CHAPTER - 1
INTRODUCTION

1.1   Background of the Study

Nepal is one of the least developed & landlocked country of the world. It is surrounded by two big and rapidly developing countries like India and china. It has surrounded three sides by India and one side by china. Because of landlocked country; it has to depend upon its neighbor and donors countries.

Nepal has an agro-based economy, where many people are engaged with agriculture. The main reason for agro-based economy of Nepal is because of the geographical construction of the country. The other reason is due to its low literacy rate, which has restricted the people to primitive and traditional forms of occupation.

The sources of finance are the most essential element for the establishment and operation of any profit and non-profit oriented institutions. Profit oriented institutions usually obtain these sources through ownership capital, public capital and financial institutions such as bank; in the form of credit and overdraft. Banking sector plays a vital role for the countries economic development. Bank is resource mobilization institutions, which accept deposits from various sources and invest such accumulated resources into the field of agriculture, trade, commerce, industry and tourism etc. The banking sector is largely responsible for collecting household savings in terms of different types of deposits and regulating them into the society by lending them in different sectors of the economy. The banking sector has been reached in the most remote areas of the country and has experienced a good deal in the growth of the economy by lending its resources in small scale industries under intensive banking program that has enable the banks to share economic growth of the country.[Shrestha,1993:32]

Banking institutions are inevitable for the resources mobilization and all the development of the country. They have resources for economic confidence of various segments and extend credit to people. (Grywinshki, 1993:87)

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Banks refers to any firms that are basically concerns with the transaction of money. However, today's banks are established for specific purposes. Different types of banks are focuses different types of services to its customer although the basic principle is same. The history of the development of financial institutions in Nepal is not very long. The history of banking begins from the establishment of the commercial bank; Nepal bank ltd. in 1994 B.S. for the first time to provide modern and organized banking service in Nepal up to 2012 B.S., only Nepal bank ltd. provided services to the publics and organized bank later, Nepal Rastra Bank was established in 14th Baisakh 2013 B.S. As a Central Bank of Nepal under Nepal Rastriya Bank Act 2012 B.S. Similarly Rastriya Banijya Bank was established in 2021 B.S. The birth of these banks brought a new landmark in history of banking facilities in Nepal. Thereafter banks were established gradually.

According to Nepal Commercial Bank Act 2031 B.S.-" A commercial bank is one which exchanges money, accept deposits, grants loan and performs commercial banking functions and which is not a bank meant for co-operative agriculture industries as for such specific purpose."

Commercial banks are the central part of financial institutions and they are the most visible series of financial intermediaries. They hold deposit of many person, government through their landing and investing activities to borrow business firm, industries and individual etc. Bank is a resource for the economic development, which maintains the self-confidents of various segments of society and extends credit to people.

When the government adopted liberal and market oriented economic policy from since mid of 1980's. Nepal allows foreign banks on join venture basis to operate in the country after getting the approval from N.R.B. These foreign J.V.B's namely Nabil Bank Ltd., Nepal Indo-Suez Bank Ltd., Standard Chartered Bank Ltd. was established in 2041, 2042 and 2043 B.S. respectively. Now we have thirty commercial banks in Nepal, among of them two are under the control of government and rests fifteen are non-government and join ventures. Join ventures banks are given new horizon to the financial

sectors of the country. They were expected to bring foreign capital, technology experience, healthy competition, expertise and skills in Nepal.

Government liberal policy of allowing J.V. banks operation in Nepal is basically to encourage local traditionally run commercial banks to enhance their bankable capacity through competition, efficiency modernization mechanism via computerization and prompt customer's service. (Shrestha, 2047:44)

In Nepal, We have six join venture banks, which are Nabil Bank Ltd., Nepal Bangladesh Bank Ltd, Nepal SBI Bank Ltd, Himalayan Bank Ltd, Nepal Standard Chartered Bank Ltd., and Everest Bank Ltd.

1.2 Concept of Banking

Bank is financial institution, which plays a significance role in the development of country. The history of banking transaction is as old as our civilization. In ancient time, goldsmith used to keep people's valuable goods for the security rather than earning interest. Mostly at that time goldsmith performed this task, but now various type of banks have been acting in this field.

In England, goldsmiths were the bankers in an ancient period. They used to lend money to the government and also at the time of emergency to keep deposits for purpose. People used to keep their ornaments with goldsmith for safety. In ancient times, the function of foreign exchange also used to be done by goldsmiths, merchants and moneylenders. The terms 'bank' was originated from the Italian word 'Banco'. A bank is an business organization that receives and holds deposits from others, lends loan or extends credit and transfer funds by written others of depositors.(Encyclopedia, 1984:Vol.3)

The business in banking is one of the collecting funds from the community and extending credit to people for useful purpose. Banks have played a vital role in moving money from lenders to borrowers. Banking is the profit seeking business not a community charity. As a profit seeker it is expected to pay

dividend and otherwise add to the wealth of its shareholders. (Edmister, 1980:Ph.D. report)

In the present Nepalese context, three types of banks have been separately performing their activities in different sectors, such as central bank, commercial banks and development banks. Three types of commercial banks have been operating in Nepal in the public sector like Nepal Bank Ltd., Rastriya Banijya Bank Ltd., etc. The join venture with origin banks like Himalayan Bank Ltd., Standard Chartered Bank Ltd. etc.

Nepal Bank Ltd. is the first bank of Nepal, which was established under Nepal Bank Ltd. act 1994. This is the first organized bank of Nepal under Rastra Bank Act. 2013. Nepal Rastra Bank was established as the central bank of Nepal. After Commercial Bank Act 2031 was enacted, other commercial banks and development banks were also established.

1.2.1 Commercial Banking

Commerce is the financial transactions related to selling and buying activities of goods and services. Therefore commercial banks are those banks, which work from commercial point of view. They perform all kinds of banking functions as accepting deposits; advancing credits, credit creation and agency functions. The commercial banks are those financial institutions that deal in accepting deposits of persons and institutions and given loan against securities. They meet working capital need of trade and industry even in agriculture sectors. Moreover, commercial banks provide technical and administrative assistance to industries, trades and business.

Commercial banks are those banks, which perform all kinds of banking functions as accepting deposits, advancing credits, credit creation and agency functions etc. They provide short-term credit, medium credits and long-term credits to trade and industries. They also operate off balance sheet functions as issuing guarantee, bonds letter of credit etc.

In every country out set of economic development is quite different but there is debate about the significance role of banking sector for the economic development of the country; as they are considered as the main source of finance.

Without development of sound commercial banking, underdeveloped countries cannot hope to join the ranks of advanced countries. If industrial development requires use of capital, use of capital equipment will not be possible without the existence of banks to provide the necessary capital. Besides, industrial development will be impossible without the existence of markets to depose of the foods produced. On the other hand the existence of commercial banks will help to extend the market. The commercial banks play an important role as follows:

) Help in Business Expansion
) Encouragement to the right type of industries
) Necessary for Trade and industries
) Promotion of capital formation
) Transfer for surplus funds to needy regions

The number of commercial banks branches operating in the country in mid July 2005 totaled 422 of which 375 belonged to 17 commercial banks and the remaining 47 belonged to A.D.B.N. performing commercial banking activities. The regional distribution of these bank branches seemed to be much skewed. Of the total bank branches, 202 are being operating in the central development region, followed by eastern development region (88), and western development region (83). Only 27 and 22 branches are being operated in the mid western and far western development region respectively. (N.R.B. Directives)

Commercial banks are the heart of the financial system. They hold the deposits of many persons, government established and business units. They make fund available through their lending and investing activities to borrowers, individuals, business firms and services from the procedures to customers and for the government too. This fact shows that the commercial

banking system of the nation is important to the functioning of the economy. (Reed \ Cotter \ Gill Smith, 1976)

The commercial has its own role and contribution in the economic development. It is the source for economic development; it maintains economic confidence to various segments and extends credit to people (Grvwinshki, 1994:87)

Commercial banks are organized as a joint stock company system, primarily for the purpose of earning profit, they can be either of the branch banking types as we can see in the most of the countries with a large network branches like in Nepal or of the unit banking type, as we see in the United States where a bank operations are confined to a single office or to a few branches with in a strictly limited area (Shaker and Shaker, 1994:4)

Commercial banks obtain deposit from customers under different accounts such as savings, fixed and current. Commercial banks also provides short-term drawing as necessary for trade and commerce such as hypothecation against stock, guarantee against any deviation in performing tasks, purchasing and selling securities, treasury bills, foreign currencies, performing such tasks on the behalf of required persons. Central bank's main task is to monitor, direct and control the lending activities in the country. In Nepal, commercial banks perform their functions under the rules and regulations of the Nepal Rastra Bank as the central bank of Nepal.

To sum up, a bank is defined as financial institutions, which performs widest range of economic and financial functions of any business firms in the economy. The commercial bank is that financial institutions, which collect, scattered saving of the people and provide loan against proper securities for their productive purpose. Moreover they also provide technical help and suggestions, administrative suggestions, safekeeping of valuables, collection of bills, cheque and overdraft facilities to industries and commerce.

1.2.2 Joint Venture Banking

A joint venture bank is joining force between two or more enterprises for the purpose of carrying out specific operations like industrial of commerce investment, production or trade. When two commercial banks from different countries joint hands to form independent enterprises, it is said as joint venture commercial bank. The deliberate policy of allowing JVB in Nepal is basically to enhance local commercial bank performance viz. competition, efficiency, modernization and computerization to prompt customer services etc.

Joint venture banks in Nepal are operated under the rules and regulations, supervision, control and directives of Nepal Rastra Bank, the central bank of Nepal. Major functions performed by these banks are the regular banking services for any commercial banks. Along with that is also brings foreign capital, skills, experience and latest technology and technique. It has also introduced the modern management for employee detainment and customer's satisfaction and latest technology such as ATM, Tele-banking, Credit\ Debit cards etc. Due to international name attached to it, commercial banks might be able to raise resources internationally for viable projects due to their creditability. It is also seen that because of J.V.B.'s there has been a healthy and essential competition among the contemporary banks.

A joint venture is a form of two forces between two or more enterprises for the purpose of carrying out of specific operation like industrial or commercial investments, production trade etc.(D.P. Gupta, Banking System, its role in export development, Delhi, Tata Mc. Grew Hill, 1984, p. 15-25)

Nepalese joint venture banks should take initiation in search of new opportunities to survive in the competitive market and earn profit. There is high liquidity in the market but there seems no profitable place to invest. At the same time, the bank and financial institutions are offering very low deposit interest rate. In this situation Nepalese J.V.B.s are required to explore new opportunities to make investment if they want to survive in the competitive market. Since commercial banks can inspire entrepreneurship, the bank should also consider national interests and government emphasis for the

economic growth of the country by the development of industry, trade and business and to fulfill the objective of profit making.

Thus, conclusively, it can be said that J.V.B.s mobilize the passive funds towards trade and commerce, provide economic assistant to enterprises, create saving habits in general public investors in primary sectors etc.

1.2.3 Joint Venture Banks of Nepal

For this study, mainly we have to chosen all joint venture banks of Nepal. In the context of Nepal, we have six joint venture banks are operated which are as follows:

Table 1.1 List of Licenced J.V.B.s of Nepal

Joint Venture Banks	Operation Date	Head Office	Telephone	Fax
Nabil Bank Ltd.	16-07-1984	Kantipath, Kathmandu	44295469	429548
Standard C. B. Ltd.	30-01-1987	New Baneshwor, Kathmandu	4781469	780762
Himalayan Bank Ltd.	18-01-1993	Thamel, Kathmandu	4227749	222800
Nepal Bangladesh Bank	05-06-1993	New Baneshwor, Kathmandu	4783972	4780106
Nepal S.B.I. Bank Ltd.	07-07-1993	Hattisar, Kathmandu	435516	4435612
Everest Bank Ltd.	18-10-1994	Lazimpat, Kathmandu	4443377	4443160

Nabil Bank Ltd. is the first join venture bank established in 16th of July 1984 A.D. under the company act. Dubai Bank Ltd. The share owned by DBL were transferred to Emirates Bank International Ltd, Dubai later on EBIL sold its entire holding to National Bank Ltd., Bangladesh. This bank was established with 50% of equity hold by D.B.L., 20% from financial institutions of Nepal and sharing 30% from local public.

Standard Chartered Bank Ltd. is one of the most recognized banks in Nepal established as a Join Venture Bank. Earlier it was known as "Nepal Grind Lays Bank". It was established on Join Venture Bank between ANZ Grind Lays (Australian and New-Zealand Banking Group) and Nepal Bank Ltd. in 13th January 1987. Standard Chartered Grind Lays Bank sharing 50%, 33.34% by Nepal Bank Ltd., and rest 16.66% by general public has financed

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it. The bank-authorized capital is Rs 1000 million, Rs 500 million of issued capital and Rs 375 million of paid up capital. Currently it has 8 branches spread over 3 development regions; 2 branches at eastern region and 4 at central and 2 at western development regions.

Himalayan Bank Ltd. is a join venture bank with Habib Bank Ltd. of Pakistan, which was established in 18 June 1993 under the company act 1994. This is the first join venture bank holding with maximum share by Nepalese private sectors. Its ownership is composed of financial institutions of Nepal by 66.29%, Habib Bank Ltd. of Pakistan by 20% and general public of Nepal by 13.58%. Currently bank has Rs 1000 million of authorized Capital, Rs 600 million of issued and Rs 643 million of paid up capital. Currently it has 15 branches spread over 3-development region of the country. Still it has not any branch at mid western and far western development region.

Nepal Bangladesh Bank Ltd. was established in 5th June 1993 as a joint venture bank with I.F.I.C. bank ltd is one of the largest commercial bank of Bangladesh has a join venture exchange company in Oman and a joint venture in Pakistan. It has Rs 15 million authorized capital, Rs 1000 million issued and Rs 719.85 million paid up capital. Currently it has 17 branches spread over all 5-development regions of the country.

Nepal S.B.I. Bank Ltd. is a joint venture bank with state bank of India was established in 7th July 1993 as per act, 2031 B.S. It is the first joint venture in the financial sector sponsored by three institutions promoters, namely State Bank of India, Karmachari Sanchaya Kosh and A.D.B.N. S.B.I. Bank Ltd is considered as one of the main commercial bank of India with large no. of branches all over the India is a major promoter of S.B.I. Bank Ltd. which held 50% of equity share capital, K.S.K. holds its 15% equity, 5% equity capital hold by A.D.B.N. and rest 30% equity shares hold by general public. The bank's authorized capital is Rs. 1000 million, Rs. 500 million of issued and Rs. 431.87 million of paid up capital. Currently it has 8 branches spread over 3-development region; 2 branches at eastern development region and 4 at central and 2 at western development region.

Everest Bank Ltd. is a joint venture bank with Punjab National Bank of India was established in 18th Oct 1994. This bank is established with 20% equity capital hold by Punjab National Bank and other 80% equity capital sharing by general public of Nepal. It has Rs. 600 million authorized capital, Rs. 466.8 million of issued capital and Rs. 455 million of paid up capital. Still it has not any branch at mid western development region till 2005.

1.3 Statement of the Problem

Nepal is small country with small market. Economic condition of the country is degrading due 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 credit to limited opportunity sectors. Due to the unhealthy competition among the banks, the recovery of bank credit is going towards negatives. Non-performing credit 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 credit 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 credit risk management of the commercial banks. It is important to determine the factors affecting the default risk and its management. This study is assist to reveal how the joint venture banks of the Nepal manage the credit risk. Especially the study is expected to reveal the following research questions.

〕 What are the main causes of highly increasing credit risk in commercial banking sectors?

〕 How the commercial banks are managing the credit risk?

〕 Is the credit risk management affected by the PESTL factors?

〕 Is their any necessity to amend the existing regulation?

〕 Is the proper investment policy and practices do assist to increase the credit risk?

〕 How to make optimal management of credit risk?

1.4 Objectives of the Study

The main objective of the study is to evaluate the credit risk management of commercial banks of Nepal. In order to achieve the basic objective, the following additional objectives should be considered.

〕 To evaluate and analyze the credit risk management of joint venture banks in Nepal.

〕 To evaluate the SWOT analysis of Joint Venture Banks.

〕 To reveal recovery status of the credit disbursement.

〕 To suggest and recommend based on the basis of the major findings of the study.

1.5 Significance of the Study

Risk is inevitable factors of any types of business organization. So the business of banking is to measuring, managing and accepting risk. We know that default risk is a major factor facing by any banking industry. It is the uncertainty associated with the borrower's loan payment. Lenders should be very careful when they grant the loans, for that they need to acquire proper information about the borrowers. Successful commercial lender needs good communication skill and clear vision to analyze borrowers planning and ability. Despite of being a very crucial topic of financial management, many researches have not been made for this topic. At present the joint venture banks are gaining a wide popularity through their efficient management and professional services and playing an important role for the economic growth. This study will provides such information which is useful for shareholder's

management bodies of the bank and outsiders i.e. other financial institutions, potential investors, stock brokers etc.

1.6 Limitation of the Study

As the study is being carried out in a partial fulfillment of the requirement for the degree; master of business studies, it possesses a number of limitations of its own kind. Some of the basic limitations of the study may be as follows.

- The study will be based on data and information provided by the banks.
- The study will cover recent few year data regarding with credit management.
- Sample size is small; it may not fully represent Nepal as a whole.
- The study is largely may be depends upon the published documents such as balance sheet, profit and loss account statements etc.
- Statistical and financial technique will be used for credit risk management analysis.

1.7.   Organization of the Study

This thesis has been divided into five chapters. They are

- Introduction
- Review of Literature
- Research Methodology
- Presentation and Analysis of Data
- Summary, Conclusion and Recommendations

The introduction chapter includes the background of the study, evolution of banking sector in Nepal, introduction of commercial banking industry of Nepal, objectives of the joint venture bank, focus of the study, statement of the problem, objectives, significance and the limitations of the study etc.

The second chapter focuses on review of literature. It contains the review of books, reports, thesis and journals etc.

The third chapter deals with the research methodology to be adopted for the study consisting research design, sources of data, population and sample and method of data analysis etc.

The fourth chapter deals with presentation, analysis and interpretation of data. The last chapter will concerned with the major findings of the study, conclusion drawn from the findings and the recommendations of this study etc.

CHAPTER-2
REVIEW OF LITERATURE

2.1 INTRODUCTION

The review of literature is a crucial aspect of planning of the study. The main purpose of literature review is to find out what work have been done in the area of the research problem.

2.1.1 CONCEPT OF CREDIT

Credit is the amount of money lent by the creditors to borrower either on the basis of security or without security. Credit and advances is an important item on the asset side of the balance sheet of commercial bank. Bank earns interests on credit and advances which is one of the major sources of income for banks. Bank prepares credit portfolio; otherwise it will not only effect debts but also affect profitability adversely. (Varshney, N.P. and Swaroop, 1994:6)

Credit 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 credit on four ways :(Chhabra, T.N. and TANEJA, 1991:4)

⌡ Overdraft
⌡ Cash credit
⌡ Direct credit
⌡ Discounting of bills

For bank's overall corporate strategy and strategic plan at least three critical components are needed. They are :(Joseph, 1998:112)

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

These are the basic components provide a solid foundation for managing

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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. credit risk, market risk, and operating risk etc.

The credit 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.

2.1.2 An Overview on Credit Risk
Credit risk is defined as the possibility that a borrower will fail to meet its obligations accordance with the agreed forms and conditions. Credit risks are not restricted to lenders doing activities only, but include off balance sheet and inter bank exposures. The goal of credit 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 of credit. However other sources of credit 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 credit risk or counterpart risk in various financing, foreign exchange transaction and

guarantee and the settlement of transactions.

Credit is regard as the most income generating assets especially in commercial bank. Credit 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 should affect the overall economy.

In today's context, it also affects on national economy in some extent because if the bank provides credit 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, credit is the wealth maximization derivative. However, other factors can also affect profitability and wealth maximization but the most effective factor is regarded as credit risk. It is the most challenging task because it is the backbone in commercial banking. Thus effective management of credit should seriously be considered. Management is the system, which helps to complete the task effectively. Credit risk management is also the system, which helps to manage credit effectively. In other words, credit risk management refers the management of credit exposure arising from loans, corporate bodies and credit derivatives. Credit exposures are the main sources of investment in commercial banks and return on such investment is supposed to be main source of income.

2.1.3 Credit 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 credit 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 credit risk strategy by organizational changes, risk measurement techniques and fresh credit processes and system. While talking about the credit risk management, five C'S of credit worthiness should be considered and they are:

⌡ 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, neighbours and other places he is associated with. This job is tedious but should be carried out for secured investment.

⌡ Capacity

It can be describe as customer ability to pay. Applicants past performance record measure it. For this an interview with an applicant, 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.

⌡ 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.

⌡ 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 credit worthiness, this percentage can be made flexible.

⌡ Conditions

Borrower may be subjected to unfavourable 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.

Table2.1. Guidelines of Assessing Risk

Applicant character	Credit risk
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 Credit 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 credit risk is very important, Merton and Bodies have suggested three techniques for the management, the credit risk in their article published in the journal of Banking and Finance. (Miller & Merton, 1995:483-489)

Risk Based Pricing

It has been established that risk based pricing required lenders to change the rate that compensate for the riskiness of the loan .The pricing procedure needs to be straight forward and not based solely and historical loan loss experience. In practice loan pricing tends to follow the prime rate plus basis. Because the prime rate is not the lowest rate that a bank charges the creditworthiest customers can negotiate from the prime rate. The discount prime rate is what bank used to attempt to compete with open market instruments such as commercial paper and corporate bonds.

⌡ **Assets Restriction**

Bank lenders and other creditors have a claim on the borrower's assets. As long as the market value of assets exceeds the value of liabilities, creditors 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 creditors assets that exceed 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, than 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 credit 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.

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Risk Identification: All transactions undertaken would have one or more of the major risks i.e. liquidity risk, interest rate risk, credit 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. Credit 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 derives 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 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.

Volatility over a time horizon 'T' =Daily volatility × 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 quantity extreme losses but low probability of occurrence downside risk the most comprehensive measure of risk as if integrates sensitivity and volatility with the adverse effect of uncertainty. The value of risk measures downside risk.

Risk Pricing: Bank has to maintain necessary capital at least as per regulatory requirement. The capital required is not without courts and another factor is a probability of associated with all risks. This also needs to be factored into pricing. Therefore banks should be taken into account the following i.e. cost of deployable fund, operating expenses, loss probabilities and capital charge. Proper risk pricing can reduce the uncertainties regarding time value of money.

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 can not be isolated or in stand alone 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 credit 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 Credit 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 tolls of risk management are known as derivatives contract of activities or simply as 'derivatives'.(Joseph, 1998: 126)

The risk management framework rests on three pillars,(Froot1994: 91-102) are summarized as follows.

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

For traditional banks, this means making locus and investments and traditional 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 take over 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 credit policy

The credit policy of a firm provides the framework to determine whether or not to extend credit and loan such to extend. The credit policy decisions of banks

have two broad dimensions; credit standard and credit analysis. A firm has to establish and use standards to make credit decision, develop appropriate sources of credit information and methods of credit analysis.

Credit risk management strategy or the credit policy is a tool for analyzing and managing the credit risk. Generally the following factors are to be considered to make effective credit risk management. It is also called the factors of credit policy. It helps to get effective credit 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 Credit 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 credit**

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 credit**

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 credit**

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 loss.

⟩ **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 credit loss provision for performing credit is termed as general loss provision where as the credit loss provision for non-performing credit is termed as specific credit loss provision. Auditor has to correctly rate the credit

and ensure that accurate credit 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. Credit audit is required to check whether the credit is given within authority, drawing power etc. Credit 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 credit as per directives shall be provided as follows:

Classification of loan	Loss provision
Pass	1%
Substandard	25%
Doubtful	50%
Loss	100%

2.2 Review of Related Studies

2.2.1 Review of Relevant Articles and Journals

When government decides to establish banks with joint ventures, two benefits were expected. First that competition would force domestic banks. Thus Nepal Bank Ltd. and Rastriya Banijay Bank have to improve their services and their efficiency. Second, the introduction of new banking procedures methods and technology will occur. (Madlin C. and Snock H. Jan. 31, 1998:4)

There has been substantial growth in the number of joint venture banks in Nepal since 1990s. The basic reason behind this is the government's deliberate policy of following foreign J.V.B. to operate in Nepal. Government's liberalization policy also encourages the traditionally run domestic commercial banks to enhance their efficiency and computerization in prompt customer services by setting them to the exposure of the J.V.B. (Shrestha M.k.1990: 16)

Mr. Sharma explains in his article," Joint Venture Banks in Nepal coexisting of crowding out." (Sharma M.R.1988: 3.42) 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. Ghimire describe in his article titled " Credit 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 him, 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 norms are very lent able as they 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 credit is 5.2% in fiscal year 2001 but in fiscal year 2003, it has jumped to 18.39%. It only private banks are considered, it is 2.12% in fiscal year 2001 where as it is 30% in fiscal year 2003. He has also stated that tightening provisioning requirement on NPA is essential to ensure that banks remain liquid even during economic downturn.

