CREDIT RISK MANAGEMENT

OF

NEPALESE COMMERCIAL BANKS

(With Reference to Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil Bank)

A THESIS

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Submitted to:

Office of The Dean

Faculty of Management

Tribhuvan University

In Partial Fulfillment of the Requirements for the Degree of **Master of Business Studies (MBS)**

Kathmandu
2014

RECOMMENDATION

This is to certify that Mrs. Asmita Bhattarai has prepared the thesis entitled,**Credit Risk Management of Nepalese Commercial Banks** under my supervision. This thesis has been prepared in the format as per partial fulfillment of the required for the Master Degree in Business Study of the Faculty of Management, Tribhuvan University. Thus, it is forwarded for examination.

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VIVA-VOCE SHEET

We have conducted the viva-voce examination of the thesis presented by

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Credit Risk Management of Nepalese Commercial Banks

And found the thesis to be the original work of the student and written accordingly to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for Master Degree in Business Studies (M.B.S.).

Viva-Voce Committee

Chairperson- Research Committee …….

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Date ……..……..

DECLARATION

I hereby declare that the work reported in this thesis entitled **"Credit Risk Management of Nepalese Commercial Banks,"** submitted to Pashupati Multiple campus , Faculty of Management, Tribhuvan University is my original work done in the form of partial fulfillment of the requirement for the Master's Degree in Business Studies under the supervision of Mr. Kamal Regmi, Faculty of Management and Mr.Gyan mani Adhikari (Head of the Research Department) of Pashupati Multiple Campus.

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AKNOWLEDGEMENT

This thesis has been prepared for partial fulfillment of the required for the Master Degree in Business Studies. I would like to thank many people who have helped me and encouraged me to bring out this research work.

I would like to express my heartiest gratitude and sincere thanks to my thesis supervisor Mr.Kamal Regmi, Faculty of Management and Mr.Gyan mani Adhikari (Head of the Research Department) of Pashupati Multiple Campus for their scholar guidance with intellectual direction, supervision and inspiration during the preparation of this thesis.

I would like to extend my heartiest gratitude to the staffs of all sample Banks because it would not have been possible for me to complete my thesis work without their help and co-operation.

I would like to express my sincere thanks to faculties of management and the staffs of Library and Administration of Pashupati Multiple Campus who helped me in the completion of this thesis. Finally, I would like to thanks all my family members and friends who inspired me to complete this thesis.

Asmita Bhattarai

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CHAPTER 1

INTRODUCTION

1.1. Background of the Study.

The past decade has seen the world witnessing one of the most shocking financial meltdowns. The effects of the crisis were pervasive and hit almost every sector of global businesses; the most affected sector was the financial services industry, specially the banking sector. There are numerous explanations on the causes of the recent financial crisis. One factor that has received significant attention during this crisis is risk management discourse.

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 services in Nepal. Up to 2012 B.S., only N.B.L. 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 N.R.B. Act 2012 B.S. Similarly, R.B.B 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 Commercial Bank Act 2031 B.S., “A commercial bank is the one which exchanges money, accepts 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 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 see in 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 (Shekher and Shekher, 1999)

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.

Bank 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 bank focus different types of services to its customers although the basic principle is same.

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. 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 a resource mobilizing institution, which accepts deposits from various sources and invest such accumulated resources into the field of agriculture, trade, commerce, industry and tourism etc.

Commercial banks obtain deposits 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 of 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.

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 commercial banks will help to extend the market. The commercial banks play an important role as help in business expansion, promotion of capital formation and transfer for surplus funds to needy regions.

Loan is an arrangement in which a lender gives money or property to a borrower and the borrower agrees to return the property or repay the money, usually along with interest, at some future points in time.

Loan and advances or credit mean providing of the funds for the investors in the certain factor taking risk in the hope of better return for the investors' .Investment that take place of

action done in the present and the result can be obtained in the future. So, the loan and advances are very risky assets because the result of effectiveness of it will be found at the future. Due to this, while providing loan bank should be very careful because only performing loan can move towards the way of success and non performing loan moves the bank towards the way of failure.

Credit risk is considered as the most important of all risks. It is referred to the customers. inability or unwillingness to serve their debts, and constitutes a major source of loss not only on bank's profitability but also on the initial asset; the loss could be as much partial as total of any amount lent to the counterparty.

Commercial banks are the central part of financial institutions and they are the most visible series of financial intermediaries. They hold the deposits of many persons, government, establishments and business units. They make funds available through their lending and investing activities to borrow business firms, industries and individuals' etc. Bank is a resource for the economic development which maintains the self confidence of various segments of society and extends credit to people. 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. Lending is the core area of commercial banking; it plays the significant impact on the commercial banks' liquidity and profitability. But the most concerned factor for banking sectors is the effective management of that loan. The credit policy of a firm provides the framework to determine whether or not to extend credit and how much credit to extend.

1.2. Profile of sample bank.

Laxmi Bank Limited was incorporated in April 2002 as the 16th commercial bank in Nepal. Laxmi Bank is a Category 'A' Financial Institution and re-registered in 2006 under the Banks and Financial Institutions Act, 2063 of Nepal. The Bank's shares are listed and actively traded in the Nepal Stock Exchange (NEPSE). Currently it has 31 branches and 40 ATMs. Laxmi Bank's ownership structure comprises of 3 broad categories of shareholders:

_ The Promoter Group representing some the leading corporate houses - 55.45%

_ Citizen Investment Trust, a Government of Nepal undertaking - 9.02%

_ 11,285 Public Shareholders - 35.53%

Siddhartha Bank Limited (SBL) established in 2002, is a limited liability company domiciled in Nepal with its registered office in Hattisar, Kathmandu, Nepal. The Bank is licensed by Nepal Rastra Bank, (Central Bank of Nepal) to carry out commercial banking activities in Nepal as Class "A" licensed financial institution under the Bank & Financial Institution Act, 2063. The bank paid up capital is 1561 million. It has 41 branches and 53 ATMs at the time of research study. The bank has Rs3000 million of authorized capital, Rs1571 million of issued and Rs1571 million of paid up capital.

Nabil Bank Limited is the nation's first private sector bank, commencing its business since July 1984. Nabil Bank Ltd. is a joint venture bank with Dubai Bank Ltd. The local ownership hold 50% equity share and foreign ownership hold 50% equity share. Currently bank has Rs2500 million of authorized capital, Rs2436 million of issued and Rs2436 million of paid up capital. Today it has expanded its service networks to 48 branches, 2 extension counters and 81 ATMs, 1050 rented and owned POS machines at merchant outlets, 1237 Western Union and 1263 Nabil Remit agents.

Everest Bank Limited is a joint venture bank with Punjab national bank of India was established in 1994 as a limited liability company domiciled in Nepal with its registered office in Lazimpat,, Kathmandu, Nepal. 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 Rs2000 million authorized capital, Rs1761 million of issued capital and Rs1761 million of paid-up capital. The bank has 50 Branches, 73 ATM Counters, 5 extension counter & 22 Revenue Collection across the country.

1.3. Statement of the Problem.

Credit management concept has appeared as a major research gap in Nepalese commercial banking sector. There is lack of such scientific and empirical research that could identify the issues of credit management in Nepalese commercial banks. In this regard, the performance Nepalese banks are to be analyzed in term of their credit. Some research questions regarding to the credit practices, credit efficiencies, liquidity position, industrial environment, management quality, organization climate are considered as a clear evident in present situation.

Nepal is small country with small market. Economic condition of the country is degrading due to the conflict since 2052 B.S. Overall economic sectors either manufacturing or commercial have undergone heavy losses. However, the financial institutions are increasing

regularly. Liquidity is at maximum level with the financial institutions. Hence, the banks and financial institutions are competing among themselves to advance credit to limited opportunity sectors. Due to the unhealthy competition among the banks, the recovery of bank credit is going towards negatives. Non-performing credits 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 objective 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.

Credit risk has become an important problem, which attracts much attention, no wonder every lender wants to be on the safe side and receive of the money in case of the unpredictable situation with the borrower. Due to the unhealthy competition among the banks, the recovery of bank credit is going towards negatives. Non-performing credits of the banks are increasing year by year. It is important to determine the factors affecting the default risk and its management. It is also the risk to which banking institution pays the closest attention because it has been the risk most likely to cause a bank to fail. This failure to repay loan results in the lender incurring losses from bad debt which negatively affects their bottom-line, a situation, which may lead to the collapse of banks, withdrawal of license by the regulator as well as tarnishing the reputation of these organizations. This study will assist to reveal how the joint venture banks of Nepal manage the credit risk. Especially, the study is expected to reveal the following research questions.

This study expected to reveal the following research questions.

- How do commercial banks manage credit risk?
- What are the total compositions of credit of samples banks?
- What is the loan loss provision status that has been established by banks?
- What is the effect that has been caused by NPL on ROA and ROE?
- The trend of loan and deposit issued of sample banks are satisfactory?

1.4. Objectives of the Study.

The main objective of the study is to evaluate and analyze the credit risk management of sample banks. In order to achieve the basic objective; the following are the specific objectives:

- To study and analyze the credit risk management of sample banks of Nepal.
- To examine the trend of loan and deposit of sample banks.
- To determine the impact of deposit in liquidity and its effect on lending practices of sample banks.
- To examine the impact of PLL on ROA and ROE.

1.5. Significance of the Study.

The success and failure of the commercial banks largely depends on the credit risk management. Credit risk has become an important problem, It is the uncertainty associated with the borrowers' loan payment. When the borrower can not pay the money because of the default or bankrupting, the lender has to think about the methods which can help him return the money back. Thus, it is important that lenders be able to value the borrowers' assets and to estimate a borrower's probability of default.

Credit risk management needs to be a robust process that enables the banks to proactively manage the loan portfolios to minimize the losses and earn an acceptable of return to its shareholders. The importance of the credit risk management is recognized banks for it can establish the standards of process, segregation of duties and responsibilities such in policies and procedures endorsed by the banks. 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.

The study revealed that credit risk management is a very effective and efficient management tool that helps to reduce credit default rate, on-performing loans, and increase in cash flows as well as portfolio growth amongst financial institutions. The study intends to serve as a

reference material and guide for upcoming researchers in credit risk management. This study provides important information which will be useful for banks in the banking industry in a way of managing credit risk.

1.6. Limitations 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 limitation of the study may be as follows:

- Due to the inadequate time period only four banks were selected as samples.
- As far as the design of questionnaire is concerned, due to the lack of experience, it was difficult to ensure that the questionnaires were effectively designed. There might be some misunderstandings in the questions or in the structure of the questionnaire.
- The study will cover only five years data i.e.2065/066-2069/070.The truth of research result is based upon the available data from the bank.
- This study will be depends upon the published documents such as balance sheet, profit and loss account statements etc.
- This study will be focused only on analysis of credit risk management in selected banks.
- Due to wide range of data deficiencies only simple technique have been used for the analysis of the data.

1.7. Organization of the Study.

The structure of the study is try to analyze the study in a systematic way. This study is organized into following chapters.

Chapter 1. Introduction.

This chapter includes the background of the study, introduction of the study, statement of problem, objectives, significance and the limitations of the study etc. This chapter describe the basic concept of the study.

Chapter 2. Review of Literature.

This chapter deals with the review of available literature. It includes review of books, reports, thesis and journals etc. It also establishes that the study as a link in a chain of research that is developing and emerging knowledge about concerned field.

Chapter 3. Research Methodology.

This chapter includes the research methodology used in the study which includes research design, sources of data, population and sample and methods of data analysis etc.

Chapter 4. Presentation and analysis of data.

This chapter deals with the data presentation and analysis of the study. The presentation and analysis of data deal with the application of defined research method on the collected data and information. The general result after the application of method on the data was also analyses and interpreted in this chapter.

Chapter 5. Summary, Conclusion and Recommendation.

This chapter deals with the major findings of the study, conclusion drawn from the findings and the recommendation of this study etc.

Bibliography and appendices are also attached at the end of the study.

CHAPTER 2

REVIEW OF LITERATURE

2.1. Introduction.

The purpose of literature review is to find out what research studies have been done in the area of study and what remains to done. Review of literature is the review of concepts as well as review of past researches in the related field of study. The review of textbooks and other reference materials such as research articles, Journals, Newspaper, websites and past thesis have been included in this chapter.

2.2. Concept of Credit.

Credit is the money that a bank or business will allow a person to use and then pay back in the future. Credit is financial assets resulting from the delivery of cash or other assets by a lender to a borrower in return of obligation repay on specified date on demand. Movements of financial capital are normally dependent on either credit or equity transfers.

Bank extends loan facilities by a way of fund based facilities and non fund based facilities. The fund based facilities are usually allowed by way of term loans, cash, overdrafts, bills purchase/discounted, demand loans, trust receipt etc. The bank also provides non fund based facilities by way of issuance of inland and letter of credit, issuance of bid bonds/Guarantees, deferred payment guarantees etc (Rose, 2003).

Credit is regarded as the most income generating asset especially in commercial banks. It is the main source of profitability, it determines the profitability. Most of the investment activities of the banks are based on credit. Credit and advances is an important item on the asset side of the balance sheet of a commercial bank. Bank earns interest on credits and advances which is one of the major sources of income for banks.

2.2.1 Risk

There are multiple definitions of risk. Risk is the probability that “things won’t go right”. Risk is the likelihood an undesirable event will occur .Risk is magnitude of loss from an unexpected event. Doing many investing and other activities every bank has to face so many risks. There are many types of risk prevailed in the banking industry, but the major area of the risk are widely recognized, i.e. credit risk, market risk ,liquidity 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 earning 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 of assets, system failure, fraud and forgery.

Risk is inherent in any walk of life and can be associated with every human decision-making action of which the consequences are uncertain. Over the last decades, risk analysis and corporate risk management activities have become very important elements for both financial as well as non-financial corporations.

2.2.2. An Overview on Credit Risk.

Credit risk is the risk of default by borrower due to inability or unwillingness to repay his debts in accordance with the agreed terms and condition. Credit risk is not restricted to lenders doing activities only but includes off balance sheet and inter-bank exposures. For most banks, loan is the largest and most oblivious resources of credit. However, other sources of credit risk exist throughout the activities of banks 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 financial instruments other than loans including acceptance, inter bank transactions, trade financing, foreign exchange transaction and guarantee and the settlement of transactions.

Credit risk is the risk that counterparty fails to perform an obligation owed to its creditor. It is still a major concern for banks, but the scope of credit risk has been immensely enlarged with the growth of derivatives markets. Another definition considers credit risk as the cost of replacing cash flow when the counterpart defaults. In an article by Elmer Kunke Kupper on *Risk* Management and Banking he defines credit risk as the potential financial loss resulting from the failure of customers to honors fully the terms of a loan or contract. This definition can be expanded to include the risk of loss in portfolio value as a result of migration from a higher risk grade to a lower one .Greuning and Bratanovic (2003) define credit risk as the chance that a debtor or issuer of a financial instrument— whether an individual, a company, or a country— will not repay principal and other investment-related cash flows according to the terms specified in a credit agreement. Inherent to banking, credit risk means that

payments may be delayed or not made at all, which can cause cash flow problems and affect a bank‘s liquidity.

2.2.3. Credit Risk Management.

Credit is regarded as the heart of commercial bank. It is the main factor for creating profit and determining the profitability. It affects the overall economy. In today’s context, it also affect 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.

The commercial banks and other financial institution must utilize or invest their collections towards the profitable and secured sector so that they will be in profit. For this purpose they should gather the sufficient information about the firm or client to which supposed to be invested. These information include as financial background, nature of business as well as its ability to pay the loan back. These all information should be gathered from the viewpoint of security. 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. 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.

