Loan risk is simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. The goal of loan risk management is to maximize a bank's risk-adjusted rate of return by maintaining loan risk exposure within acceptable parameters. Banks need to manage the loan risk inherent in the entire portfolio as well as the risk in individual loans or transactions. Banks should also consider the relationships between loan risk and other risks. The effective management of loan risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization.

The key performance indicators of loan performance of NABIL bank and SBI bank are as follows:

##### **4.1.1. Ratio Analysis**

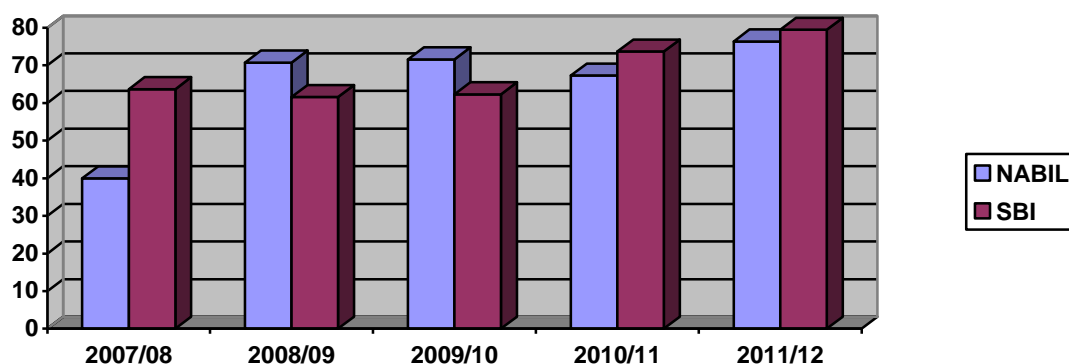
###### **i. Loans and Advances to Total Asset Ratio**

The ratio of loans and advances to total assets measures the volume of loans and advances in the structure of total assets. The high degree of ratio indicates the good performance of the banks in mobilizing its fund by way of lending functions. However, in its reverse side, the high degree is representative of low liquidity ratio. Granting Loans and advances always carry a certain degree of risk. The lower ratio is indicative of lower proportion of income generating asset and high degree of safety in liquidity and vice versa.

**Table 4.1****Loans and Advances to Total Asset Ratio (%)****(Rs. in Million)**

Fiscal Year	NABIL Bank			SBI Bank		
	Loan & Advances	Total Asset	Ratio (%)	Loan & Advances	Total Asset	Ratio (%)
2007/08	265.73	665.4	39.94	498	782	63.68
2008/09	1,126.60	1592.7	70.74	680	1104	61.59
2009/10	2,137.59	2986	71.59	1,495	2400	62.29
2010/11	3,697.98	5494.1	67.31	2,541	3449	73.67
2011/12	5,681.01	7437.88	76.38	5,130	6456	79.46
		<b>Mean</b>	<b>65.13</b>		<b>Mean</b>	<b>68.14</b>
		<b>S.D.</b>	<b>12.95</b>		<b>S.D.</b>	<b>7.15</b>
		<b>C.V.</b>	<b>19.88 %</b>		<b>C.V.</b>	<b>10.49%</b>

Source: Annual Reports, F/Y 2007/08 to 2011/12

**Figure 4.1****Loans and Advances to Total Asset Ratio (%)**

Above table No. 4.1 exhibits the loans and advances to total assets of two commercial banks for five consecutive years. This ratio shows the increasing trend in SBI where as NABIL shows the fluctuating trend. The overall ratio of NABIL is 65.13% where as ratio in SBI is 68.14%. From this, it is clear that out of total asset in balance items the proportion of loans and advances is higher in SBI as compared to NABIL. This means that the loan risk is slightly higher in SBI as compared to NABIL. It also infers that the NABIL has invested in the risk free asset such as Treasury bills, debentures, National Saving bonds etc.

Likewise, the standard deviation of NABIL and SBI are 12.95 and 7.15 percentage respectively. This indicates that the ratio deviate more from the average in case of NABIL than SBI. The Coefficient of Variation (C.V.) is 19.88 % and 10.49 % in NABIL and SBI respectively, which means that per unit variation of the ratio of NABIL is more than that of SBI. These indicate that the loan and advances to total asset ratio of NABIL has more variation than that of SBI, which means higher risk in case of NABIL than SBI.

## ii. Loans and Advances to Total Deposit Ratio

The core banking function is to mobilize the funds obtained from the depositors to borrowers and earn profit and loan and advances to total deposit ratio, often called Loan Deposit ratio (CD ratio), is the fundamental parameter to ascertain fund deployment efficiency of commercial bank. In other words, this ratio is calculated to find out how successfully the banks are utilizing their total deposits on loan or loans and advances for profit generating purposes as loans and advances yield high rate of return. Greater CD ratio implies the better utilization of total deposits and better earning, however, liquidity requirements also needs due consideration. Hence 70- 80 % of CD ratio is considered as appropriate. This ratio is calculated by dividing total loan by total deposits.

**Table 4.2**

### **Loans and Advances to Total Deposit Ratio (%)**

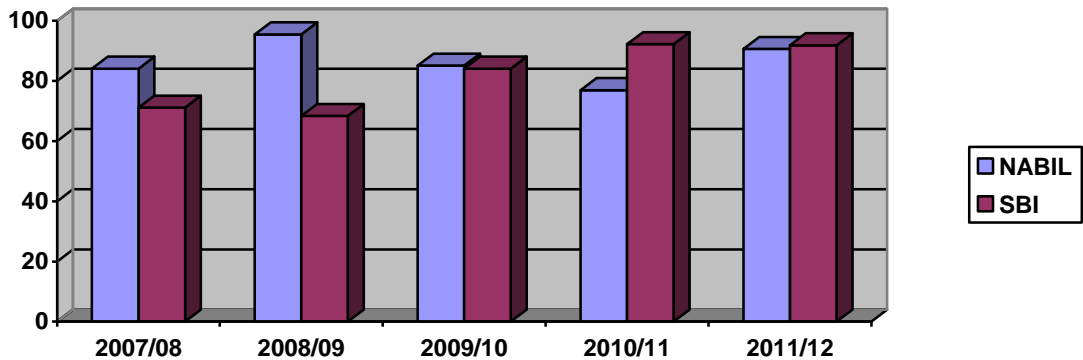
(Rs.in Million)

<b>Fiscal Year</b>	<b>NABIL Bank</b>			<b>SBI Bank</b>		
	<b>Loan &amp; Advances</b>	<b>Total Deposit</b>	<b>Ratio (%)</b>	<b>Loan &amp; Advances</b>	<b>Total Deposit</b>	<b>Ratio (%)</b>
2007/08	265.73	316.10	84.07	498	700	71.14
2008/09	1,126.60	1,179.89	95.48	680	995	68.34
2009/10	2,137.59	2,513.14	85.06	1,495	1778	84.08
2010/11	3,697.98	4,807.94	76.91	2,541	2755	92.23
2011/12	5,681.01	6,268.95	90.62	5,130	5587	91.82
		<b>Mean</b>	<b>86.43</b>		<b>Mean</b>	<b>81.52</b>
		<b>S.D.</b>	<b>6.29</b>		<b>S.D.</b>	<b>10.09</b>
		<b>C.V.</b>	<b>7.28%</b>		<b>C.V.</b>	<b>12.38%</b>

Source: Annual Reports, F/Y 2007/08 to 2011/12

**Figure 4.2**

**Loans and Advances to Total Deposit Ratio (%)**



Above table exhibits that the loans and advances to total deposit ratio of two commercial banks for 5 consecutive years. The loans and advances to total deposit ratio of both banks are fluctuating. The NABIL has the highest CD ratio of 95.48 % in fiscal year 2008/09 where as the SBI has the highest CD ratio of 92.23 % in fiscal year 2010/11. The average CD ratio of NABIL and SBI for 5 years is 86.43 % and 81.52 % respectively. The NABIL has higher CD ratio than SBI this means that the NABIL has utilized its deposit higher than SBI. This again means that the NABIL also has the higher risk than SBI.

**iii. Non-Performing Loan to Total Loans and Advances Ratio**

This ratio determines the proportion of non-performing loans in the total loan portfolio. As per Nepal Rastra Bank directives the loans falling under category of substandard, doubtful and bad loan are regarded as non-performing loan. Higher the ratio implies the bad quality of assets of banks in the form of loans and advances. Hence the lower NPL to total loan ratio is preferred.