ShivaRaj Shrestha, Director NRB in his article titled "Modus Operand of Risk Appraisal in Bank Lending "as above has tried to highlight different aspect of credit risk management. As per his view as the effective risk management central to good banking, the trade off between risk and return is one of the term. He concludes" effective credit risk management allows a bank to reduce

risk and potential NP. 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 credit risk strategy and supported by organizational charges, risk measurement techniques and fresh credit process and system. There are five crucial areas that management should focus on:

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

A part from these, the bank management should regularly review all assets quality issues including portfolio composition, big borrower exposures and development in credit management policy and process. He is hopeful that the bankers adopt good risk management practices and will be able to reap both strategic and operational benefits.

Mr. Thapa in his article," Financial System of Nepal"(Thapa, G.B., 1994:29-300) has expressed his view that the commercial banks including foreign J.V.B. 's seen to be doing pretty well in mobilizing deposits. Likewise, loan and advantages of these banks are also increasing but compared to the high credit 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.

Pokharel (2009), has described the agriculture credit publication stresses that highest liquidity makes financial institution   un-bankable by creating unnecessary burden of bearing the cost of capital. Dr. Pokharel expresses that most of the financial institutions are lying on uneconomic situation due to in-effectiveness of portfolio management on the other hand and deficiencies of efficient modern management on the other as for the betterment of financial possibility in portfolio project, like health, residential buildings, communication, tea gardening etc.

Dr. Pokharel further suggests that commercial banks need to make strong strategy urgently with shifting the money from fixed deposit to saving reducing the interest between deposit and interest spread in both sectors. He highlights that fixed deposit has been increasing in the ratio of 0.44 to 0.95 from 1990-1999.

2.2.2 Review of Related Thesis

Chand, Ganesh Bahadur has submitted his thesis on "Credit disbursement and repayment of A.D.B.L." on 1998 to T.U. In his thesis, he stated problem of balance development; slowness in credit collection hinder the flow of capital required to develop the economic growth as a statement of research problem. And the main objective of his study was; to analyze the repayment situation, finding out the rate of growth of investment and to explain the possible causes of none and delayed repayment. Mr. Chand had found some findings and recommendation, which are as follows:

) There is systematic relationship between credit disbursement and repayment.

) Repayment situation is satisfactory on production inputs and agro-based industry, warehouse and marketing percentage of repayment to irrigation and tea horticulture and livestock, poultry and fisheries are much less satisfactory.

) A.D.B.L. should to pay a significance role in such directions as fulfill the credit demands of the rural areas. For effective credit recovery from the borrower or client's credit should be channeled through the borrower groups.

Shrestha (2006), has outlined her major findings as follows:

It has been found that NBL has very portion of non performing loan resulting to higher provision. Hence even the bank has highest investment in most income generating assets i.e. loans and advances, it is in loss. Even the private sector bank like NABIL which has higher non performing loan and accordingly higher provision. Its average proportion on non performing loan during the study period is higher than the acceptable. However in recent two years NABIL's non performing loan has shown significant decrement and accordingly provision has also decreased. Among the three banks, SCBNL has least non performing loan and thus the least loan provision. It is also a head in generating income. From these indicators, However SCBNL seems less oriented towards lending. Hence the lower percent of NPL and provisioning of also due to relatively lower in loans and advances.

In her conclusion, it can be said that ineffective credit policy, political pressure to lend to un-credit worthy borrowers, over valuation of collateral are the major causes of NPA in government owned bank like NBL. Other factor lending to accumulation of NPA are weak loan sanctioning process, inefficient credit monitoring and supervisions system, economic slowdown, borrowers misconduct etc. in addition to this establishing recovery all, hiring assets management company are also measure to resolve the problems of NPA. More provision has to be appointed leading to lesser profitability. But this kind of negative impact is only for short period. Adequate provisioning strengthens

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the financial health of the bank and makes able to face any kind of future contingencies.

Ojha, Lilaprasad (2007), has carried out research on "Lending Practices-A Study of NABIL, SCBNL and HBL." The problems, conclusion and recommendation figured out by him, which are discussed and mentioned below.

The increasing provision on loan loss and high volume of non-performing assets, in NABIL and HBL. High volume of NPA of HBL may be caused due to the failure of industrial and agriculture sector NABIL's increased may have caused due to the failure of industrial and agriculture sector. NABIL's increased may have caused due to the accumulated bad debts that is kept behind the curtain to share the high efficiency of management. He suggested that following the normal guidelines of NRB and acting upon this also reduce many of credit risk arising from the borrowers. He recommends banks to be more cautions and realistic while granting loan and advances. The major solution of reducing risk is to avoid lending in more risky sector. As per his option, lack of proper credit appraisal, default by blacklisted borrower and professional default, the over confidence in commercial banks regarding credit approval and appraisal efficiency and negligence in taking information from credit information bureau has caused many of bad debts in these management company (AMC), which helps commercial banks in collecting their debts and improving their credit rating efficiency should be initiated.

Subba, Sanjog (2008) in his thesis on "Risk management of commercial bank in Nepal; A comparative study between KBL and MBL" has outlined major finding as follows:

"The major risk in KBL and MBL is associated with credit decision as the proportion of credit risk on total risk is high. Based on the response of structured questionnaire, it has been found that proportion of credit risk on total risk is more than 60%. The same conclusion is shown by financial statement analysis. The average loans and advances to total assets ratio of

KBL and MBL is 65.19% and 68.14% respectively. Similarly, the mobilization of deposit in credit (i.e. credit deposit ratio) also suggests that major portion of deposit ratio is invested on loan and advances. The average credit deposit ratio on KBL and MBL is 86.38% and 81.12% of total income in KBL and MBL respectively.

The credit practice of MBL shows that MBL is also granting loan without collateral, which is poor sign of credit practice. 100% of provision is to be made for this sort of loan, which reduces the bank's profit. This sort of practice is not found in case of KBL. Similarly, credit concentration on single sector of KBL and MBL shows that both banks have very high amounts of concentration in single portfolio. In manufacturing sector, KBL and MBL have 25% and 35% of total loan exposure, which is sign of "Putting all eggs in one basket". There is positive correlation between loan loss provision and loan and advances in both banks. This indicates that there is a change in LLP of both banks where there is loan and advances. Likewise LLP and non-performing loan of KBL are positively correlated where as correlation coefficient of MBL is found negative due to higher amount of loan against personal guarantee and unsecured lending. The organizational structure of KBL is found more stringent and advanced than that of MBL. In KBL, Assets Liability Management Committee (ALMCO) has mainly concerned with all types of risk management including credit risk. In MBL, credit committee which includes the member of board of directors and management is the main body for managing credit risk."

Regmi, Pawan has submitted a thesis named "Credit Management of Commercial Banks with References to Nepal Bangladesh Bank Ltd. and Bank of Kathmandu" on December 2009 to T.U., In his thesis, he has stated liquidity matters, unfair competition between banks and service institutions, lack of enough profitable investment sectors, poor recovery process and lengthy and ineffective legal process in the recovery of credit as a statement of research problem.

Mr. Regmi has concluded in his thesis that, both of the banks have sufficient liquidity. It shows that banks have not got investment sectors to utilize their liquid money; both of the banks have provided modern facilities to its customer and have used modern technology; non-performing credit are increasing. So, he concluded that credit is not satisfactory; because of increasing in non-performing credit bank should increased its provision for credit loss; lackness in efficiency in the management of credit become the process of recovery is slow; due to increase in the non-performing credit, bank's profit is decreasing year by year.

In his thesis, he has recommended some suggestions, which are as follows:

) Cash and bank balance of both banks are high. Unused cash and bank balance do not provide return to the bank, therefore, some percentage of cash and bank balance should be invest some where in profitable sectors.

) Non-performing aspects of both banks are high. It does not provide return to banks therefore bank should increase its effort to recover its credit on time.

) Weighted average capital funds of both banks are lesser than the required as per directive issued by N.R.B. Therefore, he suggested to increase the amount of the capital fund for overcome out from panelize by N.R.B.

) Few customers are unsatisfied with the service charge and interest of credit; therefore, he suggested that bank should decrease service charges and interest charges.

Khadka, Bikash (2010) in his thesis on "Credit Management of Commercial Banks in Nepal" has outlined major finding as follows:

) Average loan and advances to total deposit to total deposit ratio of BOK and NBL is 0.510 and 0.534 respectively. NBL has maintained

higher loan and advances to total deposit. IN this way, it shows that NBL seems to be strong to mobilize its total deposit as loan and advances. However, higher ratio does not mean it is always better form the point of liquidity. Both banks are capable to use more than 50% of deposit on loan and advances. If maintained this, it help make consistency on the profitability of the banks.

) NBL has lowest non performing loan to total loan and advances, this NIBL is best performer than the BOK. Banking sector is seriously affected by the non-performing loan. Both banks are not far from this above fact. If non-performing loan increase, the overall banking business will be affected. So provision amount will increase and profit will decrease. So, it is suggested that both bank (NIBL and BOK) to be sincere while granting loan and to do effective follow up for recovery of non-performing loan.

) Average loan and advances to total assets of BOK and NIBL 0.452 and 0.608 it can be concluded that the higher mean ratio indicates the good lending performance. Here BOK should focus to increase loan and advances to that asset ratio to increase lending performance.

In his Thesis, he has recommended some suggestions, which are as follows:

) Banks could be better by offering modern banking facilities and new product for the development of banking industry.

) Banks should do lot exercise in more credit creation and reducing the interest ratio for loan and advances. This will help to maintain more competitive.

CHAPTER-3
RESEARCH METHODOLOGY

3.1 Introduction

Research is the common parlance refers to a search for knowledge. The web star international dictionary gives a very inclusive definition of research as "a careful critical inquiry or examination in seeking facts and principles; diligent information in order to ascertain something." (Saravanavel, 1990:1)

A systematic methodology is required to pick an actual result of any study. Research methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in views. "Research methodology is a way to systematically solve the research problem." (Kothari, 1990:10). It may be understood as a science of studying how research is done scientifically.

This chapter deals with the methodology that adopted in analysis of the data for the study. The population and sample, sources and data collection techniques, data analysis tools, the hypothesis to be tested and various limitations, which are associated with the study, have been discussed in this chapter. IT helps us to find out accuracy, validity and suitability. The justification on the present study cannot be obtained with out help of proper research methodology. The research methodology used in present study is briefly mentioned below.

3.2 Research Design

A research design is the arrangement of condition for collecting and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Is an overall operational pattern of framework of the project that stipulates what information is to be collected from which source and by what procedures? As the study focuses to evaluate credit risk management of the banks, the research design is the study is primarily related to the credit risk management of Nepalese joint venture banks. So,

further research work, the analytical and descriptive research design are appropriated and will be adopted.

3.3 Populations and Sample

During the past decade, central bank has licensed many commercial banks to get established. So, all the commercial banks operating in Nepal are considered as the population. Thus, here only six joint venture banks are taken as sample.

Similarly, financial statements of six JVBs for five years research period have been taken as sample for the same purpose.

S.N.	Joint Venture Banks	Sample	Join Venture with
1.	Nabil Bank Ltd.	1	National B.L. Bangladesh
2.	Standard Chartered Bank Ltd.	1	ANZ, Grind Lays Bank
3.	Himalayan Bank Ltd.	1	Habib. B.L.
4.	Nepal Bangladesh Bank	1	IFIC Bank L. of Bangladesh
5.	Nepal S.B.I. Bank Ltd.	1	State Bank of India
6.	Everest Bank Ltd.	1	Punjab National Bank of India
		Sample (n)=6	

3.4 Types and Sources of Data

There are two kinds of data; primary and secondary data. The primary data are those which are collected a fresh and for the first time and thus happen to be original in character. Secondary data on an other hand are those which have already been collected by someone else and already been passes through the statistical processes.

To achieve the objectives of the study, both primary as well as secondary data has been used. Discussions and interview with existing credit takers; staff members of the related banks will be conducted to collect the primary data. In this regard questionnaire will be used as a primary data.

The secondary data has been collected through various published and unpublished documents of the concerned authorities. The sources of secondary data are as follows.

- ⟩ Journals, newspaper and magazines
- ⟩ Unpublished master degree thesis related to this research
- ⟩ Government materials related to this thesis
- ⟩ Books related to financial managements
- ⟩ Different websites

3.5 Data collection techniques

In order to collect the data, annual reports published by banks and N.R.B. economic report and other published statistical data will be used, and to obtain the additional information, informal talks and procedures will be used. Similarly, information may be collected from bulletin, booklets and journals published from relevant banks and other external sources also have been used.

In order to collect the primary data and information, the schedule has been developed and will be provided to the related parties to know their views regarding to the objectives of the study. These primary data will be assumed as original in character because they are to be collected for the first time.

On the other hand, secondary data are those which have been already collected by someone and already been passed through the statistical process. Thus, the sources of secondary data would be journals, newspaper, government material related to the study; master degree thesis related to this research, book related to financial management and different related web sides. Hence, data collection procedures consist both the way of data collection procedures.

3.6 Data Analysis Tools

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

3.6.1 Financial Tools

The financial tools are used to find the financial strength, weakness, opportunity and threats of a firm. An analysis of financial statements helps to take managerial and financial decisions. In this study, various financial tools will be employed for the sake of analysis. The basic tool for financial analysis will be ratio analysis. Beside it, risk index techniques also will be adopted.

Ratio analysis has been accepted as the most dominant financial tools to analyze and interpret the financial statements. The relationship between two figures expressed mathematically is known as financial ratio. It is the systematic use of ratio to interpret the financial statement so that the strength and weakness of the firms as well as its historical performance and current financial conditions can be determined. Thus ratio is defined as "the indicated quotient of two mathematically expresses ions, and the relationship between two or more things."(Web star's New Collegiate: 1975:95)

Alexander Wall has considered as the pioneer of ratio analysis. He presented after serious thinking, a detailed system of ratio analysis I 1990. He explained that the work of interpretation can be made easier by establishing quantitative relationship between the facts given in the financial statements.

Ratio analysis has various uses such as it is useful in financial position which helps the banks and other financial institutions in lending and making investment decisions; for forecasting purpose and making plans; for locating weak spot in business and also in comparison of performance with the contemporary firms or department. In spite of uses, there are some limitations, which rusticates it uses. If data are incorrect, it present false result; there is no common standard of comparison; it is only one method of analysis. But despite that its significance is much accepted in analyzing the financial performance of any firm. A large no.of ratio can be generated from the

components of profit and loss account and balance sheet. For this study, ratios are categorized into the following major headings.

A. Activity Ratio

Activity ratio or utilization ratio is employed to measure the efficiency of the bank managers for utilize its resources. Hence the ratios are called efficiency ratio, assets utilization ratio or turnover ratio.

This ratio indicates the efficiency, sped and rapidly with which assets have been used or converted in to sales. The greater the ratio is the more efficient the utilization of resources. Various ratios are examined under this ratio. Some of them, which are useful for this study, have been shown below.

1. Credit and Advances to Total Deposit Ratio

Commercial banks utilize the outsider's funds for profit generation purpose. Credit and advances to total deposit ratio shows whether the banks are successful to utilize the outsider's fund for the profit generate purpose on the credit and advances or not. Generally a high ratio reflects higher efficiency outsider funds and vice-versa. The ratio can be calculated by using the following formula.

$$\text{Credit and Advance to Total Deposit Ratio} = \frac{\text{Credit and advances}}{\text{Total deposit}}$$

2. Credits and Advance to Fixed Deposit Ratio

Fixed deposits are the long-term interest bearing obligations. Credit and advances are the major sources of the investment to generate the income by the commercial banks. The ratio measures how many times the amount is used in credit and advances in comparison of fixed deposit for the income generating purpose. A high ratio indicates idle cash balance meaning is not being utilized properly.

To calculate this ratio, the following formula should be used.

$$\text{Credit and Advance to Fixed Deposit Ratio} = \frac{\text{Credit and advances}}{\text{Fixed deposit}}$$

3. Credit and Advance to Total Assets Ratio

Credit and advances of any commercial banks represents the major portion in the volume of total assets. High degree of this ratio indicates the good performance of the bank in mobilizing its fund by way of lending function. This ratio is computed by dividing credit and advances by total working fund i.e. total assets, credit and advances consists of loans, cash credit & overdraft, bills discount & purchase. Its measures the ability in mobilization total assets into credit and advances for generating income. A higher ratio is considered is an adequate symbol for effective utilization of total assets of banks to credit and advances, which creates opportunities to earn more and more. This ratio can be calculated by using the following formula.

$$\text{Credit and Advance to Total Assets Ratio} = \frac{\text{Credit and advances}}{\text{Total assets}}$$

4. Performing Assets to Total Assets Ratio

It tells the percent of performing assets to total assets. It is useful to know the fact that whether the good credit is increasing or not. We can generate more earning by increasing good credit and can reduced bad and inferior credit. It teaches us to invest on the sources of the good credit. This ratio can be calculated by using the following formula.

$$\text{Performing Assets to Total Assets Ratio} = \frac{\text{Performing assets}}{\text{Total assets}}$$

B. Profitability Ratio

Profitability ratio indicated the degree of the success in achieving desired profit. Profit is the difference between revenue and expenses over a certain period of time. Profit is ultimate output of the company and its existence is not justified if it fails to make sufficient profit. So profits are essential for every firm to survive and to grow a long period of time. Profitability ratios are the

indicators degree of managerial success for achieving firm's overall efficiency of the business. The following ratios are calculating under the profitability ratio.

1. Return on Total Assets Ratio

Return on total assets explains the contribution of assets to generating net profit. This ratio indicates the efficiency of the assets mobilization. In other word, ROA is an overall profitability, which measure earning power and overall efficiency of the organization. Higher ratio indicates higher efficiency in utilizing of assets of the firm and vice versa. This ratio can be calculated as follows.

$$\text{Return on Total Assets Ratio} = \frac{\text{Net profit after tax}}{\text{Total assets}}$$

2. Return on Equity

The equity capital of the bank is its owned capital. The prime objective of any bank is wealth maximization i.e. to earn high profit by maximizing return on its equity capital. This ratio shows how efficiently the banks have utilized shareholder's funds to raise the profit. The higher ratio represents the higher efficiency of the bank in utilizing long-term funds of shareholders. It can be calculated as follows.

$$\text{Return on Equity} = \frac{\text{Net profit after tax}}{\text{Shareholder's equity}}$$

3.6.2 Statistical Tools

1. Risk Index

Basically credit risk management is reviewed by two approaches. First approach is micro approach, which is generally out by bank employee, internal auditor who can collect all and every related information to credit management. Another approach is macro approach. This approach is faster but less accurate way of estimating risk and loss exposure of banks according to Joseph F. Siney, in his book, commercial bank and financial management.

Risk index is based on macro approach to review and appraised the credit management process. It measure the bank risk exposure related to credit based on the financial information. This index is widely used and practiced in the banks for review and appraisal. Hannen Hanwack, 1998, first propounded it. Liang and Savage in 1990, Sinkey and Nash have applied it, 1993. Risk index can be computed by using following formula.

$$\text{Risk Index} = \frac{\text{E (ROA) + CAP}}{\text{S.D. (ROA)}}$$

Where,

E (ROA) = Expected return on assets

C.A.P. = Inverse of equity multiplier

S.D. (ROA) = Standard deviation of R.O.A.

Lower the risk index implies riskier bank where as higher implies safe bank. The resultant figure as per group average, or above or below the average shows that the strength and weakness of the bank's credit and administrative policies and practices.

2. Profitability of Book Value Insolvency

This figure is calculated by using the value of risk index. Profitability of book value insolvency can be expressed as half square of risk index i.e. $0.5(\text{R.I.})^2$. The resulting figure shows the thickness of the book value cushion a bank has available to absorb accounting losses. In both cases, risk index and profitability of book value insolvency, a bank with the high expected R.O.A. shows a strong capital position and stable earning, has a relatively high of risk index and a small change of exhausting its book value equity.

Profitability of Book Value Insolvency = $0.5(\text{R.I.})^2$

Where,

R.I. = Risk Index

3. Coefficient of Correlation

Correlation can be defined as a degree of linear relationship existing between two or more variables. Correlation can be categories in three types. There are simple, partial and multiple correlations. It may be positive, negative and zero. Correlation can be classified as linear and non-linear.

Coefficient of correlation is an important measure to describe how one variable explains another. It is the simplest of ascertaining the correlation between two variables. It is not influences by the size of the extreme items. Karl Pearson coefficient of correlation is usually denoted by 'r'.

$$r = \frac{N\phi XY - \phi X \phi Y}{\sqrt{[\{N \ X^2 - (\ x)^2\} \{N \ Y^2 - (\ Y)^2\}]}}$$

Where,

N = number of observations of X and Y

ϕXY = Sum of the product of the observations in series X and Y

ϕX = Sum of the observation in series X

ϕY = Sum of the observation in series Y

ϕX^2 = Sum of the square of the observation in series X

ϕY^2 = Sum of the square of the observations in series Y

4. Probable Error

P.E. denotes probable error of the correlation coefficient, which is the measure of testing the reliability of the calculated value of correlation coefficient. It can be defined as P.E. = $\bullet 0.6745(1\text{-}r^2)'/\sqrt{N}$. With the help of the P.E. it is possible to determine the reliability of the value of coefficient. Decisions rules for significant tests are:

a) If rΦP.E., the value of 'r' is not significant no matter how high the value of 'r' is, i.e. there is no evidence of correlation between the variables.

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b) If rΨP.E., the value of 'r' is significant

c) If 'r' does not satisfy either of the above two conditions the relation is inconclusive

$$P.E. = \frac{\bullet\, 0.6745\, (1\text{-}r^2)'}{\sqrt{N}}$$

5. Regression Analysis

Regression analysis is used as a tool of determining the strength of relationship between two variables. Thus, it is a statistical value of one variable when the value of other variables is known. The unknown variables, which have to be predicted, is called dependent variable and the known variable is called independent variable (Shrestha and Silwal, 2057, 249-250). The general form of simple regression line is:

$$Y = a\, \Gamma\, bx$$

Where,

Y = dependent variable

X = independent variable

a = intercept of y on x

b = slope of the regression line

In this study, simple regression analysis has been used to study that influences of P.L.L to R.O.A. as well as R.O.E. Therefore P.L.L. is the dependent variable while R.O.A. and R.O.E. are concerned as independent variables.

6. Test of Hypothesis

The test of hypothesis is a process of testing population on the basis of the sample drawn from the population. The computed value of statistics may differ from the hypothetical value of the parameters due to sampling fluctuation. If the differences are small, we consider that has arisen due to sampling fluctuation. Hence the difference is considered to be insignificant

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and the hypothesis is rejected. (Shrestha and Manandhar, Valley Publishers, P. 6-11)

Another type to measure the statistical analysis is significance of the slope of the line has been calculated. For this purpose, null hypothesis will be formulates, as the slope of the line is zero. This can be formulated as follows:

$$S_y = \sqrt{\frac{(Y)^2 - a\ (Y) - b\ (XY)}{N - 2}}$$

Where,

S_y indicates the standard error of the 'y' value

The S_y value results are again put in calculating the standard error of estimate of the slope of the line. That is;

$$S_b = \frac{Sy}{\sqrt{(X - X/N)^2}}$$

The resultant figure is put in the following formula and compared it with the tabulated value, which determine statistically significant of the slope of the line. That is,

$$Tb = \frac{b - 0}{S_b}$$

Where,

Tb indicates the calculated t-value

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

This chapter deals with the presentation and analysis of relevant data of the J.V.B.s of Nepal in order to fulfilled the objectives of the study. To obtain best result, the data have been analyzed according to the research methodology as mentioned in third chapter.

The purpose of this chapter is to introduce to the mechanics of data analysis and interpretation. Data analysis is the relationships or differences supporting or conflicting with original or new hypothesis should be subjected to statistical test of significance to determine with what validity data can be served to indicate any conclusion. This chapter divides into two parts; analysis with primary data and analysis within secondary data of joint venture banks and its findings have been discussed in this chapter.

4.1. Presentation and Analysis of Primary Data

4.1.1 Analysis of Response by Credit Customer of J.V.B.S

- Frequencies of responses of credit customers of the J.V.B. s of Nepal for the question of "Does any bank officer visit your project site at the time of granting loan?"

Table 4.1.1 Grant of Loan

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	5	55.56	4	44.44	-	-	9
N.B.L.	6	66.67	3	33.33	-	-	9
H.B.L.	6	60	4	40	-	-	10
E.B.L.	5	50	5	50	-	-	10
N.S.B.I.B.L.	5	50	5	50	-	-	10
N.B.B.L.	7	70	3	30	-	-	10

Sources: Questionnaire No.1 (Annex 1.1)

Above table shows that 77.78% credit customer sample of S.C.B.N.L. told that the bank officer visited their project site at the time of granting loan and 22.22% haven't gave the proper response for the sample question. 66.67% cre4dit customer sample of N.B.L. told that the bank officer visited their project site at the time of granting loan, 11.11% said that they do not visited

and 22.22% haven't given any proper response for the question. 80% credit customer sample of H.B.L. told that the bank officer visited their project site at the time of granting loan and 20% said they do not visited. 60% credit customer sample of E.B.L. told that the bank officer visited their project site at the time of granting loan, 30% said they do not visited and 10% haven't gave the proper response for the question. 60% credit customer sample of N.S.B.I.B.L. told that the bank officer visited their project site at the time of granting loan, 30% said they do not visited and 10% haven't gave the proper response for the question.70% credit customer sample of N.B.B.L. told that the bank officer visited their project site at the time of granting loan, 10% said they do not visited and 20% haven't gave the proper response for the question.