Credit risk management is the most challenging task because it is 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 sources of income.

The goal of C.R.M. is to maximize the bank risk adjusted rate of return by maintaining the C.R.E. within acceptable parameters. While talking about the credit risk management, five C's of creditworthiness should be considered and they are:

- **Character**

The first thing that banks look for when reviewing a proposal is evidence of client trustworthiness. The good character and intention of the borrower is very important and thus should be seriously considered. Creditors look for people who appear to be trustworthy and reliable, and who are willing and able to meet their financial obligations.

- **Capacity**

This is the individual's ability to repay the loan. It is measured by applicants past performance records. For this an interview with applicants, customers\suppliers will further clarify the situation. The bank needs to know how borrower will repay the funds before it will approve loan. Capacity is evaluated by several components like cash flow, payment history, Contingent or extra income sources for repayment.

- **Capital**

Capital would refer to the financial resources obtained from financial records that a company may have in order to deal with its debt. Many a time's credit analysts would make this portion of the credit analysis the most important one. Weight is given on Balance Sheet items and components like Working Capital, Net Worth and Cash Flow. This, in fact, is the insurance against the loans granted to the borrowers.

- **Collateral**

Property or possessions that can be mortgaged or used as security for payment of debt are known as collateral. If a debt is not paid as agreed, the collateral is repossessed and sold to pay the debt.

- **Conditions**

Both regulatory and economic conditions are considered. Regulatory conditions apply to the lenders individual circumstances; for example, when banks are not lending in specific areas. Economic conditions determine the lender's general policy towards loan. Both are affected by

the current economic cycle. Borrowers may be subject to unfavorable economic conditions beyond their control.

2.2.4. Credit Policy.

A credit policy is one of the essential tools in an organization. A good credit policy should involve effective initiation, analysis, credit monitoring and evaluation. It is a primary tool as well as a procedure established to provide management with reasonable assurance that the credit system is functioning as it should. The credit policy of a firm provides the framework to determine whether or not to extend credit and loan such to extend.

A credit policy is built on three major variables and these include credit terms, credit standards and collection procedures.

The credit policy decisions of banks have two broad dimensions; credit standards and credit analysis. A firm has to establish and use standards to making credit decision, develop appropriate sources of credit information and methods of credit analysis.

- **Credit standards**

This is a very fundamental credit policy variable that requires intensive analysis. According to Pandey I.M (1995), a credit standard is one of the controllable decision variables that directly influence investment in trade credit. Gitman J.(1982), argues that credit standards provide guidelines for determining whether to extend credit to a customer and how much credit should be extended.

- **Credit information.**

Before extending credit to any of its operators, sufficient information should be collected about the customers. This is done in a bid to minimize losses. Reliable and timely information is critical to managing the credit process. If timely and useful information is available, management is much better equipped to direct and control prudent credit processes.

- **Credit limit.**

This is the maximum amount of credit, which the firm can extend to customers at any point in time, as this limit is decided the analysis should carefully scrutinize the amount of contemplated sales and the customer's financial strength. There is need to lower the amount of credit where slow paying tendencies crop up.

- **Average collection period of cerdit.**

It refers to that period in which debts remain uncontrollable. It measures the number of days for which a credit transaction remains outstanding and thus determines the speed of payment by customers, (Pandey,1998).

- Credit analysis

This involves analyzing the credit information collected to determine the applicant's credit worthiness. Such analysis is based on previous records. This helps the analysis to draw conclusions on the applicant's financial strengths, quality of management and the nature of customers. This is an important aspect of designing a credit policy since it results into decisions about a credit limit to be granted to an individual applicant.

- **Prime Factors in Designing a Credit Policy**

Brealey and Myers (1998), noted that insurance, financial institution and leasing companies should try to establish a unique credit policy. What worked out for one company will not necessarily work well for another company thus the need to follow prime factors while designing a credit policy. Internal factors that are critical include; the economy, customers mix, and stability of trade and growth element in the area.

2.2.5 Principles for the Assessment of Banks' Management of Credit Risk

A. Establishing an appropriate credit risk environment

Principle 1:

The board of directors should have responsibility for approving and periodically reviewing the credit risk strategy and significant credit risk policies of the bank. The strategy should reflect the bank's tolerance for risk and the level of profitability the bank expects to achieve for incurring various credit risks.

Principle 2:

Senior management should have responsibility for implementing the credit risk strategy approved by the board of directors and for developing policies and procedures for identifying, measuring, and monitoring and controlling credit risk. Such policies and procedures should address credit risk in all of the bank's activities and at both the individual

credit and portfolio levels.

Principle 3:

Banks should identify and manage credit risk inherent in all products and activities. Banks should ensure that the risks of products and activities new to them are subject to adequate procedures and controls before being introduced or undertaken, and approved in advance by the board of directors or its appropriate committee

'Nepal Rastra Bank*, Risk Management Guidelines'*

Internal Credit Risk Rating System

Banks should develop an internal credit risk rating system for its loans and advances. The risk rating should categorize all credits into various classes on the basis of underlying credit quality. Risk rating is a key measurement of a bank's asset quality, and as such, it is essential that rating is a robust process. All facilities should be assigned a risk grade. In case of deterioration in risk is noted, the Risk Grade assigned to a borrower and its facilities should be immediately changed. NRB does not advocate any particular credit risk rating system; it should be bank's own choice. But the rating system should be consistent with the nature, size and complexity of a bank's activities and should have at least the following parameters:

- covers a broad range of the bank's credit exposure, including off-balance sheet exposures;
- covers both performing and non-performing assets;
- has several grades covering exposures, with the lowest rating accorded to those where losses are expected;
- has risk ratings for "performing" credits with several grades (including the grades like" watch list" or "special mention");
- has regulatory classifications (performing, substandard, doubtful & bad) should be incorporated within the risk rating systems; and
- has the credit risk rating system detailed in the credit policy and procedures developed for the determination and periodic review of the credit grades.

The rating system, which has been endorsed by the board, has to be submitted to Nepal Rastra Bank. For banks, which have yet to implement the rating system, a plan, endorsed by the board, must be submitted to Nepal Rastra Bank specifying the timeframe, persons responsible and steps taken for the implementation of a credit grading system. Such plans must be submitted to Nepal Rastra Bank not later than end of December 2010.Banks should regularly monitor and evaluate the actual default or loss experience of credits in each risk grade as one means to assess the consistency and reliability of the ratings being used.

'Nepal Rastra Bank, *Risk Management Guidelines'*

Credit Risk Monitoring and Control

Credit risk monitoring refers to the continuous monitoring of individual credits inclusive of off-balance sheet exposures to obligors as well as overall credit portfolio of the bank. Banks need to develop and implement comprehensive procedures and information systems to monitor the condition of individual credits and single borrowers across the bank's various portfolios. Banks need to enunciate a system that enables them to monitor quality of the credit portfolio on day-to-day basis and take remedial measures as and when any deterioration occurs. These procedures need to define criteria for identifying and reporting potential problem credits and other transactions to ensure that they are subject to more frequent monitoring as well as possible corrective action, classification and/or provisioning. Establishing an efficient and effective credit monitoring system would help senior management to monitor the overall quality of the total credit portfolio and its trends. As a result the management could reassess its credit strategy /policy accordingly before encountering any major setback. The banks credit policy should explicitly provide procedural guideline relating to credit risk monitoring. At the minimum it should lay down procedure relating to:

- The roles and responsibilities of individuals responsible for credit risk monitoring
- The assessment procedures and analysis techniques (for individual loans & overall portfolio)
- The frequency of monitoring
- The periodic examination of collaterals and loan covenants

- The frequency of site visits.

2.2.6 Risk Management Guidelines of NRB

The identification of deterioration in any loan Such a system would enable a bank to ascertain whether loans are being serviced as per facility terms, the adequacy of provisions, the overall risk profile is within limits established by management and compliance of regulatory limits. An effective credit monitoring system includes, measures to:

• ensure that the bank understands the current financial condition of the borrower or counter party;

- ensure that all credits are in compliance with existing covenants;
- follow the use customers make of approved credit lines;
- ensure that projected cash flows on major credits meet debt servicing requirements;
- ensure that, where applicable, collateral provides adequate coverage relative to the obligor's current condition; and
- identify and classify potential problem credits on a timely basis.

'Nepal Rastra Bank, *Risk Management Guidelines'*

2.3. Classification of Loans and Advances

Commercial banks are heavily regulated than its non-bank competitors in the financial service industry. They are subjected to follow the updated regulations issued by the regulation authority. N.R.B is the regulating authority of Nepal. As per directives issued by NRB, loans and advances shall be classified into the following four categories.

- **Pass loan.**

Pass loan and advances whose principle amounts are not past due for a period up to 3 months shall be included in this category. Those are classified and defined as performing loans.

- **Substandard loan.**

All loans and advances that are past due for a period of 3 to 6 months shall be included in this category. Those are classified as non-performing loans.

- **Doubtful loan.**

All loans and advances which are past due for period of 6 months to 1 year shall be included in this category. Those loans are classified as nonperforming loss.

- **Loss.**

All loans and advances which are past due for a period of more than 1 year as well as advance 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. These loans and advances are also classified as non-performing loans.On the basis of outstanding loans and advances classification 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%

2.4 Capital adequacy

commercial banks have faced two different capital requirements, a capital assets (leverage) ratio and a risk based capital ratio that is in turn subdivided into a Tire I capital risk based ratio and total capital (Tire I plus Tire II capital) risk based ratio. Kiran Thapa, (2065).

The Capital Assets ratio or (Leverage Ratio)

The capital or leverage ratio measures the ratio of a bank s book value of primary or core capital to its assets. The lower this ratio is, the more leveraged the bank is. The leverage ratio is

The capital assets or Leverage ratio (L) = Core capital / Assets

Core Capital (Tire 1)

The key element of capital on which the main emphasis should be placed is the Tier 1 (core) capital, which comprises of equity capital and disclosed reserves. This key element of capital is the basis on which most market judgments of capital adequacy are made; and it has a crucial bearing on profit margins and a bank's ability to compete.

In order to rank as Tier 1, capital must be fully paid up, have no fixed servicing or dividend costs attached to it and be freely available to absorb losses ahead of general creditors. Capital also needs to have a very high degree of permanence if it is to be treated as Tier 1.NRB Directives Manual.

Supplementary Capital (Tier 2)

The Supplementary (Tier 2) Capital includes reserves which, though unpublished, have been passed through the profit and loss account and all other capital instruments eligible and acceptable for capital purposes. Elements of the Tier 2 capital will be reckoned as capital funds up to a maximum of 100 percent of Tier 1 capital arrived at, after making adjustments referred to in 2.4. In case, where the Tier 1 capital of a bank is negative, the Tier 2 capital for regulatory purposes shall be considered as zero and hence the capital fund, in such cases, shall be equal to the core capital.

ELEMENTS OF TIER 1 CAPITAL:

a. Paid up Equity Capital.

b. Irredeemable non-cumulative preference shares which are fully paid-up and with the capacity to absorb unexpected losses.

c. Share Premium

d. Proposed Bonus Equity Share

e. Statutory General Reserve.

f. Retained Earnings available for distribution to shareholders.

g. Un-audited current year cumulative profit, after all provisions including staff bonus and taxes.

h. Capital Redemption Reserves created in lieu of redeemable instruments.

i. Capital Adjustment reserves created in respect of increasing the capital base of the bank.

j. Dividend Equalization Reserves.

k. Any other type of reserves notified by NRB from time to time for inclusion in Tier 1 capital.

Banks shall be required to deduct the following from the Tier 1 capital for capital adequacy purposes. The claims that have been deducted from core capital shall be exempt from risk weights for the measurement of credit risk:

a. Book value of goodwill.

b. Miscellaneous expenditure to the extent not written off. e.g. VRS expense, preliminary expense, share issue expense, deferred revenue expenditure, etc**.**

c. Investment in equity of financial institutions licensed by Nepal Rastra Bank2**.**

d. All Investments in equity of institutions with financial interest**.**

e. Investments in equity of institutions in excess of the prescribed limits**.**

f. Investments arising out of underwriting commitments that have not been disposed within a year from the date of commitment.

g. Reciprocal crossholdings of bank capital artificially designed to inflate the capital position of the bank.

h. Any other items as stipulated by Nepal Rastra Bank, from time to time**.**

ELEMENTS OF TIER 2 CAPITAL:

a Cumulative and/or redeemable preference shares with maturity of five years and above.

b Subordinated term debt fully paid up with a maturity of more than 5 years; unsecured and subordinated to the claim of other creditors, free of restrictive clauses and not redeemable before maturity.

c Hybrid capital instruments. Those instruments which combine certain characteristics of debt and certain characteristics of equity.

d General loan loss provision limited to a maximum of 1.25% of total Risk Weighted Exposures.

e Exchange equalization reserves created by banks as a cushion for unexpected losses arising out of adverse movements in foreign currencies.

f Investment adjustment reserves created as a cushion for adverse price movements in bank's investments falling under “Available for Sale” category.

g Revaluation reserves often serve as a cushion against unexpected losses but may not be fully available to absorb unexpected losses due to the subsequent deterioration in market values and tax consequences of revaluation.

h Any other type of reserves notified by NRB from time to time for inclusion in Tier 2 capital

2.5. MINIMUM CAPITAL REQUIREMENTS:

Unless a higher minimum ratio has been set by Nepal Rastra Bank for an individual bank through a review process, every bank shall maintain at all times, the capital requirement set out below:

a. A Tier 1 (core) capital of not less than 6 per cent of total risk weighted exposure;

b. A total capital fund of not less than 10 per cent of its total risk weighted exposure.

Total weighted Risk Assets

The Capital Adequacy Ratio (CAR) is calculated by dividing eligible regulatory capital by total risk weighted exposure. The total risk weighted exposure shall comprise of risk weights calculated in respect of bank's credit, operational and market risks. The methodologies to calculate RWE for each of these risk categories are described in detail in subsequent chapters. For the purpose of calculation of capital fund, the risk weighted assets has been classified into following two components:

a. On- Balance Sheet Risk - Weighted Assets.

b. Off- Balance Sheet Risk - Weighted Assets.

$$\textbf{Capital Adequacy Ratio} = \frac{\textbf{Core Capital (Tire 1) + Supplementary Capital(Tire 2)}}{\textbf{Risk Weighted Assets}}$$

2.6. Review of Previous Studies.

2.6.1. Review of Journals.

Demirguc-Kunt and Huizinga (1999) examined how capital requirement alter the incentives that banks face. An increase in capital requirement necessitates banks to substitute equity for deposit financing, reduce shareholder's surplus. The decline in surpluses intensifies the probability of loss,driving a rise in the cost of intermediation to sustain profitability. In support of this hypothesis,authors have provided empirical evidence showing a significant effect on interest margins pursuant to higher capital holdings and the share of total assets held by banks. The evidence also supports higher net interest margins and more profitability for well-capitalized banks. This is in harmony with the fact that banks with high capital ratio have low interest expenses due to less probable bankruptcy costs.

Thapa (2005) viewed that the developing countries usually mobilize part of their resources by borrowing from internal as well as external sources to finance their development activities. These sources gradually build up the debt stock of the country. Such debt stock demands regular debt servicing, that is, principal and interest payment, which consumes scarce resources that can be used for financing development. Therefore, excessive deficits and heavy borrowing to finance that deficit drain out the resources of the developing countries. Liquidity is also involved while borrowing and servicing. Thus, both of these transactions are conducted in such a way that the country concerned always finds itself in a comfortable position with regard to the liquidity, which is known as the debt management.