**Table 4.3**

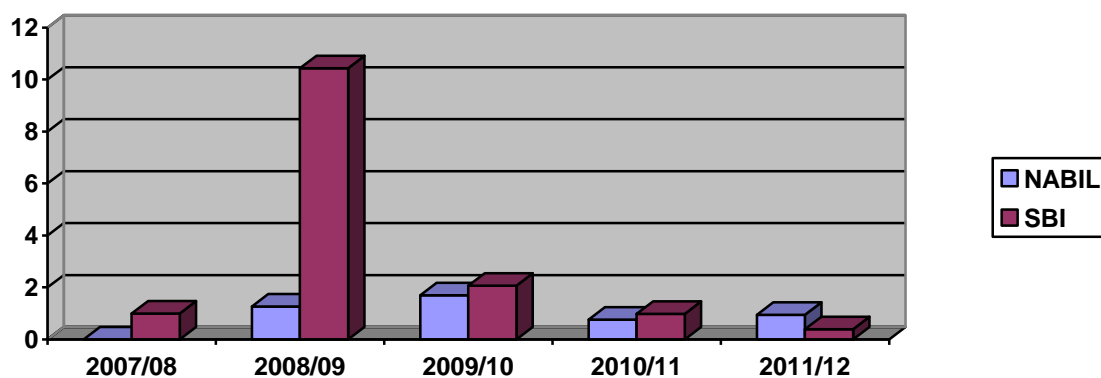
**Non-Performing Loan to Total Loans and Advances**

**(Rs. in Million)**

Fiscal Year	NABIL Bank			SBI Bank		
	NPL	Loan & Advances	Ratio (%)	NPL	Loan & Advances	Ratio (%)
2007/08	-	265.73	-	5.00	498	1.00
2008/09	14.33	1,126.60	1.27	71.00	680	10.44
2009/10	36.32	2,137.59	1.70	31.00	1,495	2.07
2010/11	28.19	3,697.98	0.76	25.00	2,541	0.98
2011/12	53.99	5,681.01	0.95	20.00	5,130	0.39
		<b>Mean</b>	<b>0.94</b>		<b>Mean</b>	<b>2.98</b>
		<b>S.D.</b>	<b>0.57</b>		<b>S.D.</b>	<b>3.77</b>
		<b>C.V.</b>	<b>60.64%</b>		<b>C.V.</b>	<b>126.51%</b>

Source: Annual Reports, F/Y 2007/08 to 2011/12

**Figure 4.3 Non-Performing Loan to Total Loans and Advances**



Above table exhibits the ratio of non-performing loans to total loans and advances of NABIL and SBI for five consecutive years. It is found that the NPL of both NABIL and SBI is in decreasing trend though the loans and advances are in increasing trend. The average NPL ratios of NABIL and SBI are 0.94, 2.98 % respectively. It can be inferred that the average NPL of SBI is higher than that of NABIL. This is the highest amount of NPL in fiscal year 2008/09 (i.e. 10.44). But in more recent years the NPL of the SBI has been decreasing significantly.

The standard deviation of NABIL and SBI are 0.57 and 3.77 where as the coefficient of Variation (C.V.) are 60.64 % and 126.51 % respectively. Thus it portrays that NABIL ratios deviate less from the average ratio than that of SBI, which refers to less risk to NABIL.

#### iv. Loan Loss Provision to Non Performing Loan Ratio

This ratio determines the proportion of provision held to non-performing of bank. This ratio measures up to what extent of risk inherent in NPL is covered by total loan loss provision. The higher the ratio, the better cushion that the bank provides for recovering from loss caused by NPL. Hence higher ratio signifies the better financial position of bank.

**Table 4.4**

#### **Loan Loss Provision to Non-Performing loan (%)**

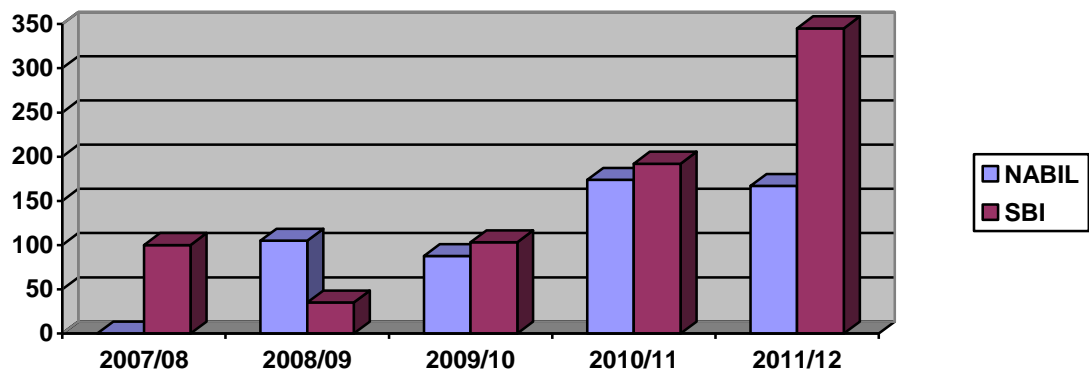
**(Rs in Million)**

<b>Fiscal Year</b>	<b>NABIL</b>			<b>SBI</b>		
	<b>LLP</b>	<b>NPL</b>	<b>Ratio (%)</b>	<b>LLP</b>	<b>NPL</b>	<b>Ratio (%)</b>
2007/08	2.66	-	-	5.00	5.00	100.00
2008/09	15.05	14.33	105.02	25.00	71.00	35.21
2009/10	31.85	36.32	87.68	32.00	31.00	103.23
2010/11	48.98	28.19	173.74	48.00	25.00	192.00
2011/12	90.06	53.99	166.81	69.00	20.00	345.00
		<b>Mean</b>	<b>106.65</b>		<b>Mean</b>	<b>155.09</b>
		<b>S.D.</b>	<b>63.02</b>		<b>S.D.</b>	<b>107.26</b>
		<b>C.V.</b>	<b>59.09%</b>		<b>C.V.</b>	<b>69.16%</b>

*Source: Annual Reports, F/Y 2007/08 to 2011/1*

**Figure 4.4**

**Loan Loss Provision to Non-Performing loan (%)**



Above table shows the ratio of provision held to non- performing loan of NABIL and SBI for five consecutive years. It depicts that the SBI has the higher ratio in all years except in fiscal year 2007/08 and 2008/09. The NPL ratio of NABIL is more fluctuating than the SBI. The NPL ratio of SBI is highest of 345% in fiscal year 2011/12 where as the provisioning of NABIL is highest of 173.74 in fiscal year 2010/11. The overall ratios of NPL of NABIL and SBI are 106.65 and 155.09 percent respectively. This shows that SBI has provided higher cushion of provisioning to non-performing loan compared to NABIL. The standard deviation of NABIL and SBI are 63.02 and 107.26 respectively. It shows there exists the higher deviation in this ratio in context of SBI than NABIL. The coefficient of variation of NABIL and SBI is 59.09 % and 69.16 % respectively, which reflects that NABIL’s Loan Loss Provision to Non-performing loan ratio fluctuate more from the average than that of SBI.

**v. Loan Loss Provision to Total Loans and Advances**

This ratio indicates the amount of Loan Loss Provision, a cushion for the possibility of default, to total loans and advances of a bank. Since high provision has to be made for non-performing loan, higher provision for loan loss reflects increasing non-performing loan in volume of total loans and advances. The low ratio signifies the good quality of assets in the volume of loans and advances and makes efforts to cope with probable loan loss. Higher ratio implies that the bank has the higher proportion of NPL in bank loan portfolio.