- Frequencies of response of credit customers of the J.V.B.s of Nepal for the question of "Do you know all information about bank policies?"

Table 4.1.2. Bank Policies

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	5	55.56	4	44.44	-	-	9
N.B.L.	6	66.67	3	33.33	-	-	9
H.B.L.	6	60	4	40	-	-	10
E.B.L.	5	50	5	50	-	-	10
N.S.B.I.B.L.	5	50	5	50	-	-	10
N.B.B.L.	7	70	3	30	-	-	10

Sources: Questionnaire No. 2(Annex 1.1)

Above table shows that 55.56% credit customer sample of S.C.B.N.L. told that they knew all information about the bank policies and 44.44% said they do not know. 66.67 credit customer sample of N.B.L. told that they knew all information about the bank policies and 33.33% said they do not know.60% credit customer sample of H.B.L. told that they knew all information about the bank policies and 40% said they do not know. 50% credit customer of E.B.L. told that they knew all information about the bank policies and 50% said they do not know. 50% credit customer sample of N.S.B.I.B.L. told that they knew all information about the bank policies and 50% said they do not know. 70% credit customer of N.B.B.L. told that they knew all information about the bank policies and 30% said they do not know.

- Frequencies of response of credit customers of the J.V.B.s of Nepal for the question of "Are you satisfied with the bank interest rate?"

Table 4.1.3. Bank Interest Rate

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	5	55.56	4	44.44	-	-	9
N.B.L.	6	66.67	3	33.33	-	-	9
H.B.L.	3	30	7	70	-	-	10
E.B.L.	3	30	7	70	-	-	10
N.S.B.I.B.L.	6	60	4	40	-	-	10
N.B.B.L.	4	40	6	60	-	-	10

Sources: Questionnaire No.3 (Annex 1.1)

Above table shows that 55.56% credit customer sample of S.C.B.N.L. told that they are satisfied with the bank interest rate and 44.44% said they are not satisfied. 66.67% credit customer sample of N.B.L.told that they are satisfied with the bank interest rate and 33.33% said they are not satisfied. 30% credit customer sample of H.B.L. told that they are satisfied with the bank interest rate and 70% said they are not satisfied. 30% credit customer sample of E.B.L. told that they are satisfied with the bank interest rate and 70% said they are not satisfied. 60% credit customer sample of N.S.B.I.B.L. told that they are satisfied with the bank interest rate and 40% said they are not satisfied. 40% credit customer sample of N.B.B.L. told that they are satisfied with the bank interest rate and 60% said they are not satisfied.

- Frequencies of response of credit customers of the J.V.B.s of Nepal for the question of "Have you received any notice before credit expiration date?"

Table 4.1.4. Credit Expiration Date

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	6	66.67	3	33.33	-	-	9
N.B.L.	8	88.89	-	-	1	11.11	9
H.B.L.	8	80	-	-	2	20	10
E.B.L.	7	70	1	10	2	20	10
N.S.B.I.B.L.	7	70	1	10	2	20	10
N.B.B.L.	8	80	1	10	1	10	10

Sources: Questionnaire No.4 (Annex1.1)

Above table shows that 66.66% credit customer sample of S.C.B.N.L. told that they received bank notice before credit expiration date and 33.33% said they do not receive. 88.89% credit customer sample of N.B.L. told that they receive bank notice before credit expiration date and 11.11% haven't given proper answer. 80% credit customer sample of H.B.L. told that they received bank notice before credit expiration date and 20% said they do not received. 70% credit customer sample of E.B.L. told that they received bank notice before credit expiration date, 10% said they do not received and 20% haven't give any response. 70% credit customer sample of N.S.B.I.B.L. told that they received bank notice, 10% said they do not receive and 20% haven't give any response. 80% credit customer sample of N.B.B.L. told that they received bank notice before credit expiration date, 10% said they do not and rest 10% haven't give proper response.

- Frequencies of response of credit customers of the J.V.B.s of Nepal for the question of "Do you feel that you have got full cooperation from the bank officer?"

- **Table 4.1.5. Co-operation from Bank Officer**

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	8	88.89	-	-	1	11.11	9
N.B.L.	7	77.78	1	11.11	1	11.11	9
H.B.L.	6	60	1	10	3	30	10
E.B.L.	6	60	4	40	-	-	10
N.S.B.I.B.L.	6	60	1	10	3	30	10
N.B.B.L.	7	70	3	30	-	-	10

Sources: Questionnaire No.5 (Annex 1.1)

Above table shows that 88.89% credit customer sample of S.C.B.N.L. told that they have got full cooperation from the bank officer and 11.11% haven't given any response. 77.78% credit customer sample of N.B.L. told that they have got full cooperation from the bank officer, 11.11% said they haven't given proper answer. 60% credit customer sample of H.B.L. told that they have got full cooperation from the bank officer, 10% said they haven't got and 30% haven't given proper response. 60% credit customer sample of E.B.L. told that they have got full cooperation from the bank officer and 10% haven't given any response. 60% credit customer sample of N.SBI.B.L. told that they have got full cooperation from the bank officer, 10% said they haven't got and 30% haven't given any response. 70% credit customer sample of N.B.B.L. told that they have got full cooperation from the bank officer and rest 30% haven't given proper response

- Frequencies of response of credit customers of the J.V.B.s of Nepal for the question of "Have you utilized the entire credit to the same sector as specified at the time of taking loan?"

Table 4.1.6. Utilization of Loan

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	9	100	-	-	-	-	9
N.B.L.	9	100	-	-	-	-	9
H.B.L.	8	80	-	-	2	20	10
E.B.L.	9	90	-	-	1	10	10
N.S.B.I.B.L.	9	90	1	10	-	-	10
N.B.B.L.	8	80	-	-	2	20	10

Sources: Questionnaire No.6 (Annex 1.1)

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Above table shows that 100% credit customer sample of S.C.B.N.L. and N.B.L. told they have utilized the entire credit to the same sector as specified at the time of taking loan. 80% credit customer sample of H.B.L. told that they have utilized the entire credit to the same sector as specified at the time of taking loan and 20% haven't given proper response. 90% credit customer sample of E.B.L. told that they have utilized the entire credit to the same sector as specified at the time of taking loan and 10% haven't give any response. 90% credit customer sample of N.SBI.B.L. told that they have utilized the entire credit to the same sector as specified at the time of taking loan and 10% said they haven't. 80 % credit customer sample of N.B.B.L. told that they have utilized the entire credit to the same sector as specified at the time of taking loan and rest 20% haven't given proper response.

- Frequencies of responses of credit customer of the J.V.B.s of Nepal for the question of "Are you satisfied with the bank's interest rate?"

Table 4.1.7. Satisfaction

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	9	100	-	-	-	-	9
N.B.L.	8	88.89	-	-	1	11.11	9
H.B.L.	8	80	1	10	1	10	10
E.B.L.	7	70	3	30	-	-	10
N.S.B.I.B.L.	7	70	2	20	1	10	10
N.B.B.L.	8	80	1	10	1	10	10

Sources: Questionnaire No.7 (Annex 1.1)

Above table shows that 100% credit customer sample of S.C.B.N.L. told that they are satisfied with the bank interest rate. 88.89% credit customer sample of N.B.L. told that they are satisfied with the bank interest rate and 11.11% haven't given proper answer. 80% credit customer sample of H.B.L. told that they are satisfied with the bank interest rate, 10% said they aren't and 10% haven't given proper response. 70% credit customer sample of E.B.L. told that they are satisfied with the bank interest rate and 30% aren't satisfied. 70% credit customer sample of N.SBI.B.L. told that they are satisfied with the bank interest rate, 20% said they aren't and 10% haven't given any response. 80% credit customer sample of N.B.B.L. told that they are satisfied with the bank

interest rate, 10% said they aren't satisfied and rest 10% haven't given proper response.

- Frequencies of responses of credit customer of the J.V.B.s of Nepal for the question of "Do you want to take further credit from the bank?"

Table 4.1.8. Further Credit

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	7	77.78	-	-	2	22.22	9
N.B.L.	8	88.89	-	-	1	11.11	9
H.B.L.	8	80	1	10	1	10	10
E.B.L.	7	70	1	10	2	20	10
N.S.B.I.B.L.	8	80	2	20	-	-	10
N.B.B.L.	8	80	1	10	1	10	10

Sources: Questionnaire No.8 (Annex 1.1)

Above table shows that 77.7% credit customer sample of S.C.B.N.L.told that they will take further credit from the same bank and 22.22% haven't given any response. 88.89% credit customer sample of N.B.L. told that they will take further credit from the same bank and 11.11% haven't given proper answer. 80% credit customer sample of H.B.L. told that they will take further credit from the same bank, 10% said they won't and rest 10% haven't given proper response. 70% credit customer sample of E.B.L. told that they will take further credit from the same bank 10% said they won't and 20% haven't given any response. 80% credit customer sample of N.SBI.B.L. told that they will take further credit from the same bank and 20% said they won't. 80% credit customer sample of N.B.B.L. told that they will take further credit from the same bank, 10% said they won't and rest 10% haven't given proper response.

- Frequencies of responses of credit customer of the J.V.B.s of Nepal for the question of "Is the service charge taken by the bank is satisfactory?"

Table 4.1.9. Service Charge

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	5	55.56	4	44.44	-	-	9
N.B.L.	6	60	3	30	1	10	10
H.B.L.	6	60	3	30	1	10	10
E.B.L.	4	40	5	50	1	10	10
N.S.B.I.B.L.	6	60	4	40	-	-	10
N.B.B.L.	3	30	5	50	2	20	10

Sources: Questionnaire No.9 (Annex 1.1)

Above table shows that 55.56% credit customer sample of S.C.B.N.L. told that they are in favor of service charge taken by the bank and 44.44% aren't in favor in bank's service charge. 60% credit customer sample of N.B.L. told that they are in favor of bank's service charges, 30% aren't in favor and 10% haven't given proper response. 60% credit customer sample of H.B.L. told that they are in favor of bank's service charges, 30% aren't in favor and rest 10% haven't given proper response. Only 40% credit customer sample of E.B.L. told that they are in favor of bank's service charges, 50% aren't in favor and 10% haven't given any response. 60% credit customer sample of N.SBI.B.L. told that they are in favor of bank's service charges and 40% aren't in favor. Only 30% credit customer sample of N.B.B.L. told that they are in favor of bank's service charges, 50% aren't in favor and rest 20% haven't given proper response.

- Frequencies of responses of credit customer of the J.V.B.s of Nepal for the question of "Are you thinking to switch off the bank in the future?"

Table 4.1.10 Future Plan

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
S.C.B.N.L.	-	-	9	100	-	-	9
N.B.L.	-	-	9	100	-	-	9
H.B.L.	1	10	9	90	-	-	10
E.B.L.	1	10	7	70	2	20	10
N.S.B.I.B.L.	2	20	8	80	-	-	10
N.B.B.L.	1	10	9	90	-	-	10

Sources: Questionnaire No.10 (Annex 1.1)

Above table shows that 100% credit customer sample of S.C.B.N.L. and N.B.L. told that they will not switch off the bank in near future. Only 10% credit customer sample of H.B.L. are planning to switch off the bank in near future but still 90% customer will not switch off the bank. Only 10% credit customer sample of E.B.L. are thinking to switch of the bank in near future, 70% will not switch off and 20% haven't given any response. 20% credit customer sample of N.SBI.B.L. told that they are thinking to switch off the bank in future and 80% will not. Only 10% credit customer sample of N.B.B.L. told that they are thinking to switch off the bank in near future but still 90% aren't thinking to switch off the bank.

4.1.2 Analysis of Response to Questionnaire by Employees of J.V.B.'s

Frequencies of Responses from Employees of S.C.B.N.L. and N.B.L.(No of response =10)

Particulars	S.C.B.N.L.		N.B.L.	
	Yes	No	Yes	
1) Are you satisfied with the bank?	8	2	7	3
2) Is there customer related problem in the bank?	8	2	10	-
3) Is there NRB related problem in the bank?	7	3	8	2
4) Is there credit policy related problem in the bank?	7	3	9	1
5) Do you know about interest rate on credit?	8	2	6	4
6) Do you see any changes needed in the process of recovering loan?	9	1	9	1
7) Is your organization obeying 'NRB directives' sincerely?	10	-	10	-
8) Are you satisfied with the incentives offered by the bank to employees?	9	1	8	2
9) If you get the opportunity, would you like to switch the bank for the same post?	-	10	-	10
10) Are you satisfied with the promotion policy of the bank?	8	2	7	3

)   S.C.B.N.L.: 8 employees out of 10 are satisfied with the bank whereas 2 employees are dissatisfied. Regular payment of salary, work facilities, promotion opportunities are the main causes of their satisfaction. Main

causes of dissatisfied respondents are 'not getting promotion as well as the bonus scheme of the bank.

N.B.L.: 7 employees are satisfied and 3 employees aren't satisfied with the working institution. Quality of work life, leave facilities, automation were the main causes of their satisfaction. Dissatisfied employee said the overload of the work, regular attention are the main causes of dissatisfaction.

⟩ S.C.B.N.L.: 8 employees are said that there was customer related problem and rest 2 employees said that there was no any customer related problems in the bank. At the time of evaluation of project, at the time of recovering loan, bank should face these problems. Lack of good customer is another major problem.

N.B.L.: 10 out of 10 employees said they should face the customer related problems.

⟩ S.C.B.N.L.: 7 employees said that there is NRB related problems whereas 3 employees said 'no'. Frequent change in rules, regulation, provisions and directives are main causes of problem.

N.B.L.: 8 employees said that there is NRB related problems whereas 2employees said 'no'. The reason is same as said by the S.C.B.N.L.that is frequent changes in rules, regulations; provisions and directives are the main causes of problem.

⟩ S.C.B.N.L.: 7 out of 10 employees of S.C.B.N.L. said that there is credit related problem in the bank and the rest employees said that there is no credit related problem in the bank. No payment of credit in time by customer slow in the legal process, increasing amount of non-performing credit are the main causes of the credit related problems.

N.B.L.: Under the employees of N.B.L., no. of 9 employees are said that there is credit policy related problem in the bank and no. of 1 employee said there is no any credit policy related problem in the bank. The causes of problem for these banks are also the same as faced by the S.C.B.N.L.

⟩ S.C.B.N.L.: 80% (8 out of 10) employees know the interest rate of the credit of the bank, 20% (2 out of 10) employees do not know the interest rate of

credit of the bank. Most of the employees who work in the credit department said they were up to dated with the interest rate of bank.

N.B.L.: 60% (6 out of 10) employees know the interest rate of credit of the bank, 40% (4 out of 10) employees do not know the interest rate of credit of the bank. There could be seen booklet of the interest rate structure of credit on the table of most employees in the credit management. So, the employees used to the same while consulting with the customers.

⟩ 9 out of 10 employees of the both bank said that there is necessary to change in the process of recovering loan. Lengthy and weak legal process of recovery is the main causes of the problem. And rest respondent said that there is no needed to changes in the process of recovering loan.

⟩ All respondents of both banks are agreed about that their bank is obeying the 'NRB rules and directives' sincerely.

⟩ S.C.B.N.L.: 9 employees out of 10 say that they are satisfied with the incentive in the bank whereas 2 employees say that they are dissatisfied with the incentive provided by the bank. They are satisfied as they compare their incentives with the high incentives paying ban

⟩ N.B.L.: 8 employees out of 10 say that are satisfied with the incentive in the bank whereas 2 employees are dissatisfied with the incentive provided by the bank. Newly appointed employees are more satisfied than the old one.

⟩ Both of the bank's all sample employees answered that they will not shift to the other bank because of the present bank has been provided all facilities to the employees.

⟩ S.C.B.N.L.: 8 employees are satisfied with the bank promotion policy. The remaining 2 employees out of 10 are dissatisfied with the bank promotion policies. Main reason of dissatisfaction is nepotism, favoritism, open recruiting policy etc.

⟩ N.B.L.: 70% employees are satisfied with the bank promotion policy and the rest 30% employees are not satisfied due to the same reason of S.C.B.N.L.

4.2. Presentation and Analysis of Secondary Data

4.2.1. Company wise Analysis

As per directives issued by N.R.B. loan and advances should be categories into performing loan and non-performing loan. Non-performing loan also must be categories into substandard, doubtful and losses. For these loans provision should be maintained which must be 25, 50 and 100% respectively.

Table 4.2.1. (A1)

Loan and loss provision of S.C.B.N.L.

(Figure in million Rs.)

Fiscal Year	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Performing loan	5752	6442	8195	9010	10593	13835	13790
Non-performing loan	248	252	226	196	197	129	91
Total provision	304	284	278	271	288	245	201

Sources: Annual Report of S.C.B.N.L

Figure 4.2.1. (A1)

Loan and loss provision of S.C.B.N.L.

Fiscal Year
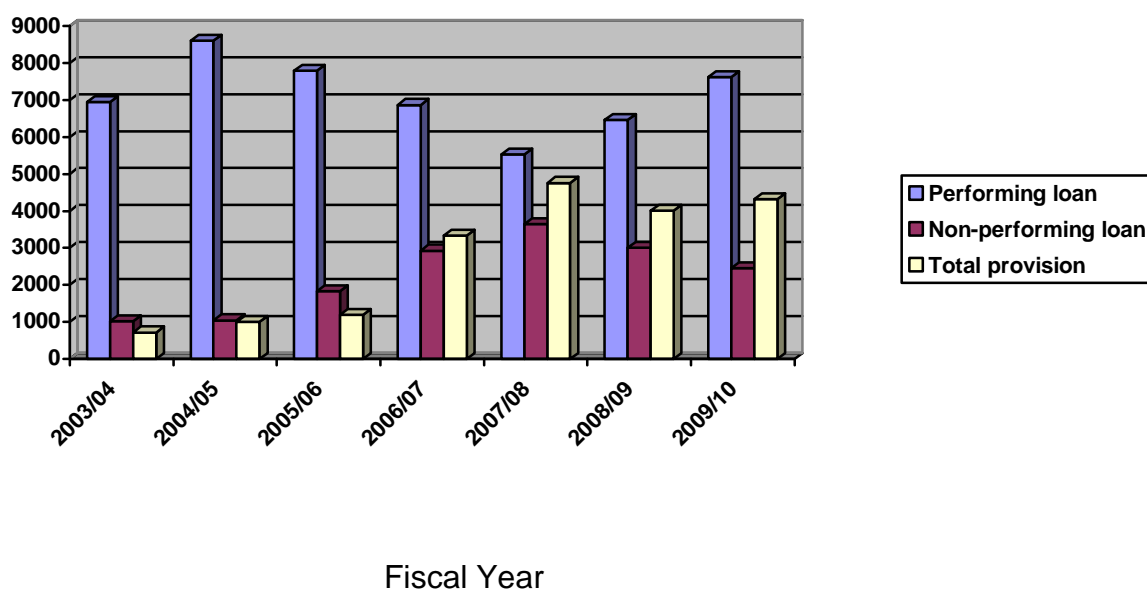
As per above figure of loan loss provision of S.C.B.N.L., its performing loan is increasing trend and non-performing loan is in decreasing trend. So the

difference between performing loan and non-performing loan is very high which shows that the bank is maintaining good loan and its credit risk position is also maintained.

Table 4.2.2. (A2)

Return Analysis of S.C.B.N.L.

Fiscal Year	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
R.O.A.	2.47	2.27	2.46	2.56	2.42	2.46	2.53
R.O.E.	41.05	35.96	33.88	37.57	32.70	32.85	33.58
P.L.L.	5.07	4.24	3.30	2.94	2.67	1.75	1.45

Figure 4.2.1. (A2)

Return Analysis of S.C.B.N.L.

Fiscal Year
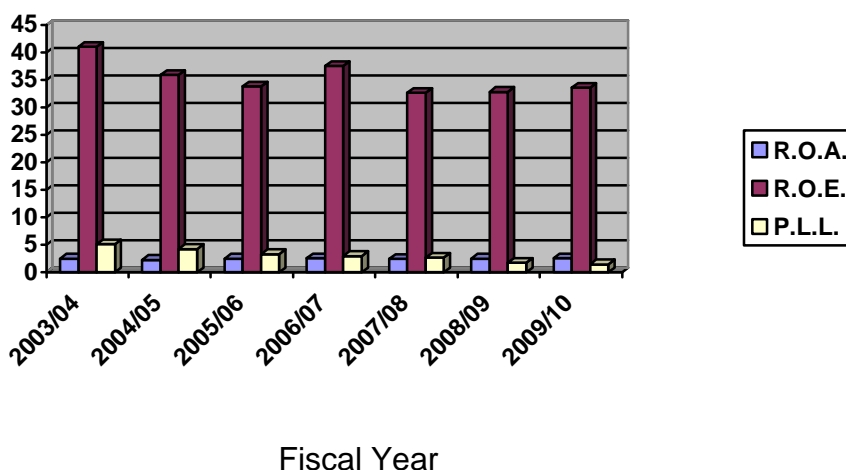
As per above figure of return analysis, it shows that there is no negative effect of loan loss provision on R.O.A.and R.O.E. Trend of return on equity and return on assets is stable R.O.E. is slightly fluctuated than R.O.A. but it has not decreased as bank has to maintain the loan loss provision.

Table 4.2.1. (B1)

Loan and loss provision of N.B.L.

(Figure in million Rs.)

Fiscal Year	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Performing loan	7664	8262	10802	13096	15725	21598	27774
Non-performing loan	450	287	145	183	178	161	225
Total provision	358	359	361	356	357	394	409

Sources: Annual Report of N.B.L.

Figure 4.2.1. (B1)

Loan and loss provision of N.B.L.

Fiscal Year
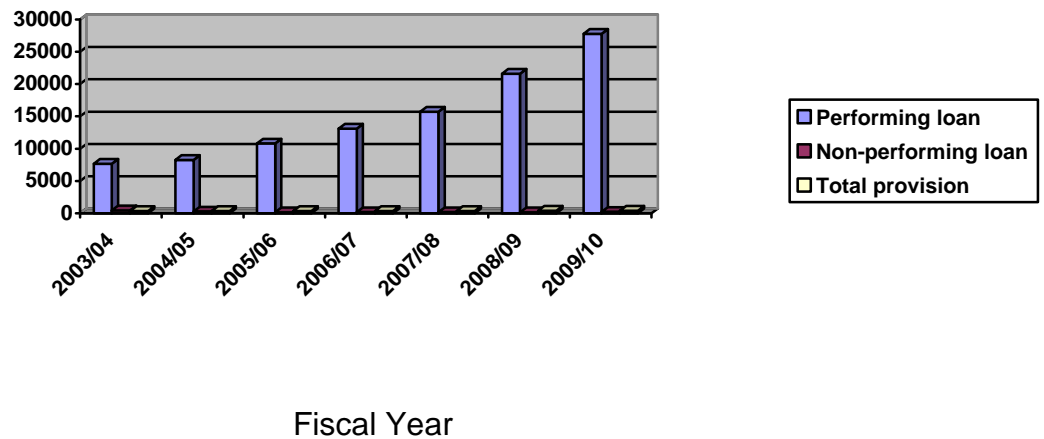
As per above figure of loan loss provision of N.B.L., its performing loan is in increasing trend and non-performing loan is in decreasing trend. The difference between performing loan and non-performing loan is very high which indicates that the bank is maintaining good loan position and its credit position is also maintained.

Table 4.2.1. (B2)

Return Analysis of N.B.L.

Fiscal Year	2003/04	2004/05	2005/06	2006/07	*2007/08*	2008/09	2009/10
R.O.A.	2.51	2.71	3.03	2.84	*2.84*	2.01	2.35
R.O.E.	31.66	30.70	31.36	33.87	*37.63*	30.61	32.94
P.L.L.	4.41	4.20	3.30	2.68	*2.24*	1.81	1.46

Figure 4.2.1. (B2)

Return Analysis of N.B.L.
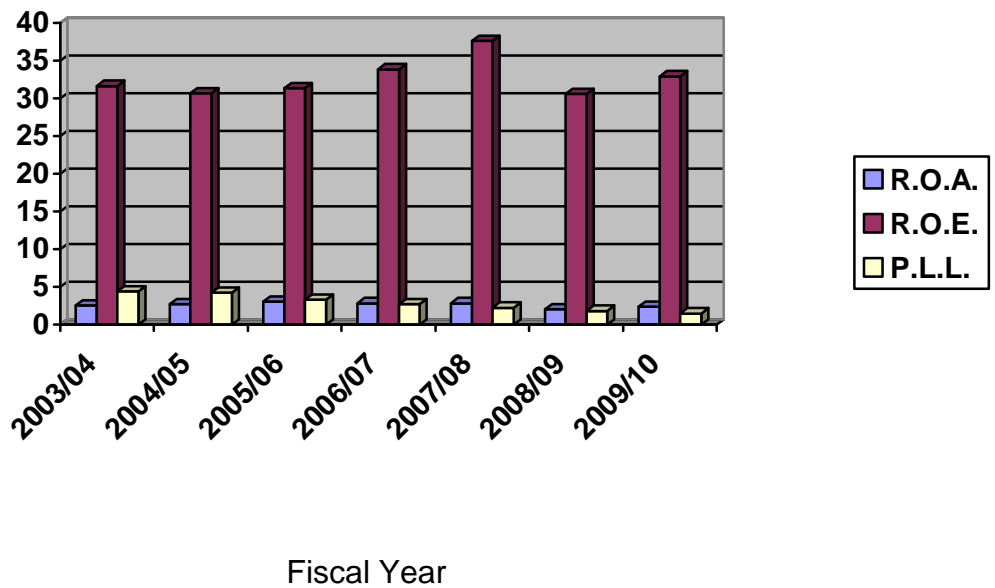
Fiscal Year

As per above figure of return analysis of N.B.L., it exhibits that there is no negative effect of loan loss provision on return on assets and return on equity. Trend of return on equity and assets are stable. It is slightly high in fiscal year 2008/09 which is good sign for the bank.