Purda (2008) examined how a country's financial system influences assessments of firm-level risk. Consistent with theories of financial intermediation, I find that firms located in a country with a bank-oriented financial system are perceived as posing a lower credit risk and correspondingly are assigned higher credit ratings than otherwise similar firms in a market-oriented setting. Even after considering elements of a country's legal infrastructure that relate to creditor protection and insolvency proceedings, the financial system remains an important determinant of credit-rating assignment. The results are robust to the inclusion of several firm-level controls, including financial performance, industry, ownership concentration, political connections, and the ease with which the firm's assets can be monitored.

Huang and oosterless (2009) focused on quantifying portfolio credit risk by advanced numerical techniques with an eye to active credit portfolio management. Credit risk is the risk of loss resulting from an obligor's inability to meet its obligations. Generally speaking, credit

risk is the largest source of risk facing banking institutions. For these institutions, sound management involves measuring the credit risk at portfolio level to determine the amount of capital they need to hold as a cushion against potentially extreme losses. In practice, the portfolio risk is often measured by Value at Risk (VaR), which is simply the quantile of the distribution of portfolio loss for a given confidence level. This research provides useful tools to fulfill the needs of active credit portfolio management within banks. Banks can improve their insight into credit risk and take appropriate measures to maximize their risk/return profile.

Hubbard (2009) enumerated ten general causes of effective risk management failure .They are: confusion regarding the concept of risk, avoidable human errors in subjective judgment of risk, entirely ineffectual but popular subjective scoring, misconceptions that block the use of better existing methods, reoccurring errors, institutional factors due to unnecessary isolation of risk analysts from each other both within the organization and among others, unproductive incentive structures, some parts that have been measured do not work, some parts that do work are not used, except for certain quantitative methods in certain industries, the effectiveness of risk management is almost never managed.

Shrestha (2011) has attempted to ascertain the determinants of nonperforming loans (NPL) in the Nepalese commercial banking sector using a descriptive statistics, trend and one factor econometric model. The study has selected 18 Nepal commercial banks by using stratified sampling method, and found the aggregate values of ratio that measures the banks' health. The results show that aggregate NPL of commercial banks is in decreasing trend and the model is consistent with priori of the NPL to its stock price. This indicates that every rupee appreciation in the NPL brings about stock price decrease by 0.528 rupee. The study has shown an increasing trend of the total performing loan to total deposit ratio in the industry, while NPL is on the decline. It has given positive indication that the banks are able to mobilize their deposit in productive sectors.

Jayshree and Radhika (2011) studied the trends in non-performing assets of Indian banks and makes a comparison of public sector banks, old Private sector banks, new private sector banks and foreign banks. This study showed there was overall decline in the NPA's. The article further attempted to establish relationship between net-profit and NPA's and total advances. The study observed positive correlation between NPA's and total advances. This shows that with increase in total advances NPA's will increase. The impact analyses proved that NPA's had negative impact on net-profit whereas for NPA's and total advances there

was positive impact. The study finally observed that banks were performing well in managing there NPA's.

2.6.2. Review of Thesis.

Various studies have been conducted on the credit risk management and other related subject of different institutions and banks. Reviews of some of the thesis work are presented below:

Lal Kaji Chand (2011) has conducted research entitled on "Loan management of commercial banks of Nepal" a comparative study of HBL, NSBI and EBL. His major objectives are:

- To study the liquidity position and the impact of deposit in liquidity and its effect on lending performance.
- To analyze the effectiveness of different sectors lending and priority sectors of selected sample banks.
- To analysis of performing and none performing loan of selected sample banks.

The study has been carried out with Descriptive Research and Exploratory Research design. The study is based on secondary data. He has taken five years data from 2005-2010 for study of credit management practices of HBL,NSBI and EBL .Only 3 sample banks has been taken out of 31 commercial banks. He has used different statistical tools like standard deviation, correlation and regression.

The Major findings are:

- The deposit collection and loan mobilization trend of commercial banks are found in increasing trend.
- The commercial banks have very low non performing loan. They are found to be less than internationally accepted standard 5 percent of NSBI and EBL.
- There is no uniform loan collection procedure in commercial banks of Nepal. They differ according to bank's policy.
- Commercial banks of Nepal have maintained good loan loss provision.

Rabindra Prasad Ojha(2011) has conducted research entitled on " A study on credit management of commercial banks in Nepal " with special reference to HBL,EBL,NABIL banks. He has explored the financial condition in terms of lending practices of selected banks, industry environment of these banks and management quality to support credit management. The study has been followed the Descriptive and Analytical Research design. This study was based on primary and secondary data. He has taken five years data from 2005/6-2009/10 .Only 3 sample banks has been taken out of 31 commercial banks. He has used different financial tools like Ratio analysis and S.D, ANOVA was also used.

Ojha has found out that credit practice of EBL was relatively better than NABIL and HBL .Similarly, interest income from loan and advances was found greater in HBL. The main source of income of these banks is based on loan and advances. Thus banks should be maintained proper level of portfolio so that profitability position will be maximized .The credit efficiency measurement provides controversial result towards the NABIL and EBL; however it was found better in EBL. He recommended the bank management of HBL for better improvement. The analysis shows that the both bank EBL and NABIL used its funds in diversified sectors, is successful to manage loan and advance. Thus, he suggested maintaining proper level of balance for HBL. He suggested to all selected banks to maintain there level in high in terms of credit management so that the banks credit management would be more effective in future.

Shrawan Kumar Singh (2011) has conducted research entitled on "Non Performing Assets Nepalese commercial banks" with reference to NABIL and NSBI Banks. The researcher's main objective of the study is to examine of the management of NPA of sample banks and to evaluate the effects of Non-performing assets on ROA and ROE of sample banks.

Through the research Mr. Singh has found that both of the banks have followed the NRB's directives regarding the loan loss provision. He concludes that the ROE of these bank dependent upon the level of NPA. If a bank desires to increase its ROE, the bank should reduce its level of NPA to reasonable level. The negative correlation between NPA and ROE clearly indicates that the decrease in NPA will increase the ROE. He concludes that good

corporate structure with trained and professional staff will help to reduce the risk that may arise from the operational and procedural function of the loan.

Ganesh Prasad Bhattarai (2011) has submitted his thesis on "A study on credit management of commercial banks in Nepal" with special reference to EBL, NIBL, MBL and SBI. His major objectives are;

- To analyze the lending portfolio of sample banks.
- To evaluate credit management of sample banks.
- To explore the relationship with loan and advances, NPL and net profit of sample banks.
- To explore the credit efficiency of sample banks.

The study has been followed the Descriptive and Analytical Research design. This study id based on secondary data. He has taken five years data from 2005/6-2009/10 .There are 3 sample banks has been taken out of 31 commercial banks. He has used different financial and statistical tools like Ratio analysis, Standard deviation and Correlation.

The major findings are:

- The mean ratio of non performing loan to total loan and advances of SBI is higher than other banks. Hi found that SBI has high percentage on non recovery loan which causes decrease in profit.
- The mean ratio of priority sector credit to total credit of NIBL is higher than that of others. He recommended to other banks to mobilize /invest there fund in priority sector.
- On the basis of profitability ratio, he has concluded that the profitability position of EBL is comparatively better than that of others.
- In credit portfolio, NIBL has made more investment in priority deprived and government sector and MBL has made more investment in private sector.
- He recommended to innovating new areas of lending and also more to rural sector in search of new lending area.

In his thesis, he has stated liquidity matters, lack of marketing strategy , poor credit collection policy ,unfair competition between banks , 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.

Rasna Joshi (2013) has conducted research entitled on "Liquidity Management of Nepalese Commercial Banks"With Reference to Kumari Bank Bank of Kathmandu and Machhapuchchhre Bank. This study tried to analyze how the banks are going to manage their liquidity positions to the sufficient balance.

The specific objectives of the study are:

- To analyze the existing liquidity position of the Nepalese commercial banks.
- To evaluate the trend of deposit mobilization of the Nepalese commercial banks.
- To examine the relationship between liquidity and profitability of the Nepalese commercial banks.

This study is designed within the framework of descriptive and analytical research design. The study is based on secondary data. In this study all the commercial banks are population of the study .Among them KBL, BOK and MBL have been selected as samples. She has taken five years data from 2007/08 to 2010/2011.She has used different financial and statistical tools like ratio, standard deviation, correlation and regression.

The major findings are:

- KBL has invested the highest proportion government securities and this ratio is significantly above than the ratio of BOK and MBL.MBL and BOK has very fluctuating trend in their investment in government securities.
- BOK bank has deployed the highest proportion of its current assets as loan and advances. The mean ratio of BOK and MBL does not have deviated significantly but KBL has low ratio.
- The fixed deposit to total deposit ratio has deviated significantly among the banks. They have decreasing trend in this ratio.
- The saving deposit to total deposit ratio of all banks fluctuate between 38.10 and 67.40.The mean ratio of KBL is significantly above than ratios of other two banks.

- The correlation chapter has shown generally high degree of significant correlation between all the variables measured except in the case of liquid fund to net profit. KBL has very high degree of positive correlation but it seems that KBL has given importance to the profit factor.

Radha Shakya (2013) has conducted research entitled on "Loan Management of Nepalese Commercial Banks" With Reference to Laxmi Bank and Kumari Bank. This study tried to analyze how the banks are performing in loan sector and how they stand in comparison to one another. Her major objectives are:

- To evaluate the loan risk management of finance companies in Nepal.
- To determine the impact of deposit in liquidity and its effect on lending practices of KBL and LBL.
- To analyze the lending portfolio of KBL and LBL.
- To provide recommendations on the basis of major findings of the study.

The study has been followed the qualitative and quantitative research design. This study was based on primary and secondary data. Only 2 sample banks have been taken out of 31 commercial banks. She has used different financial tools like Ratio analysis and Standard deviation, correlation and trend analysis.

The major findings are:

- LBL is better mobilizing of fund as loan and advances and it seems quite successful in generating higher ratio in each year.
- The mean ratio of cash and bank balance to total deposits of KBL is higher than LBL.
- LBL has invested more portions of current assets on government securities than KBL according to average study.
- Correlation coefficient between deposit and loan and advances of KBL is lower than LBL. It indicates that LBL is successfully mobilizing its deposits as loan and advances. There is significant relationship between correlation coefficient of deposits and loan and advances of KBL and LBL.

- The trend of return on loan and advance ratio of KBL is highly increasing trend. It means return from loan and advance is little higher than the LBL.
- The return from loan and advance of both finance companies is positive and increasing trend.

2.7. Research Gap.

The review of above relevant literature has contributed to enhance the fundamental understanding and knowledge, which is required to make study meaningful. The suggestions and recommendations given by the previous researchers help to improve and increase the necessary data for the related topic. This study analyses the credit risk management system of Laxmi bank, Siddhartha bank, Everest bank and Nabil bank to support in fulfilling research gap . The previous thesis covered only up to the fiscal year 2066/2067 but this thesis also based on up to the fiscal year 2069/2070. This study will be able to deliver some of the present issue, latest information and latest data relating to credit risk management.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Introduction.

This chapter describes the methodology employed in this study. 'Research methodology is a way to systematically solve the research problem." (Kothari,1990) It may be understood as a science of studying how research is done scientifically.

This chapter includes the research design, population and sample, sources and data collection technique, data analysis tool, 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.

3.2. Research Design.

Research design is a plan, structure and strategy of investigation conceived to obtain possible solution in the research problem in one's area of study. A research design is the arrangement of condition for collection 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? So, further research work, the analytical and descriptive research design are appropriate and will be adopted. The data relative to topics are collected through financial statement of the banks and various financial and statistical tools had been used to resolve the objectives.

3.3. Population and Sample.

Sampling may be defined as the selection of part of the population on the basis of which a judgment or inference about the universe is made (Sharma and Chaudhary, 2058). For selecting the samples, non- random sampling method is used here among different methods. There are 30 commercial banks operating in Nepal are considered as the population and 4 Commercial Banks i.e. Everest bank, Nabil bank, Sidhartha bank and Laxmi bank are taken out as samples. Annual financial statements of five years (2065/066-2069/070) have been taken from each bank.

3.4. Types and Sources of Data.

This study based on primary as well as secondary sources of data. 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 are extracted from various published annual reports of the bank. Also the sources of secondary data are Journals, newspaper, books, articles, magazines, web site, thesis which related to this research.

3.5. Data Collection Techniques.

To achieve the objective of the study, the sources of secondary data of commercial bank are analyzed by using financial tools such as ratio analysis and regression analysis. 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 primary data and information, the schedule provided to the related parties to know their views regarding to the objectives of the study. Before using the analytical tools to compare the result, the data containing in the financial statements have been grouped and rearranged so as to make comparison easy. The result will be presented using various charts and diagrams wherever possible.

3.6. Data analysis Tools.

On the basis of research problem and objectives of the study data and information needed is identified and collected. The collected data are properly processed and arranged in the form of the table for simplicity .For the achievement of the study various financial and statistical tools have been used. The analysis of data will be done according to the pattern of available data. Following financial and statistical tools have been used.

3.6.1. Financial Tools for Analysis.

Financial tools are very useful to determine the strengths and weakness of a firm and also measuring the performance of the firm. 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

Ratio analysis has been accepted as the most dominant financial tools to analyze and interpret the financial statements. Ratio analysis has various uses such as it is useful n 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. A large no. of ratios can be generated from the components of profit and loss account and balance sheet. For this study, following ratios have been used.

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 funds for the profit generate purpose on the credit and advances or not. Generally a high ratio reflects higher efficiency outsiders fund and vice-versa. The ratio can be calculated by using the following formula.

$$\textbf{Credit and Advance to Total Deposit Ratio.} = \frac{\text{Credit and advance}}{\text{Total deposit}}$$

2. Loan Loss provision Ratio

Loan Loss provision is created to cover tha loss occurred from the non-performing loan and have a stable financial position. So , the higher the loan loss provision helps to cover the large portion of loss occurred due to increase in non-performing loan. Loan loss provision may be pass, substandard ,doubtful and bad loan.

$$\textbf{Total Loan Loss provision to Total Loan and advance Ratio.} = \frac{\text{Total Loan Loss Provision}}{\text{Total Loan and advance}}$$

3. Credit and Advance to Total Assets Ratio.

This ratio measures the ability in mobilizing total assets into credit and advances for generating income. A higher ratio is consider as 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 as follows.

$$\textbf{Credit and Advance to Total assets Ratio.} = \frac{\text{Credit and advance}}{\text{Total assets}}$$

4. Non Performing loan to total loans Ratio.

A non performing loan is a loan that is in default or close to being in default. Many loans become non performing after being in default for 3 months, but this can depend on the contract terms. So, the increase in non performing loan is not good for financial institutions. This ratio can be calculated as follows.

$$\textbf{Total Non Performing loan to Total Loan and advance Ratio} = \frac{\text{Total Non Performing Loan}}{\text{Total Loan and advance}}$$

5. Interest Income to Loans and advances ratio.

Interest income from loan and advances is one of the main sources of income for every bank.The high volume of interest income is indicator of good performance of lending activities. This ratio can be calculated by using following formula.

$$\textbf{Interest Income to Loans and advances Ratio.} = \frac{\text{Total Interest Income}}{\text{Total Loan and advances}}$$

A. Return on Total Assets Ratio.

It measures the return on all the firm's assets after interest and taxes. ROA is a measure of efficiency. It conveys information on how well the institution's resources are being used in order to generate income. More efficiently run banks tend to have higher ROAs.(Thapa,Kiran 2065) .Return on total assets explains the contribution of assets to generating net profit. This ratio can be calculated by using following formula.