**Table 4.5**

**Loan Loss Provision to Total Loan and Advances (%)**

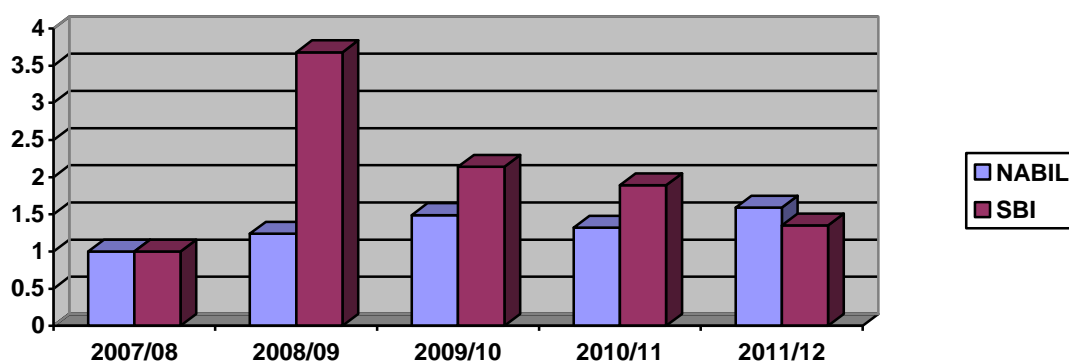
**(Rs. in Million)**

Fiscal Year	NABIL			SBI		
	LLP	Loan & Advances	Ratio (%)	LLP	Loan & Advances	Ratio (%)
2007/08	2.66	265.73	1.00	5.00	498	1.00
2008/09	15.05	1,126.60	1.34	25.00	680	3.68
2009/10	31.85	2,137.59	1.49	32.00	1,495	2.14
2010/11	48.98	3,697.98	1.32	48.00	2,541	1.89
2011/12	90.06	5,681.01	1.59	69.00	5,130	1.35
			<b>Mean</b>	<b>1.35</b>		
			<b>S.D.</b>	<b>0.20</b>		
			<b>C.V.</b>	<b>14.82%</b>		
				<b>Mean</b>	<b>2.01</b>	
				<b>S.D.</b>	<b>0.92</b>	
				<b>C.V.</b>	<b>45.77%</b>	

Source: Annual Reports, F/Y 2007/08 to 2011/12

**Figure 4.5**

**Loan Loss Provision to Total Loan and Advances (%)**



From above table, it is found that the both banks have least portion of loan loss provision. It shows both banks have least amount of non-performing loan. The average LLP to total loan and advances ratio is 1.35 and 2.01 percent of NABIL and SBI respectively. The ratio is higher in SBI than NABIL. This higher ratio reflects that the SBI has higher non-performing loan compared to NABIL.

Likewise the Standard deviation and coefficient of Deviation of NABIL are 0.20 and 14.82% respectively, which is lower than that of SBI (i.e 0.92 and 45.77% of Standard deviation and coefficient of deviation respectively). From this, it is clear that the SBI has higher risk than that of NABIL.

#### vi. Return on Loan & Advances

This ratio indicates how efficiently the bank has employed its resources in the form of loans and advances. This ratio is calculated by dividing net profit of the bank by total loan and advances. Net profit refers to that profit which is obtained after all types of deduction like employee bonus, tax, provision etc. Hence this ratio measures bank's profitability with respect to loans and advances. Higher the ratio better is the performance of the bank.

**Table 4.6**

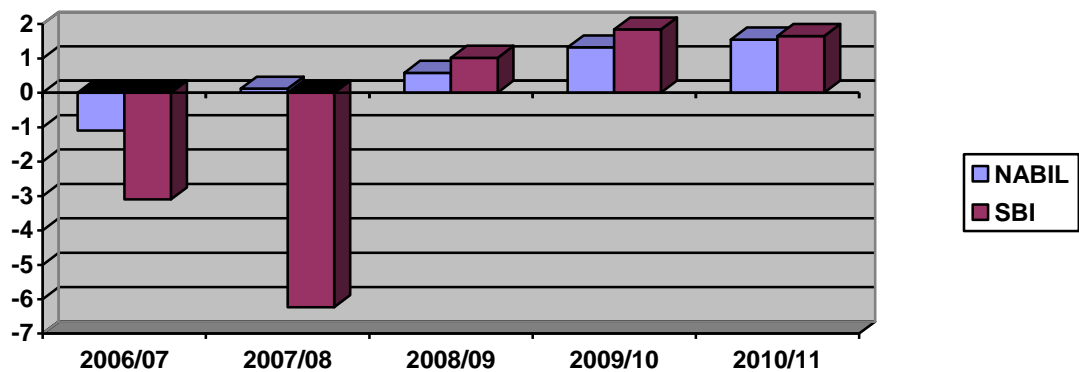
#### **Return on Loans & Advances (%)**

**(Rs. in million)**

<b>Fiscal Year</b>	<b>NABIL</b>			<b>SBI</b>		
	<b>Net Profit</b>	<b>Loan &amp; Advances</b>	<b>Ratio (%)</b>	<b>Net Profit</b>	<b>Loan &amp; Advances</b>	<b>Ratio (%)</b>
2007/08	(2.94)	265.73	(1.10)	-15.43	498	(3.10)
2008/09	1.34	1,126.60	0.12	-42.35	680	(6.23)
2009/10	12.47	2,137.59	0.58	15.31	1,495	1.02
2010/11	48.69	3,697.98	1.32	46.69	2,541	1.84
2011/12	87.88	5,681.01	1.55	84.87	5,130	1.65
		<b>Mean</b>	<b>0.49</b>		<b>Mean</b>	<b>(0.96)</b>
		<b>S.D.</b>	<b>0.95</b>		<b>S.D.</b>	<b>3.19</b>
		<b>C.V.</b>	<b>193.88</b>		<b>C.V.</b>	<b>332.29</b>

*Source: Annual Reports, F/Y 2007/08 to 2011/12*

**Figure 4.6**  
**Return on Loans & Advances (%)**



The above table exhibits the ratio of return on loans and advances of both NABIL and SBI for past 5 years. The ratio of both the banks are in increasing trend as both the net profit and lending are increasing over the years. The average ratio for 5 years of NABIL and SBI is 0.49 % and –0.96 % respectively. This shows that NABIL has better return than SBI. However, the negative ratio of SBI is because of huge losses in initial year (i.e. 2007/08 and 2008/09). In recent years, SBI has been showing good performance.

The standard deviation of NABIL and SBI for the study period is 0.95 % and 3.19 % respectively. Similarly the coefficient of variation of NABIL and SBI is 193.88 and 332.57 % respectively. The above figure indicate that both the deviation and variation of return percentage of SBI is more volatile than NABIL, which also signifies the higher risk. From this, it can be said that NABIL is in better position than SBI.

#### **4.1.2 Security-wise Lending of NABIL and SBI**

Security wise lending refers to the lending of banks to the client against the various collateral. As the collateral is also key aspect while lending, the analysis of security helps to identify the loan risk position of the bank. The collateral can be anything ranging from the more liquid and secure collateral such as government bonds, bills, Fixed deposit Receipt to Illiquid Fixed asset and Immovable property. Banks even can lend without collateral for the trustworthy customers. The analysis of security wise lending is as below,

### a. Security wise Lending of NABIL

This analysis will help to identify the various types of securities on the basis of which loans has been provided by NABIL. This also assists to analyze bank risk on collateral. As the more liquid the collateral, chances of risk is to the bank. Here, security wise lending of NABIL includes 12 types of securities, including without collateral lending.

**Table 4.7**

#### **Ranking of NABIL Collateral on the basis of amount of loan extended**

**(Rs. In million)**

<b>S. No.</b>	<b>Security against lending</b>	<b>Average Lending Against Each Collateral</b>	<b>Rank</b>
1	Movable/Non Movable Property	2,343	1
2	Guarantee against local bank and commercial banks	57	3
3	Government Guarantee	11	7
4	Guarantee against internationally rated bank	-	
5	Against export Bill	45	5
6	Own bank's FDRs	1	8
7	Other bank's FDRs	30	6
8	Loan against Government Bills	50	4
9	Counter Guarantee	-	
10	Loan against Personal Guarantee	0.05	9
11	Others	554	2
12	Without collateral		
	Total		

*Source: Annual Reports, F/Y 2007/08 to 2011/12*

Above table exhibits the lending of NABIL against different securities. From above it is clear that over the five years the NABIL has extended the loan mostly against the Movable/ non Movable Property. The average lending against the movable/ non-movable property is 2343 million, which is the highest among the lending against all securities. The bank has not granted any loan without collateral, which is the good sign of lending practice. The bank even does not have lending against the guarantee of internationally rated bank, counter guarantee etc. The bank has extended least loan against the personal

guarantee, which is ranked 9<sup>th</sup> position on the basis of average amount of lending. The bank also has been granting loan against the more liquid and secured collateral such as Government bills, own bank's Fixed Deposit Receipt (FDR) and other banks FDR, which is ranked 4, 8, and 6 respectively. Besides the above-mentioned collateral the bank has also granted loan against the other collaterals, which is ranked 2<sup>nd</sup> position. The bank also granted the loan against the Guarantee of local Bank and Commercial banks as well as government guarantee, which ranks 3<sup>rd</sup> and 7<sup>th</sup> position respectively on the basis of amount of loan extended against these securities. This means that the bank has been granting the loan against diversified collateral. However, the large portion of loan has been granted against the movable/non movable property.