Table 4.2.1. (C1)

Loan and loss provision of H.B.L.

(Figure in million Rs.)

Fiscal Year	2003/04	2004/05	2005/06	2006/07	*2007/08*	2008/09	2009/10
Performing loan	9752	11772	12450	14721	17152	19702	24968
Non-performing loan	1093	1147	1001	1041	641	477	551
Total provision	843	968	1027	1119	796	682	726

Sources: Annual Report of H.B.L.

Figure 4.2.1. (C1)

Loan and loss provision of H.B.L.

Fiscal Year
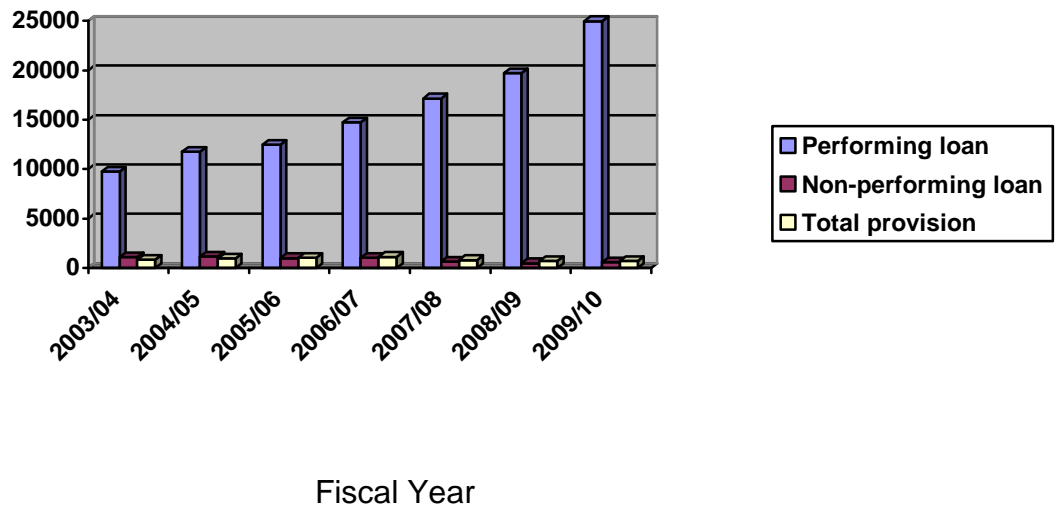
As per above figure on loan loss provision of H.B.L., its performing loan is in increasing trend and difference between the performing loan and non-performing loan is very high which shows that the bank is able to maintain the good ratio of performing loan and the percentage of loan loss provision is also as per N.R.B. rules and its credit risk position is also maintained.

Table 4.2.1. (C2)

Return Analysis of H.B.L.

Fiscal Year	2003/04	2004/05	2005/06	2006/07	*2007/08*	2008/09	2009/10
R.O.A.	0.88	1.02	1.07	1.50	1.43	1.73	1.88
R.O.E.	19.95	19.86	20.00	25.90	22.91	25.30	24.13
P.L.L.	7.77	7.49	7.64	7.10	4.47	3.38	2.84

Sources: Annual Report of H.B.L.

Figure 4.2.1. (C2)

Return Analysis of H.B.L.
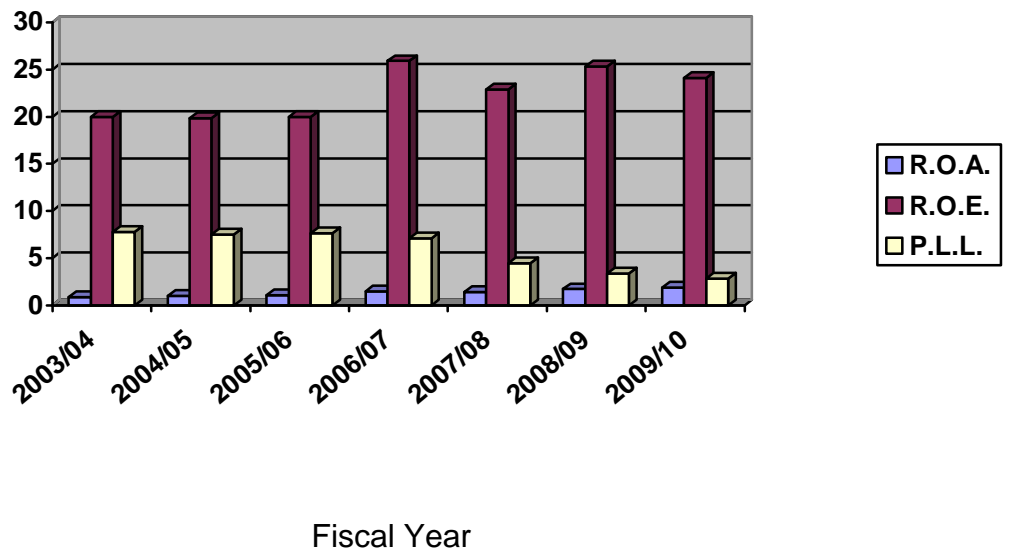
Fiscal Year

The above figure of H.B.L. shows that the trend of return on assets and equity is little fluctuated. In fiscal year 2009/10, R.O.A. is higher i.e. 1.88 and the R.O.E. is higher i.e. 25.90 in fiscal year 2006/07. Thereafter it is decreasing to increasing trend. There is no negative effect of loan loss provision on R.O.A. and R.O.E. which proved that there is no negative impact of P.L.L on R.O.A. and R.O.E.

Table 4.2.1. (D1)

Loan and loss provision of E.B.L.

(Figure in million Rs.)

Fiscal Year	2003/04	2004/05	2005/06	2006/07	*2007/08*	2008/09	2009/10
Performing loan	4938	5991	7771	10007	13970	18709	24352
Non-performing loan	111	105	129	129	113	127	118
Total provision	141	218	281	335	419	497	585

Sources: Annual Report of E.B.L

Figure 4.2.1. (D1)

Loan and loss provision of E.B.L.

Fiscal Year
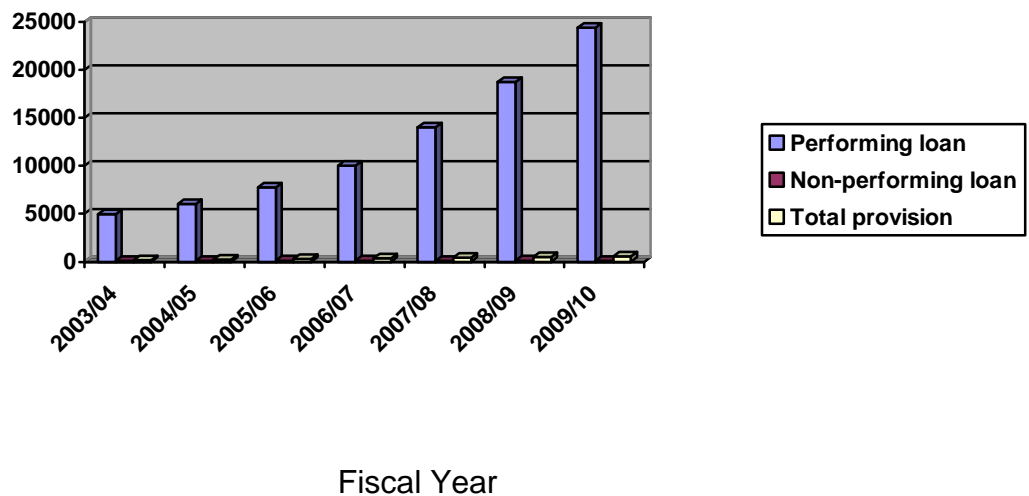
As per above figure of loan and loss provision of E.B.L., its performing loan is an increasing trend and non-performing loan is in fluctuation (i.e. decrease to increase and increase to decrease trend. The difference between performing loan and non-performing loan is very high. Decreasing trend of non-performing loan indicates the bright situation for the survival of the bank. Bank's loan position shows that it is able to manage the credit risk position and it is also following NRB regulation which is shown by the amount of loan loss provision.

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Table 4.2.1(D2)

Return Analysis of E.B.L.

Fiscal Year	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
R.O.A.	1.17	1.50	1.45	1.49	1.36	1.66	1.73
R.O.E.	15.33	21.18	17.13	19.78	19.54	21.34	24.39
P.L.L.	2.79	3.58	3.56	3.31	2.98	2.64	2.39

Sources: Annual Report of E.B.L.

Figure 4.2.1. (D2)

Return Analysis of E.B.L.

Fiscal Year
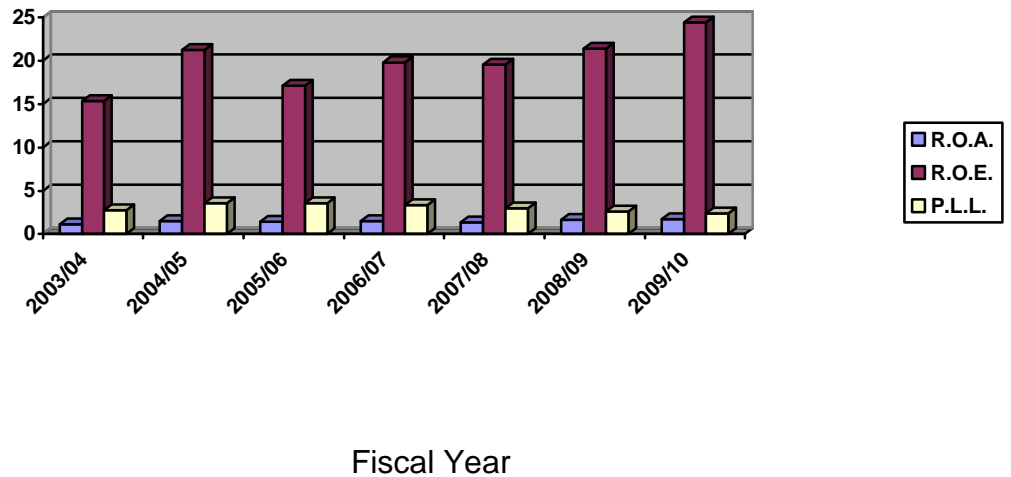
The above figure of return analysis of E.B.L. shows that the trend of return on assets and return on equity is volatile and there is no negative effect of loan loss provision on return on equity and return on assets which proves that there is no negative impact of P.L.L. on R.O.A. and R.O.E.

Table 4.2.1. (E1)

Loan and loss provision of N.SBI.B.L.

(Figure in million Rs.)

Fiscal Year	2003/04	2004/05	2005/06	2006/07	*2007/08*	2008/09	2009/10
Performing loan	4369	5186	6298	7736	9606	12258	14208
Non-Performing loan	427	346	441	505	459	488	542
Total provision	327	388	525	615	605	633	685

Sources: Annual Report of N.SBI.B.L.

Figure 4.2.1. (E1)

Loan and loss provision of N.SBI.B.L.

Fiscal Year
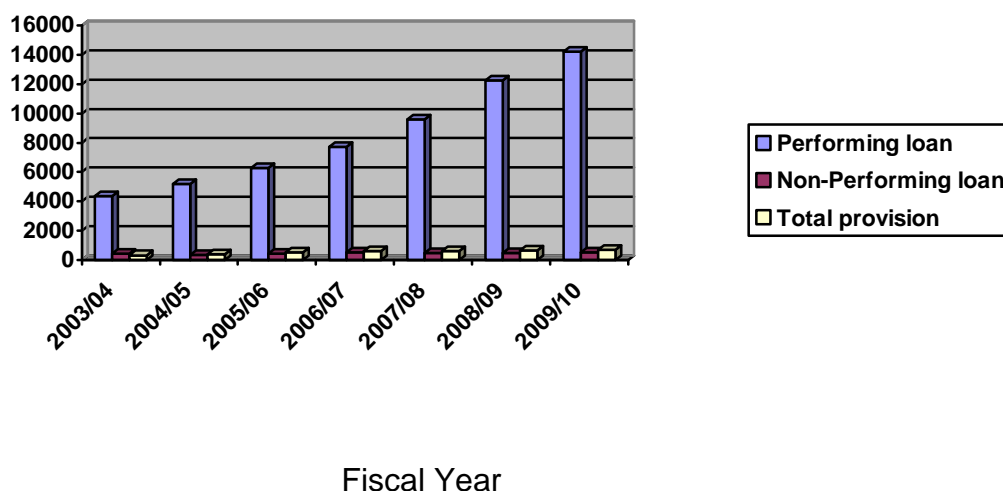
As per above figure of loan and loss provision of N.SBI.B.L, its performing loan is in increasing trend as well as P.L.L. also be increased but non-performing loan is little fluctuated in their respective year. The difference between performing loan and non-performing loan is very high which displays that the bank is maintaining good loan provision and its credit risk position should be maintained.

Table 4.2.1. (E2)

Return Analysis of N.SBI.B.L.

Fiscal Year	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
R.O.A.	0.65	0.72	0.55	0.90	1.83	1.44	1.02
R.O.E.	8.60	8.48	8.27	11.91	21.93	17.53	18.45
P.L.L.	6.82	7.01	7.79	7.46	6.01	4.97	4.64

Sources: Annual Report of N.SBI.B.L.

Figure 4.2.1. (E2)

Return Analysis of N.SBI.B.L.

Fiscal Year
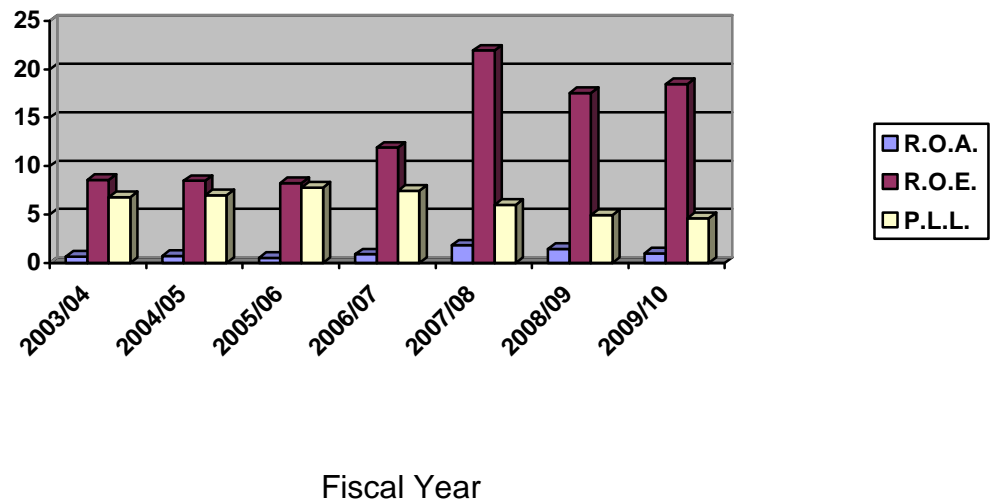
As per above figure of return analysis of N.SBI.B.L. exhibits that there is no negative effect of loan loss provision on return on assets and return on equity. Trend of return on assets and return on equity are stable or little fluctuated. It is slightly high in fiscal year 2007/08 which is good sign for the bank. Comparatively, net profit of the bank in the fiscal year 2005/06 is lower than other respective years.

Table 4.2.1. (F1)

Loan and loss provision of N.B.B.L.

(Figure in million Rs.)

Fiscal Year	2003/04	2004/05	2005/06	2006/07	*2007/08*	2008/09	2009/10
Performing loan	6948	8603	7794	6869	5523	6465	7624
Non-performing loan	1013	1042	1833	2927	3646	3005	2458
Total provision	714	996	1185	3336	4760	4012	4322

Sources: Annual Report of N.B.B.L.

Figure 4.2.1. (F1)

Loan and loss provision of N.B.B.L.
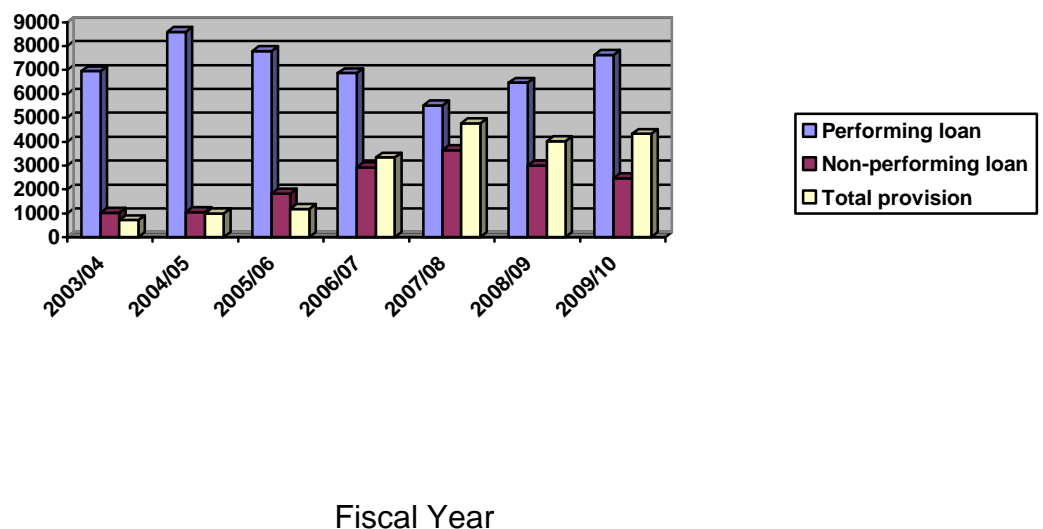
Fiscal Year

As per above figure of loan loss provision of N.B.B.L., its performing loan is in increasing trend but it has little fluctuated. It has started to increase from the fiscal year 2003/04 but slightly down in fiscal year 2006/07. Thereafter it has been increasing trend from the fiscal year 2007/08. Difference between performing loan and non-performing loan is very high indicates that the bank is maintaining good loan position. In fiscal year 2006/07, 2007/08, 2008/09

and 2009/10, the total provision is higher which means that the bank has been suffering from losses in these years.

Table 4.2.1. (F2)

Return Analysis of N.B.B.L.

Fiscal Year	2003/04	2004/05	2005/06	2006/07	*2007/08*	2008/09	2009/10
R.O.A.	0.60	0.21	0.16	-15.35	-14.64	6.35	18.04
R.O.E.	10.38	4.57	3.70	114.97	40.47	-27.20	194.06
P.L.L.	8.97	10.33	12.31	34.05	51.91	42.37	42.87

Sources: Annual Report of N.B.B.L.

Figure 4.2.1. (F2)

Return Analysis of N.B.B.L
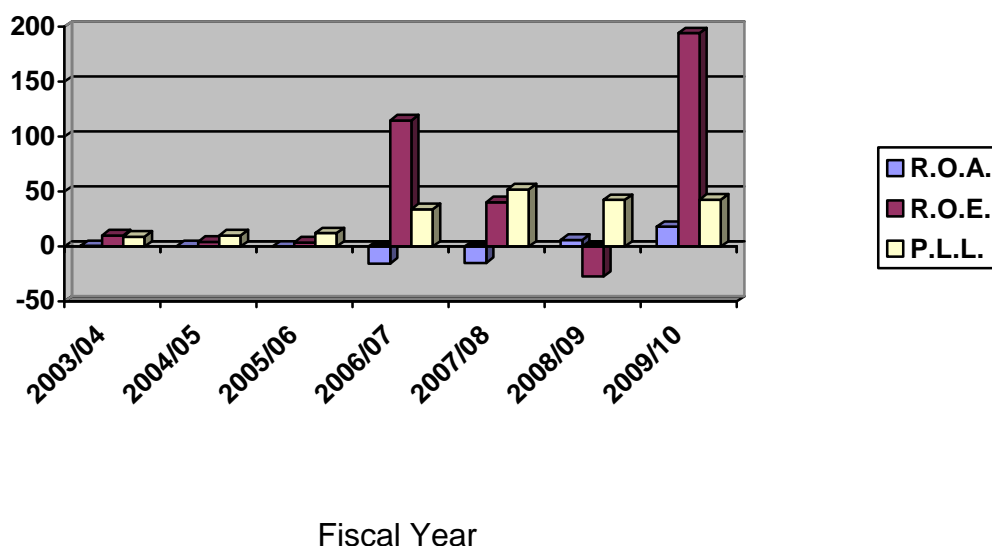
Fiscal Year

Above figure of return analysis of N.B.B.L. reveals that the return on assets are positively decreased in 1st three years whereas in fiscal year 2006/07 and 2007/08, it has been decreased negatively(or deficit) which indicates that the bank has operated due to the losses in these years. But from the fiscal year 2008/09 R.O.A. of the bank has been increased which means that the profit of the bank should be increased. It is positive sign for the bank. Similarly return on equity of the bank is also decreased in the 1st three years and thereafter it is vastly increased in fiscal year 2006/07. In fiscal year 2008/09,

R.O.E. is decreased which is bad sign for the bank. In fiscal year 2009/10, the trend of R.O.A. and R.O.E. of N.B.B.L. is very high (i.e. 18.04 and 194.06) under the study period.

A few years ago NRB has fully controlled to the N.B.B.L.'s operational activities but nowadays NRB has been dedicated of the bank's operational activities to the BOD of N.B.B.L. Nowadays N.B.B.L. has been able to improve their own banking activities and success for getting abnormal profit.

4.2.2. Financial Statement Analysis

The concept of financial statement analysis has been already discussed in previous chapter. Here we study and analyze the data by using financial tools.

Table 4.2.2. (A)

Analysis of Credit and Advance to Total Deposit Ratio

Fiscal Year	S.C.B.N.L.	N.B.L.	H.B.L.	E.B.L.	N.SBI.B.L.	N.B.B.L.
2003/04	30.37	57.68	51.53	73.31	68.43	68.44
2004/05	30.29	58.01	58.70	72.97	71.46	67.53
2005/06	42.12	72.57	54.21	78.23	71.80	67.07
2006/07	38.75	66.80	59.50	73.44	69.32	49.64
2007/08	42.61	66.60	59.22	77.44	82.66	46.97
2008/09	46.12	66.94	61.23	78.56	88.33	50.15
2009/10	38.14	73.87	71.49	71.68	54.13	67.08
Total	268.4	462.87	415.88	525.63	506.13	416.88
Average	38.34	66.07	59.41	75.09	72.30	59.55
S.D.	5.63	5.86	5.84	2.65	10.14	9.26
C.V.	14.68	8.86	9.83	3.54	14.02	15.56

Source: Annex 2

From the above table the average ratio of credit and advances to total deposit of S.C.B.N.L. is 38.34%. The fluctuation in the ratio is not too high. The lowest ratio is 30.29% and the highest ratio is 46.12% in fiscal year 2004/05 and

2008/09 respectively. Standard deviation and coefficient of variation of S.C.B.N.L. are 5.63 and 14.68 percent respectively. The consistency of the bank is 85.32%.

The average ratio of N.B.L. is 66.07%. There is medium level of fluctuation of bank's credit and advance to total deposits. Under the study period the lowest ratio is 57.68% and the higher ratio is 73.87% in fiscal year 2003/04 and 2009/10 respectively. Similarly, the standard deviation and coefficient of variation of N.B.L. are 5.86 and 8.86 percent respectively which is not high. The consistency of the bank is 91.14%.

The average ratio of H.B.L. is 59.41%. In fiscal year 2003/04, the lowest ratio of H.B.L. is 51.53% and fiscal year 2009/10 the highest ratio of the bank is 71.49% respectively. Standard deviation and coefficient of variation of H.B.L. are 5.84 and 9.83 percent respectively. The consistency of the bank is 90.17%.

The average ratio of E.B.L. is 75.09%. Fluctuation in the ratio is low. The lowest and the highest ratio are 71.68% and 78.56% in fiscal year 2009/10 and 2008/09 respectively. Standard deviation and coefficient of variation are 2.65 and 3.54% respectively. The consistency of the bank is 96.46%.

The average ratio of credit and advances to total deposit of N.SBI.B.L. is 72.30%. Fluctuation in the ratio is not high except in fiscal 2009/10. The lowest and the highest ratio are 54.13 and 88.33% in fiscal year 2009/10 and 2008/09 respectively. Standard deviation and coefficient of variation of these ratios are 10.14 and 14.02 percent respectively. The consistency of the bank is 85.98%.