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

B. Return on Equity.

The prime objective of any bank is wealth maximization i.e. to earn high profit by maximizing return on its equity capital. ROE is a direct measure of returns to the stockholders. Because rewards to the institutions owners are a key goal for the whole organization, ROE is generally superior to ROA as a measure of profitability. Management

may be able to boost ROE simply through treater use of financial leverage that is , increasing the ratio of debt to equity capital .(Thapa,Kiran 2065). The higher ratio represents the higher efficiency of the bank in utilizing long term funds of shareholders. It can be calculated as follows.

$$\textbf{Return on Equity.} = \frac{\text{Net profit after tax.}}{\text{Share holder's equity.}}$$

3.6.2. Coefficient of Correlation.

Correlation can be defined as a degree of linear relationship existing between two or more variables. Correlation 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 can be calculated by using the method of Karl Person's correlation coefficient, because it is one of the widely and mathematical methods of calculation. Karl Pearson coefficient of correlation is usually denoted by 'r'. In symbolically, it is defined as

$$\mathbf{r} = \frac{n \sum XY - (X)(Y)}{\sqrt{[\{n \sum X^2 - (\sum X)^2\}\{n \sum Y^2 - (\sum Y)^2\}]}}$$

where,

n = no. of observation of X and Y.

$\sum XY$ = sum of the product of the observations in series X and Y.

$\sum X$ = sum of the observations in series X.

$\sum Y$ = sum of the observations in series Y.

$\sum X^2$ = sum of the square of the observations in series X.

$\sum Y^2$ = sum of the square of the observations in series Y.

If r Ö1,there is positively perfect correlation between the two variables.

If r Ö-1,there is negatively perfect correlation between the two variables.

If r Ö0,the variables are uncorrelated.

3.6.3. Probable Error.

Probable error of the correlation coefficient denoted by P.E. is the measure of testing the reliability of the calculated value of correlation coefficient. It is defined as P.E. = [0.6745(1-

$r^2)]\sqrt{n}$. With the help of P.E. it is possible to determine the reliability of the value of coefficient. Decision rules for significant tests are; if r < P.E, it is insignificant. So, perhaps there is the evidence of correlation. If r > P.E it is significant. If 'r' does not satisfy either of the above two conditions, the relation is inconclusive.

$$\textbf{P.E.} = \frac{[0.6745(1-r^2)]}{\sqrt{n}}$$

3.6.4. 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 1 variable when the value of other variable is known. The unknown variable which have to be predicted is called dependent variable and the know variable is independent variable. The general form of simple regression line is **Y = a + 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 the 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.

3.7. 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 the statistics may differ from the hypothetical value of the parameter 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 and the hypothesis is rejected. (Shrestha and Manandhar(2051).

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 formulated, as the slope of the line is zero. This can be formulated as follows.

$$S_{y.} = \sqrt{\frac{\sum(Y)^2 - a\sum(Y) - b\sum(XY)}{N-2}}$$

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;

$$S_b = \frac{Sy}{\sqrt{\sum(X - \sum X\backslash n)^2}}$$

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

$$T_b = \frac{b-o}{S_b}$$

Where,

T_b indicates the calculated T-value.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

This chapter deals with the data presentation, analysis of relevant data of the samples banks in order to fulfilled the objectives of the study. The data has 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 within primary data and analysis within secondary data of sample banks and its findings have been discussed in this chapter.

4.1. Presentation and Analysis of Primary Data.

4.1.1. Bank Loan Policies.

One of the most important ways a bank can make sure its loans meet regulatory standards and are profitable is by establishing a written loan policy. A loan policy gives loan officers and the bank's management specific guidelines in making some loan decisions and in shaping the over all portfolios of the bank. The most important elements of a Written loan Policies' & Procedures are establishing interest rates, payments, fees and repayments, Required Documents, Guidelines:, Statements of Lending, Establish a Lending Authority: , Establish Lines of Responsibility: , Operating Procedure, Lines of Authority, Establishing Upper Limit to Loans .

- Frequencies of responses of credit customers of the sample banks for the question of "Do you know all information about bank policies?"

Table 4.1.1. Bank Loan Policies.

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
L.B.L.	3	60	2	40	0	0	5
S.B.L.	3	60	1	20	1	20	5

EBL	4	80	1	20	0	0	5
NABIL	4	80	0	0	1	20	5

Source: Field survey,2014

Table 4.1.1 shows that 3 credit customer sample of LBL told that they knew all information about the bank policies and 2 persons said they don't know. Also 3 credit customer sample of SBL told that they knew all information about the bank policies. There are 4 credit customer sample of EBL told that they knew all information about the bank policies and 1credit customer said that he don't know about bank policies. There are 4 credit customer of NABIL told that they knew all information about the bank policies and 1credit customer hasn't given the proper response for the same question.

4.1.2. Visiting the project site/ Collateral at the time of granting Loan.

The loan officer should see to it that the borrower posses adequate net worth or own enough quality assets to provide adequate support for the loan. They should visit the project site or collateral of the costumer at the time of granting loan.

- Frequencies of responses of credit customers of the sample banks for the question of "Does any bank officer visit your project site at the time of granting loan?"

Table 4.1.2. Visiting the project site/ Collateral at the time of granting Loan.

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
L.B.L.	4	80	1	20	0	0	5
S.B.L.	4	80	-	-	1	20	5
EBL	5	100	-	-	-	-	5
NABIL	5	100	-	-	-	-	5

Source: Field survey, 2014

Table 4.1.2 shows that 80 % credit customer sample of LBL told that the bank officer visited their project site at the time of granting loan, 20 % said they don't visited. Similarly 80 % credit customer sample of SBL told that the bank officer visited their project site at the time of granting loan and 20 % haven't gave the proper response for the same question. 100 % credit customer sample of EBL and Nabil told that the bank officer visited their project site at the time of granting loan.

4.1.3. Bank Interest Rate.

Interest is a fee paid by a borrower of assets to the owner as a form of compensation for the use of the assets. It is most commonly the price paid for the use of borrowed money. Banks are generally free to determine the interest rate.

- Frequencies of responses of credit customers of the sample banks 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.	%	
L.B.L.	2	40	2	40	1	20	5
S.B.L.	3	60	1	20	1	20	5
EBL	3	60	2	40	-	-	5
NABIL	3	60	2	40	-	-	5

Source:Field survey 2014

Table 4.1.3 shows that 40 % credit customer sample of LBL told that they are satisfied with the bank interest rate and 40 % said they aren't satisfied and 20 percent haven't given clear response. Similarly 60 % credit customer sample of S.B.L. told that they are satisfied with the bank interest rate and 20 % said they aren't satisfied and 20 Percent haven't given any answer. 60 % credit customer sample of EBL told that they are satisfied with the bank interest rate and 20 % said they aren't satisfied. Also 60 % credit customer sample of SBL told that they are satisfied with the bank interest rate and 20 % said they aren't satisfied.

4.1.4. Credit Expiration Date.

After the loan is granted, the loan department must periodically review all loans until they reach maturity. Loan review helps bank management to spot problem loans quickly. This increases the chances to recover the loans and reduce the bank losses.

- Frequencies of responses of credit customers of the sample bank 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.	%	
LBL	4	80	1	20	-	-	5
SBL	4	80	-	-	1	20	5
EBL	5	100	-	-	-	-	5
NABIL	5	100	-	-	-	-	5

Source: Field survey,2014

Table 4.1.4 shows that 4 credit customer sample of LBL told that they received bank notice before credit expiration date and 1 person said they don't receive. Also 4 credit customer sample of SBL told that they received bank notice before credit expiration date and 1 person haven't given proper answer. 100 % credit customer sample of EBL and Nabil told that they received bank notice before credit expiration.

4.1.5. Utilization of Loan.

The most of the borrowers utilized the entire credit to the same sector as specified at the time of taking loan but some brazen borrowers take a loan out without any desire to use the loan for its intended purpose.

-Frequencies of responses of credit customers of the samples bank for the question of "Have you utilized the entire credit to the same sector as specified at the time of taking loan?"

Table 4.1.5. Utilization of Loan.

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
LBL	4	80	-	-	1	20	5
SBL	4	80	-	-	1	20	5
EBL	4	80	-	-	1	20	5
NABIL	5	100	-	-	-	-	5

Source: Field survey, 2014

Table 4.1.5 shows that 80 % credit customer sample of LBL,SBL and EBL. told they have utilized the entire credit to the same sector as specified at the time of taking loan and 20 % credit customer sample of LBL and SBL haven't given clear answer. 100 % credit customer sample of NABI.L told they have utilized the entire credit to the same sector as specified at the time of taking loan.

4.1.6. Furthur Credit.

If credits customers are satisfy with the bank, they will take further credit from same bank. But it the bank does not give good response to the credit customers they will not take further credit from same bank.

- Frequencies of responses of credit customers of the sample banks for the question of "Do you want to take further credit from the bank?"

Table 4.1.6. Furthur Credit.

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
LBL	3	60	-	-	2	40	5
SBL	4	80	1	20	-	-	5

EBL	3	60	1	20	1	20	5
NABIL	3	60	2	40	-	-	5

Source: Field survey, 2014

Table 4.1.6 shows that 3 credit customer sample of LBL told that they will take further credit from the same bank and 2 credit customers haven't given any response. Similarly 4 credit customer sample of SBL told that they will take further credit from the same bank and 1 credit customer haven't given proper answer. 3 credit customer sample of EBL told that they will take further credit from the same bank, 1 credit customer said they won't and 1 person haven't given proper response. 3 credit customer sample of NABIL told that they will take further credit from the same bank and 2 credit customers said they won't take further credit from the same bank.

4.1.7. Service Charge.

Service charge is an additional charge for a service for which there is already a basic fee. Banks impose service fees for late payments on loans and credit.

- Frequencies of responses of credit customers of the sample bank for the question of "Is the service charge taken by bank is satisfactory?"

Table 4.1.7. Service Charge.

Banks	Yes		No		No clear response		Total
	No.	%	No.	%	No.	%	
LBL	3	60	2	40	-	-	5
SBL	3	60	1	20	1	20	5
EBL	2	40	2	40	1	20	5
NABIL	3	60	1	20	1	20	5

Source: Field survey, 2014

Table 4.1.7 shows that 60 % credit customer sample of LBL told that they are in favor of service charge taken by the bank and 40 % are not in favor of bank' service charge. 80 %

credit customer sample of SBL told that they are in favor of bank' service charges, 20% are not in favor and 20 % haven't given proper answer. 40 % credit customer sample of EBL told that they are in favor of bank' service charges, 40% are not in favor and 20 % haven't given proper answer. 60 % credit customer sample of NABIL. told that they are in favor of bank' service charges, 20% are not in favor and 20 % haven't given proper answer.

4.2. Presentation and Analysis of Secondary Data.

4.2.1. Company Wise Analysis of Loan Loss Provision.

As per directives issued by N.R.B., loan and advances should be categorizes into performing loan and non performing loan. Non-performing loan also must be categorizes into substandard, doubtful and loss. For these loans provision should be maintained which must be 25, 50 and 100% respectively. Loan Loss provision is created to cover the loss occurred from the non-performing loan and have a stable financial position. So, the higher the loan loss provision helps to cover the large portion of loss occurred due to increase in non-performing loan.

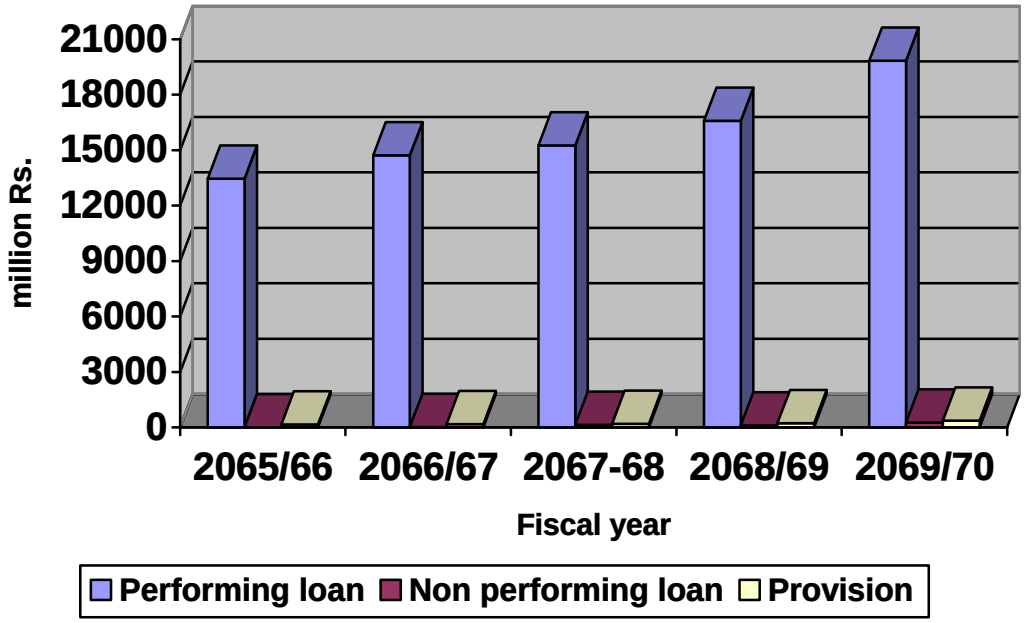
Table 4.2.1 (A_1) Laxmi Bank.

(Rs.In Million)

Fiscal Year	2065/066	2066/067	2067/068	2068/069	2069/070
Total loan	13463.35	14736.41	15389.51	16697.06	20100.29
Performing loan.	13456.62	14718.68	15250.67	16593.36	19846.54
Non-performing loan.	6.73	17.73	138.84	103.70	253.75
Provision.	147.7	176.2	185.5	218.6	356.3

Source: Banking and Financial statistics (NRB2013)

Figure 4.2.1. (A_1) Laxmi Bank.



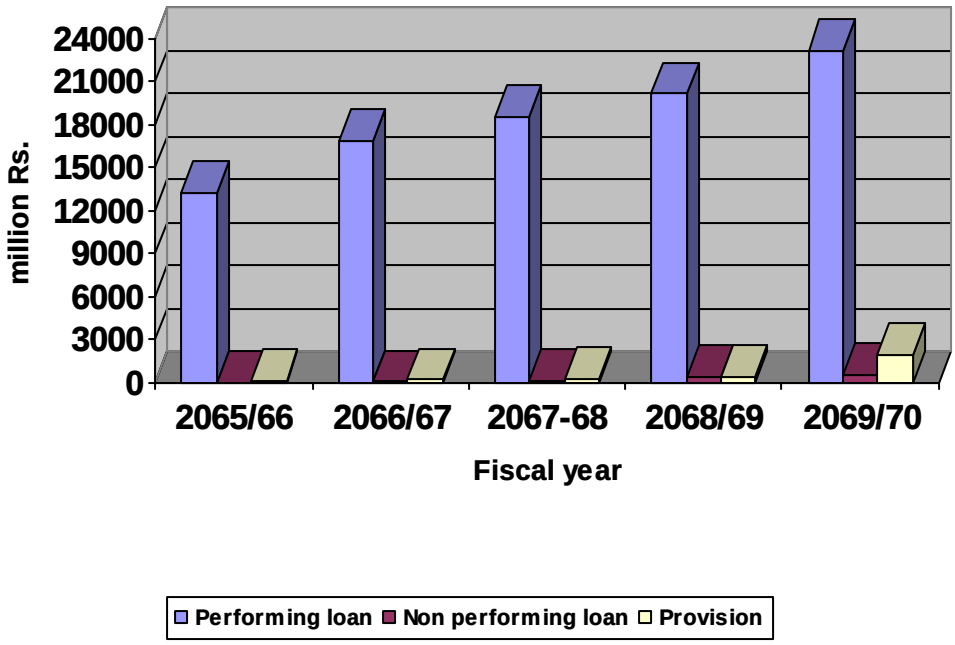
The above figure 4.2.1(A_1) shows that the performing loan and provision for loan loss of LBL are increasing trend and difference between the performing and non-performing loan is very high which indicates that bank is maintaining good loan position and its credit position is also maintained.