#### **b. Security-wise Lending of SBI**

**Table 4.8 Ranking of SBI Collateral on the basis of amount of loan extended**  
(Rs. in million)

<b>S. No.</b>	<b>Security against lending</b>	<b>Average Lending Against Each Collateral</b>	<b>Rank</b>
1	Movable/Non Movable Property	<b>1,742</b>	<b>1</b>
2	Guarantee against local bank and commercial banks	<b>59</b>	<b>3</b>
3	Government Guarantee	<b>0.11</b>	<b>8</b>
4	Guarantee against internationally rated bank		
5	Against export Bill		
6	Own bank's FDRs	<b>3</b>	<b>6</b>
7	Other bank's FDRs	<b>10</b>	<b>5</b>
8	Loan against Government Bills	<b>1</b>	<b>7</b>
9	Counter Guarantee	-	
10	Loan against Personal Guarantee	<b>0.08</b>	<b>9</b>
11	Others	<b>243</b>	<b>2</b>
12	Without collateral	<b>19</b>	<b>4</b>
	Total		

*Source: Annual Reports, F/Y 2007/08 to 2011/12*

From above table no. 4.8, the loan extended against the various securities is presented along with the ranking on the basis of amount of loan extended. The above table depicts that the SBI has extended against the 9 Securities. The SBI has granted the highest amount of loan against the Movable/ Non- Movable property, the average lending against this collateral for the past five years is Rs 1742 million. Likewise the average loan against the other securities than above mentioned is Rs 243 million, which is ranked 2. The loan granted against the guarantee of local banks and commercial banks, other bank's FDR, own bank's FDR is ranked 3, 5 & 6 respectively. The bank has granted list amount of loan against the Personal Guarantee, Government Guarantee and Government bills.

On the contrary to NABIL, SBI also has extended the loan without the collateral. The average loan granted without collateral is Rs 19 million, which is ranked 4. From this it is clear that the SBI has higher risk on the lending than that in NABIL. The SBI has granted loan without collateral, which indicates the bank has the higher risk because of two reasons.

1. The bank has to make 100 % provision for this loan, which decrease the bank's profit.
2. In case of default, the bank will suffer losses of the total amount of loan, as there is no collateral to cover it.

### **c. Risk Weighted Lending Analysis**

Risk Weighted lending refers to weighted provided to the bank loan according to the level of risk. While risk level of the loan is categorized on the basis of the collateral. The lending against own bank Fixed deposit receipt and government securities are considered as risk free lending. Similarly, the loan against other banks Fixed Deposit Receipt, Counter guarantee of internationally rated banks are considered as moderate level risk lending and the loan against all other securities or without collateral are taken as high level risk lending. The risk weighted for moderate level and high-level risk lending is 20 % and 100 % respectively. The higher the risk free and moderate level lending, the lower is the loan risk of the bank and vice versa. The loan has been categorized on the basis of NRB Risk weighted Asset basis. The proportion of different category of risk weighted lending of both banks is presented below:

**Table 4.9****Proportion of different category of risk weighted lending of NABIL**

<b>Security</b>	<b>Risk Weighted ( %)</b>	<b>2007/08</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>Average</b>
Risk Free Lending to Total Loan	0	-	0.79	2.62	3.62	0.03	1.41
Moderate Level Risk Lending to Total Loan	20	-	1.05	1.13	0.87	0.89	0.79
High Level Risk Lending to Total Loan	100	100.00	98.17	96.25	95.51	99.08	97.8

*Source: Annual Reports, F/Y 2007/08 to 2011/12*

Above exhibits percentage of different categories of risk lending of NABIL for 5 years. The table further reveals that NABIL has the highest lending on 100 % risk lending. The bank has extended 0.79, 2.62, 3.62 and 0.03 % of total lending against the risk free collateral (i.e. own banks FDRs and Government bills) in fiscal year 2008/09, 2009/10 and 2011/12 respectively. Likewise the bank has extended 1.05, 1.13, 0.87 and 0.89 percent of total loan against the moderate level risk collateral in the fiscal year 2008/09, 2009/10, 2010/11 and 2011/12 respectively. In five years, the bank has made lower amount of high-level risk lending (i.e. 95.51 %) in fiscal year 2010/11. The average lending in 5 years on risk free, moderate level and high risk level lending is 1.41 %, 0.79 % and 97.8 % respectively.

**Table 4.10 Proportion of different category of risk weighted lending of SBI**

<b>Security</b>	<b>Risk Weight</b>	<b>2007/08</b>	<b>2008/09</b>	<b>2009/10</b>	<b>2010/11</b>	<b>2011/12</b>	<b>Average</b>
Risk Free Lending to Total Loan	0	0.00	0.04	0.13	0.02	0.31	0.10
Moderate Risk Lending to Total Loan	20	-	-	-	-	0.12	0.03
High Risk Lending to Total Loan	100	100.00	99.96	99.87	99.98	99.57	99.88

Above table exhibits percentage of lending of different categories of risk of SBI for 5 years. The table further reveals that SBI has the highest lending on 100 percent risk level (i.e loan against fixed asset and guarantee). The bank has extended 0.04, 0.13, 0.02 and 0.31 % of total lending against the risk free collateral (i.e. own banks FDRs and Government bills) in fiscal year 2007/08, 2008/09, 2009/10 and 2011/12 respectively. Likewise the bank has not made moderate level risk lending (i.e. against other banks FDRs and counter guarantee against the internationally rated bank) except in fiscal year 2011/12, which is 0.12 %. In five years, the bank has made lower amount of high-level risk lending (i.e. 99.57 %) in fiscal year 2011/12. The average lending in 5 years on risk free, moderate level and high risk level lending is 0.10 %, 0.03 % and 99.88 % respectively.

From the above, it is clear that both banks have extended least amount of loan against the lower level risk collateral. Between these two banks, NABIL has made more lending in risk free and moderate level risk. It can also be said that NABIL has been providing more loan against own & other banks FDRs and government bills than the SBI. This indicates that the NABIL has slightly less riskier lending than SBI.

#### **d. Loan Concentration on Single Sector**

This analysis helps to find out the loan concentration of banks in different sectors. The higher the concentration of bank's loan in one sector, the higher will be the risk for a bank and vice versa. It is because when there is a problem or crises in that particular sector, it will result in a significant loss to the bank. The proportion of sector wise lending to total loan has been presented in table below:

**Table 4.11****Loan Concentration on different Sector on fiscal year 2011/12**

Sector	NABIL (%)	SBI (%)
Agriculture	2	1
Mine	4	-
Manufacturing	25	35
Construction	11	5
Metal and Electric Products	3	1
Transport equipment	12	6
Transport, communication and public utilities	3	5
Whole Seller & Retailer	8	20
Finance Insurance & Real Estate	10	4
Service Industries	8	13
Consumer Loan	0	-
Local Government	-	-
Others	14	10
<b>Total</b>	<b>100.00</b>	<b>100.00</b>

*Source: NRB, Banking & Financial Statistics*

From Table No. 4.11, it is found that NABIL and SBI has extended more than 10 % of their total loan in 5 sectors and 4 sectors respectively. Similarly, NABIL & SBI have invested highest of 25 % and 35% of total loan in manufacturing sector where as both the banks have extended least loan in Agriculture and Mining sector. Loan to local government is the neglected area in both the banks. It is also clear that loan concentration on single sector of SBI is more than that of NABIL. This indicates that SBI has higher risk concentration risk on manufacturing, whole seller and retailer sector, as the exposure on this sector is 35 % and 20 % of total loan respectively.

#### **e. Sector-wise Loan to Core Capital**

This is the ratio between loan extended by bank in a sector and core capital. Core capital includes share capital, retained earning, general reserve, capital adjustment fund, non-redeemable preferred stock etc. The higher ratio does a bank have, the higher will be the risk to the bank and vice versa. According to NRB directive no 3 of Unified Directive 2005, the loan exposure on single sector more than 50 % of core capital needs to be

verified at least quarterly as there exists the concentration risk. Similarly, single sector loan concentration more 100 % of core capital needs to be approved by the board of directors. The core capital of NABIL and SBI is Rs. 642 and Rs. 638 million respectively in fiscal year 2011/12.