The average ratio is N.B.B.L. is 59.55%. Fluctuation of the ratio is high. Under the study period, the lowest ratio and the highest ratio are 46.97 and 68.44% in fiscal year 2007/08 and 2003/04 respectively. Standard deviation and coefficient of variation of the ratios are 9.26 and 15.56% respectively. The consistency of the bank is 84.44%.

From the above table, it is clear that the combined average ratio is 61.79%. Total deposits are the main sources of the bank to provide credit and advances and 61.795 of total deposit goes as credit and advances to

customer. Therefore it seems that the banks are heavily depends on credit and advances to make profit from their investment. Similarly above table shows that as the deposit increases, the credit and advances also increase and vice versa. So, it indicates that there is strong relationship between total deposit and total credit and advances.

Table 4.2.2. (B)

Analysis of Credit and Advances to Fixed Deposit Ratio

Fiscal Year	S.C.B.N.L.	N.B.L.	H.B.L.	E.B.L.	N.SBI.B.L.	N.B.B.L.
2003/04	292.25	344.40	338.38	175.60	133.73	144.04
2004/05	448.88	354.39	274.31	203.04	153.46	177.38
2005/06	575.07	509.19	220.26	232.08	152.08	188.75
2006/07	418.31	374.69	248.22	238.94	124.71	225.32
2007/08	328.63	286.03	216.97	250.28	171.47	279.40
2008/09	415.57	252.42	303.52	292.21	176.72	467.69
2009/10	192.63	331.97	388.79	338.79	183.75	237.77
Total	2671.34	2453.09	1990.45	1730.94	1095.92	1720.35
Average	381.62	350.44	284.35	247.28	156.56	245.76
S.D.	114.00	75.54	58.86	50.42	20.47	99.38
C.V.	29.87	21.55	20.70	20.39	13.08	40.44

Source: Annex 3

Above table shows that the average ratio of credit and advances to fixed deposit of S.C.B.N.L. is 381.62%. The fluctuation in the ratio is too high. Highest ratio is 575.07% in fiscal year 2005/06 and the lowest ratio is 192.63% in fiscal year 2008/09. So the standard deviation and the coefficient of variation are 114.00 and 29.87% respectively. The consistency of the bank is 70.13%.

Similarly, according to this table the average ratio of credit and advances to fixed deposit of N.B.L. is 350.44%. The fluctuation in the ratio is high which means that the lower ratio to higher ratio is vast difference. So the lowest ratio and the highest ratio are 252.42 in fiscal year 2008/09 and 509.19 in fiscal year 2005/06 respectively. S.D. and C.V. of the bank is 75.54 and 21.55 respectively. Consistency of the bank is 78.45%.

The average ratio of H.B.L. is 284.35%. There is the medium level of fluctuation of bank's credit and advances to fixed deposit. Under the study period the lowest ratio is 216.97% and the highest ratio is 388.79% in the

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fiscal year 2007/08 and 2009/10, respectively. S.D. and C.V. of the bank is 58.86 and 20.70% respectively. The consistency of the bank is 79.30%.

The average ratio of credit and advances to fixed deposit of E.B.L. is 247.28%. The fluctuation in the ratio is not too high. Highest ratio and lowest ratio are 175.60 and 338.79% in fiscal year 2003/04 and 2009/10 respectively. S.D. and C.V. of the bank is 50.42 and 20.39% respectively. The consistency of the bank is 79.61%.

The average ratio of N.SBI.B.L. is 156.56%. The lowest ratio is 124.71 in fiscal year 2006/07 and the highest ratio is 183.75% in fiscal year 2009/10 respectively. The S.D. and C.V. of the bank is 99.38 and 40.445 respectively. So the consistency of the bank is 86.92%.

The average ratio of N.B.B.L. is 245.76%. Fluctuations in the ratios are high. The highest ratio and the lowest ratio are 467.69 and 144.04% in the fiscal year 2008/09 and 2003/04 respectively. S.D. and C.V. of the bank is 99.38 and 40.44% respectively. The bank's consistency is 59.56%.

From the above table, it is clear that the combined average ratio of credit and advances to fixed deposit of J.V.B.s are 277.67%. As we know that the ratio is measures how many times the amount is used in credit and advances in comparison of fixed deposits for the income generating purpose.

Table 4.2.2. (C)

Analysis of Credit and Advances to Total Assets Ratio

Fiscal Year	S.C.B.N.L.	N.B.L.	H.B.L.	E.B.L.	N.SBI.B.L..	N.B.B.L.
2003/04	27.24	46.83	44.82	60.95	59.00	60.81
2004/05	27.11	48.91	50.21	61.23	60.95	60.66
2005/06	37.38	61.60	46.59	66.99	60.07	57.62
2006/07	34.68	57.87	51.54	63.51	58.51	55.17
2007/08	36.73	57.04	51.85	65.71	68.05	60.77
2008/09	41.15	57.54	53.90	69.38	70.48	58.12
2009/10	33.70	62.89	63.05	64.70	48.94	56.04
Total	237.99	392.68	361.96	452.47	426.00	409.19
Average	34.00	56.10	51.71	64.64	60.86	58.46
S.D.	4.84	5.61	5.46	2.45	6.50	2.18
C.V.	14.22	10.00	10.58	3.79	10.68	3.73

Source: Annex 4

From the above table, we can conclude that the S.C.B.N.L. has generally steady trends under the study period. The average ratio is 34.00% which

exhibits that the bank has utilizing the minimum capacity of total assets in the form of credit and advances. The higher ratio in the fiscal year 2008/09 is 41.15% and the lowest ratio is 27.11% in the fiscal year 2004/05. Fluctuation in the ratio is little which is supported by standard deviation i.e. 4.84 and C.V. i.e.14.22%.

N.B.L. is an increasing trend except in 3rd and 4th year of the study period. The ratio in highest in fiscal year 2005/06 i.e. 61.60% and lowest in 2003/04 i.e. 46.83%. The average ratio as credit and advances to total assets of the bank is 56.10%. Standard deviation and coefficient of variation are 5.61 and 10.00% respectively which means that the bank has to utilize the capacity for its assets to gain income. Consistency in utilization of assets in the form of credit and advances is satisfactory.

H.B.L. has the steady trends of ratio except the 7th year of the study period. The highest ratio is 63.05% and the lowest ratio is 44.82% in fiscal year 2009/10 and 2003/04 respectively. The average ratio is 51.71% which shows that the bank has utilized its total assets properly in the form of credit and advances. The standard deviation and the coefficient of variation of H.B.L. are 5.46 and 10.58% respectively which indicates that the consistency in the utilization of assets in the form of credit by H.B.L. is good.

E.B.L. has mixed trend of the ratios under the study period. The highest ratio is 69.38 and the lowest ratio is 60.95 in fiscal year 2008/09 and 2003/04 respectively and the fluctuation rate is also little. The average ratio is 64.64 which indicate that the bank has the capability to utilize its total assets in the form of credit and advances. The standard deviation and the coefficient of variation are 2.45 and 3.79% respectively. It shows that the bank has fully used its assets at satisfaction level.

It is clear from the above table that N.SBI.B.L. has generally mixed trend under the study period. It also shows that the ratios are little fluctuated except in the fiscal year 2009/10. So the highest ratio and lowest ratio are 70.48 and

48.94% in the fiscal year 2008/09 and 2009/10 respectively. The S.D. and C.V. of these ratios are 6.50 and 10.68% respectively, it shows that the bank has uses its assets properly.

N.B.B.L. has decreasing trend in the 1st four fiscal year and then after from increase to decrease trend which means that the bank has not able to utilize its total assets properly. The highest ratio in fiscal year 2003/04 i.e. 60.815 and the lowest ratio is in fiscal year 2006/07 i.e. 55.17%. The average ratio under the study period is 58.46% which shows that the bank has utilized its total assets as credit and advances is little high which can create high difficulty for the bank. Fluctuation in the ratio is medium and the S.D. and C.V. of the ratio are 2.18 and 3.73% respectively.

The combined average ratio of credit and advances to total assets of J.V.B.s are 54.30%. Similarly, standard deviation and the coefficient of variation are 4.51% and 8.83% respectively. It shows that in an average the joint venture banks have utilized their total assets as credit and advances around 54%. It will be the good investment for bank if there is not any default situation emerge. Combined consistency level is around 91.17%.

Table 4.2.2. (D)

Analysis of Performing Assets to Total Assets Ratio

Fiscal Year	S.C.B.N.L.	N.B.L.	H.B.L.	E.B.L.	N.SBI.B.L.	N.B.B.L.
2003/04	27.51	46.27	40.30	61.33	57.75	58.29
2004/05	27.25	49.34	45.75	62.35	61.45	60.34
2005/06	37.62	62.85	43.12	65.90	60.88	55.90
2006/07	34.97	58.65	48.14	62.70	59.34	58.66
2007/08	37.04	57.70	49.98	65.18	69.10	76.13
2008/09	41.50	58.16	54.46	68.91	71.32	68.84
2009/10	33.98	63.31	63.50	65.96	45.96	63.72
Total	239.87	396.28	345.25	452.33	425.80	441.88
Average	34.27	56.61	49.32	64.62	60.83	63.13
S.D.	4.88	5.99	7.19	2.44	7.67	6.61
C.V.	14.24	10.58	14.58	3.78	12.61	10.46

Source: Annex 4

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The above table shows that the performing assets to total assets ratio of N.S.C.B.L. is little fluctuated. Highest ratio is 41.50 in fiscal year 2008/09 and the lowest ratio is 27.25 in fiscal year 2004/05 respectively. The average ratio is 34.27%. Standard deviation and coefficient of variation of the bank are 4.88 and 14.24% respectively.

Performing assets to total assets ratio of N.B.L. is mixed trend under the study period. Highest ratio is 63.31 in fiscal year 2009/10 and the lowest ratio is 57.70 in fiscal year 2007/08 respectively. Highest ratio indicates higher efficiency of proper utilization and vice versa. Average ratio, standard deviation and coefficient of variation of the bank are 56.61%, 5.99% and 10.58% respectively.

H.B.L.'s performing assets to total assets ratio has volatile trend in the study period. It means that the bank's performing assets are little fluctuated. The average ratio is 49.32%. Standard deviation and C.V. of the bank are 7.19 and 14.58% respectively.

Performing assets to total assets ratio of E.B.L. is too low fluctuated under the study period i.e. 61.33, 62.35, 65.90, 62.70, 65.18, 68.91 and 65.96% in fiscal year 2003/04, 2004/05, 2005/06, 2006/07, 2008/09 and 2009/10 in their respective year. This means that the bank has properly utilized his total assets as performing assets. So, the average ratio is 64.62%. Standard deviation and C.V. of the bank are 2.44 and 3.78% respectively.

N.SBI.B.L. performing assets to total assets ratio has volatile trend in the study period i.e. 57.75, 61.45, 60.88, 59.34, 69.10, 71.32 and 45.96% in their respective year. The average ratio is 60.83%. The standard deviation and C.V. of the bank are 7.67 and 12.61% respectively.

Performing assets to total assets ratio of N.B.B.L. is also in volatile trend i.e. 58.29, 60.34, 55.90, 58.66, 76.13, 68.84 and 63.72 in their respective year. The average ratio is 63.13% which indicates that non-performing assets are almost 37%. Consistency in the ratio is high as it is almost 90%.

The combined average ratio also shows that the performing assets ratio is 54.80% only in the seven years research period. All banks should be increase in their performing assets for prosperity of the bank.

Table 4.2.2. (E)

Trend Analysis of Combined Ratios

Particulars/F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Trend values of combined credit and advances to total deposit ratio (%)	0.5939	0.6019	0.6099	0.6179	0.6259	0.6339	0.6419
Trend values of combined credit and advances to fixed deposit ratio (%)	2.6054	2.6636	2.7218	2.7800	2.8382	2.8964	2.9546
Trend values of combined credit and advances to total assets ratio (%)	0.5100	0.5209	0.5318	0.5427	0.5536	0.5645	0.5754
Trend values of combined performing assets to total assets ratio (%)	0.4985	0.5150	0.5315	0.5480	0.5645	0.5810	0.5975

Sources: Annex 6

Figure 4.2.2. (E)

Trend Analysis of Combined Ratios

Fiscal Year

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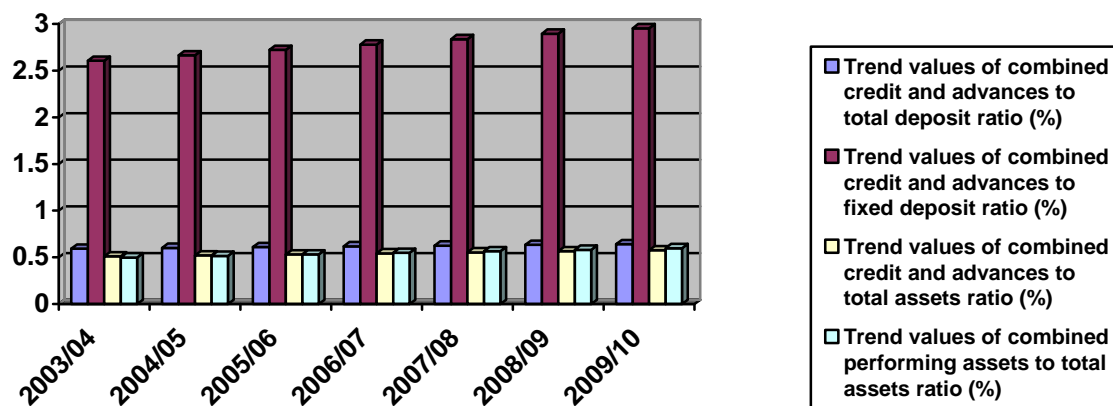
Above figure shows that the trend values of combined credit and advances to total deposit are increasing every year. The figure also shows that the trend value is 0.5939, 0.6019, 0.6099, 0.6179, 0.6259, 0.6339 and 0.6419 in fiscal year 2003/04, 2004/05, 2005/06, 2007/08, 2008/09 and 2009/10 respectively under the research period. The trend value of combined credit and advances to fixed deposit ratio is in increasing trend i.e. 2.6054, 2.6636, 2.7218, 2.7800, 2.8382, 2.8964 and 2.9546 in the fiscal year 2003/04, 2004/05, 2005/06, 2006/07, 2007/08, 2008/09 and 2009/10 respectively. Similarly the trend value of combined credit and advances to total assets are also being increase in every seven year research period. Likewise the trend value of combined performing assets to total assets is increasing trend under the 7th year's research period.

In overall trend value indicates that in the research period of time the amount of credit and advances are increasing faster than total assets and deposits.

4.2.3. Statistical Analysis

A. Standard Chartered Bank Nepal Limited

The data related to overall credit risk management is given below. Below the table is presented as shown as financial model i.e. risk index and probability of book value insolvency. Risk index indicates the higher the risk better the performance of the bank. Book value insolvency relates to the thickness of the book value cushion available absorb accounting losses. All the calculations are based on the accounting data of the bank. Risk index and book value insolvency is based on the financial date of the last seven years period starting from the fiscal year 2003/04 up to 2009/10.

Table 4.2.3. (A1)

Risk Index and Book Value Insolvency of S.C.B.N.L.

S.NO.	Description	Figure
1.	Risk Index	114.87
2.	Probability of Book Value Insolvency (%)	0.0038

Sources: Annex 7

Table 4.2.3. (A1) indicates the following decisions:

⌡ Bank has the higher risk that shows the higher return.

⌡ Probability of the book value insolvency is less than 1 percent.

The entire figure suggests that the bank's total credit risk management as good and reasonable. Higher risk index attributes of the bank has a higher expected R.O.A., strong capital position and stable earning on R.O.E. It current position shows that it has a high level of cushion to absorb accounting losses.

Table 4.2.3. (A2)

Correlation Coefficient of S.C.B.N.L.

S.NO.	P.L.L.	Correlation(r)	P.E.	Conclusion	Remarks
1.	R.O.A.	-1.4126	-0.2564	Insignificant	r < P.E.
2.	R.O.E.	0.7902	0.0958	Significant	r > P.E.

Sources: Annex 8

Table 4.2.3. (A2) Shows that the correlation coefficient between loan loss provision of R.O.A. and R.O.E., but the result is too small and consider it as insignificant.

Table 4.2.3. (A3)

Regression Coefficient of S.C.B.N.L.

S.NO.	Independent Variable	Dependent Variable	Beta(b) Coefficient	Constant (a)	T-value	Remarks
1.	P.L.L.	R.O.A.	-0.1032	2.7619	-4.2122	Insignificant
2.	P.L.L.	R.O.E.	1.8940	29.5736	2.9147	Significant

Sources: Annex 8&9

Table 4.2.3. (A3) reveals that the regression coefficient of loan loss provision for R.O.E. is positive and R.O.A. is negative but the value is not significant at 5 % level of significance, which indicates that the very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. so, null hypothesis of no relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. was accepted.

B. Nabil Bank Limited

The data is related to the overall credit risk management which is given below. The table is shows that the financial model which as below i.e. risk index and probability of book value insolvency. Risk index indicates the higher the risk better the performance of the bank. Similarly, book value insolvency is relates to the thickness of the book value cushion available to absorb accounting losses. All the calculations are based on accounting data of the bank. Risk index and book value insolvency are based on the financial data of last seven years starting from the financial year 2003/04 up to 2009/10.

Table 4.2.3. (B1)

Risk Index and Book Value Insolvency of N.B.L.

S.NO.	Description	Figure
1.	Risk Index	30.18
2.	Probability of Book Value Insolvency (%)	0.0549

Sources: Annex 7

Table 4.2.3. (B1) indicates the following decisions:

⌡ Bank has the higher risk index that indicates the higher return.

⌡ Probability of the book value insolvency is less than 1 percent.

The entire figure suggests that the bank's total credit management is good and reasonable. Higher risk index attributes of the bank has the higher expected R.O.A., strong capital position and stable earning on R.O.E. Its current position shows that it has the high level of cushion to absorb accounting losses.

Table 4.2.3. (B2)

Correlation Coefficient of N.B.L.

S.NO.	P.L.L.	Correlation(r)	P.E.	Conclusion	Remarks
1.	R.O.A.	0.4050	0.2131	Significant	r > P.E.
2.	R.O.E.	-0.4006	0.2140	Insignificant	r < P.E.

Sources: Annex 8

Table 4.2.3. (B2) Shows that the correlation coefficient between loan loss provision of R.O.A. and R.O.E., but the result is too small and consider it as insignificant.

Table 4.2.3. (B3)

Regression Coefficient of N.B.L.

S.NO.	Independent Variable	Dependent Variable	Beta(b) Coefficient	Constant (a)	T-value	Remarks
1.	P.L.L.	R.O.A.	0.1234	2.2591	0.9992	Significant
2.	P.L.L.	R.O.E.	-0.8736	35.1898	-0.1875	Insignificant

Sources: Annex 8&9

Table 4.2.3. (B3) reveals that the regression coefficient of loan loss provision for R.O.E. is negative and R.O.A. is positive but the value is not significant at 5 % level of significance, which indicates that the very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. so, null hypothesis of no relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. should be accepted.

C. Himalayan Bank Limited

The data is related to the overall credit risk management of H.B.L. and which is given below. Under the table, we are presented the financial model which as below i.e. risks index and probability of book value insolvency. Risk index indicates the higher the risk better the performance of the bank. Similarly, book value insolvency is relates to the thickness of the book value cushion available to absorb accounting losses. All the calculations are based on accounting data of the bank. Risk index and book value insolvency are based on the financial data of last seven years starting from the financial year 2003/04 up to 2009/10.

Table 4.2.3. (A1)

Risk Index and Book Value Insolvency of H.B.L.

S.NO.	Description	Figure
1.	Risk Index	15.72
2.	Probability of Book Value Insolvency (%)	0.2023

Sources: Annex 7

Table 4.2.3. (C1) indicates the following decisions:

⌡ Bank has the moderate risk

) Probability of the book value insolvency is less than 1 percent.

The entire figure suggests that the bank's total credit risk management as good and reasonable. Higher risk index attributes of the bank has a higher expected R.O.A., strong capital position and stable earning on R.O.E. It current position shows that it has a high level of cushion to absorb accounting losses.

Table 4.2.3. (C2)

Correlation Coefficient of N.B.L.

S.NO.	P.L.L.	Correlation(r)	P.E.	Conclusion	Remarks
1.	R.O.A.	-0.8936	0.0514	Insignificant	r < P.E.
2.	R.O.E.	-0.6348	0.1522	Insignificant	r < P.E.

Sources: Annex 8

Table 4.2.3. (C2) Shows that the correlation coefficient between loan loss provision to R.O.A. and R.O.E. The calculation in the table clearly shows that there is negative correlation between P.L.L. and R.O.A. as well as R.O.E., but the results is too small and consider it as insignificant.

Table 4.2.3. (C3)

Regression Coefficient of N.B.L.

S.NO.	Independent Variable	Dependent Variable	Beta(b) Coefficient	Constant (a)	T-value	Remarks
1.	P.L.L.	R.O.A.	-0.1561	2.2660	-4.7447	Insignificant
2.	P.L.L.	R.O.E.	-0.7756	27.0866	-1.8397	Insignificant

Sources: Annex 8&9

Table 4.2.3. (C3) exhibits that the regression coefficient of loan loss provision for R.O.A. and R.O.E. are negative but the value is not significant at 5 % level of significance, which indicates that the very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. so, null hypothesis of no relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. was accepted.

D. Everest Bank Limited

The following data's are related to the overall credit risk management of E.B.L. The table is shows that the financial model which as below i.e. risk index and probability of book value insolvency. Risk index indicates the higher the risk better the performance of the bank. Similarly, book value insolvency is relates to the thickness of the book value cushion available to absorb accounting losses. All the calculations are based on accounting data of the bank. Risk index and book value insolvency are based on the financial data of last seven years starting from the financial year 2003/04 up to 2009/10.

Table 4.2.3. (D1)

Risk Index and Book Value Insolvency of E.B.L.

S.NO.	Description	Figure
1.	Risk Index	50.44
2.	Probability of Book Value Insolvency (%)	0.0196

Sources: Annex 7

Table 4.2.3. (D1) indicates the following decisions:

∫ Bank has the higher risk index that indicates the higher return.

∫ Probability of the book value insolvency is less than 1 percent.

The entire figure suggests that the bank's total credit management is good and reasonable. Higher risk index attributes of the bank has the higher expected R.O.A., strong capital position and stable earning on R.O.E. Its current position shows that it has the high level of cushion to absorb accounting losses.

Table 4.2.3. (D2)

Correlation Coefficient of E.B.L.

S.NO.	P.L.L.	Correlation(r)	P.E.	Conclusion	Remarks
1.	R.O.A.	-0.3389	0.2257	Insignificant	r < P.E.
2.	R.O.E.	-0.3806	0.2180	Insignificant	r < P.E.

Sources: Annex 8

Table 4.2.3. (D2) Shows that the correlation coefficient between loan loss provision to R.O.A. and R.O.E. The calculation in the table clearly shows that there is negative correlation between P.L.L. and R.O.A. as well as R.O.E., but the results is too small and consider it as insignificant.

Table 4.2.3. (D3)

Regression Coefficient of E.B.L.

S.NO.	Independent Variable	Dependent Variable	Beta(b) Coefficient	Constant (a)	T-value	Remarks
1.	P.L.L.	R.O.A.	-0.1388	1.9048	-0.8531	Insignificant
2.	P.L.L.	R.O.E.	-2.4772	27.3333	-0.9333	Insignificant

Sources: Annex 8&9

Table 4.2.3. (D3) reveals that the regression coefficient of loan loss provision for R.O.A. and R.O.E. is negative but the value is not significant at 5 % level of significance, which indicates that the very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. Thus, null hypothesis of no relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. should be accepted.

E. Nepal SBI Bank Limited

The following data's are related to the overall credit risk management is given below. Table below presented shows the financial models i.e. risk index and probability of book value insolvency. Risk index indicates the higher the risk better the performance of the bank. Similarly, book value insolvency is relates to the thickness of the book value cushion available to absorb accounting losses. All the calculations are based on accounting data of the bank. Risk index and book value insolvency are based on the financial data of last seven years starting from the financial year 2003/04 up to 2009/10.

Table 4.2.3. (E1)

Risk Index and Book Value Insolvency of N.SBI B.L.

S.NO.	Description	Figure
1.	Risk Index	15.21
2.	Probability of Book Value Insolvency (%)	0.2161

Sources: Annex 7

Table 4.2.3. (E1) indicates the following decisions:

∫ Bank has the moderate risk with moderate return.

∫ Probability of the book value insolvency is less than 1 percent.

The entire figure suggests that the bank's total credit management is good and reasonable. Higher risk index attributes of the bank has the higher expected R.O.A., strong capital position and stable earning on R.O.E. Its current position shows that it has the high level of cushion to absorb accounting losses.

Table 4.2.3. (E2)

Correlation Coefficient of N.SBI B.L.

S.NO.	P.L.L.	Correlation(r)	P.E.	Conclusion	Remarks
1.	R.O.A.	-0.2165	0.2430	Insignificant	r < P.E.
2.	R.O.E.	0.4827	0.1955	Significant	r > P.E.