Table 4.2.1 (A_2) Siddhartha Bank.

Fiscal Year	2065/066	2066/067	2067/068	2068/069	2069/070
Total loan	13330.80	16895.41	18647.20	20607.30	23721.62
Performing loan.	13270.81	16824.84	18537.63	20143.45	23162.59
Non-performing loan.	59.99	70.57	109.57	463.85	559.03
Provision.	171.9	229.3	258.2	407.0	1994.1

Source: Banking and Financial statistics (NRB2013)

Figure 4.2.1. (A_2) Siddhartha Bank.



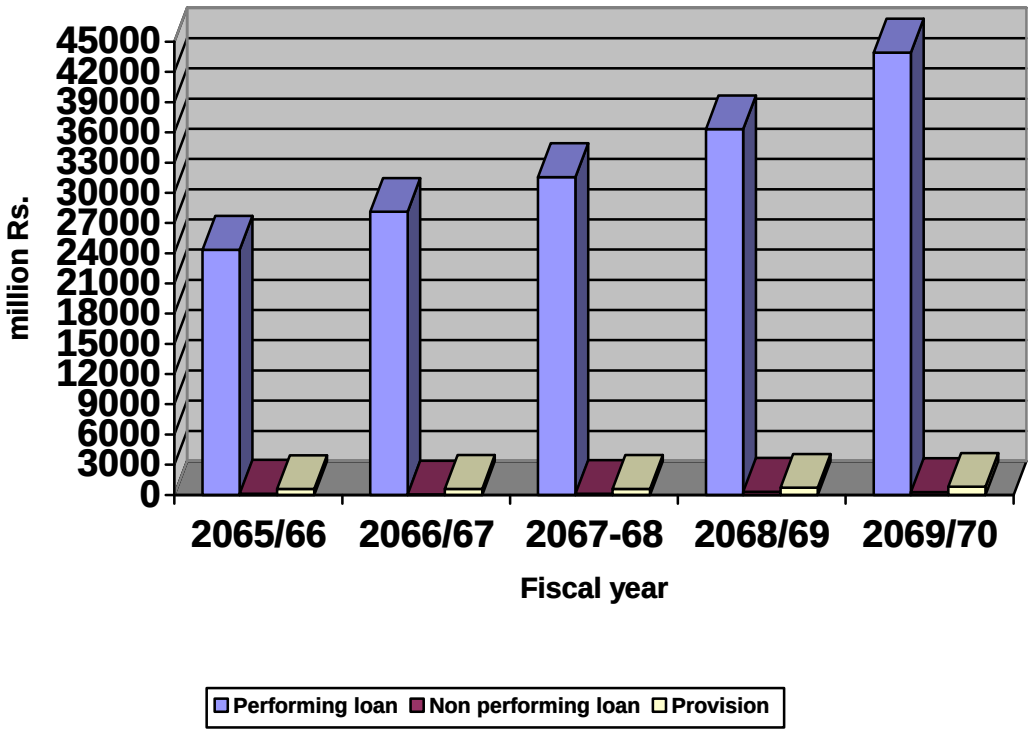
The above figure 4.2.1.(A_2) shows that the performing loan of SBL is in increasing trend and difference between the performing and non-performing loan is very high which indicates that bank is maintaining good loan position and its credit position is also maintained. The loan loss provision was high in 2069/2070.

Table 4.2.1 (A_3) Everest Bank.

Fiscal Year	2065/066	2066/067	2067/068	2068/069	2069/070
Total loan	24469.56	28156.40	31661.84	36616.83	44197.76
Performing loan.	24352.11	28112.69	31553.44	36309.34	43921.56
Non-performing loan.	117.45	43.71	108.40	307.49	276.20
Provision.	584.9	600	604.2	705.9	804.6

Source: Banking and Financial statistics (NRB2013)

Figure 4.2.1. (A_3) Everest Bank.



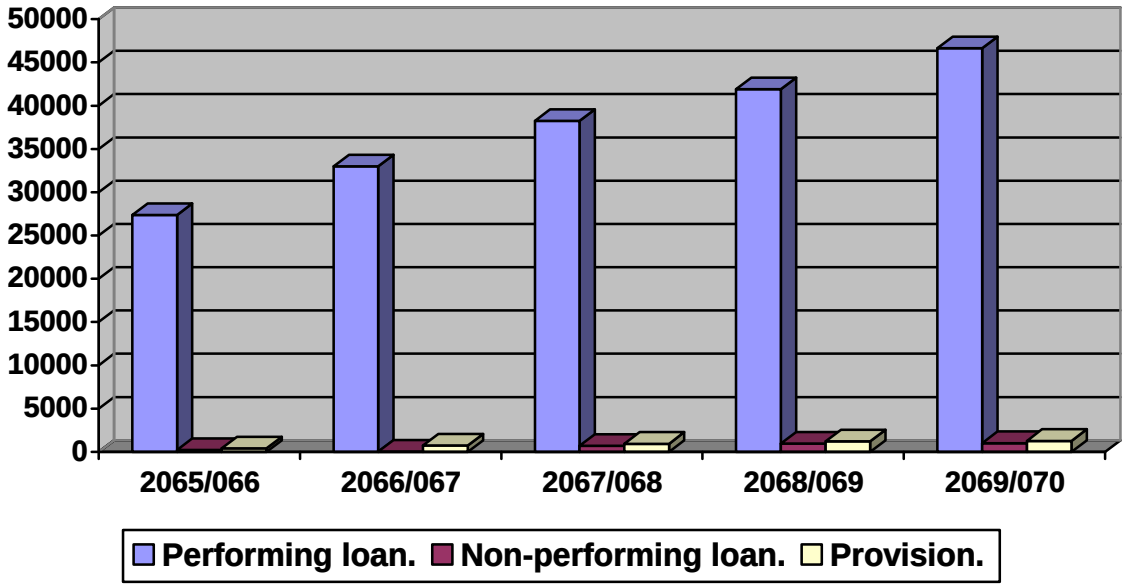
The above figure4.2.1.(A_3) shows that the performing loan of EBL is in increasing trend and difference between the performing and non-performing loan is very high which indicates that bank is maintaining good loan position and its credit position is also maintained.

Table 4.2.1 (A_4) NABIL Bank.

Fiscal Year	2065/066	2066/067	2067/068	2068/069	2069/070
Performing loan.	27369.21	32985.35	38232.89	41898.44	46630.35
Non-performing loan.	220.72	45.58	689.85	969.34	1015.18
Provision.	409.1	752.2	941	1227.9	1275.7

Source: Banking and Financial statistics (NRB2013)

Figure 4.2.1. (A_4) NABIL



The above figure4.2.1.(A_4) shows that the performing loan of NABIL is in increasing trend and difference between the performing and non-performing loan is very high which indicates that bank is maintaining good loan position and its credit position is also maintained.

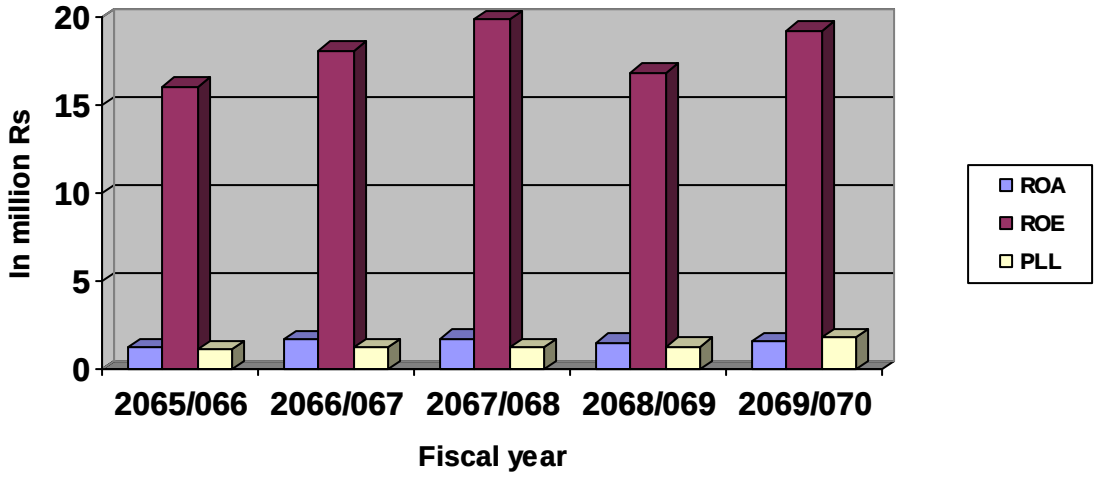
4.2.2. Analysis of effect of loan loss provision on R.O.A. and R.O.E.

Table4.2.2 (B_1) Laxmi Bank.

F.Y.	2065/066	2066/067	2067/068	2068/069	2069/070
R.O.A.	1.22	1.66	1.76	1.50	1.50
R.O.E.	16.08	18.17	19.89	16.91	19.26
P.L.L.	1.10	1.20	1.21	1.31	1.78

Source: Annual report of NRB2013

Figure 4.2.2 (B_1) Laxmi Bank.



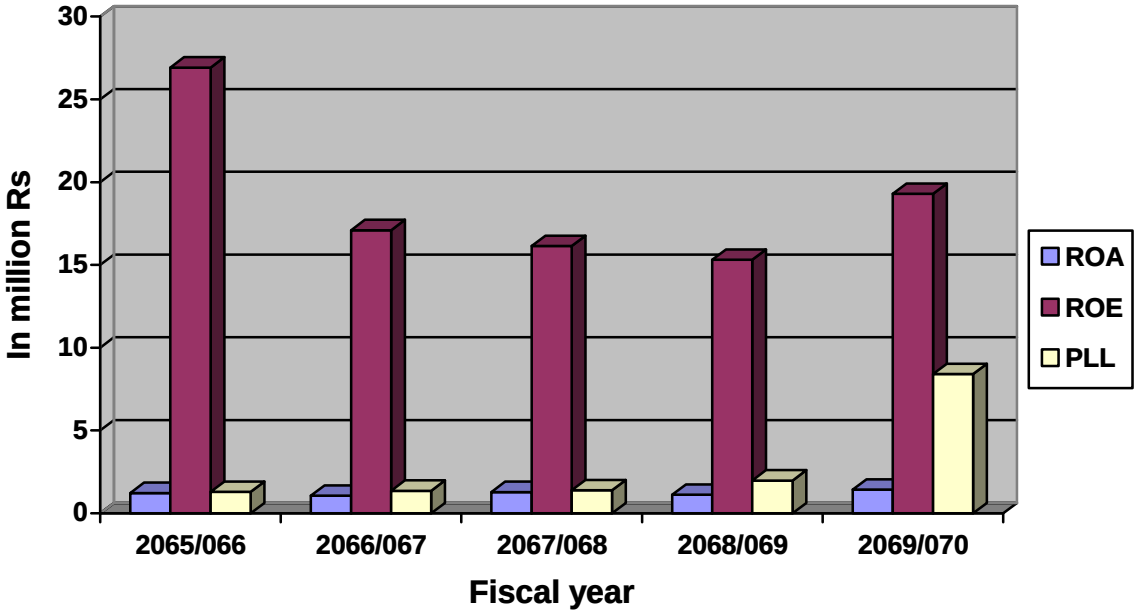
As per above figure4.2.2 (B_1) of return analysis, it shows that there is no negative effect of loan loss provision on R.O.A. and R.O.E. The provision for loan loss is in increasing trend. Trend of return on equity and return on assets is slightly fluctuated, but it has not decreased as bank has to maintain the loan loss provision.

Table4.2.2 (B_2) Siddhartha Bank

F.Y.	2065/066	2066/067	2067/068	2068/069	2069/070
R.O.A.	1.22	1.06	1.28	1.12	1.43
R.O.E.	26.92	17.10	16.14	15.31	19.29
P.L.L.	1.29	1.36	1.39	1.98	8.41

Source: Annual report of NRB2013

Figure 4.2.2 (B_2) Siddhartha Bank



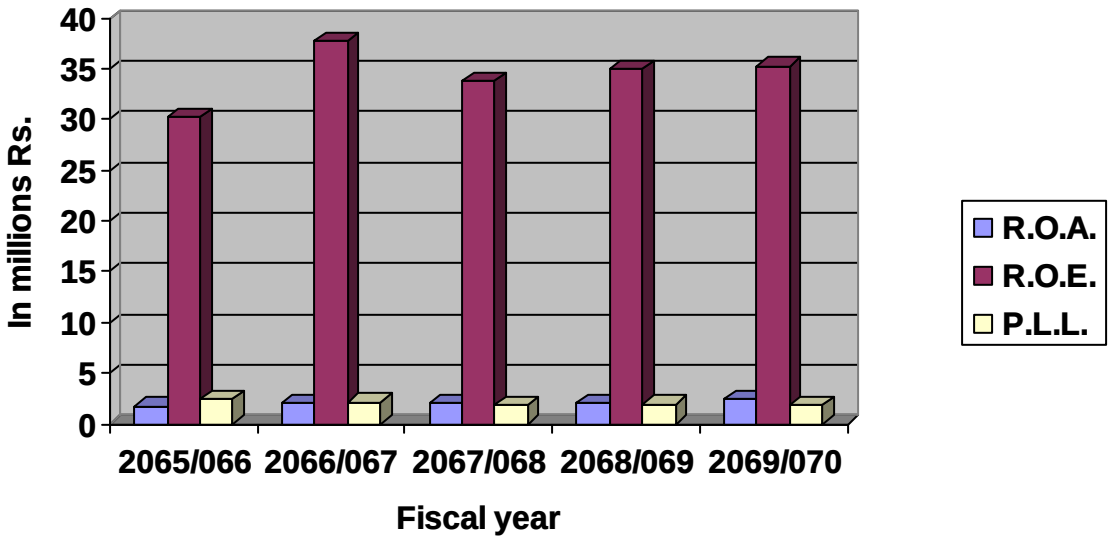
Above figure4.2.2 (B_2) of return analysis of SBL shows that the trend of return on equity is decreasing which is not good sign for any bank. In financial year 2065/066 the ROE is high but in fiscal year 2066/067, 2067/068 and 2068/069 R.O.E of the bank is decreased and in fiscal year 2069/070 it is slightly high. The provision for loan loss is in increasing trend, it is high in fiscal year 2069/70.

Table 4.2.2 (B_3) Everest Bank.

F.Y.	2065/066	2066/067	2067/068	2068/069	2069/070
R.O.A.	1.73	2.09	2.10	2.11	2.39
R.O.E.	30.20	37.75	33.75	35.03	35.31
P.L.L.	2.39	2.13	1.91	1.93	1.82

Source: Annual report of NRB2013.