**Table 4.12**  
**Sector-wise loan to Core Capital in fiscal year 2011/12**

(Rs. In million)

S.N.	SECTOR	Loan	Sector-wise loan to Core Capital (%)	SBI	Sector-wise loan to Core Capital (%)
1	Agriculture	121.10	18.86	51.60	8.09
2	Mine	237.40	36.98	0	0
3	Manufacturing	1,379.00	214.80	1,753.40	274.83
4	Construction	581.70	90.61	292.40	45.83
5	Metal and Electric Products	156.10	24.31	38.90	6.10
6	Transport equipment	637.40	99.28	279.10	43.75
7	Transport, communication and public utilities	163.50	25.47	274.20	42.98
8	Whole Seller & Retailer	432.60	67.38	1,018.80	159.69
9	Finance Insurance & Real Estate	549.30	85.56	184.20	28.87
10	Service Industries	458.30	71.39	669.40	104.92
11	Consumer Loan	26.50	4.13	-	-
12	Local Government		-		-
13	Others	770.60	120.03	488.40	76.55
	<b>Total</b>	<b>5,513.50</b>		<b>5,050.40</b>	

*Source: NRB, Banking & Financial Statistics*

Above table exhibits the percentage of loan on single sector to core capital of NABIL and SBI in fiscal year 2011/12. Above table depicts that the ratio of NABIL and SBI has crossed 50 % in 7 and 4 sectors respectively. Out of them, the ratio of NABIL and SBI has crossed 100 % in 2 and 3 sectors respectively. The above table indicates that NABIL has higher concentration risk than SBI as NABIL has extended more loans in few sectors

than SBI. Both NABIL and SBI has higher ratio in manufacturing sector, which is 214.8 % and 274.83 % respectively.

### 4.1.3 Correlation Analysis

#### a. Correlation Between Loan Loss Provision (LLP) and Loans and Advances (L&A)

The correlation between LLP and Loans and advances shows the degree of relationship between these two items. How a unit increment in loans and advances affect the loan loss provision is measured by this correlation. Here loans and advances are independent variable and LLP is dependent variable.

**Table 4.13 Correlation between LLP and Loans and Advances**

<b>Banks</b>	<b>Correlation Coefficient (r )</b>	<b>Probable Error (P.E.)</b>	<b>6 * P.E.</b>
NABIL	0.99	0.006	0.036
SBI	0.95	0.03	0.18

Above table explains the relationship between loans and advances and LLP. Correlation coefficient of NABIL is 0.99, which means that the LLP is highly correlated with loans and advances. It means that the bank's LLP will increase with the increase in Loans and Advances. Similarly, the correlation coefficient of SBI is 0.95, which also shows that there exists positive correlation between the LLP and Loan and Advances.

The probable error (multiplied by 6), which is used to test the significance of calculated correlation coefficient, of both NABIL and SBI is 0.036 and 0.18 respectively. The Probable Error (multiplied by 6) of both banks is less than the correlation coefficient. Therefore it can be said that the correlation coefficient value is significant.

#### b. Correlation Between Loan Loss Provision and Non-performing Loan

This correlation indicates the relationship between LLP and NPL. How a unit increases in NPL effect the LLP is exhibited by this correlation. NPL has been treated as an independent variable, whereas the LLP a dependent variable.

**Table 4.14**

**Correlation between LLP and NPL**

<b>Banks</b>	<b>Correlation Coefficient (r)</b>	<b>Probable Error (P.E.)</b>	<b>6 * P.E.</b>
NABIL	0.93	0.0408	0.24
SBI	-0.03	0.3	1.8

Above table exhibits correlation between LLP and NPL of two commercial banks. The correlation between LLP and NPL of NABIL is positive, which indicates that the LLP of NABIL changes with the change in NPL. The probable error multiplied by 6, which is used to test the significance of correlation coefficient, is also less than the correlation coefficient, which means that the value of correlation coefficient is significant.

On the contrary, the correlation coefficient between LLP and NPL of SBI is negative, which indicates that there exists an inverse correlation between LLP and NPL of SBI. Likewise the Probable Error multiplied by 6, which is used to test the significance of correlation coefficient, is also greater than the correlation coefficient that suggests the correlation coefficient is insignificant.

**4.3 Major Findings of the Study**

- The average loans and advances to total asset of NABIL and SBI during the study period are 65.19 % and 68.14 % respectively. Over this five years period, the proportion of loan on total asset of SBI is mainly in increasing trend, where as the proportion of loan on total asset of NABIL is more fluctuating. From this, it can be said that SBI is more concerned with increasing its loan portfolio, where as NABIL has been frequently adjusting the proportion of loan. Lower average loan and advances to total asset of NABIL than that of SBI ( i.e 65.19 % < 68.14 %) suggests that NABIL management is more risk averse than SBI and also indicates that NABIL has invested more on the risk free asset such as government bills ( i.e. Treasury Bills, National Saving Bonds, Development Bonds etc). However, higher deviation of ratio and variability of NABIL depicts that the ratio of NABIL is more fluctuating from average than SBI and carries higher risk.

- The core banking function is to mobilize the funds obtained from the depositors and how successfully these banks are utilizing their total deposits on loans is measured by the ratio of loans and advances to total deposit ratio or simply CD ratio. The average CD ratio of NABIL and SBI is 86.43 % and 81.52 % respectively during the study period. This implies that NABIL has utilized higher portion of deposit than that of SBI. Similarly, the deviation of the ratio of NABIL is lower than SBI, which indicates that CD ratio has lower variation from the average in case of NABIL than that of SBI.
- Analysis of non- performing loans to total loans revealed that average NPL of NABIL and SBI is 0.94 % and 2.98 % respectively. This means that average performing loan of NABIL and SBI is 99.06 % and 97.02 % respectively. Hence SBI has higher percentage of non-performing loan than NABIL, which means that SBI has more loan risk than NABIL. With higher amount of non- performing loan of SBI, the impact of it will be on the net profit of the bank. However, in recent years, SBI has managed to decrease the non-performing loan below 1 %, which is due to more stringent loan practices and recovery system.
- Average ratio of Loan Loss Provision to Non-performing Loan of NABIL and SBI was found to be 106.65 % and 155.09 % respectively. Hence SBI has higher ratio than NABIL, which depicts that the bank has higher provision against the non-performing loan. This also indicates that in case of default the bank can cover the loss amount without any problem, as there is sufficient amount of reserve for non-performing loan. However, the comparative low ratio of NABIL also suggests that out of non-performing loan, the proportion of bad loans is lower than that of SBI. The higher amount of bad loan does a bank have, the higher will be the provision.
- The average Loan loss Provision to total loan ratio of NABIL and SBI is 1.35 % and 2.01 % respectively. The higher percent of LLP of SBI indicates that the bank has higher amount of non-performing loan than NABIL. Because of the higher amount of non-performing loan of SBI in total, the provisioning amount is in higher side. This figure indicates that NABIL is in better position than SBI.

- The main objective of commercial banks is to earn profit through mobilization of fund. The ratio of returns on loans and advances ratio shows that the average ratio for 5 years of SBI is negative 0.96 %, which indicates that the bank is unable to generate net profit from loans and advances. This is mainly due to higher negative ratio in earlier years. The average ratio of NABIL for the period is found to be 0.49 %. This figure indicates that NABIL has been able to earn return from its loans and advances than SBI. Similarly the variation on return of SBI is also higher than that of NABIL, which means that return on loan and advances of SBI is more fluctuating than NABIL.
- Lack of systematic and thorough loan processing is also the major source of loan risk in these banks. The problems in loan processing include lack of thorough loan assessment, absence of testing and validation of new lending techniques, subjective decision-making by senior management, lack of effective loan review process, failure to monitor borrowers or collateral values, and failure of banks to take sufficient account of business cycle effects etc.
- From the analysis of lending against various collaterals, it has been found that both the banks have lent highest amount of loan against the movable/ immovable property. The average lending over 5 years period of NABIL and SBI against movable/ immovable property is Rs. 2,343 million and 1,742 million respectively. Similarly, the lending against others securities (i.e. other than prescribed by NRB) is second position for both banks, whereas the lending against guarantee of local banks and commercial banks is in third position. However, SBI has also granted loan without any collateral. The average amount of loan without collateral is Rs. 19 million annually, which is in the 4<sup>th</sup> place on ranking. On the contrary, NABIL has not granted any loan without backing any collateral.
- Likewise the market-sensitive and Liquidity-sensitive exposures also increase the loan risk of these banks. Similarly, it is found that both banks have their own rating system of lending loan on different sectors. Both banks have ranked 1<sup>st</sup> to the manufacturing sector where as the Agriculture sector has been ranked the last on the basis of priority. NABIL has chosen transport equipment and construction

in 2<sup>nd</sup> and 3<sup>rd</sup> position respectively, where as SBI has ranked wholeseller & Retailer and Services Industries in 2<sup>nd</sup> and 3<sup>rd</sup> position respectively.