Sources: Annex 8

Table 4.2.3. (E2) exhibits that the correlation coefficient between loan loss provision to R.O.A. and R.O.E. From the table, we know that the calculation of the table clearly shows that there is negative correlation between P.L.L. and R.O.A. whereas positive correlation between P.L.L. and R.O.E., but the results is too small and consider it as insignificant.

.**Table 4.2.3. (E3)**
Regression Coefficient of N.SBI B.L.

S.NO.	Independent Variable	Dependent Variable	Beta(b) Coefficient	Constant (a)	T-value	Remarks
1.	P.L.L.	R.O.A.	-0.0170	2.5540	-0.4971	Insignificant
2.	P.L.L.	R.O.E.	1.2105	27.6403	1.2242	Significant

Sources: Annex 8&9

Table 4.2.3. (E3) reveals that the regression coefficient of loan loss provision for R.O.E. is positive and R.O.A. is negative but the value is not significant at 5 % level of significance, which indicates that the very low relationship between the independent variable P.L.L. and dependent variable R.O.A. and

R.O.E. Thus, null hypothesis of no relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. should be accepted.

F. Nepal Bangladesh Bank Limited

The following data's are related to the overall credit risk management is given below. Table below presented shows the financial models i.e. risk index and probability of book value insolvency. Risk index indicates the higher the risk better the performance of the bank. Similarly, book value insolvency is relates to the thickness of the book value cushion available to absorb accounting losses. All the calculations are based on accounting data of the bank. Risk index and book value insolvency are based on the financial data of last seven years starting from the financial year 2003/04 up to 2009/10.

Table 4.2.3. (F1)

Risk Index and Book Value Insolvency of N.B.B.L.

S.NO.	Description	Figure
1.	Risk Index	0.765
2.	Probability of Book Value Insolvency (%)	85.4472

Sources: Annex 7

Table 4.2.3. (F1) indicates the following decisions:

⌡ Bank has the very low risk indicates the lower return

⌡ Probability of the book value insolvency is less than 1 percent.

The entire figure suggests that the bank's total credit management is good and reasonable. Higher risk index attributes of the bank has the higher expected R.O.A., strong capital position and stable earning on R.O.E. Its current position shows that it has the high level of cushion to absorb accounting losses.

Table 4.2.3. (F2)

Correlation Coefficient of N.B.B.L.

S.NO.	P.L.L.	Correlation(r)	P.E.	Conclusion	Remarks
1.	R.O.A.	1.1305	-0.0709	Significant	r > P.E.
2.	R.O.E.	0.4121	0.2116	Significant	r > P.E.

Sources: Annex 8

Table 4.2.3. (F2) displays the correlation coefficient between loan loss provision to R.O.A. and R.O.E. From the table, we know that the calculation of the table clearly shows that there is negative correlation between P.L.L. and R.O.A. whereas positive correlation between P.L.L. and R.O.E., but the results is too small and consider it as insignificant.

Table 4.2.3. (F3)

Regression Coefficient of N.B.B.L.

S.NO.	Independent Variable	Dependent Variable	Beta(b) Coefficient	Constant (a)	T-value	Remarks
1.	P.L.L.	R.O.A.	0.7300	-21.8111	2.4252	Significant
2.	P.L.L.	R.O.E.	1.7899	-3.1508	1.0112	Significant

Sources: Annex 8&9

Table 4.2.3. (F3) reveals that the regression coefficient of loan loss provision for R.O.A. and R.O.E. is positive and R.O.A. is negative but the value is not significant at 5 % level of significance, which indicates that the very low relationship between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. Thus, null hypothesis of no relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. should be accepted.

4.3. Major Findings

After analyzing the credit portfolio of the joint venture banks of Nepal from both financial and statistical aspects, the major findings of the study are described below.

4.3.1. Based on the Analysis of Primary Data

1) 68.97% credit customers have accepted that the bank officers used to visit their project site or analyzed their project in depth. Similarly,

17.24% customers denied that the bank officers visit or analyze their project site before granting the loan and 13.79% customers were not given any clear response for the research question.

2) 58.62% credit customers knew all information about the bank policies and 41.38% were little unknown with the bank policies.

3) 46.55% of the customers from the sample taken in this topic were satisfied with the bank's interest rate whereas rest of the customers was not satisfied with that interest rate. 41.38% credit customers were not satisfied with the interest rate of the J.V.B.'s. It exhibits that the bank must think about this situation.

4) 75.86% credit customers were accepted that bank which gave them the credit expiration notice for their credit amount. 10.34% customers clearly denied and 13.80% customers were still confused while giving their opinion.

5) 68.97% credit customers said that the co-operation followed by the bank officers to them are quite appreciable, 17.24% customers said that co-operation given by the bank officers are not reached at that level where it has to be and 13.79% customers were not given their clear response on the bank officer's co-operation.

6) Exactly 89.66% credit customers said that they used to taken credit from the bank on that project where they clearly specified at the time of taking loan, 1.72% customers denied using the credit amount taking from the bank used on the same project where they specified and 8.62% customers were confused while giving the answer for the same question.

7) 81.04% credit customers were satisfied with their bank in the view point of there overall performance, 12.07% customers were dissatisfied with their bank at some circumstances and 6.89% were unable to give the clear answer for the same question.

8) 79.31% customers were on the favor of taking loan from same bank again and again in the future too, 8.62% customers denied to taking loan again from the same bank and said that the process taken by the

bank at the time of granting loan is little irritating and 12.07% customers can not make the proper decision either they take a loan again or not.

9) 51.72% customers were in the favor of service charge with their related bank, 41.38% customers were not in favor of bank's service charges and 6.90% customers can not make the proper decision.

10) 8.62% credit customers were not in the favor of continuing the relationship with their bank in future and like to switch off the bank if they got another bank which gives them more facilities, 87.93% customers were in favor of continuing their relation with the same bank in future too and the rest 3.45% were unable to make give proper decision.

Similarly, the ten questions were asked to the employees of the S.C.B.N.L. and N.B.L. and have got proper response from them. Both of the bank's employees are fully satisfied with the bank i.e. salaries, work facilities, automation, promotion facilities and other loan facilities etc. As we know that, these banks are success to earned abnormal profit than other commercial banks in the whole country.

4.3.2. Based on the Analysis of Secondary Data

1) Risk index and probability of the book value insolvency of S.C.B.N.L. indicates that the bank has very risk index and its probability of book value insolvency is less than one percent. This indicates that a bank has a higher current expected R.O.A., strong capital position and stable earning. And its current position exhibits that it has a high level of cushion to absorb accounting losses. Banks non-performing loan to net loan for seven years period is 2.37 %(combined), which is little high but it is in decreasing trend. It is the good sign for the bank. Again by analyzing from statistical aspect, there is insignificant relationship between independent variable P.L.L. and dependent variable R.O.A.

and R.O.E. though regression coefficient of P.L.L is negative for R.O.A. and positive for R.O.E. its t-value is not significant at 5% level of significance. It shows that the slope of the line is statistically insignificant at 5% level. Most of the credit customers of the bank are fully satisfied with the bank.

2) In the case of N.B.L., it has the lower risk index than S.C.B.N.L., in other word it shows the better performance of the bank and its current position shows that it has a high level of cushion available to absorb accounting loss. Banks non-performing loan to net loan for seven years period is just 2.11% (combined) which is very good situation for the bank and also it is in decreasing trend. Correlation coefficient regarding P.L.L. with R.O.E. is negative relationship between them but the result is small and considered it as insignificant. Under the statistical aspect, there is insignificant relationship between independent variable P.L.L. and dependent variable R.O.A. and R.O.E. though regression coefficient of P.L.L. is positive for R.O.A. and negative for R.O.E. So, its t-value is not significant at 5 % level of significance.

3. Higher risk index and book value insolvency of H.B.L. indicates that the bank has low risk i.e. 6.35% (combined). In other word, it shows that the better performance of the bank and its current position shows it has high level of cushion available to absorb accounting loss. Bank's correlation coefficient regarding P.L.L. with R.O.A. and R.O.E. indicates that there is negative relationship between P.L.L. and R.O.A. as well as P.L.L. and R.O.E. but the result are too small for both and consider it as insignificant. Regression coefficient of loan loss provision is negative for both and bank's t-value is not significant at 5 % level of significance.

4. In the case of E.B.L., risk index is high and probability of book value insolvency is les than one percent. Relatively, its risk index is higher among other J.V.B.s except S.C.B.N.L. and probability of book value insolvency should be lower than other J.V.B.s except N.B.L. and S.C.B.N.L. which is good sign for the bank for its future. Banks non – performing to net loan for seven years is just 1.27 % which is the

tremendous performance by the bank as a view point of credit risk management as. Correlation coefficient regarding to P.L.L. with R.O.A. and R.O.E. indicatess that there is negative correlation between them but the result is small and considered it as insignificant. Regression coefficient of loan loss provision with R.O.A. and R.O.E .is negative for both and bank's t-value is not significant at 5 % level of significance.

5. Nepal SBI Bank Limited data shows that risk index of the bank is moderate or comparatively low and the probability of book value insolvency is less than one percent. Banks non-performing loan to net loan for seven years period is 6.08 % (combined) which is not too high and at maintaining level and also the non-performing loan to gross loan ratio is in decreasing trend. There is negative correlation between P.L.L. and R.O.A. and positive correlation between P.L.L. and R.O.E. Again by analyzing from statistical aspect, there is insignificant relationship between independent variable P.L.L. and dependent variable R.O.A. and R.O.E. though regression coefficient of P.L.L. is positive for R.O.E. and negative for R.O.A. Its t-value is not significant at 5 % level of significance.

6. The data pertaining to N.B.B.L.shows that it has very lower risk index than other J.V.B.s and probability of book value insolvency is much more than one percent. Banks non-performing loan to net loan for seven years period is 33.94 % (combined) which is high and an increasing trend which can be generated dangerous situation to the bank. Correlation coefficient regarding P.L.L. with R.O.A. and R.O.E. indicates that there is positive relationship between them but the result is not too sufficient that's why it is considered as insignificant. Regression coefficient of P.L.L. is positive but the value is not significant at 5 % level of significance.

7. The trend of combined credit ratios of the commercial banks are increasing. With the increase in the ratio of credit, the non-performing assets have also increased it means that performing assets of the commercial banks have increasing regularly.

8. Most of the credit customers of the J.V.B.s of Nepal are satisfied with their respective banks. Few customers are suggested the bank should decrease its interest rate. As they complain the bank has decreased the deposit interest rate heavily but the credit interest rate has not lowered so much. Therefore they go under difficulty to pay the interest amount in time. Some of the credit customer of J.V.B. said that they have not got full cooperation from the bank's officer. This complains mainly for bank management who do not extend time period of reimbursement of credit when they demanded even when they have provided all the required explanation and documents. They said because of political conditions of our country, they are suffering from the economic crises but the bank does not understand their problems.

9. In the term of activity, all the J.V.B.s is able to satisfy the demand of various depositors, creditors and shareholders as well as government. All the banks are provided modern facilities to its customers and have used modern technology. Therefore they can attract good customers. It can be taken as strength of the J.V.B. In other hand, overdue creditors of all commercial banks have increased. It has damaged the income of bank. Banks have not open their branches all over the country especially in mid-western and far-western. Only Nepal Bangladesh Bank and Everest Bank have one–one branches and other J.V.B.s have not any branch at far and mid-western region. Because of this, banks are unable to grabs the opportunity from all over the Nepal.

CHAPTER-5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Summary

For the detail analysis of commercial banks in Nepal, in this study. The joint venture bank's data are collected through primary and secondary sources and different data analysis tools have been used. The hypothesis tests are done and various limitations are found out. For the analysis of data, mainly this focuses on loan loss provision, ratio analysis and their relation with the return on assets and return on equity. On an average of seven years of research period, credit and advances to total deposit ratio of Standard Chartered Bank Nepal Limited. Nabil Bank Limited, Himalayan Bank Limited, Everest Bank Limited, Nepal SBI Bank Limited and Nepal Bangladesh Bank Limited are 38.34, 66.07, 59.41, 75.09, 72.30 and 59.55 percent respectively. Likewise S.C.B.N.L., N.B.L., H.B.L., E.B.L., N.SBI.B.L. and N.B.B.L. have the average ratio of credit and advances to fixed deposit under the seven years research periods are 381.62, 350.44, 284.35, 247.28, 156.56 and 245.76 percent respectively. At the same time the average credit and advances to total assets ratio for the seven years research period of S.C.B.N.L., N.B.L., H.B.L., E.B.L., and N.SBI.B.L. and N.B.B.L. is 34.00, 56.10, 51.71, 64.64, 60.86 and 58.46 percent respectively. Similarly, the average performing assets to total assets ratio for the seven years research period of S.C.B.N.L., N.B.L., H.B.L., E.B.L., N.SBI.B.L. and N.B.B.L. 34.27, 56.61, 49.32, 64.62, 60.83 and 63.13 percent respectively. Also 64.19% of total deposits of joint venture banks (as combined) are utilized in credit and advances for the year 2008/09 and combined performing assets to total assets for 2002/03 to 2008/09 are 0.4985, 0.5150, 0.5315, 0.5480, 0.5645, 0.5810 and 0.5975 percent respectively. This indicates that the performing assets are increasing regularly in the seven years research period. As the non- performing credit has been decreases year by year, banks are generating lower credit risk which is good sign for any banks.

5.2. Conclusion

After analyzing the credit portfolio of joint venture banks of Nepal from both financial and statistical aspects we can draw some major conclusion from the study which is as follows.

All the joint venture banks have insufficiently liquidity. It shows that banks haven't got proper investment sector to utilize their liquid money. Now, in the context of Nepal, many banks and other financial institutions are functioning to collect deposit and invest money somewhere. Therefore monetarization have been increased since liberalization policy taken by the government. Heavy remittances have also helped to increase the amount of deposits of the banks. On the other hand, due to political instability and crises, economic sectors have been damaged. Most of the projects have been withdrawn due to security problems. Therefore, banks have maximum liquidity due to lack of safety investment sectors.

The entire joint venture banks have utilized most of funds in the form of credit and advances therefore it is the major part of utilizing deposits for income generating purpose. The banks have deposit born can provide many to its customers as credit and advances. For that, banks are attracting deposits to the needy areas to make profit for themselves.

Provisions for credit and losses have been increasing year by year for all joint venture banks. Due to economic condition in the country, credit takes are not getting good return from their investment. Because of this situation, credit customers do not return money of the bank in the stipulated time period. Therefore, due to the risk of default credit has increases. That's why the bank should increase its provision for credit loss.

5.3. Recommendations

These entire figure suggests that the commercial banks overall management of credit risk is good and reasonable. According to this analysis, the following

points are highlighted to put forward for the future improvement of all commercial banks.

1. Cash and bank balance of all joint venture banks are high. Unused cash and bank balance do not provide return to the bank. Therefore some percentage of cash and bank should be invested somewhere in profitable sectors. There must be a god investment decision which increases the cooperate value of the firm. It should be carried out by effective identify, organized and manage, discrete and diverse segmenting order to serve particular status of customers more effectively.

2. Good liquidity position is very necessary for commercial banks as it should be enough to meet the depositor's obligations as well as for good investment and for expansion.

3. Bank should avoid extending credit merely based on oral information presented at the credit interview. Historical financial and trade records as well as realistic cash flow projections should be obtained for purpose arrangement of the proposal. Banks also should regularly follow the credit customers to confirm that whether the customers have utilized their credit for the same purpose for the same committed at the time of taking credit from the bank.

4. Bank should be sensitive to adverse movements in external factors such as interest rates, exchange rate and commodity prices as it has direct disruption on cash trends of the bank.

5. Some customers are unsatisfied with the service charges and interest of credit; therefore banks should decrease of their service charges and interest charges. Especially NB Bank should decrease the above charges.

6. Bank should strictly band the policy of nepotism and favoritism. On the basis of capability and efficiency, employee's recruitment, placement and promotion should be executed.

7. Economic liberalization policy adopted by the government of Nepal has created an environment of strict competition even in the banking sectors. In this context, all the commercial banks are suggested to formulate and

implement some sound and effective financial and non-financial strategies to minimize their operational expenses to meet required level of profitability. N.R.B. has formulated various kinds of rules, regulation and directives. Every bank must follow these rules, regulation and directives and central bank must examine timely whether the banks follow these rules.

8. In this research, joint venture banks were taken for the study. Joint venture banks definitely have international relation. Therefore, these banks should make negotiation with the international banks to increase its transactions in the internal area.

9. Banks are one of the most reputed organizations of our country. So, bank should fulfill some social obligations by extending their resources to rural areas and promoting the development of poor and disadvantaged group. In order to do so, they should open their branches in the remote areas with the objective of providing cheaper charge banking services.

10. Every bank is operated on city areas of the country. They have not reached in rural areas for providing banking services. So, the banks should be reached in these rural areas and to collect their deposits as well as to follow the loans for developing these areas.

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APPENDICES

Annex 1.

1.1 Research Questionnaire

Dear Respondent,

I would like to request you to kindly fill up the following questionnaire prepared for the collection of your views as valuable resources for my research work. This research is conducted for partial fulfillment of the requirement of Masters of Business Studies (M.B.S.) degree. The research topic is credit risk management of joint venture banks in Nepal. The views provided by you will be taken as the input of this research work only and will not be made public.

Your kind cooperation will be helpful to complete this research successfully.

Thank you.

Please place ( ) mark on the correct box and express your ideas and views where necessary

1.1 Questionnaire used for Response by credit customer of J.V.B. s

S.N.	Particulars	Yes	No
1.	Does any bank officer visit your project site at the time of granting loan?		
2.	Do you know all information about bank policies?		
3.	Are you satisfied with the bank interest rate?		
4.	Have you received any notice before credit expiration date?		
5.	Do you fell that you have got full cooperation from the bank officer?		
6.	Have you utilized the entire credit to the same sector as specified at the time of taking loan?		
7.	Are you satisfied with the interest rate of the bank?		
8.	Do you want to take further credit from the bank?		
9.	Is the service charge taken by the bank is satisfactory?		

10.	Are you thinking to switch off the bank in the future?		

About Respondent

⟩ Name

⟩ Office

⟩ Address

⟩ Position

1.2. List of Respondent

S.N.	Particulars	Respondent
1.	Individual	
2.	Institutional	

1.3. Questionnaire used for Response from Employees of S.C.B.N.L. and N.B.L.

S.N.	Particulars	Yes	No
1.	Are you satisfied with the bank?		
2.	Is there customer related problem in the bank?		
3.	Is there NRB related problem in the bank?		
4.	Is there credit policy related problem in the bank?		
5.	Do you know about interest rate on credit?		
6.	Do you see any changes needed in the process of recovering loan?		
7.	Is your organization obeying 'NRB directives' sincerely?		
8.	Are you satisfied with the incentive offered by the bank to employees?		
9.	If you get the opportunity, would you like to switch the bank for the same post?		
10.	Are you satisfied with the promotion policy of the bank?		

Annex 2. Credit and Advances to Total Deposit Ratio (Fig. in million Rs.)

Fiscal	S.C.B.N.L.	N.B.L.

Year	Total Credit &Advances	Total Deposits	Ratio (%)	Total Credit & Advances	Total Deposits	Ratio (%)
2003/04	5696	18756	30.37	7756	13447	57.68
2004/05	6410	21161	30.29	8190	14119	58.01
2005/06	8143	19335	42.12	10586	14587	72.57
2006/07	8935	23061	38.75	12923	19347	66.80
2007/08	10503	24647	42.61	15546	23342	66.60
2008/09	13718	29744	46.12	21365	31915	66.94
2009/10	13680	35872	38.14	27590	37348	73.87
Fiscal Year	H.B.L.			E.B.L.		
	Total Credit &Advances	Total Deposits	Ratio (%)	Total Credit & Advances	Total Deposits	Ratio (%)
2003/04	10845	21045	51.53	4908	6695	73.31
2004/05	12920	22010	58.70	5884	8064	72.97
2005/06	13451	24814	54.21	7900	10098	78.23
2006/07	15762	26491	59.50	10136	13802	73.44
2007/08	17794	30048	59.22	14083	18186	77.44
2008/09	19498	31842	61.23	18836	23976	78.56
2009/10	24793	34681	71.49	23885	33323	71.68
Fiscal Year	N.SBI.B.L.			N.B.B.L.		
	Total Credit & Advances	Total Deposits	Ratio (%)	Total Credit & Advances	Total Deposits	Ratio (%)
2003/04	4464	6523	68.43	7248	10591	68.44
2004/05	5144	7198	71.46	8649	12807	67.53
2005/06	6214	8655	71.80	8033	11977	67.07
2006/07	7627	11002	69.32	6460	13015	49.64
2007/08	9460	11445	82.66	4409	9386	46.97
2008/09	12114	13715	88.33	5458	10884	50.15
2009/10	15132	27957	54.13	6705	9995	67.08

Annex 3 Credit and Advances to Fixed Deposit Ratio (Fig. in million Rs.)

Fiscal Year	S.C.B.N.L.			N.B.L.		
	Total Credit & Advances	Fixed Deposits	Ratio (%)	Total Credit & Advances	Fixed Deposits	Ratio (%)
2003/04	5696	1949	292.25	7756	2252	344.40
2004/05	6410	1428	448.88	8190	2311	354.39
2005/06	8143	1416	575.07	10586	2079	509.19
2006/07	8935	2136	418.31	12923	3449	374.69
2007/08	10503	3196	328.63	15546	5435	286.03
2008/09	13718	3301	415.57	21365	8464	252.42
2009/10	13680	7102	192.63	27590	8311	331.97
Fiscal Year	H.B.L.			E.B.L.		
	Total Credit & Advances	Fixed Deposits	Ratio (%)	Total Credit & Advances	Fixed Deposits	Ratio (%)
2003/04	10845	3205	338.38	4908	2795	175.60
2004/05	12920	4710	274.31	5884	2898	203.04
2005/06	13451	6107	220.26	7900	3404	232.08
2006/07	15762	6350	248.22	10136	4242	238.94
2007/08	17794	8201	216.97	14083	5627	250.28
2008/09	19498	6424	303.52	18836	6446	292.21
2009/10	24793	6377	388.79	23885	7050	338.79
Fiscal Year	N.SBI.B.L.			N.B.B.L.		
	Total Credit & Advances	Fixed Deposits	Ratio (%)	Total Credit & Advances	Fixed Deposits	Ratio (%)
2003/04	4464	3338	133.73	7248	5032	144.04
2004/05	5144	3352	153.46	8649	4876	177.38
2005/06	6214	4086	152.08	8033	4256	188.75
2006/07	7627	6116	124.71	6460	2867	225.32
2007/08	9460	5517	171.47	4409	1578	279.40
2008/09	12114	6855	176.72	5458	1167	467.69
2009/10	15132	8235	183.75	6705	2820	237.77

Annex 4. Credit and Advances to Total Assets Ratio

Fiscal Year	S.C.B.N.L.			N.B.L.		
	Total Credit & Advances	Total Assets	Ratio (%)	Total Credit & Advances	Total Assets	Ratio (%)
2003/04	5696	20911	27.24	7756	16563	46.83
2004/05	6410	23642	27.11	8190	16745	48.91
2005/06	8143	21782	37.38	10586	17186	61.60
2006/07	8935	25767	34.68	12923	22330	57.87
2007/08	10503	28597	36.73	15546	27253	57.04
2008/09	13718	33336	41.15	21365	37133	57.54
2009/10	13680	40587	33.70	27590	43867	62.89

Fiscal Year	H.B.L.			E.B.L.		
	Total Credit & Advances	Total Assets	Ratio (%)	Total Credit & Advances	Total Assets	Ratio (%)
2003/04	10845	24198	44.82	4908	8052	60.95
2004/05	12920	25730	50.21	5884	9609	61.23
2005/06	13451	28871	46.59	7900	11792	66.99
2006/07	15762	30580	51.54	10136	15959	63.51
2007/08	17794	34315	51.85	14083	21433	65.71
2008/09	19498	36176	53.90	18836	27149	69.38
2009/10	24793	39320	63.05	23885	36917	64.70

Fiscal Year	N.SBI.B.L.			N.B.B.L.		
	Total Credit & Advances	Total Assets	Ratio (%)	Total Credit & Advances	Total Assets	Ratio (%)
2003/04	4464	7566	59.00	7248	11919	60.81
2004/05	5144	8440	60.95	8649	14258	60.66
2005/06	6214	10345	60.07	8033	13942	57.62
2006/07	7627	13036	58.51	6460	11709	55.17
2007/08	9460	13901	68.05	4409	7255	60.77
2008/09	12114	17187	70.48	5458	9391	58.12
2009/10	15132	30917	48.94	6705	11965	56.04

Annex 5.Performing Assets to Total Assets Ratio (Fig. in million Rs.)

Fiscal	S.C.B.N.L.	N.B.L.