Figure 4.2.2 (B_3) Everest Bank.



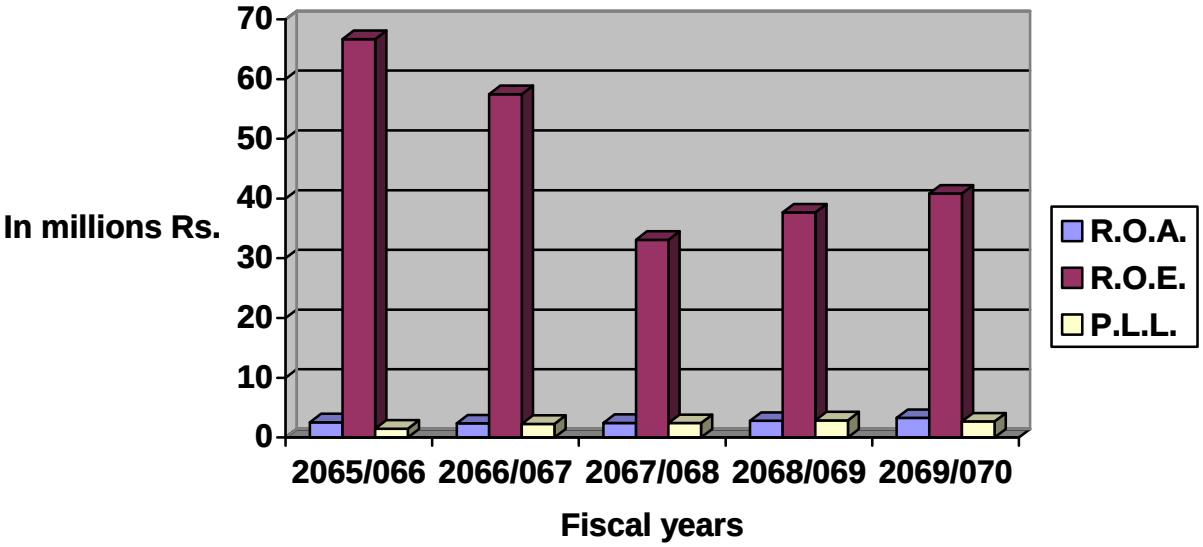
As per above figure 4.2.2 (B_3) of return analysis, it shows that there is no negative effect of loan loss provision on R.O.A. and R.O.E. Trend of return on equity and return on assets is stable ,R.O.E. is slightly fluctuated than R.O.A. The trend of PLL is decreasing; it means non - performing loan is in decreasing trend and it shows that bank has maintains good credit management.

Table 4.2.2 (B_4) NABIL Bank

F.Y.	2065/066	2066/067	2067/068	2068/069	2069/070
R.O.A.	2.55	2.37	2.43	2.80	3.25
R.O.E.	66.70	57.48	33.10	37.69	40.85
P.L.L.	1.48	2.28	2.42	2.87	2.68

Source: Annual report of NRB2013.

Figure 4.2.2 (B_4) NABIL Bank



Above figure 4.2.2 (B_4) of return analysis of NABIL. shows that the trend of return on equity is decreasing which is not good sign for any bank. In financial year 2065/066 the R.O.E. is high but in fiscal year 2066/067, 2067/068 and 2068/069 it is decreased and in fiscal year 2069/070 it is slightly high. The provision for loan loss is in increasing trend, it is high in fiscal year 2068/69.The trend of ROA is increasing.

4.2.3. 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:

4.2.3.1. Analysis of 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 funds for the profit generate purpose on the credit and advances or not. Generally a high ratio reflects higher efficiency outsiders fund and vice-versa. The ratio can be calculated by using the following formula.

$$\textbf{Credit and Advance to Total Deposit Ratio.} = \frac{\text{Credit and advance.}}{\text{Total deposit.}}$$

Table 4.2.3.1 Credit and Advances to Total Deposit Ratio.

Fiscal Year	Laxmi Bank	Siddhartha Bank	Everest Bank	NABIL Bank
2065/066	83.88	85.18	73.43	73.87
2066/067	81.49	83.65	76.24	71.17
2067/068	84.10	86.43	76.98	78.29
2068/069	73.13	79.42	73.22	77.91
2069/070	73.10	83.55	76.57	74.90
Total.	395.70	418.23	376.44	376.14
Average.	79.14	83.65	75.288	75.23
Standard dev.	5.00	2.37	1.621	2.645
C.V.	6.32	2.83	2.153	3.516

Source: Annex 1.

Table 4.2.3.1 shows that the average ratio of credit and advances to total deposit of Laxmi bank is 79.14 %. The fluctuation in the ratio is not too high. The lowest ratio is 73.10 and the highest ratio is 84.10 percent in fiscal year 2069/070 and 2067/068 respectively. Standard deviation and coefficient of variation of LBL are 5.00 and 6.32 percent respectively.

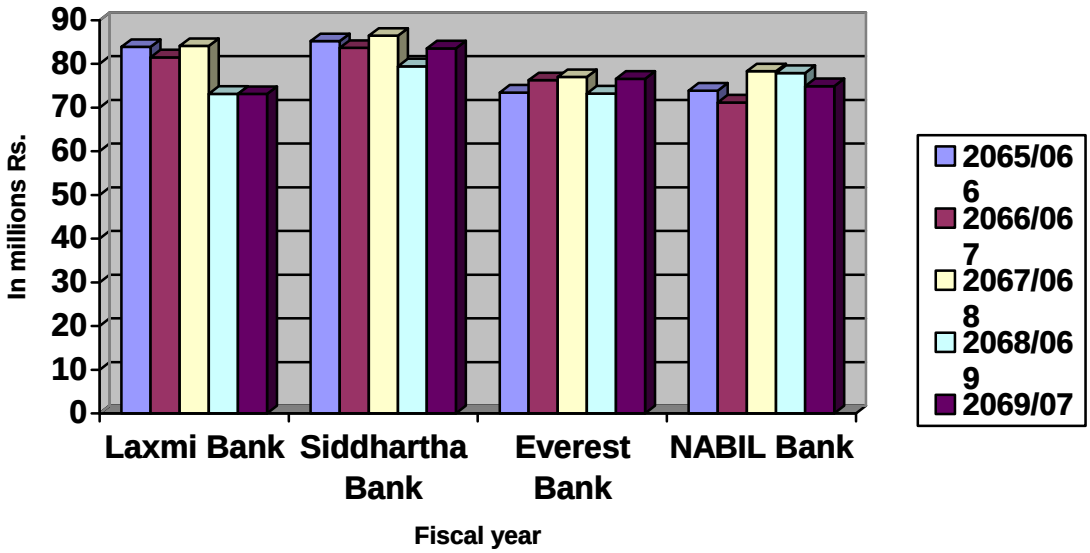
The average ratio of credit and advances to total deposits of Siddhartha Bank is 83.65 %. Fluctuation in the ratio is not high. Under the study period the lowest ratio is 79.42 % and the highest ratio is 86.43 % in fiscal year 2068/069 and 2067/068 respectively. Standard deviation and coefficient of variation of the ratios are 2.37 and 2.83 percent respectively.

The average ratio of credit and advances to total deposit of Everest bank is 75.29 %. The fluctuation in the ratio is not too high. The lowest ratio is 73.22 in fiscal year 2068/069 and the highest ratio is 76.98% in 2067/068. Standard deviation and coefficient of variation of LBL are 1.621 and 2.153 percent respectively.

The average ratio of credit and advances to total deposits of Nabil Bank is 75.23 %. The ratio of credit to total deposit is slightly fluctuated under the study period. The lowest ratio is 71.17

% and the highest ratio is 78.29 % in fiscal year 2066/067 and 2067/068 respectively. Standard deviation and coefficient of variation of the ratios are 2.37 and 2.83 percent respectively.

Figure 4.2.3.1 Credit and Advances to Total Deposit Ratio.



In term of mean ratio value, Siddhartha Bank has maintained higher credit and advances to total deposit ratio than other Bank. In this way, it shows that SBL seems to be strong in mobilize its total deposit as credit and advances. It can be concluded that other banks have lower position to mobilize its deposits as compare to SBL. In an average, the samples banks have utilized their total deposits as credit and advances around 75 %. It will be the good investment for bank if there is not any default situation emerge.

Total deposits are the main source of bank to provide credit and advances. Total deposits go as credit and advances to customers. Therefore it seems that the banks are heavily depended on credit and advances to make profit from their investment. Above table shows that as the deposit increases, the credit and advances also increases and vice versa. Therefore it indicates that there is strong relationship between total deposit and total credit and advances.

4.2.3.2. Analysis of Credit and Advances to Total Assets Ratio.

This ratio measures the ability in mobilizing total assets into credit and advances for generating income. A higher ratio is consider as 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 as follows.

Credit and Advance to Total assets Ratio. = $\frac{\text{Credit and advance}}{\text{Total assets}}$

Table 4.2.3.2 Credit and Advance to Total Assets Ratio

Fiscal Year	Laxmi bank	Siddhartha bank	Everest Bank	NABIL Bank
2065/066	71.31	72.625	64.12	60.55
2066/067	68.11	72.598	66.89	60.25
2067/068	67.98	72.111	67.24	63.25
2068/069	58.37	65.004	64.26	59.73
2069/070	61.18	49.039	66.00	60.72
Total.	326.95	331.38	328.52	304.50
Average.	65.39	66.28	65.70	60.90
Standard dev.	4.82	9.08	1.27	1.22
C.V.	7.37	13.71	1.94	2.01

Source: Annex 2.

Table 4.2.3.2 shows that credit to total assets ratio of LBL is in decreasing trend. The ratio is highest in the fiscal year 2065/066 i.e. 71.31 % and lowest in 2068/069 i.e. 58.37 %. The average ratio as credit and advances to total assets of the bank is 65.39%. Standard deviation and the coefficient of variations are 4.82 and 7.37 percent respectively which means that the bank has the capability to utilize its assets to gain income.

Siddhartha bank has generally steady trends in first -three fiscal year but it is in decreasing trend in last 2 fiscal year under the study period. The lowest ratio as credit and advances to

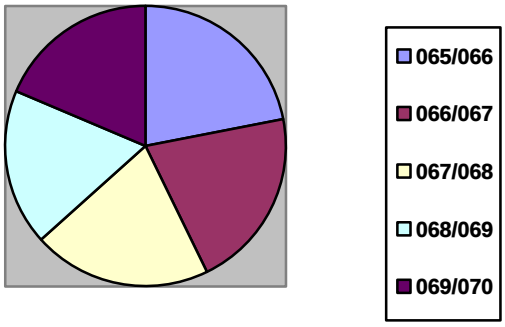
total assets of the bank is 49.04 in the fiscal year 2069/070 which shows that the bank has utilizing the minimum capacity of total assets in the form of credit and advances. The average ratio as credit and advances to total assets of the bank is 66.28%. Standard deviation and the coefficient of variations are 9.08 and 13.71 percent respectively which means that the utilization of assets in the form of credit and advances is satisfactory.

EBL has mixed trend of the ratios under the study period. The highest ratio is 67.24 and the lowest ratio is 64.12 in fiscal year 2067/068 and 2065/066 respectively and the fluctuation rate is also little. The average ratio is 65.70 which indicate that the bank has the capability to utilize its total assets in the form of credit and advances. Bank's standard deviation and C.V. are 1.27 and 1.94 respectively. It shows that the bank has uses its assets at satisfactory level.

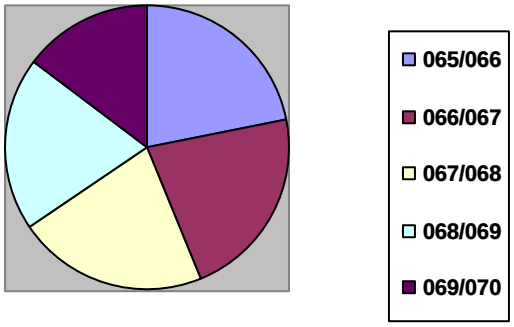
NABIL has generally steady trends under the study period. Only in fiscal year 2067/68 it has little higher ratio ie.63.25%. The lowest ratio as credit and advances to total assets of the bank is 59.73 in the fiscal year 2068/069. The average ratio is 60.90% which indicate that the bank has the capability to utilize its total assets in the form of credit and advances. Bank's standard deviation and C.V. as the credit and advances to total assets ratio are 1.22 % and 2.01 % respectively which shows that the consistency in the utilization of assets on the form of credit and advances is good.

Figure 4.2.3.2 Credit and Advance to Total Assets Ratio

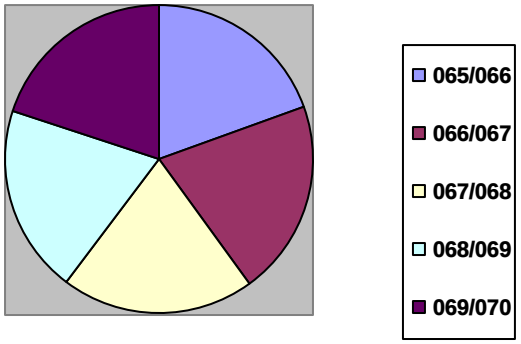
Credit and advance to total assets ratio of Laxmi Bank



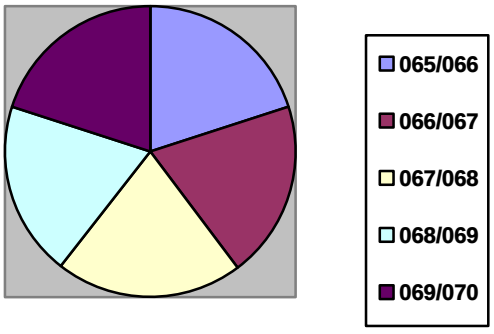
Credit and advance to total assets ratio of Siddharth bank



Credit and advance to total assets ratio of Everest Bank



Credit and advance to total assets ratio of NABILbank



In term of mean ratio value, it can be said that the mean ratio of Siddhartha bank has the highest than other banks. It can be concluded that the higher mean ratio indicates the good lending performance. So Siddhartha bank has good lending performance than other bank .It shows that in average all samples bank has utilized their total assets as credit and advances .It will be the good investment for bank if there is not any default situation emerge.

4.2.3.3. Analysis of Loan Loss provision to Total Loan Ratio

Loan Loss provision is created to cover the loss occurred from the non-performing loan and have a stable financial position. So, the higher the loan loss provision helps to cover the large portion of loss occurred due to increase in non-performing loan. Loan loss provision may be pass,substandard doubtful and bad loan.

$$\textbf{Total Loan Loss provision to Total Loan and advance Ratio.} = \frac{\text{Total Loan Loss Provision}}{\text{Total Loan and advance}}$$

Table 4.2.3.3. Loan Loss provision to Total Loan Ratio

Fiscal Year	Laxmi bank	Siddhartha bank	Everest Bank	NABIL Bank
2065/066	1.10	1.29	2.39	1.48
2066/067	1.20	1.36	2.13	2.28
2067/068	1.21	1.39	1.91	2.42
2068/069	1.31	1.98	1.93	2.87
2069/070	1.78	8.41	1.82	2.68
Total.	6.6	14.43	10.18	11.73
Average.	1.32	2.886	2.036	2.346
Standard dev.	0.239	2.77	0.204	0.4787
C.V.	18.11	96.08	10.02	20.41

Source: Annex 3.