- Likewise, NABIL has ranked Character, Collateral and Capacity of borrower first, second and third criterion for granting loan where as SBI ranked Character, Capacity and Capital first, second and third priority respectively.
- In regard to concentration risk, NABIL has more risk in manufacturing and others sector where as SBI has more risk on manufacturing, whole seller and retailer and service industry sectors as the single sector loan to core capital ratio in these sectors is more than 100. This clarifies that concentration risk is the main source of loan risk for NABIL and SBI.
- Loan administration department is mainly concerned with monitoring the loan facilities and borrowers. It continuously reassessed the borrowers financial condition, loan repayment. It also frequently reevaluate the collateral as well as its marketability to ensure that collateral is enough to cover the loss if any. Moreover in NABIL there exists a recovery department, which is mainly concerned with prompt recovery of loan. However, in SBI loan department in cooperation with loan administration department performs the function of recovery. Similarly, there exists a risk assessment department in NABIL that analyze the risk of borrowers before granting loan to the clients. This department also makes portfolio analysis of different loans (such as overdraft, term loan, retail loan etc) and sectors. However in SBI, loan department itself performs all the risk assessment function.
- Analyzing the organization structure for the loan risk management, it has been found that NABIL has more rigorous organization structure for loan risk management than SBI. In NABIL, Asset Liabilities Management Committee (ALCO), mainly concerned with all types of risks management including loan risk. In SBI, Loan Committee, which includes the member of both board of directors and management, is the main body for managing loan risk. Similarly, the establishment of Recovery Department, Risk Assessment department in NABIL portrays that NABIL has been giving more importance to the recovery aspects of

the loan as well as loan risk rating of borrowers. In SBI there is no separate department for assessing the risk as well as recovery of loan. However, quality of the loan management of SBI is increasing in recent years as the ratio of NPL to total has been decreased to 0.39 % in fiscal year 2010/11 from the previous year's ratio of 0.98 %.

- Correlation coefficient between LLP and loans and advances of NABIL and SBI is 0.99 and 0.95 respectively. This figure indicates that the LLP and loan and advances of NABIL are highly correlated than SBI. Similarly, 6 times Probable Error (P.E) of both NABIL and SBI is lower than the correlation coefficient, which indicates that correlation coefficient of both the banks is significant and reliable.
- The correlation between LLP and NPL revealed that there is positive correlation between LLP and NPL of NABIL, where as the correlation coefficient of SBI shows the negative correlation. The correlation coefficient of NABIL and SBI is 0.93 and  $-0.03$  respectively. The 6 times P.E shows that the correlation coefficient of NABIL is significant and reliable, whereas the correlation coefficient of SBI is insignificant and unreliable. This negative correlation coefficient of SBI is because of higher amount of loan against personal guarantee and unsecured lending. Since the performing loan against personal guarantee and unsecured loan need to make extra 21 % and 100 % provisioning, this will definitely increase the provisioning amount.

## **CHAPTER 5**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

#### **5.1 Summary**

Banks are the backbone of the country's economic development. They are providing a foundation to develop country through economic ways. Nowadays, thirty one commercial banks are in operation. The data, which are used in this study are of secondary nature. They are obtained from concerned banks annual report, literature, publication, balance sheet, profit and loss account, previous thesis report, different website, related books and booklets, journal and articles and NEPSE. For the analysis and interpretation of data, various related financial and statistical tools are used in this study are mean, standard deviation, coefficient of variation, coefficient of correlation.

To fulfill the objective of the study all secondary data are compiled, processed and tabulated in the second last chapter. To make the analysis easier and understandable line chart are also used. In this study the focus is given to the quantities. Therefore the study may not be generalized in all cases and accuracy depends upon the data collected and provided by the concerned organization.

Among the listed companies, NABIL and SBI have selected as a sample for the study and information are gathered from the period of 2007/08 to 2011/12. The collected information is presented, analyzed and conclusion is drawn from the study.

Loan and advances hold major portion in total asset. Similarly, the mobilization of deposit in loan, which is indicated by Loan Deposit ratio, also suggests that major portion of deposit is invested on loan and advances. Hence loan risk has covered significant ground in these banks.

The loan risk of these banks mainly arises due to non-payment of loan by borrowers, poor appraisal of borrowers financial condition and substandard collateral. Poor tracking of borrowers and improper diversification of lending across industries also result in higher loan risk in commercial banks. The major problems in loan risk can be categorized into three areas of concentrations; loan processing, and market- and liquidity-sensitive loan

exposures. The main indicators of loan default (i.e. non-performing loan (NPL)) indicate that average NPL of SBI is more than that of NABIL. However in recent years (i.e. 2011/12), SBI has been able to reduce the NPL significantly down to 0.39 %. Against the NPL, SBI has provisioned more reserve than NABIL.

Collateral is also one of the important factors while extending loan. When the borrowers default, collateral is the only means to cover such losses. The loan practice of SBI shows that SBI is also granting loan without collateral, which is the poor sign of loan practice. 100 % of provision is to be made for this sort of loan, which reduces the bank's profit, and also bank doesn't have any asset to claim on in case of default.

Similarly, loan concentration on single sector of NABIL and SBI shows that both the banks have very high amount of concentration in single sector. Improper portfolio management also remains one of the significant problems in loan management of these banks. Likewise, average return on loans and advances of NABIL is positive where as SBI is in negative position. This indicates that NABIL is able to earn net profit by utilizing the loans and advances. However in recent years, the return on loans and advances of SBI also is positive.

## 5.2 Conclusion

Though both banks have their own set of procedures for assessing the various risks and for their management, problems are still prevalent in these banks. In loan risk, single sector loan concentration is main problem in both the banks. In SBI the major problem is a high amount of lending in manufacturing sector, lending without collateral, non-performing loan & organizational structure for handling loan risk. In NABIL, with the increase in total loan, NPL is also increasing. So, proper adjustment is needed for managing the NPL. Proper management of risk is required to remain competitive in the market & achieve the goals. The major banking risks include loan risk, market risk (i.e. liquidity risk, interest risk, operation risk etc). Among these risks, loan risk has the major impact on banking (i.e. more than 60 %). Because of the loan risk, the Non Performing Loan (NPL) of bank will increase. With the increase in NPL, the loan loss provisioning also increase simultaneously leading to decrease in profit. The decrease in profit results low dividend to shareholder and bonus to employees

The major risk in NABIL and SBI is associated with loan decision as the proportion of loan risk on total asset is high. It shows loan and advances hold major portion in total asset. Similarly, the mobilization of deposit in loan, which is indicated by Loan Deposit ratio, also suggests that major portion of deposit is invested on loan and advances. This figure indicates that loan risk has covered significant ground in these banks. Similarly, from the study it shows NPL of SBI bank is more than that of NABIL bank. Hence SBI has provisioned more reserve than NABIL.

For proper management of loan risk, both the banks have Loan Policies Guidelines (CPG) and well-defined organizational structure. The organization structure of NABIL is found more stringent & advanced than that of SBI. In NABIL, Asset Liabilities Management Committee (ALCO), mainly concerned with all types of risks management including loan risk. Similarly, the establishment of Recovery Department, Risk Assessment Department in NABIL portrays that NABIL has been giving more importance to the recovery aspects of the loan as well as loan risk rating of borrowers. However, in SBI there is no separate department for assessing the risk and recovery of loan.