Year	Performing Assets	Total Assets	Ratio (%)	Performing Assets	Total Assets	Ratio (%)
2003/04	5752	20911	27.51	7664	16563	46.27
2004/05	6442	23642	27.25	8262	16745	49.34
2005/06	8195	21782	37.62	10802	17186	62.85
2006/07	9010	25767	34.97	13096	22330	58.65
2007/08	10593	28597	37.04	15725	27253	57.70
2008/09	13835	33336	41.50	21598	37133	58.16
2009/10	13790	40587	33.98	27774	43867	63.31
Fiscal Year	H.B.L.			E.B.L.		
	Performing Assets	Total Assets	Ratio (%)	Performing Assets	Total Assets	Ratio (%)
2003/04	9752	24198	40.30	4938	8052	61.33
2004/05	11772	25730	45.75	5991	9609	62.35
2005/06	12450	28871	43.12	7771	11792	65.90
2006/07	14721	30580	48.14	10007	15959	62.70
2007/08	17152	34315	49.98	13970	21433	65.18
2008/09	19702	36176	54.46	18709	27149	68.91
2009/10	24968	39320	63.50	24352	36917	65.96
Fiscal Year	N.SBI.B.L.			N.B.B.L.		
	Performing Assets	Total Assets	Ratio (%)	Performing Assets	Total Assets	Ratio (%)
2003/04	4369	7566	57.75	6948	11919	58.29
2004/05	5186	8440	61.45	8603	14258	60.34
2005/06	6298	10345	60.88	7794	13942	55.90
2006/07	7736	13036	59.34	6869	11709	58.66
2007/08	9606	13901	69.10	5523	7255	76.13
2008/09	12258	17187	71.32	6465	9391	68.84
2009/10	14208	30917	45.96	7624	11965	63.72

Calculation of standard deviation and coefficient of variation for Annex 2, 4 and 5 purpose

S.C.B.N.L.

Fiscal Year	For Credit & Advances to Total Deposit Ratio		For Credit and Advances to Fixed Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Performing Assets to Total Assets Ratio	
	X	(X-X)²	X	(X-X)²	X	(X-X)²	X	(X-X)²
2003/04	30.37	63.52	292.25	7987.00	27.24	45.70	27.51	45.70
2004/05	30.29	64.80	448.88	4523.91	27.11	47.47	27.25	49.28
2005/06	42.12	14.29	575.07	37422.90	37.38	11.42	37.62	11.22
2006/07	38.75	0.17	418.31	1346.16	34.68	0.46	34.97	0.49
2007/08	42.61	18.23	328.63	2807.94	36.73	7.45	37.04	7.67
2008/09	46.12	60.53	415.57	1152.60	41.15	51.12	41.50	52.27
2009/10	38.14	0.04	192.63	35717.22	33.70	0.09	33.98	0.08
Total	268.40	221.58	2671.34	90957.73	237.99	163.71	239.87	166.71
Mean (X)	38.34		381.62		34.00		34.27	
S.D. ( )	5.63		114.00		4.84		4.88	
C.V.	14.68		29.87		14.22		14.24	

Fiscal Year	For Credit and Advances to Total Deposit		For Credit and Advances to Fixed Deposit		For Credit and Advances to Total Assets		For Performing Assets to Total Assets Ratio	
	X	(X-X)	X	(X-X)²	X	(X-X)²	X	(X-X)²
2003/04	57.68	70.39	344.40	36.48	46.83	85.93	46.27	106.92
2004/05	58.01	64.96	354.39	15.60	48.91	51.70	49.34	52.85
2005/06	72.57	42.25	509.19	25201.56	61.60	30.25	62.85	38.94
2006/07	66.80	0.53	374.69	588.06	57.87	3.13	58.65	4.16
2007/08	66.60	0.28	286.03	4148.65	57.04	0.88	57.70	1.19
2008/09	66.94	0.76	252.42	9607.92	57.54	2.07	58.16	2.40
2009/10	73.87	60.84	331.97	341.14	62.89	46.10	63.31	44.89
Total	462.47	240.01	2453.09	39939.41	392.68	220.06	396.28	251.35
Mean(X)	66.07		350.44		56.10		56.61	
S.D.	5.86		75.54		5.61		5.99	
C.V.	8.86		21.55		10.00		10.58	

H.B.L.

Fiscal Year	For Credit & Advances to Total Deposit Ratio		For Credit and Advances to Fixed Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Performing Assets to Total Assets Ratio	
	X	(X-X)²	X	(X-X)²	X	(X-X)²	X	(X-X)²
2003/04	51.53	62.09	338.38	2919.24	44.82	47.47	40.30	81.36
2004/05	58.70	0.50	274.31	100.80	50.21	2.25	45.75	12.74
2005/06	54.21	27.04	220.26	4107.53	46.59	26.21	43.12	38.44
2006/07	59.50	0.01	248.22	1305.3	51.5	0.03	48.14	1.39

Year	X	(X-X)	X	(X-X)	X	(X-X)	X	(X-X)
				8	4			
2007/08	59.22	0.04	216.97	4540.06	51.85	0.02	49.98	0.44
2008/09	61.23	3.31	303.52	367.49	53.90	4.80	54.46	26.42
2009/10	71.49	145.93	388.79	10907.71	63.05	128.60	63.50	201.07
Total	415.88	238.92	1990.45	24248.21	361.96	209.38	345.25	361.86
Mean (X)	59.41		284.35		51.71		49.32	
S.D. ( )	5.84		58.86		5.46		7.19	
C.V.	9.83		20.70		10.58		14.58	

E.B.L.

Fiscal Year	For Credit and Advances to Total Deposit		For Credit and Advances to Fixed Deposit		For Credit and Advances to Total Assets		For Performing Assets to Total Assets Ratio	
	X	(X-X)	X	(X-X)	X	(X-X)	X	(X-X)
2003/04	73.31	3.17	175.60	5138.02	60.95	0.08	61.33	10.82
2004/05	72.97	4.49	203.04	1957.18	61.23	11.63	62.35	5.15
2005/06	78.23	9.86	232.08	231.04	66.99	5.52	65.90	1.64
2006/07	73.44	2.72	238.94	69.56	63.51	1.28	62.70	3.69
2007/08	77.44	5.52	250.28	9.00	65.71	1.14	65.18	0.31
2008/09	78.56	12.04	292.21	2018.70	69.38	22.47	68.91	18.40
2009/10	71.68	11.63	338.79	8374.08	64.70	0.004	65.96	1.80
Total	525.63	49.43	1730.94	17797.58	452.47	42.12	452.33	41.81
Mean(X)	75.09		247.28		64.64		64.62	
S.D.( )		2.65		50.42		2.45		2.44
C.V.		3.54		20.39		3.79		3.78

N.SBI.B.L.

Fiscal Year	For Credit and Advances to Total Deposit Ratio		For Credit and Advances to Fixed Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Performing Assets to Total Assets Ratio	
	X	(X-X)	X	(X-X)	X	(X-X)	X	(X-X)
2003/04	68.43	14.98	133.73	521.21	59.00	3.46	57.75	9.49
2004/05	71.46	0.71	153.46	9.61	60.95	0.008	61.45	0.38
2005/06	71.80	0.25	152.08	20.07	60.07	0.62	60.88	0.003
2006/07	69.32	8.88	124.71	1014.42	58.51	5.52	59.34	2.22
2007/08	82.66	107.33	171.47	222.31	68.05	51.70	69.10	68.39
2008/09	88.33	256.96	176.72	406.43	70.48	92.54	71.32	110.04
2009/10	54.13	330.15	183.75	739.30	48.94	142.09	45.96	221.12
Total	506.13	719.26	1095.92	2933.35	426.00	295.94	425.80	411.64
Mean(X)	72.30		156.56		60.86		60.83	
S.D.( )		10.14		20.47		6.50		7.67
C.V.		14.02		13.08		10.68		12.61

N.B.B.L.

Fiscal Year	For Credit and Advances to Total Deposit Ratio		For Credit and Advances to Fixed Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Performing Assets to Total Assets Ratio	
	X	(X-X)²	X	(X- X)²	X	(X-X)²	X	(X-X)²
2003/04	68.44	79.03	144.04	10346.96	60.81	5.52	58.29	23.43
2004/05	67.53	63.68	177.38	4675.82	60.66	4.84	60.34	7.78
2005/06	67.07	56.55	188.75	3250.14	57.62	0.71	55.90	52.27
2006/07	49.64	98.21	225.32	417.79	55.17	10.82	58.66	19.98
2007/08	46.97	158.26	279.40	1131.65	60.77	5.34	76.13	169.00
2008/09	50.15	88.36	467.69	49252.93	58.12	0.12	68.84	32.60
2009/10	67.08	56.70	237.77	63.84	56.04	5.86	63.72	0.35
Total	416.	600.79	1720.	69139.1	409.1	33.21	441.	305.41

	88		35	3	9		88	
Mean	59.55		245.76		58.46		63.13	
S.D.		9.26		99.38		2.18		6.61
C.V.		15.56		40.44		3.73		10.46

Where,

$$\text{Mean } (X) = \ \sum X/N \qquad\qquad S.D. = \sqrt{\dfrac{\sum(X-\overline{X})}{N}}$$

$$C.V. = S.D./Mean$$

Annex- 6 Trend Analysis of Combined Ratios

5.1. Credit and Advances to Total Deposit Ratio

Fiscal Year	X (Deviation from 05/06)	Y	X²	XY	Trend Value (Y=a + bx)
2003/04	-3	0.583	9	-1.749	0.5939
2004/05	-2	0.598	4	-1.196	0.6019
2005/06	-1	0.643	1	-0.643	0.6099
2006/07	0	0.596	0	0	0.6179
2007/08	1	0.626	1	0.626	0.6259
2008/09	2	0.652	4	1.304	0.6339
2009/10	3	0.627	9	1.881	0.6419
N =7	∑X = 0	∑Y = 4.325	∑X² = 28	∑XY= 0.223	

Where, $a = \ \sum Y/N = \ 4.325/7 = 0.6179$

$b = \ \sum XY / \ \sum X^2 = 0.223/28 = 0.0080$

5.2. Credit and Advances to Fixed Deposit Ratio

Fiscal Year	X(Deviation from 05/06)	Y	X²	XY	Trend Value (Y =a+bx)
2003/04	-3	2.38	9	-7.14	2.6054
2004/05	-2	2.69	4	-5.38	2.6636
2005/06	-1	3.13	1	-3.13	2.7218
2006/07	0	2.72	0	0	2.7800
2007/08	1	2.55	1	2.55	2.8382
2008/09	2	3.18	4	6.36	2.8964
2009/10	3	2.79	9	8.37	2.9546
N =7	X = 0	Y = 19.44	X² = 28	XY= 1.63	

Where, a = Y/N = 19.44/7 = 2.78

b = XY / X^2 = 1.63/28 = 0.0582

5.3. Credit and Advances to Total Assets Ratio

Fiscal Year	X (Deviation from 05/06)	Y	X²	XY	Trend Value (Y=a + bx)
2003/04	-3	0.499	9	-1.497	0.5100
2004/05	-2	0.515	4	-1.03	0.5209
2005/06	-1	0.550	1	-0.55	0.5318
2006/07	0	0.535	0	0	0.5427
2007/08	1	0.567	1	0.567	0.5536
2008/09	2	0.584	4	1.168	0.5645
2009/10	3	0.549	9	1.647	0.5754
N =7	X = 0	Y = 3.799	X² = 28	XY= 0.305	

Where, a = Y/N = 3.799/7 = 0.5427

b = XY / X^2 = 0.305/28 = 0.0109

5.4. Performing Assets to Total Assets Ratio

Fiscal Year	X (Deviation from 05/06)	Y	X²	XY	Trend Value (Y=a + bx)
2003/04	-3	0.486	9	-1.458	0.4985
2004/05	-2	0.511	4	-1.022	0.5150
2005/06	-1	0.544	1	-0.544	0.5315
2006/07	0	0.537	0	0	0.5480
2007/08	1	0.592	1	0.592	0.5645
2008/09	2	0.605	4	1.210	0.5810
2009/10	3	0.561	9	1.683	0.5975
N =7	X = 0	Y = 3.836	X² = 28	XY= 0.461	

Where, a = Y/N = 3.836/7 = 0.0548

b = XY / X^2 = 0.461/28 = 0.0165

Annex 7 Calculations of Risk Index and Book Value Insolvency

Fiscal Year	S.C.B.N.L.			N.B.L.		
	R.O.A.	R.O.E.	Equity multiplier	R.O.A.	R.O.E.	Equity multiplier
2003/04	2.42	41.05	16.96	2.51	31.66	12.61
2004/05	2.27	35.96	15.84	2.71	30.70	11.33
2005/06	2.46	33.88	13.77	3.03	31.36	10.35
2006/07	2.56	37.57	14.68	2.84	33.87	11.93
2007/08	2.42	32.70	13.51	2.84	37.63	13.25
2008/09	2.46	32.85	13.35	2.01	30.61	15.23
2009/10	2.53	33.58	13.27	2.35	32.94	14.02
n =7	ROA = 17.12	ROE =247.59		ROA = 18.29	ROE =228.77	
Risk Index	114.87 %			30.18 %		
Prob. of B.V. Insolvency	0.0038 %			0.0549%		

Fiscal Year	H.B.L.			E.B.L.		
	R.O.A.	R.O.E.	Equity multiplier	R.O.A.	R.O.E.	Equity multiplier
2003/04	0.88	19.95	22.67	1.17	15.33	13.10
2004/05	1.02	19.86	19.47	1.50	21.18	14.12
2005/06	1.07	20.00	18.69	1.45	17.13	11.81
2006/07	1.50	25.90	17.27	1.49	19.78	13.28
2007/08	1.43	22.91	16.02	1.38	19.54	14.16
2008/09	1.73	25.30	14.62	1.66	21.34	12.86
2009/10	1.88	24.13	12.84	1.73	24.39	14.10
n =7	ROA = 9.50	ROE = 158.05		ROA = 10.38	ROE = 138.69	
Risk Index	15.72 %			50.44 %		
Prob. of B.V. Insolvency	0.2023 %			0.0196%		

Fiscal Year	N.SBI.B.L.			N.B.B.L.		
	R.O.A.	R.O.E.	Equity multiplier	R.O.A.	R.O.E.	Equity multiplier
2003/04	0.65	8.60	13.23	0.60	10.38	17.30
2004/05	0.72	8.48	11.78	0.21	4.57	21.76
2005/06	0.55	3.27	15.04	0.16	3.70	23.13
2006/07	0.90	11.91	13.23	-15.35	114.97	-7.49
2007/08	1.83	21.93	11.98	-14.64	40.47	-2.76
2008/09	1.44	17.53	12.17	6.35	-27.20	-4.28
2009/10	1.02	18.45	18.09	18.04	194.06	10.76
n =7	ROA = 7.11	ROE = 95.17		ROA = -4.63	ROE = 340.95	
Risk Index	15.21 %			0.765 %		
Prob. of B.V. Insolvency	0.2161 %			85.447%		

Where, Equity multiplier = $\dfrac{ROE}{ROA}$ CAP = $\dfrac{1}{\text{Equity multiplier}} \times 100$

$$\text{Risk Index} = \frac{[\text{ E (ROA) + CAP }]}{\text{S.D. (ROA)}}$$

Probability of Book Value Insolvency = $[0.5 \ (RI)^2]$

Calculation of S.D. of R.O.A. for Annex 7 Purpose

Fiscal Year	S.C.B.N.L.		N.B.L.	
	R.O.A.	$(ROA-\overline{ROA})^2$	R.O.A.	$(ROA-\overline{ROA})^2$
2003/04	2.42	0.0009	2.51	0.0100
2004/05	2.27	0.0324	2.71	0.0100
2005/06	2.46	0.0001	3.03	0.1764
2006/07	2.56	0.0121	2.84	0.0529
2007/08	2.42	0.0009	2.84	0.0529
2008/09	2.46	0.0001	2.01	0.3600
2009/10	2.53	0.0064	2.35	0.0676
N = 7	ROA=17.12	$(ROA-\overline{ROA})^2$ =0.0529	ROA=18.29	$(ROA-\overline{ROA})^2$ =0.7298
S.D.( )	0.0869		0.3229	

Fiscal Year	H.B.L.		E.B.L.	
	R.O.A.	$(ROA-\overline{ROA})^2$	R.O.A.	$(ROA-\overline{ROA})^2$
2003/04	0.88	0.2304	1.17	0.0961
2004/05	1.022	0.1142	1.50	0.0004
2005/06	1.068	0.0853	1.45	0.0009
2006/07	1.496	0.0185	1.49	0.0001
2007/08	1.433	0.0053	1.38	0.0100
2008/09	1.725	0.1332	1.66	0.0324
2009/10	1.880	0.2704	1.73	0.0625
n = 7	ROA= 9.50	$(ROA-\overline{ROA})^2$ = 0.8573	ROA= 10.38	$(ROA-\overline{ROA})^2$ = 0.2024
S.D.( )	0.35		0.17	

Fiscal Year	N.SBI.B.L.	N.B.B.L.

	R.O.A.	(ROA-$\overline{ROA}$)²	R.O.A.	(ROA-$\overline{ROA}$)²
2003/04	0.65	0.1340	0.60	1.5876
2004/05	0.72	0.0876	0.21	0.7569
2005/06	0.55	0.2172	0.16	0.6724
2006/07	0.90	0.0135	-15.35	256.3201
2007/08	1.83	0.6626	-14.64	234.09
2008/09	1.44	0.1798	6.35	49.1401
2009/10	1.02	0.0000	18.04	349.69
N = 7	ROA= 7.11	(ROA-$\overline{ROA}$)² = 1.2947	ROA= - 4.63	(ROA-$\overline{ROA}$)² = 892.26
S.D.( )	0.4301		11.29	

Where, ROA = $\dfrac{R.O.A}{N}$

S.D. ( ) = $\sqrt{\dfrac{(ROA-\overline{ROA})^2}{N}}$

Annex 8 Calculations of Correlation and Regression Coefficient

We have, Correlation(r) $= \dfrac{N \sum XY - \sum X \sum Y}{\sqrt{\{N \sum X^2 - (\sum X)^2\}\{N \sum Y^2 - (\sum Y)^2\}}}$

Probable Error (P.E.) = $\dfrac{[0.6745 \, (1-r^2)]}{\sqrt{N}}$

Fiscal Year	P.L.L. (X)	R.O.A. (Y_1)	R.O.E. (Y_2)	X^2	XY_1	XY_2	Y_1^2	Y_2^2
2003/04	5.07	2.42	41.05	25.70	12.27	208.12	5.8564	1685.10
2004/05	4.24	2.27	35.96	17.98	9.62	152.47	5.1529	1293.12
2005/06	3.30	2.46	33.88	10.89	8.12	111.80	6.0516	1147.85
2006/07	2.94	2.56	37.57	8.64	7.53	110.46	6.5536	1411.50
2007/08	2.67	2.42	32.70	7.13	6.46	87.31	5.8564	1069.29
2008/09	1.75	2.46	32.85	3.06	4.31	57.49	6.0516	1079.12
2009/10	1.45	2.53	33.58	2.10	3.05	48.69	6.4009	1127.62
N =7	X =21.42	Y_1 =17.12	Y_2 =247.59	X^2 =75.50	XY_1 =51.36	XY_2 =776.34	Y_1^2 =41.923	Y_2^2 =8813.6

We have,

$$r(R.O.A.) = \frac{N\ XY_1 - X\ Y_1}{\sqrt{\{N\ X^2 - (X)^2\}\{N\ Y_1^2 - (Y_1)^2\}}} \qquad = -1.4162$$

$$P.E.\ (R.O.A.) = \frac{[0.6745\ (1-r^2)]}{\sqrt{N}} \qquad = -0.2564$$

$$r(R.O.E.) = \frac{N\ XY_2 - X\ Y_2}{\sqrt{\{N\ X^2 - (X)^2\}\{N\ Y_2^2 - (Y_2)^2\}}} \qquad = 0.7902$$

$$P.E.\ (R.O.E.) = \frac{[0.6745\ (1-r^2)]}{\sqrt{N}} \qquad = 0.0958$$

Regression Analysis of R.O.A. on P.L.L. and R.O.E. on P.L.L.

Regression equation of Y_1 on X i.e. R.O.A. on P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$Y_1 = Na + b\ X$ i.e. $17.12 = 7a + 21.42b$…………1st

$XY_1 = a\ X + b\ X^2$ i.e. $51.36 = 21.42a + 75.50b$……….2nd

Multiplying equation 1st by 3.525 and subtracting equation 2nd from equation 1st,

We have, a = 2.7619

Now putting the value of 'a' in equation 1st, then we get b = -0.1032

Regression equation of Y_2 on X i.e. R.O.A. and P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$$Y_2 = Na + b \sum X \qquad \text{i.e. } 247.59 = 7a+21.42b\ldots\ldots\ldots1^{st}$$

$$\sum XY_2 = a \sum X + b \sum X^2 \qquad \text{i.e. } 776.34 = 21.42a+75.50b\ldots\ldots\ldots2^{nd}$$

Multiplying equation 1st by 3.525 and subtracting equation 2nd from equation 1st,

We have, a = 29.5736

Now putting the value of 'a' in equation 1st, then we get b = 1.8940

N.B.L.

Fiscal Year	P.L.L. (X)	R.O.A. (Y_1)	R.O.E. (Y_2)	X^2	XY_1	XY_2	Y_1^2	Y_2^2
2003/04	4.41	2.51	31.66	19.45	11.07	139.62	6.3001	1002.36
2004/05	4.20	2.71	30.70	17.64	11.38	128.94	7.3441	942.49
2005/06	3.30	3.03	31.36	10.89	10.00	103.49	9.1809	983.45
2006/07	2.68	2.84	33.87	7.18	7.61	90.77	8.0656	1147.18
2007/08	2.24	2.84	37.63	5.02	6.36	84.29	8.0656	1416.02
2008/09	1.81	2.01	30.61	3.28	3.64	55.40	4.0401	936.97
2009/10	1.46	2.35	32.94	2.13	3.43	48.09	5.5225	1085.04
N =7	$\sum X$ = 20.10	$\sum Y_1$ = 18.29	$\sum Y_2$ = 228.77	$\sum X^2$ = 65.59	$\sum XY_1$= 53.49	$\sum XY_2$= 650.06	$\sum Y_1^2$ = 48.52	$\sum Y_2^2$ = 7513.51

We have,

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$$r(\text{R.O.A.}) = \frac{N\sum XY_1 - \sum X\sum Y_1}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y_1^2 - (\sum Y_1)^2\}}} = 0.4050$$

$$\text{P.E. (R.O.A.)} = \frac{[0.6745(1-r^2)]}{\sqrt{N}} = 0.2131$$

$$r(\text{R.O.E.}) = \frac{N\sum XY_2 - \sum X\sum Y_2}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y_2^2 - (\sum Y_2)^2\}}} = -0.4006$$

$$\text{P.E. (R.O.E.)} = \frac{[0.6745(1-r^2)]}{\sqrt{N}} = 0.2140$$

Regression Analysis of R.O.A. on P.L.L. and R.O.E. on P.L.L.

Regression equation of Y_1 on X i.e. R.O.A. on P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$\sum Y_1 = Na + b\sum X$ i.e. 18.29 = 7a+20.10b............1st

$\sum XY_1 = a\sum X + b\sum X^2$ i.e. 53.49 =20.10a+65.59b..........2nd

Multiplying equation 1st by 3.263 and subtracting equation 2nd from equation 1st,

We have, a = 2.2591

Now putting the value of 'a' in equation 1st, then we get b = 0.1234

Regression equation of Y_2 on X i.e. R.O.A. and P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$\sum Y_2 = Na + b\sum X$ i.e. 228.77 = 7a+20.10b............1st

$\sum XY_2 = a\sum X + b\sum X^2$ i.e. 650.06 = 20.10a+65.59b...........2nd

Multiplying equation 1st by 3.263 and subtracting equation 2nd from equation 1st,

We have, a = 35.1898

Now putting the value of 'a' in equation 1st, then we get b = -0.8736

H.B.L.

Fiscal Year	P.L.L. (X)	R.O.A. (Y_1)	R.O.E. (Y_2)	X^2	XY_1	XY_2	Y_1^2	Y_2^2
2003/04	7.77	0.88	19.95	60.37	6.84	155.01	0.7744	398.00
2004/05	7.49	1.02	19.86	56.10	7.64	148.75	1.0404	394.42
2005/06	7.64	1.07	20.00	58.37	8.17	152.80	1.1449	400.00
2006/07	7.10	1.50	25.90	50.41	10.65	183.89	2.2500	670.81
2007/08	4.47	1.43	22.91	19.98	6.39	102.41	2.0449	524.87
2008/09	3.38	1.73	25.30	11.42	5.85	85.51	2.9929	640.09
2009/10	2.84	1.88	24.13	8.07	5.34	68.53	3.5344	582.26
N =7	X = 40.69	Y_1 = 9.51	Y_2 = 158.05	X^2 = 264.72	XY_1= 50.88	XY_2= 896.90	Y_1^2 = 13.78	Y_2^2 = 3610.45

We have,

$$r(R.O.A.) = \frac{N\ XY_1 - X\ Y_1}{\sqrt{\{N\ X^2 - (X)^2\}\{N\ Y_1^2 - (Y_1)^2\}}} = -0.8936$$

$$P.E.\ (R.O.A.) = \frac{[0.6745\ (1-r^2)]}{\sqrt{N}} = 0.0514$$

$$r(R.O.E.) = \frac{N\ XY_2 - X\ Y_2}{\sqrt{\{N\ X^2 - (X)^2\}\{N\ Y_2^2 - (Y_2)^2\}}} = -0.6348$$

$$P.E.\ (R.O.E.) = \frac{[0.6745\ (1-r^2)]}{\sqrt{N}} = 0.1522$$

Regression Analysis of R.O.A. on P.L.L. and R.O.E. on P.L.L.