Figure 4.2.3.3. Loan Loss provision to Total Loan Ratio

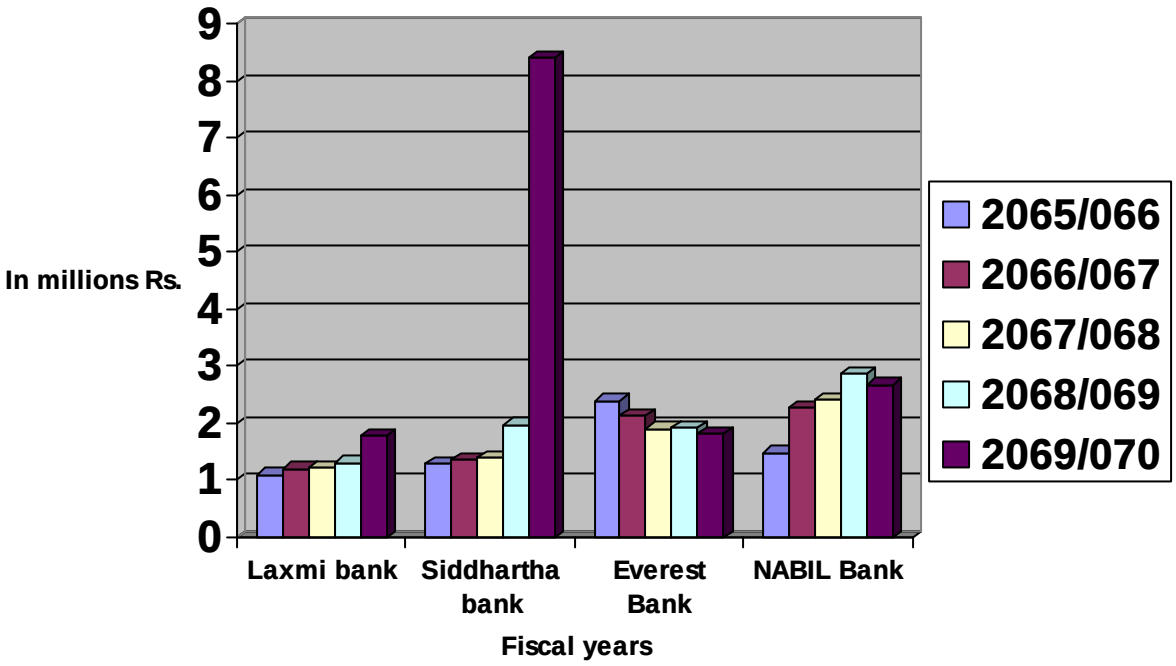


Table 4.2.3.3 shows that the average ratio of Loan loss to total loan of Laxmi bank is 1.32 %. Provision for loan loss to total ratio is in increasing trend. The lowest ratio is 1.10 and the highest ratio is 1.78 percent in fiscal year 2065/066 and 2069/070 respectively. Standard deviation and coefficient of variation of LBL are 0.239 and 8.11 percent respectively.

The average ratio of credit and advances to total deposits of Siddhartha Bank is 2.886 %. Provision for loan loss to total ratio is in increasing trend and it is too high in fiscal year 2069/070 i.-e 8.41 percent. Under the study period the lowest ratio is 1.29 % and the highest ratio is 8.41% in fiscal year 2065/066 and 2069/070 respectively. Standard deviation and coefficient of variation of the ratios are 2.77 and 96.08 percent respectively.

The average ratio of Loan loss to total loan of Everest bank is 2.036 %. Provision for loan loss to total ratio is in decreasing trend. The lowest ratio is 1.82 and the highest ratio is 2.39 percent in fiscal year 2069/070 and 2065/066 respectively. Standard deviation and coefficient of variation of E.B.L are 0.20 and 10.02 percent respectively.

Provision for loan loss to total ratio of NABIL Bank is in increasing trend. The lowest ratio is 1.48 and the highest ratio is 2.87 percent in fiscal year 2065/066 and 2068/069 respectively and average ratio is 2.346.

In term of mean ratio value, it can be said that the mean ratio of Siddhartha bank has high loan loss provision ratio than other bank. It can be concluded that the higher mean ratio indicates the increased volume of non performing loans. The increasing volume of non performing loan indicated the poor and ineffective credit policy and poor performance of the company.

4.2.3.4. Analysis of Non Performing loan to total loans Ratio

A non performing loan is a loan that is in default or close to being in default. Many loans become non performing after being in default for 3 months, but this can depend on the contract terms. So, the increase in non performing loan is not good for financial institutions. This ratio can be calculated as follows. As the ratio rise, the institutions credit risk grows, and institution may be failure.

$$\textbf{Total Non Performing loan to Total Loan and advance Ratio} = \frac{\text{Total Non Performing Loan}}{\text{Total Loan and advance}}$$

Table4.2.3.4. Non -Performing loan to total loans Ratio

Fiscal Year	Laxmi Bank	Siddhartha Bank	Everest Bank	NABIL Bank
2065/066	0.05	0.45	0.48	0.80
2066/067	0.12	0.42	0.16	0.14
2067/068	0.90	0.59	0.34	1.77
2068/069	0.62	2.25	0.84	2.26
2069/070	1.51	2.36	0.62	2.13
Total.	2.95	6.07	2.44	7.1
Average.	0.64	1.214	0.488	1.42
Standard dev.	0.5373	0.8933	0.233	0.819
C.V.	83.95	73.58	47.71	57.69

Source: Annex 4.

Figure 4.2.3.4. Non -Performing loan to total loans Ratio

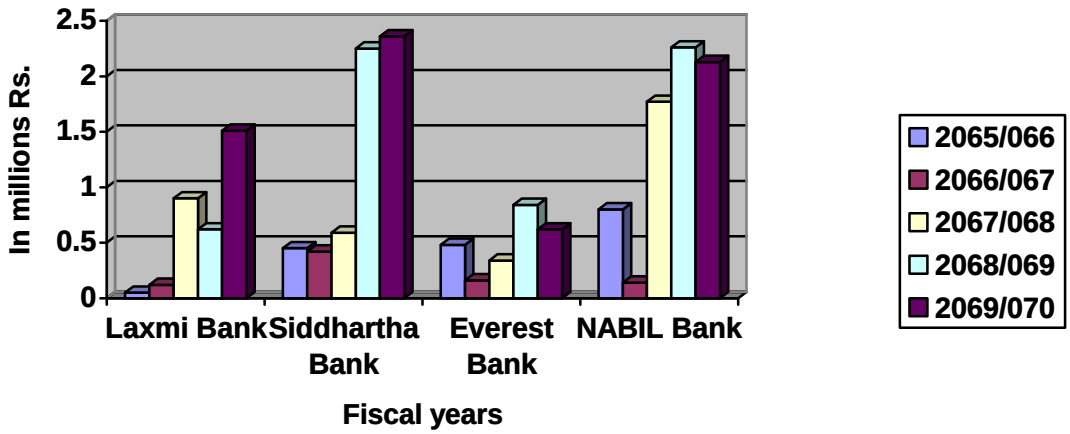


Table 4.2.3.4 shows that the average ratio of Non -performing Loan to total loan of Laxmi bank is 0.64 %. The ratio of non performing loan to total loan of LBL is in slightly increasing.

The average ratio of Non- performing Loan to total loan of Siddhartha Bank is 1.214 %. The ratio of non performing loan to total loan is in increasing trend .Under the study period the lowest ratio is 0.45 % and the highest ratio is 2.36 % in fiscal year 2065/066 and 2069/070 respectively..

The average ratio of Non- performing Loan to total loan of Everest Bank is 0.488 .The ratio of Non Performing loan to total loans Ratio is slightly fluctuated under the study period.

Non Performing loan to total loans Ratio of NAbil bank is in increasing trend. The average ratio of Non- performing Loan to total loan of Everest Bank is 1.42. Standard deviation and coefficient of variation of the ratios are 0.819 and 57.69 percent respectively.

In term of mean ratio value, it can be said that the mean ratio of Everest bank has low Non Performing loan to total loans Ratio than other banks. The financial institution always tries to reduce non performing loan ratio .If non-performing loan increases the overall business will be affected.

4.2.3.5. Analysis Of Interest Income To Loan And Advance Ratio.

Interest income from loan and advances is one of the main sources of income for every bank.The high volume of interest income is indicator of good performance of lending activities. This ratio can be calculated by using following formula.

Interest Income to Loans and advances Ratio. = $\frac{\text{Total Interest Income}}{\text{Total Loan and advances}}$

Table 4.2.3.5. Interest Income To Loan And Advance Ratio.

Fiscal Year	Laxmi Bank	Siddhartha Bank	Everest Bank	NABIL Bank
2065/066	8.76	8.41	7.57	8.82
2066/067	9.97	10.86	9.95	10.41
2067/068	12.11	13.01	12.22	12.50
2068/069	11.77	13.26	12.30	12.85
2069/070	10.34	11.53	10.49	11.64
Total.	52.95	57.07	52.53	56.22
Average.	10.59	11.414	10.506	11.244
Standard dev.	1.2246	1.7492	1.7369	1.475
C.V.	11.56	15.33	16.53	13.12

Source: Annex 5.

Figure 4.2.3.5. Interest Income To Loan And Advance Ratio.

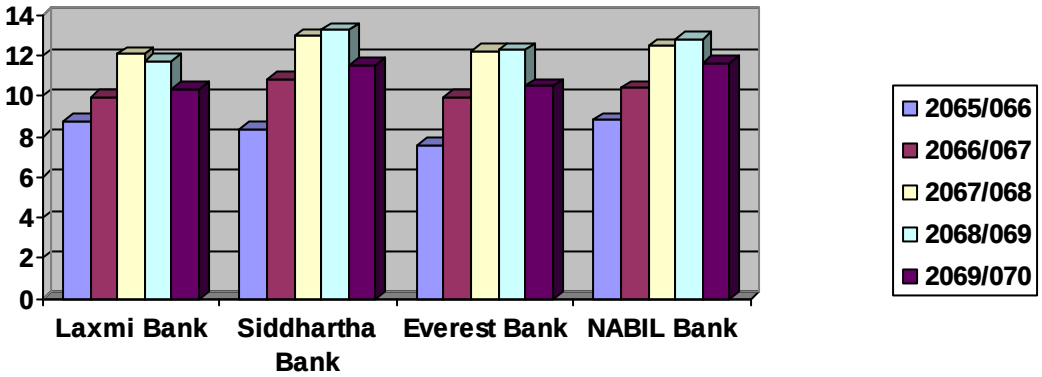


Table 4.2.3.5 shows that the average ratio of Interest Income to Loans and advances of Laxmi bank is 10.59 %. The ratio of Interest Income to Loans and advances of LBL is in slightly fluctuated trend. .The highest ratio is 12.11 and the lowest ratio is 8.76 percent in fiscal year 2067/068 and 2065/066 respectively. Standard deviation and coefficient of variation of L.B.L are 1.2246 and 11.56 percent respectively.

The average ratio of Interest Income to Loans and advances of Siddhartha Bank is 11.414 %. Trend Interest Income to Loans and advances is slightly fluctuate. Under the study period the lowest ratio is 8.41 % and the highest ratio is 13.26 % in fiscal year 2065/066 and 2068/069 respectively. Standard deviation and coefficient of variation of the ratios are 1.7492 and 15.33 percent respectively.

The average ratio of Interest Income to Loans and advances of Everest bank is 10.506 %. The ratio of Interest Income to Loans and advances of LBL is in slightly fluctuated trend .The highest ratio is 12.30 and the lowest ratio is 7.57 percent in fiscal year 2068/069 and 2065/066 respectively. Standard deviation and coefficient of variation of E.B.L are 1.7369 and 16.53 percent respectively.

The ratio of Interest Income to Loans and advances of NABIL is in slightly increasing trend. The average ratio of Interest Income to Loans and advances is 11.244 %. Under the study period the lowest ratio is 8.82 % and the highest ratio is 12.85 % in fiscal year 2065/066 and 2068/069 respectively. Standard deviation and coefficient of variation of the ratios are 1.475 and 13.12 percent respectively.

In terms of mean ratio value, it can be said that the mean ratio of Siddhartha bank has the highest than other banks. It can be concluded that the higher mean ratio indicates the good lending performance. So Siddhartha bank has good performance in earning interest income than other banks.

4.2.4. Statistical Analysis.

Coefficient of Correlation.

Correlation can be defined as a degree of linear relationship existing between two or more variables. Correlation may be positive, negative and zero. Coefficient of correlation is an important measure to describe how one variable explains another. It can be calculated by using the method of Karl Person's correlation coefficient, because it is one of the widely and

mathematical methods of calculation. Karl Pearson coefficient of correlation is usually denoted by 'r'.

Regression Analysis.

Regression analysis is used as a tool of determining the strength of relationship between two variables. The general form of simple regression line used in this study is **Y = a + 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 and P.L.L. is concerned as the dependent variable while R.O.A. and R.O.E. are concerned as independent variables.

Table 4.2.4. (C_1) Correlation Coefficient of Laxmi bank.

S. No.	P.L.L.	Correlation.	P.E.	Conclusion.	Remarks.
1.	R.O.A.	0.0745	0.2999	Insignificant.	r < P.E.
2.	R.O.E.	0.4671	0.2358	significant.	r > P.E.

Source: Annex 6.

Table 4.2.4. (C_1) shows the correlation between loan loss provision to R.O.A. and R.O.E. during study period. The calculated correlation of PLL and ROA was found 0.0745 and PLL and ROE was found 0.4671 which shows positive correlation between PLL and ROA/ROE. The PE ratio of PLL and ROA was 0.2999 and 0.2358 of PLL and ROE. The calculated correlations of PLL and ROA are smaller than Probable Error which indicates that the calculated correlations for LBL is insignificant and the calculated correlations of PLL and ROE are bigger than Probable Error which indicates that the calculated correlations for LBL is significant.

Table 4.2.4. (C_2) Test Of Hypothesis**.**

S. No.	Independent Variable.	Dependent Variable.	Beta (b) Coefficient.	Constant. (a)	T-cal Value.	T- tab
1.	P.L.L.	R.O.A.	0.0392	1.4762	0.0897	3.182
2.	P.L.L.	R.O.E.	2.8242	14.333	0.9299	3.182

Source: Annex 7.

Table 4.2.4. (C_2) shows the test of hypothesis for relationship of PLL and ROA / ROA .For the PLL and ROA, The calculated value of t = 0.0897 which is smaller than tabulated value of t i.e.3.182 at 5 % levels of significance ,Therefore null hypothesis is accepted. That means there is relation between PLL and ROA .Similarly, test of relationship between PLL and ROA ,The calculated value of t = 0.9299 which is smaller than tabulated value of t i.e.3.182 at 5 % levels of significance ,Therefore null hypothesis is accepted. That means there is relation between PLL and ROA. .

Table 4.2.4. (D_1) Correlation Coefficient of S.B.L.

S. No.	P.L.L.	Correlation.	P.E.	Conclusion.	Remarks.
1.	R.O.A.	0.7824	0.1170	Significant.	r > P.E.
2.	R.O.E.	-0.0089	0.3016	Insignificant.	r < P.E.

Source: Annex 6.

Table 4.2.4. (D_1)shows that the correlation between loan and loan loss provision to R.O.A. and R.O.E. The calculation in the table clearly shows that there is positive correlation between P.L.L. and R.O.A. and there is negative correlation between P.L.L. and R.O.E and the result is too small and considers it as insignificants.

Table 4.2.4. (D_2) Test Of Hypothesis.