There is positive correlation between LLP and Loan and Advances in both banks. This indicates that there is a change in LLP of both banks when there is a change in loans and advances. Likewise LLP and NPL of NABIL are positively correlated where as correlation coefficient of SBI is found negative. The positive correlation coefficient of NABIL indicates that the provisioning amount will increase when there is an increase in NPL and vice versa. On the contrary, the negative correlation coefficient of SBI indicates that provisioning amount of SBI is increasing without increase in NPL and vice versa. This negative correlation coefficient of SBI is because of higher amount of loan against personal guarantee and unsecured lending. Since the performing loan against personal guarantee and unsecured loan need to make extra 21 % and 100 % provisioning, this will definitely increase the provisioning amount.

In regard to loan risk management, a substantial degree of standardization of process and documentation has been set in both the banks to make loan decision in a consistent manner and for the resultant aggregate reporting of loan risk exposure to be meaningful. Both the banks have their own standard for rating both to borrowers and loan portfolio that presents meaningful information on overall quality of the loan portfolio. While rating borrowers, the general worthiness of borrower is rated, which is the most important aspects in both banks to extend the loan. Similarly, the loan facilities rating include rating of collateral and covenants. In regard to collateral, both banks have granted highest loan against the movable and non-movable property. However, SBI has also granted loan without backing any collateral. This indicates that SBI rely more on borrowers' quality than loan quality where as NABIL gives equal importance to both borrowers quality and loan quality. The loan practice of SBI shows that SBI is also granting loan without collateral, which is the poor sign of loan practice. 100 % of provision is to be made for this sort of loan, which reduces the bank's profit, and also bank doesn't have any asset to claim on in case of default.

Both the banks have very high amount of concentration in single sector. Improper portfolio management also remains one of the significant problems in loan management of these banks. Likewise, average return on loans and advances of SBI is positive where as SBI is in negative position. This indicates that NABIL is able to earn net profit by utilizing the loans and advances.

### 5.3 Recommendation

- Both banks should have in place a system for the ongoing administration of their various loan risk-bearing portfolios. These banks must have in place a system for monitoring the condition of individual loans, including determining the adequacy of provisions and reserves. Banks are encouraged to develop and utilize an internal risk rating system in managing loan risk. The rating system should be consistent with the nature, size and complexity of a bank's activities.
- Loan risk has been given high priority in both banks. To remain competent in the market both banks need to identify and deal with new risks that arise with changes in environmental forces.
- It would be better to continue training and development programme for the employees to make them efficient and professional in terms of managing various risks.
- Both banks should give focus the system of check and balance, which helps to reduce the risk.
- Both banks are recommended to develop an information system to gather all the possible information and activities that provides necessary information to take timely precaution.
- These banks should establish and enforce internal controls and other practices to ensure that exceptions to policies, procedures and limits are reported in a timely manner to the appropriate level of management for action. Both banks must have a system in place for early remedial action on deteriorating loans, managing problem loans and similar workout situations.
- Both banks should be changed with changes in environmental forces. For management of risk associated with asset and liabilities management, banks need to adopt new methods such as Simulation Method, Value at Risk (VAR) Method etc.
- NPL of NABIL is also increasing with the increase in loan and advances. So, NABIL need to be more careful while taking loan decision.
- In SBI, there should be change in organizational structure for proper loan risk management. Recovery Cell is needed in SBI for timely recovery of loan. Similarly, for assessing the loan risk, a separate department is needed to be formed.

- For the proper loan risk management, both NABIL and SBI needs to follow following principles;
  - i. The board of directors should continue approving and periodically (at least annually) reviewing the loan risk strategy and significant loan risk policies. The strategy should reflect the bank's risk tolerance and the level of profitability the bank expects to achieve for incurring various loan risks.
  - ii. Senior management should continue implementing the loan risk strategy approved by the board of directors and for developing policies and procedures for identifying, measuring, monitoring and controlling loan risk. Such policies and procedures should address loan risk in all of the bank's activities and at both the individual loan and portfolio levels.
  - iii. Both banks should identify and manage loan risk inherent in all products and activities. These banks should ensure that the risks of products and activities new to them are subject to adequate risk management procedures and controls before being introduced or undertaken, and approved in advance by the board of directors or its appropriate committee.
  - iv. Both banks need to properly diversify its lending portfolio. The high amount of lending in manufacturing sectors need to be diversified into various sectors, which will decrease concentration risk.
  - v. Both NABIL and SBI has higher amount of loan and advances in total asset. So to minimize the loan risk, the diversification in investment is needed in both the banks. These banks need to diversify investment in government bonds, placements etc.
  - vi. It has been found that SBI has extended the loan without backing any collateral. This sort of practice seems risky and non-profitable, as there is least chance of covering the amount of loan default when there is no collateral and 100 % provision of loan amount need to be maintained.

- vii. Both banks must operate within sound, well-defined loan-granting criteria. These criteria should include a clear indication of the bank's target market and a thorough understanding of the borrower or counterparty, as well as the purpose and structure of the loan, and its source of repayment.
  
- viii. These banks should establish overall loan limits at the level of individual borrowers and counterparties, and group of connected counterparties that aggregate in a comparable and meaningful manner for different types of exposures, both in the banking and trading book and on and off the balance sheet.
  
- ix. Both banks clearly need to establish process in place for approving new loans as well as the amendment, renewal and re-financing of existing loans. In particular, loans to related companies and individuals must be monitored with particular care and other appropriate steps should be taken to control or mitigate the risks.
  
- x. Both banks should maintain an appropriate loan administration, measurement and monitoring process.

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## Appendix- 1

### Calculation of Mean, Standard Deviation and Covariance of Loans and Advances to Total Asset Ratio (%)

(Rs. in Million)

Fiscal Year	NABIL Bank			SBI Bank		
	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$
2007/08	39.94	-25.19	634.53	63.68	-4.46	19.89
2008/09	70.74	5.61	31.47	61.59	-6.55	42.90
2009/10	71.59	6.46	41.73	62.29	-5.85	34.22
2010/11	67.31	2.18	4.75	73.67	5.53	30.58
2011/12	76.38	11.25	126.56	79.46	11.32	128.14
Total	$\sum X$ = 325.36		$\sum (X - \bar{X})^2$ = 839.04	$\sum X$ = 340.69		$\sum (X - \bar{X})^2$ = 255.73

Source: Annual Reports, F/Y 2007/08 to 2011/12

#### **For Nabil Bank**

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{325.36}{5} = 65.13\%$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 839.04} = 12.95$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{12.95}{325.36} = 19.88\%$$

#### **For SBI Bank**

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{340.69}{5} = 68.14\%$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 255.73} = 7.15$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{7.15}{68.14} = 10.497\%$$

## Appendix -2

### Calculation of Mean, Standard Deviation and Covariance of Loans and Advances to Total Deposit Ratio (%)

(Rs. in Million)

Fiscal Year	NABIL Bank			SBI Bank		
	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$
2007/08	84.07	-2.36	5.56	71.14	-10.38	107.74
2008/09	95.48	9.05	81.90	68.34	-13.18	173.71
2009/10	85.06	-1.37	1.87	84.08	2.56	6.55
2010/11	76.91	-9.52	90.63	92.23	10.71	114.70
2011/12	90.62	4.19	17.55	91.82	10.3	106.09
Total	$\sum X$ =432.14		$\sum (X - \bar{X})^2$ =197.51	$\sum X$ =407.61		$\sum (X - \bar{X})^2$ =508.79

Source: Annual Reports, F/Y 2007/08 to 2011/12

#### For Nabil Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{432.14}{5} = 86.43$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 197.51} = 6.29$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{6.29}{86.43} = 7.28$$

#### For SBI Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{407.61}{5} = 81.52$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 508.79} = 10.09$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{10.09}{81.52} = 12.38$$

### Appendix -3

#### Calculation of Mean, Standard Deviation and Covariance of Non-Performing Loans to Total Loans and Advances

(Rs. in Million)

Fiscal Year	NABIL Bank			SBI Bank		
	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$
2007/08	-	-0.94	0.884	1.00	-1.98	3.920
2008/09	1.27	0.33	0.109	10.44	7.46	55.652
2009/10	1.70	0.76	0.578	2.07	-0.91	0.828
2010/11	0.76	-0.18	0.032	0.98	-2	4
2011/12	0.95	0.01	0.0001	0.39	-2.59	6.708
Total	$\sum X$ =4.68		$\sum (X - \bar{X})^2$ =1.6031	$\sum X$ =14.88		$\sum (X - \bar{X})^2$ =71.108