Regression equation of Y_1 on X i.e. R.O.A. on P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$$Y_1 = Na + b \sum X \qquad \text{i.e. } 9.51 = 7a+40.69b\ldots\ldots\ldots\text{1}^{st}$$

$$\sum XY_1 = a \sum X + b \sum X^2 \qquad \text{i.e. } 50.88 = 40.69a+264.72b\ldots\ldots\text{2}^{nd}$$

Multiplying equation 1st by 6.506 and subtracting equation 2nd from equation 1st,

We have, a = 2.2660

Now putting the value of 'a' in equation 1st, then we get b = -0.1561

Regression equation of Y_2 on X i.e. R.O.A. and P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$$Y_2 = Na + b \sum X \qquad \text{i.e. } 158.05 = 7a+40.69b\ldots\ldots\ldots\text{1}^{st}$$

$$\sum XY_2 = a \sum X + b \sum X^2 \qquad \text{i.e. } 896.90 = 40.69a+264.72b\ldots\ldots\ldots\text{2}^{nd}$$

Multiplying equation 1st by 6.506 and subtracting equation 2nd from equation 1st,

We have, a = 27.0866

Now putting the value of 'a' in equation 1st, then we get b = -0.7756

E.B.L.

Fiscal Year	P.L.L. (X)	R.O.A. (Y_1)	R.O.E. (Y_2)	X^2	XY_1	XY_2	Y_1^2	Y_2^2
2003/04	2.79	1.17	15.33	7.78	3.26	42.77	1.3689	235.01
2004/05	3.58	1.50	21.18	12.82	5.37	75.82	2.2500	448.59
2005/06	3.56	1.45	17.13	12.67	5.16	60.98	2.1025	293.44
2006/07	3.31	1.49	19.78	10.96	4.93	65.47	2.2201	391.25
2007/08	2.98	1.38	19.54	8.88	4.11	58.23	1.9044	381.81
2008/09	2.64	1.66	21.34	6.97	4.38	56.34	2.7556	455.40
2009/10	2.39	1.73	24.39	5.71	4.13	58.29	2.9929	594.87
N =7	$\sum X =$ 21.25	$\sum Y_1 =$ 10.38	$\sum Y_2 =$ 138.69	$\sum X^2 =$	$\sum XY_1=$ 31.34	$\sum XY_2=$ 417.90	$\sum Y_1^2 =$ 15.59	$\sum Y_2^2 =$ 2800.37

				65.79				

We have,

$$r(R.O.A.) = \frac{N \sum XY_1 - \sum X \sum Y_1}{\sqrt{\{N \sum X^2 - (\sum X)^2\}\{N \sum Y_1^2 - (\sum Y_1)^2\}}} = -0.3389$$

$$P.E. (R.O.A.) = \frac{[0.6745 (1-r^2)]}{\sqrt{N}} = 0.2257$$

$$r(R.O.E.) = \frac{N \sum XY_2 - \sum X \sum Y_2}{\sqrt{\{N \sum X^2 - (\sum X)^2\}\{N \sum Y_2^2 - (\sum Y_2)^2\}}} = -0.3806$$

$$P.E. (R.O.E.) = \frac{[0.6745 (1-r^2)]}{\sqrt{N}} = 0.2180$$

Regression Analysis of R.O.A. on P.L.L. and R.O.E. on P.L.L.

Regression equation of Y_1 on X i.e. R.O.A. on P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$$\sum Y_1 = Na + b \sum X \qquad \text{i.e. } 9.51 = 7a+40.69b\ldots\ldots\ldots.1^{st}$$

$$\sum XY_1 = a \sum X + b \sum X^2 \qquad \text{i.e. } 50.88 = 40.69a+264.72b\ldots\ldots.2^{nd}$$

Multiplying equation 1st by 3.096 and subtracting equation 2nd from equation 1st,

We have, a = 1.9048

Now putting the value of 'a' in equation 1st, then we get b = -0.1388

Regression equation of Y_2 on X i.e. R.O.A. and P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

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$$Y_2 = Na + b \, X \qquad \text{i.e. } 138.69 = 7a + 21.25b \ldots\ldots\ldots 1^{st}$$

$$XY_2 = a \, X + b \, X^2 \qquad \text{i.e. } 417.90 = 21.25a + 65.79b \ldots\ldots\ldots 2^{nd}$$

Multiplying equation 1st by 3.096 and subtracting equation 2nd from equation 1st,

We have, a = 27.3333

Now putting the value of 'a' in equation 1st, then we get b = -2.4772

N.SBI.B.L.

Fiscal Year	P.L.L. (X)	R.O.A. (Y_1)	R.O.E. (Y_2)	X^2	XY_1	XY_2	Y_1^2	Y_2^2
2003/04	6.82	2.42	41.05	46.51	16.50	279.96	5.8564	1685.10
2004/05	7.01	2.27	35.96	49.14	15.91	252.08	5.1529	1293.12
2005/06	7.79	2.46	33.88	60.68	19.16	263.93	6.0516	1147.85
2006/07	7.46	2.56	37.57	55.65	19.10	280.27	6.5536	1411.50
2007/08	6.01	2.42	32.70	36.12	14.54	196.53	5.8564	1069.29
2008/09	4.97	2.46	32.85	24.70	12.23	163.26	6.0516	1079.12
2009/10	4.64	2.53	33.58	21.53	11.74	155.81	6.4009	1127.62
N =7	X = 44.70	Y_1 = 17.12	Y_2 = 247.59	X^2 = 294.33	XY_1= 109.18	XY_2= 1591.84	Y_1^2 = 41.92	Y_2^2 = 8813.60

We have,

$$r(R.O.A.) = \frac{N \, XY_1 - X \, Y_1}{\sqrt{\{N \, X^2 - (X)^2\}\{N \, Y_1^2 - (Y_1)^2\}}} = -0.2165$$

$$P.E. (R.O.A.) = \frac{[0.6745\,(1-r^2)]}{\sqrt{N}} = 0.2430$$

$$r(R.O.E.) = \frac{N \, XY_2 - X \, Y_2}{\sqrt{\{N \, X^2 - (X)^2\}\{N \, Y_2^2 - (Y_2)^2\}}} = 0.4827$$

$$P.E. (R.O.E.) = \frac{[0.6745\,(1-r^2)]}{\sqrt{N}} = 0.1955$$

Regression Analysis of R.O.A. on P.L.L. and R.O.E. on P.L.L.

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Regression equation of Y_1 on X i.e. R.O.A. on P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$Y_1 = Na + b \sum X$ i.e. $17.12 = 7a+44.70b$.............1st

$\sum XY_1 = a \sum X + b \sum X^2$ i.e. $109.18 = 44.70a+294.33b$..........2nd

Multiplying equation 1st by 6.5845 and subtracting equation 2nd from equation 1st,

We have, a = 2.5540

Now putting the value of 'a' in equation 1st, then we get b = -0.0170

Regression equation of Y2 on X i.e. R.O.A. and P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$Y_2 = Na + b \sum X$ i.e. $247.59 = 7a+44.70b$.............1st

$\sum XY_2 = a \sum X + b \sum X^2$ i.e. $1591.84 = 44.70a+294.33b$............2nd

Multiplying equation 1st by 6.5845 and subtracting equation 2nd from equation 1st,

We have, a = 27.6403

Now putting the value of 'a' in equation 1st, then we get b = 1.2105

N.B.B.L.

Fiscal Year	P.L.L. (X)	R.O.A. (Y_1)	R.O.E. (Y_2)	X^2	XY_1	XY_2	Y_1^2	Y_2^2
2003/04	8.97	0.60	10.38	80.46	5.38	93.11	0.360	107.74
2004/05	10.33	0.21	4.57	106.71	2.17	47.21	0.044	20.88

	X	Y₁	Y₂	X²	XY	XY₂	Y₁²	Y₂²
2005/06	12.31	0.16	3.70	151.54	1.97	45.55	0.026	13.69
2006/07	34.05	-15.35	114.97	1159.40	-522.67	3914.73	235.623	13218.10
2007/08	51.91	-14.64	40.47	2694.65	-759.96	2100.80	214.330	1637.82
2008/09	42.37	6.35	-27.20	1795.22	269.05	-1152.46	40.323	739.84
2009/10	42.87	18.04	194.06	1837.84	773.37	8319.35	325.442	37659.28
N =7	$\sum X$= 202.81	$\sum Y_1$= -4.63	$\sum Y_2$= 340.95	$\sum X^2$= 7825.82	$\sum XY$= 1289.23	$\sum XY_2$= 13368.29	$\sum Y_1^2$= 816.15	$\sum Y_2^2$ = 53397.35

We have,

$$r(R.O.A.) = \frac{N\sum XY_1 - \sum X \sum Y_1}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y_1^2 - (\sum Y_1)^2\}}} = 1.1305$$

$$P.E.(R.O.A.) = \frac{[0.6745(1-r^2)]}{\sqrt{N}} = -0.0709$$

$$r(R.O.E.) = \frac{N\sum XY_2 - \sum X \sum Y_2}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y_2^2 - (\sum Y_2)^2\}}} = 0.4121$$

$$P.E.(R.O.E.) = \frac{[0.6745(1-r^2)]}{\sqrt{N}} = 0.2116$$

Regression Analysis of R.O.A. on P.L.L. and R.O.E. on P.L.L.

Regression equation of Y_1 on X i.e. R.O.A. on P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$\sum Y_1 = Na + b\sum X$ i.e.   -4.63 = 7a+202.81b………….1st

$\sum XY_1 = a\sum X + b\sum X^2$ i.e.   1289.23 =202.81a+7825.82b……….2nd

Multiplying equation 1st by 38.587 and subtracting equation 2nd from equation 1st,

We have, a = -21.8111

Now putting the value of 'a' in equation 1st, then we get b = 0.7300

Regression equation of Y_2 on X i.e. R.O.A. and P.L.L. (Y=a + bx)

To determine the value of a and b, the following two normal equations are to be solved.

$Y_2 = Na + b\ X$ i.e. $340.95 = 7a+202.81b$…………1st

$XY_2 = a\ X\ +\ b\ X^2$ i.e. $13368.29 = 202.81a+7825.82b$…………$2^{nd}$

Multiplying equation 1st by 38.587 and subtracting equation 2nd from equation 1st,

We have, a = -3.1508

Now putting the value of 'a' in equation 1st, then we get b = 1.7899

Annex 9 T-test calculations of Joint Venture Banks

A. Standard Chartered Bank Nepal Limited

1. T-test calculation between R.O.A. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y^2	(X- X/N)	(X- X/N)²
2003/04	5.07	2.42	12.27	5.86	2.01	4.04
2004/05	4.24	2.27	9.62	5.15	1.18	1.39
2005/06	3.30	2.46	8.12	6.05	0.24	0.06
2006/07	2.94	2.56	7.53	6.55	-0.12	0.01
2007/08	2.67	2.42	6.46	5.86	-0.39	0.15
2008/09	1.75	2.46	4.31	6.05	-1.31	1.72
2009/10	1.45	2.53	3.67	6.40	-1.61	2.59
N=7	X= 21.42	Y= 17.12	XY= 51.98	Y²= 41.92	0	(X- X/N)²= 9.96

We have,   a = 2.7619   and   b = -0.1032 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a\ Y - b\ XY}{N - 2}} \quad = 0.0775$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X - X/N)^2}} \quad = \frac{0.0775}{\sqrt{9.96}} \quad = 0.0245$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} \quad = \frac{-0.1032 - 0}{0.0078} \quad = -4.2122$$

Since, the calculated 't' is more than tabulated 't' at 5% level of significance, so null hypothesis should be rejected.

2. T-test calculation between R.O.E. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)²
2003/04	5.07	41.05	208.12	1685.10	4.04
2004/05	4.24	35.96	152.47	1293.12	1.39
2005/06	3.30	33.88	111.80	1147.85	0.06
2006/07	2.94	37.57	110.46	1411.50	0.01

2007/08	2.67	32.70	87.31	1069.29	0.15
2008/09	1.75	32.85	57.49	1079.12	1.72
2009/10	1.45	33.58	48.69	1127.62	2.59
N=7	X= 21.42	Y= 247.59	XY= 776.34	Y²= 8813.60	(X-X/N)²= 9.96

We have,   a = 29.5736   and   b = 1.8940 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a\,Y - b\,XY}{N - 2}} \qquad = 2.0533$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X - X/N)^2}} \qquad = \frac{0.0775}{\sqrt{9.96}} \qquad = 0.6498$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} \qquad = \frac{1.8940 - 0}{0.6498} \qquad = 2.9147$$

Since, the   calculated't' is more than tabulated 't' at 5% level of significance, so null hypothesis should be rejected.

B. Nabil Bank Limited

1. T-test calculation between R.O.A. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)	(X- X/N)²
2003/04	4.41	2.51	11.07	6.30	1.54	2.37
2004/05	4.20	2.71	11.38	7.34	1.33	1.77
2005/06	3.30	3.03	10.00	9.18	0.43	0.18
2006/07	2.68	2.84	7.61	8.07	-0.19	0.04
2007/08	2.24	2.84	6.36	8.07	-0.63	0.40
2008/09	1.81	2.01	3.64	4.04	-1.06	1.12
2009/10	1.46	2.35	3.43	5.52	-1.41	1.99
N=7	X= 20.10	Y= 18.29	XY= 53.49	Y²= 48.52	0	(X- X/N)²= 7.87

We have, a = 2.2591 and b = 0.1234 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now by using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a\ Y - b\ XY}{N - 2}} \qquad = 0.3465$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X- X/N)^2}} \qquad = \frac{0.3465}{\sqrt{7.87}} \qquad = 0.1235$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} = \frac{0.1234 - 0}{0.1235} = 0.9992$$

Since, the calculated 't' is less than tabulated 't' at 5% level of significance, so null hypothesis should be accepted.

2. T-test calculation between R.O.E. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)²
2003/04	4.41	31.66	139.62	1002.36	2.37
2004/05	4.20	30.70	128.94	942.49	1.77
2005/06	3.30	31.36	103.49	98.34	0.18
2006/07	2.68	33.87	90.77	1147.18	0.04
2007/08	2.24	37.63	84.29	1416.02	0.40
2008/09	1.81	30.61	55.40	936.97	1.12
2009/10	1.46	32.94	48.09	1085.04	1.99
N=7	X= 20.10	Y= 228.77	XY= 650.40	Y²= 6628.40	(X- X/N)²= 7.87

We have,   a = 35.1898 and   b = -0.8736 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a\ Y - b\ XY}{N - 2}} = 13.0678$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X- X/N)^2}} \qquad = \frac{13.0678}{\sqrt{7.87}} \quad = 0.4.6582$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} \qquad = \frac{-0.8736 - 0}{4.6582} \qquad = -0.1875$$

Since, the calculated 't' is less than tabulated 't' at 5% level of significance, so null hypothesis should be accepted.

C. Himalayan Bank Limited

1. T-test calculation between R.O.A. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)	(X- X/N)²
2003/04	7.77	0.88	6.84	0.77	1.96	3.84
2004/05	7.49	1.02	7.64	1.04	1.68	2.82
2005/06	7.64	1.07	8.17	1.14	1.83	3.35
2006/07	7.10	1.50	10.65	2.25	1.29	1.66
2007/08	4.47	1.43	6.39	2.04	-1.34	1.80
2008/09	3.38	1.73	5.85	2.99	-2.43	5.90
2009/10	2.84	1.88	5.34	3.53	-2.97	8.82
N=7	X= 40.69	Y= 9.51	XY= 50.88	Y²= 13.76	0	(X- X/N)²= 28.19

We have,   a = 2.2660 and   b = -0.1561 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now by using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a Y - b XY}{N - 2}} \qquad = 0.1746$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X - X/N)^2}} \qquad = \frac{0.1746}{\sqrt{28.19}} \qquad = 0.0329$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} \qquad = \frac{-0.1561 - 0}{0329} \qquad = -4.7447$$

Since, the calculated 't' is more than tabulated 't' at 5% level of significance, so null hypothesis should be rejected.

2. T-test calculation between R.O.E. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)²
2003/04	7.77	19.95	155.01	398.00	3.84
2004/05	7.49	19.86	148.75	394.42	2.82
2005/06	7.64	20.00	152.80	400.00	3.35
2006/07	7.10	25.90	183.89	670.81	1.66
2007/08	4.47	22.91	102.41	524.87	1.80
2008/09	3.38	25.30	85.51	640.09	5.90
2009/10	2.84	24.13	68.53	582.26	8.82
N=7	X= 40.69	Y= 158.05	XY= 896.90	Y²= 3610.45	(X- X/N)²= 28.19

We have,   a = 27.0866 and   b = -0.7756 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now using the formula for standard error of y, we have

$$S_y = \sqrt{\dfrac{Y^2 - a\ Y - b\ XY}{N - 2}} \qquad = 2.2382$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \dfrac{S_y}{\sqrt{(X - X/N)^2}} \qquad = \dfrac{2.2382}{\sqrt{28.19}} \quad = 0.4216$$

Therefore, t value of beta (b)

$$T_b = \dfrac{b - 0}{S_b} \quad = \dfrac{-0.7756 - 0}{0.4216} \quad = -1.8397$$

Since, the calculated 't' is less than tabulated 't' at 5% level of significance, so null hypothesis should be accepted.

D. Everest Bank Limited

1. T-test calculation between R.O.A. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)	(X- X/N)²
2003/04	2.79	1.17	3.26	1.37	-0.25	0.06
2004/05	3.58	1.50	5.37	2.25	0.54	0.29
2005/06	3.56	1.45	5.16	2.10	0.52	0.27
2006/07	3.31	1.49	4.93	2.22	0.27	0.0.7
2007/08	2.98	1.38	4.11	1.90	-0.06	0.004
2008/09	2.64	1.66	4.38	2.76	-0.40	0.16
2009/10	2.39	1.73	4.13	2.99	-0.65	0.42
N=7	X= 2.125	Y= 10.38	XY= 31.34	Y²= 15.59	0	(X- X/N)²= 1.27

We have, a = 1.9048 and b = -0.1388 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant

Now by using the formula for standard error of y, we have

$$S_y = \sqrt{\dfrac{Y^2 - a\ Y - b\ XY}{N - 2}} \qquad = 0.1833$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X - X/N)^2}} \qquad = \frac{0.1833}{\sqrt{1.27}} \qquad = 0.1627$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} = \frac{-0.1388 - 0}{0.1627} = -0.8531$$

Since, the calculated 't' is less than tabulated 't' at 5% level of significance, so null hypothesis should be accepted.

2. T-test calculation between R.O.E. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)²
2003/04	2.79	15.33	42.77	235.01	0.06
2004/05	3.58	21.18	75.82	448.59	0.29
2005/06	3.56	17.13	60.98	293.44	0.27
2006/07	3.31	19.78	65.47	391.25	0.0.7
2007/08	2.98	19.54	58.23	381.81	0.004
2008/09	2.64	21.34	56.34	455.40	0.16
2009/10	2.39	24.39	58.29	594.87	0.42
N=7	X= 21.25	Y= 138.69	XY= 417.90	Y²= 2800.37	(X- X/N)²= 1.27

We have, a = 27.3333 and b = -2.4772 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a\ Y - b\ XY}{N - 2}} \qquad = 2.9912$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X - X/N)^2}} \qquad = \frac{2.9912}{\sqrt{1.27}} \qquad = 2.6543$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} = \frac{-2.4772 - 0}{2.6543} = -0.9333$$

Since, the calculated 't' is less than tabulated 't' at 5% level of significance, so null hypothesis should be accepted.

E. Nepal SBI Bank Limited

1. T-test calculation between R.O.A. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)	(X- X/N)²
2003/04	6.82	2.42	16.50	5.86	0.43	0.18
2004/05	7.01	2.27	15.91	5.15	0.62	0.34
2005/06	7.79	2.46	19.16	6.05	1.40	1.96
2006/07	7.46	2.56	19.10	6.55	1.07	1.14
2007/08	6.01	2.42	14.54	5.86	-0.38	0.14
2008/09	4.97	2.46	12.23	6.05	-1.42	2.02
2009/10	4.64	2.53	11.74	6.40	-1.75	3.06
N=7	X= 44.70	Y= 17.12	XY= 109.18	Y²= 41.92	0	(X- X/N)²= 8.84

We have, a = 2.5540 and b = -0.0170 according to the annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now by using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a \ Y - b \ XY}{N - 2}} \qquad = 0.1016$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X- X/N)^2}} \qquad = \frac{0.1016}{\sqrt{8.84}} \qquad = 0.0342$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} \qquad = \frac{-0.0170 - 0}{0.0342} \qquad = -0.4971$$

Since, the calculated value of 't' is less than that of tabulated value of 't' at 5% level of significance, so the null hypothesis should be accepted.

2. T-test calculation between R.O.E. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)²
2003/04	6.82	41.05	279.96	1685.10	0.18
2004/05	7.01	35.96	252.08	1293.12	0.34
2005/06	7.79	33.88	263.93	1147.85	1.96
2006/07	7.46	37.57	280.27	1411.50	1.14
2007/08	6.01	32.70	196.53	1069.29	0.14
2008/09	4.97	32.85	163.26	1079.12	2.02
2009/10	4.64	33.58	155.1	1127.62	3.06
N=7	X= 44.70	Y= 247.59	XY= 1591.84	Y²= 8813.60	(X- X/N)²= 8.84

We have,   a = 27.6403 and   b = 1.2105 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a Y - b XY}{N - 2}} \qquad = 2.9399$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X- X/N)^2}} \qquad = \frac{2.9399}{\sqrt{8.84}} \qquad = 0.9888$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} \qquad = \frac{1.2105 - 0}{9888} \qquad = 1.2242$$

Since, the calculated value of 't' is less than that of tabulated 't' at 5% level of significance, so null hypothesis should be accepted.

F. Nepal Bangladesh Bank Limited

1. T-test calculation between R.O.A. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)	(X- X/N)²
2003/04	8.97	0.60	5.38	0.36	-20.00	400.00
2004/05	10.33	0.21	2.17	0.04	-18.64	347.45
2005/06	12.31	0.16	1.97	0.03	-16.66	277.56
2006/07	34.05	-15.35	-522.67	235.62	5.08	25.81
2007/08	51.91	-14.64	-759.96	214.33	22.94	526.24
2008/09	42.37	6.35	269.05	40.32	13.40	179.56
2009/10	42.87	18.04	773.37	325.44	13.90	193.21
N=7	X= 202.81	Y= 4.63	- XY= -230.69	Y²= 816.14	0	(X- X/N)²= 1949.83

We have,   a = -21.8111 and   b = 0.7300 according to the annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now by using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a Y - b XY}{N - 2}} \qquad = 13.2933$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X - X/N)^2}} \qquad = \frac{13.2933}{\sqrt{1949.83}} = 0.3010$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} = \frac{0.7300 - 0}{3010} = 2.4252$$

Since, the calculated value of 't' is greater than that of tabulated value of 't' at 5% level of significance, so the null hypothesis should be rejected.

2. T-test calculation between R.O.E. and P.L.L.

Fiscal year	P.L.L (X)	R.O.A. (Y)	XY	Y²	(X- X/N)²
2003/04	8.97	10.38	93.11	107.74	400.00
2004/05	10.33	4.57	47.21	20.88	347.45
2005/06	12.31	3.70	45.55	13.69	277.56
2006/07	34.05	114.97	3914.73	13218.10	25.81
2007/08	51.91	40.47	2100.80	1637.82	526.24
2008/09	42.37	-27.20	-1152.46	739.84	179.56
2009/10	42.87	194.06	8319.35	37659.28	193.21
N=7	X= 202.81	Y= 340.95	XY= 13368.29	Y²= 53397.35	(X- X/N)²= 1949.83

We have,   a = -3.1508 and   b = 1.7899 from annex 8

Where,

Null hypothesis (H0): b = 0, the slope of line is zero.

Alternative hypothesis (H1): b = 0, the slope of the line is not zero.

(i.e. it is statistical significant)

Now using the formula for standard error of y, we have

$$S_y = \sqrt{\frac{Y^2 - a\ Y - b\ XY}{N - 2}} \qquad = 78.1584$$

Putting the value of standard error of 'y' in calculating the standard error of estimate for the slope of line, we have

$$S_b = \frac{S_y}{\sqrt{(X - X/N)^2}} \qquad = \frac{78.1584}{\sqrt{1949.83}} = 1.7700$$

Therefore, t value of beta (b)

$$T_b = \frac{b - 0}{S_b} = \frac{1.7899 - 0}{1.7700} = 1.0112$$

Since, the calculated value of 't' is less than that of tabulated 't' at 5% level of significance, so null hypothesis should be accepted.