Source: Annual Reports, F/Y 2007/08 to 2011/12

#### For Nabil Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{4.68}{5} = 0.94$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 1.6031} = 0.57$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{0.57}{0.94} = 60.64$$

#### For SBI Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{14.88}{5} = 2.98$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 71.108} = 3.77$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{3.77}{2.98} = 126.51$$

## Appendix -4

### Calculation of Mean, Standard Deviation and Covariance of Loan Loss Provision to Non-Performing Loans

(Rs. in Million)

Fiscal Year	NABIL Bank			SBI Bank		
	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$
2007/08	-	-106.65	11374.223	100.00	-55.09	3034.91
2008/09	105.02	-1.63	2.657	35.21	-119.88	14371.214
2009/10	87.68	-18.97	359.861	103.23	-51.86	2689.459
2010/11	173.74	67.09	4501.068	192.00	36.91	1362.348
2011/12	166.81	60.16	3619.226	345.00	189.91	36065.808
Total	$\sum X$ =533.25		$\sum (X - \bar{X})^2$ =19857.035	$\sum X$ =775.44		$\sum (X - \bar{X})^2$ =57523.739

Source: Annual Reports, F/Y 2007/08 to 2011/12

#### For Nabil Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{533.25}{5} = 106.65$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 19857.035} = 63.02$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{63.02}{106.65} = 59.09$$

#### For SBI Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{775.44}{5} = 81.52$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 57523.739} = 107.26$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{107.26}{81.52} = 69.16$$

## Appendix -5

### Calculation of Mean, Standard Deviation and Covariance of Loan Loss Provision to Total Loan and Advances(%)

(Rs. in Million)

Fiscal Year	NABIL Bank			SBI Bank		
	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$
2007/08	1.00	-0.35	0.123	1	-1.01	1.020
2008/09	1.34	-0.01	0.0001	3.68	1.67	2.789
2009/10	1.49	0.14	0.0196	2.14	0.13	0.017
2010/11	1.32	-0.03	0.0009	1.89	-0.12	0.014
2011/12	1.59	0.24	0.058	1.35	-0.66	0.436
Total	$\sum X$ =6.74		$\sum (X - \bar{X})^2$ =0.202	$\sum X$ =10.06		$\sum (X - \bar{X})^2$ =4.276

Source: Annual Reports, F/Y 2007/08 to 2011/12

#### For Nabil Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{6.74}{5} = 1.35$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 0.202} = 0.20$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{0.20}{1.35} = 14.82$$

#### For SBI Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{10.06}{5} = 2.01$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 4.276} = 0.92$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{0.92}{2.01} = 45.77$$

## Appendix -6

### Calculation of Mean, Standard Deviation and Covariance of Returns on Loan and Advances

(Rs. in Million)

Fiscal Year	NABIL Bank			SBI Bank		
	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$	Ratio(X)	$(X - \bar{X})$	$(X - \bar{X})^2$
2007/08	(1.10)	-1.53	2.341	(3.10)	-2.14	4.574
2008/09	0.12	-0.31	0.096	(6.23)	-5.27	27.773
2009/10	0.58	0.15	0.023	1.02	1.98	3.920
2010/11	1.32	0.89	0.792	1.84	2.8	7.84
2011/12	1.55	1.12	1.254	1.65	2.61	6.812
Total	$\sum X$ =2.47		$\sum (X - \bar{X})^2$ =4.506	$\sum X$ =-4.82		$\sum (X - \bar{X})^2$ =50.919

Source: Annual Reports, F/Y 2007/08 to 2011/12

#### For Nabil Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{2.47}{5} = 0.49$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 4.506} = 0.95$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{0.95}{0.49} = 193.88$$

#### For SBI Bank

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} = \frac{-4.82}{5} = -0.96$$

$$\text{Standard Deviation } (\sigma) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2} = \sqrt{\frac{1}{5} \times 50.919} = 3.19$$

$$\text{Co-variance (C.V)} = \frac{\dagger}{\bar{X}} = \frac{3.19}{-0.96} = 332.29$$

## Appendix -7

### Calculation of Correlation between Loan Loss Provision and Loan and Advances

#### For Nabil Bank

LLP(X)	Loan & Advances(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2.66	265.73	706.842	7.075	70612.433
15.05	1126.60	16955.33	226.503	1269227.56
31.85	2137.59	68082.242	1014.422	4569291.008
48.98	3697.98	181127.060	2399.040	13675056.08
90.06	5681.01	511631.761	8110.804	32273874.62
$\sum X$ =188.60	$\sum Y$ =12908.31	$\sum XY$ =778503.235	$\sum X^2$ =11757.844	$\sum Y^2$ =51858061.7

Source: Annual Reports, F/Y 2007/08 to 2011/12

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 778503.235 - 188.60 \times 12908.31}{\sqrt{5 \times 11757.844 - (188.60)^2} \sqrt{5 \times 51858061.7 - (12908.31)^2}}$$

$$= \frac{1458008.909}{\sqrt{23219.26} \sqrt{92665841.44}}$$

$$= 0.99$$

$$r^2 = 0.98$$

$$P.E. = 0.6745 \times \frac{1-0.98}{\sqrt{5}}$$

$$= 0.006$$

#### For SBI Bank

LLP(X)	Loan & Advances(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
5	498	2430	25	248004
25	680	17000	625	462400
32	1495	47840	1024	2235025
48	2541	121968	2304	6456681
69	5130	353970	4761	26316900
$\sum X$ =179	$\sum Y$ =10344	$\sum XY$ =543208	$\sum X^2$ =8739	$\sum Y^2$ =35719010

Source: Annual Reports, F/Y 2007/08 to 2011/12

$$\begin{aligned}
r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}} \\
&= \frac{5 \times 543208 - 179 \times 10344}{\sqrt{5 \times 8739 - (179)^2} \sqrt{5 \times 35719010 - (10344)^2}} \\
&= \frac{864464}{\sqrt{11654} \sqrt{71596714}} \\
&= 0.95
\end{aligned}$$

$$r^2 = 0.9025$$

$$\begin{aligned}
\text{P.E.} &= 0.6745 \times \frac{1-0.9025}{\sqrt{5}} \\
&= 0.03
\end{aligned}$$

## Appendix -8

### Calculation of Correlation between Loan Loss Provision and Non-Performing Loan

#### For Nabil Bank

LLP(X)	NPL(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2.66	-	-	7.0756	-
15.05	14.33	215.6665	226.5025	205.3489
31.85	36.32	1156.792	1014.4225	1319.1424
48.98	28.19	1380.7462	2399.0404	794.6761
90.06	53.99	4862.3394	8110.8036	2914.9201
$\sum X$ =188.60	$\sum Y$ =132.83	$\sum XY$ =7615.5441	$\sum X^2$ =11757.8446	$\sum Y^2$ =5234.0875

*Source: Annual Reports, F/Y 2007/08 to 2011/12*

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \times \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

$$= \frac{5 \times 7615.5441 - 188.60 \times 132.83}{\sqrt{5 \times 11757.844 - (188.60)^2} \times \sqrt{5 \times 5234.0875 - (132.83)^2}}$$

$$= \frac{13025.9825}{\sqrt{23219.263} \times \sqrt{8526.6286}}$$

$$= 0.93$$

$$r^2 = 0.8649$$

$$P.E. = 0.6745 \times \frac{1 - 0.8649}{\sqrt{5}}$$

$$= 0.0408$$

#### For SBI Bank

LLP(X)	NPL(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
5	5	25	25	25
25	71	1775	625	5041
32	31	932	1024	961
48	25	1200	2304	625
69	20	1380	4761	400
$\sum X$ =179	$\sum Y$ =152	$\sum XY$ =5312	$\sum X^2$ =8739	$\sum Y^2$ =7052

*Source: Annual Reports, F/Y 2007/08 to 2011/12*

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \times \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

$$\begin{aligned} &= \frac{5 \times 5312 - 179 \times 152}{\sqrt{5 \times 8739 - (179)^2} \times \sqrt{5 \times 7052 - (152)^2}} \\ &= \frac{-648}{\sqrt{11654} \times \sqrt{12156}} \end{aligned}$$

$$= -0.05$$

$$r^2 = -0.0025$$

$$\text{P.E.} = 0.6745 \times \frac{1 - (0.0025)}{\sqrt{5}}$$

$$= 0.3$$