S. No.	Independent Variable.	Dependent Variable.	Beta (b) Coefficient.	Constant. (a)	T- Value.	T- cal

1.	P.L.L.	R.O.A.	0.0366	1.1164	2.2048	3.182
2.	P.L.L.	R.O.E.	-0.0132	18.99	0.0151	3.182

Source: Annex 7.

Table 4.2.4. (D_2) reveals that the regression coefficient of provision of loan loss 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 very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. Thus null hypothesis of relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. was accepted.

Table 4.2.4. (E_1) Correlation Coefficient of E.B.L.

S. No.	P.L.L.	Correlation.	P.E.	Conclusion.	Remarks.
1.	R.O.A.	-0.9122	0.0506	Insignificant.	r < P.E.
2.	R.O.E.	-0.5425	0.2129	Insignificant.	r < P.E.

Source: Annex 6.

Table 4.2.4. (E_1) shows that the correlation between loan and loan loss provision to ROA and ROE. The calculation in the table clearly shows that there is negative correlation between P.L.L. and R.O.A. as well as P.L.L. and R.O.E. but the result is too small and considers it as insignificant.

Table 4.2.4. (E_2) Test Of Hypothesis**.**

S. No.	Independent Variable.	Dependent Variable.	Beta (b) Coefficient.	Constant. (a)	T-cal Value.	T- tab
1.	P.L.L.	R.O.A.	-0.9926	4.105	5.033	3.182
2.	P.L.L.	R.O.E.	-6.995	48.65	0.9854	3.182

Source: Annex 7.

Table 4.2.4. (E_2) shows the test of hypothesis for relationship of PLL and ROA / ROA .For the PLL and ROA, The calculated value of t = 5.033 which is bigger than tabulated value of

t i.e.3.182 at 5 % levels of significance ,Therefore null hypothesis is rejected. That means there is no any relation between PLL and ROA .Similarly, test of relationship between PLL and ROA ,The calculated value of t = 0.9854 which is smaller than tabulated value of t i.e.3.182 at 5 % levels of significance ,Therefore null hypothesis is accepted. That means there is relationship between PLL and ROA .

Table 4.2.4. (F_1) Correlation Coefficient of NABIL.

S. No.	P.L.L.	Correlation.	P.E.	Conclusion.	Remarks.
1.	R.O.A.	0.4732	0.2341	Significant.	r > P.E.
2.	R.O.E.	-0.8426	0.0875	Insignificant.	r < P.E.

Source: Annex 6.

Table 4.2.4. (F_1) shows that the correlation between loan and loan loss provision to R.O.A. and R.O.E. The calculation in the table clearly shows that there is positive correlation between P.L.L. and R.O.A. and there is negative correlation between P.L.L. and R.O.E and the result is too small and considers it as insignificant.

Table 4.2.4. (F_2) Test Of Hypothesis**.**

S. No.	Independent Variable.	Dependent Variable.	Beta (b) Coefficient.	Constant. (a)	T- cal.	T- tab
1.	P.L.L.	R.O.A.	0.3078	1.958	0.9109	3.182
2.	P.L.L.	R.O.E.	-23.04	101.21	2.8504	3.182

Source: Annex 7.

Table 4.2.4. (F_2) reveals that the regression coefficient of provision of loan loss 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 very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. Since, the calculated‘t’ is less than tabulated ‘t’ at 5 % levels of significance, null hypothesis of relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. was 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. In average 70 % credit customers knew all the information about the bank policies and 30 % were little unknown with the banks policies.
2. 90 % customers have accepted that the bank officers used to visit their project site or analyzed their project in depth. 5 % customers denied that the bank officers visit or analyze their project site before granting the loan and 5 % customers were not given any clear response for the research question.
3. 55 % of the customers from the sample taken in this topic were satisfied with the bank's interest rate and 35 % customers were not satisfied with that interest rate. 10 % customers were not given any clear response for the research question.
4. 90 % customers were accepted that bank gave them the credit expiration notice for their credit amount. 5 % customers clearly denied and 5 % customers were still confused while giving their opinion.
5. Exactly 85 % customers said that they used the credit taken by the bank on that project where they clearly specified at the time of loan taking, 0 % customers denied using the credit amount taking from the bank using the credit amount taking from the bank used on the same project where they specified and 15 % customers were confused while giving the answer for the same question.
6. 65 % customers were on the favor of taking loan from same bank again and again in the future too, 20 % 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 15 % customers cannot make the proper decision either they take a loan again or not.
7. 55 % customers were in the favor of service charge with their related bank, 30 % customers were not in favor of bank's service charges and 15 % customer cannot make the proper decision.

4.3.2. Based on the Analysis of Secondary Data.

- The performing loan and provision for loan loss of all banks are in slightly increasing trend and difference between the performing and non-performing loan is very high which indicates that all banks are maintaining good loan position and its credit position is also maintained.
- In the case of Laxmi bank there is no negative effect of loan loss provision on R.O.A. and R.O.E. The provision for loan loss is in increasing trend. Trend of return on equity and return on assets is slightly fluctuated, but it has not decreased as bank has to maintain the loan loss provision. In the case of Siddhartha bank, the trend of return on equity is decreasing which is not good sign for any bank. The provision for loan loss is in increasing trend, it is high in fiscal year 2069/70.
- In the case of Everest bank, the trend of return on equity and return on assets is stable; R.O.E. is slightly fluctuated than R.O.A. The trend of PLL is decreasing; it means non - performing loan is in decreasing trend and it shows that bank has maintains good credit management. Return analysis of NABIL. shows that the trend of return on equity is decreasing which is not good sign for any bank but the trend of ROA is in increasing which is good.
- The average ratio of credit and advances to total deposit of LBL, SBL, EBL and NABIL are 79.14, 83.65, 75.29 and 75.23 respectively. From mean point of view, Siddhartha Bank has maintained higher credit and advances to total deposit ratio than other Bank. In this way, it shows that SBL seems to be strong in mobilize its total deposit as credit and advances. It can be concluded that other banks have lower position to mobilize its deposits as compare to SBL. In an average, the samples banks have utilized their total deposits as credit and advances around 75 %. It will be the good investment for bank if there is not any default situation emerge.
- The average ratio of credit and advances to total assets of LBL, SBL, EBL and NABIL are 65.39, 66.28, 65.70 and 60.90 respectively. From the mean point of view, it can be said that the mean ratio of Siddhartha bank has the highest than other banks. It can be concluded that the higher mean ratio indicates the good lending performance. So Siddhartha bank has good lending performance than other bank .It shows that in average all samples bank has utilized their total assets as credit and advances.

- The average ratio of provision for loan loss to total loan of LBL, SBL, EBL and NABIL are 1.32, 2.886, 2.036 and 2.346 respectively. From the mean point of view, it can be said that the mean ratio of Siddhartha bank has high loan loss provision ratio than other bank. It can be concluded that the higher mean ratio indicates the increased volume of non performing loans. The increasing volume of non performing loan indicated the poor and ineffective credit policy and poor performance of the company.
- The average ratio of Non -performing Loan to total loan of LBL, SBL, EBL and NABIL are 0.64, 1.214, 0.488 and 1.42 respectively. From the mean point of view, it can be said that the mean ratio of Everest bank has low Non Performing loan to total loans Ratio than other banks. The financial institution always tries to reduce non performing loan ratio .If non-performing loan increases the overall business will be affected.
- The average ratio of Interest Income to Loans and advances of LBL, SBL, EBL and NABIL are 10.59, 11.41, 10.51 and 11.244 respectively. From the mean point of view, it can be said that the mean ratio of Siddhartha bank has the highest than other banks. It can be concluded that the higher mean ratio indicates the good lending performance. So Siddhartha bank has good performance in earning interest income than other banks.
- The calculated correlation of PLL and ROA of Laxmi bank was found 0.0745 and PLL and ROE was found 0.4671 which shows positive correlation between PLL and ROA/ROE. The PE ratio of PLL and ROA was 0.2999 and 0.2358 of PLL and ROE. The calculated correlations of PLL and ROA are smaller than Probable Error which indicates that the calculated correlations for LBL is insignificant and the calculated correlations of PLL and ROE are bigger than Probable Error which indicates that the calculated correlations for LBL is significant. The regression coefficient of provision of loan loss for R.O.A. and R.O.E. are positive but the value is not significant at 5 % level of significance, which indicates very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. Thus null hypothesis of relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. was accepted.
- 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. of Siddhartha bank .The regression coefficient of P.L.L. is positive for R.O.A. and negative for

R.O.E. It t-value is not significant at 5 % level of significance. It shows that the slope of the line is statistically insignificant at 5 % level of significance. Thus null hypothesis of relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. was accepted.

- In the case of Everest bank, the correlation coefficient regarding P.L.L with R.O.A. and R.O.E. indicate that there is negative relationship between them but the result is small and considered it as insignificant. The test of hypothesis for relationship of PLL and ROA, it shows the calculated value of t = 5.033 which is bigger than tabulated value of t i.e.3.182 at 5 % levels of significance ,Therefore null hypothesis is rejected. That means there is no any relation between PLL and ROA .Similarly, test of relationship between PLL and ROA ,The calculated value of t = 0.9854 which is smaller than tabulated value of t i.e.3.182 at 5 % levels of significance, Therefore null hypothesis is accepted. That means there is relationship between PLL and ROA.
- In the case of Nabil bank, there is positive correlation between P.L.L. and R.O.A.ie.0.4732 and there is negative correlation between P.L.L. and R.O.E ie.-0.8426 and the result is too small and considers it as insignificant. The regression coefficient of provision of loan loss 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 very low association between the independent variable P.L.L. and dependent variable R.O.A. and R.O.E. Since, the calculated‘t’ is less than tabulated ‘t’ at 5 % levels of significance, null hypothesis of relationship between P.L.L. on R.O.A. and P.L.L. on R.O.E. was accepted.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study is primarily prepared for the partial fulfillment of the requirement of the master of business studies (MBS). This study is mainly based on primary and secondary data provided by related banks and the data are gathered from the period of 2065/2066 to 2069/070. Among the listed commercial banks two banks are selected as a sample of study. The main objective of the study is to assets the credit management and to know the impact on the risk and return to the shareholders.

5.1. Summary

The main objective of this study is to find out what techniques have been applied by the sample banks to manage its credit management.

First chapter of the study basically highlights the concept and importance of the study. It also presents research problems, research question, objective, significance, limitations of the study. Second chapter helped the researcher to provide knowledge about the development and progress made by earlier researcher on the concerned field or topic of the study. Third chapter include the research methodology, research design, population and sample, sources and data collection technique, data analysis tools etc. In chapter four the analysis of data, some financial and statistical tools like ratio analysis, correlation, and hypothesis are used.

The present study has been designed to overcome the issues relating to credit management in commercial banks. The prime components of credit management are the financial condition in terms of lending practices, industrial environment and management quality of the bank. Lending and collection of the loan provided to the customers is one of the most important functions of the commercial bank and the composition of the loans and advances directly affects the performance and profitability of the bank. Loan mobilization and earning through the mobilized is the main income source of the commercial banks.

In this study, four samples banks 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 study focuses on loan loss provision, ratio analysis and their relations with return on assets and return on equity. On an average of five years of research period, credit and advances to total deposits ratio of Laxmi

Bank, Siddhartha Bank, Everest Bank and Nabil bank are79.14, 83.65, 75.29, and 75.23 percent respectively. Likewise Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank have credit and advances to total assets ratio for the five years of research periods are 65.39, 66.28, 65.70 and 60.90 percent respectively. At the same time, the average loan loss provision to total loan ratio for the five years research period of Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank are 1.32, 2.88, 2.04 and 2.35 percent respectively. Similarly non performing loan to total loan ratio of Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank are 0.64,1.214,0.488 and 1.42 percent respectively Likewise Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank have Interest incomes to total loan ratio for the five years of research periods are 10.59, 11.41, 10.51 and 11.24 percent respectively. The correlation coefficient between PLL and ROA of Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank are 0.0745, 0.7824,-0.9122 and 0.4732 respectively. It shows that there is positive correlation between P.L.L. and R.O.A. of LBL, SBL and NABIL and negative correlation between PLL and ROA of EBL. The correlation coefficient between PLL and ROE of Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank are0.4671,-0.0089,-0.5425 and -0.8426 respectively. It shows that there is negative correlation between P.L.L. and R.O.E. SBL, EBL, NABIL, but LBL have positive correlation between PLL and ROE.

5.2. Conclusion

Banks cannot function without taking risk on the one hand, and on the other no organization is immune to risk. Risk management involves the maintenance of losses and the value of the bank to within accepted margins. After analyzing the credit portfolio of sample banks from both financial and statistical aspect we can draw some major conclusion from the study which is as follows.

- Primary information indicated that the industry environment was found positive in all sample banks. Most of the credit customers were found satisfied with the credit policy and interest rate but some was not.
- From the analysis, it was found that the performing loan and provision for loan loss of all banks are slightly increasing trend and difference between the performing and non-performing loan is very high which indicates that all banks are maintaining good

loan position and its credit position is also maintained It can also conclude that there is no negative effect of loan loss provision on R.O.A. and R.O.E. of all banks.

- In the case of credit and advances to total deposit ratio, Siddhartha Bank has maintained ratio than other Bank. In this way, it shows that SBL seems to be strong in mobilize its total deposit as credit and advances. It can be concluded that other banks have lower position to mobilize its deposits as compare to SBL. In an average, the samples banks have utilized their total deposits as credit and advances around 75 %. It will be the good investment for bank if there is not any default situation emerge. From the analysis of credit and advances to total assets ratio, it can be concluded that in average all samples bank has utilized their total assets as credit and advances.
- Provisions for credit and losses have been increasing year by year for all joint venture banks. Due to economic condition in the country, credit takers 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. The average ratio of provision for loan loss to total loan of LBL, SBL, EBL and NABIL are 1.32, 2.886, 2.036 and 2.346 respectively. From the mean point of view, it can be said that the mean ratio of Siddhartha bank has high loan loss provision ratio than other bank. It can be concluded that the higher mean ratio indicates the increased volume of non performing loans. The increasing volume of non performing loan indicated the poor and ineffective credit policy and poor performance of the company.
- From the analysis, it was found that Everest bank has low Non Performing loan to total loans Ratio than other banks. The financial institution always tries to reduce non performing loan ratio .If non-performing loan increases the overall business will be affected.
- The average ratio of Interest Income to Loans and advances of LBL, SBL, EBL and NABIL are 10.59, 11.41, 10.51 and 11.244 respectively. From the mean point of view, it can be said that the mean ratio of Siddhartha bank has the highest than other banks. It can be concluded that the higher mean ratio indicates the good lending performance. So Siddhartha bank has good performance in earning interest income than other banks.

- The correlation coefficient between PLL and ROA of Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank are 0.0745, 0.7824,-0.9122 and 0.4732 respectively. It shows that there is positive correlation between P.L.L. and R.O.A. of LBL,SBL and NABIL and negative correlation between PLL and ROA of EBL. The correlation coefficient between PLL and ROE of Laxmi Bank, Siddhartha Bank, Everest Bank and Nabil bank are0.4671,-0.0089,-0.5425 and -0.8426 respectively. It shows that there is negative correlation between P.L.L. and R.O.E. SBL, EBL, NABIL, but LBL have positive correlation between PLL and ROE.
- All the sample banks have insufficient liquidity. It shows that banks have not got proper investment sector to utilize their liquid money. Now, in Nepal, many banks and other financial institutions are functioning to collect deposit and invest money somewhere. 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

5.3. Recommendations

These entire figure shows that the sample banks overall management of credit risk is good and reasonable. Present study can be a valuable piece of research works in credit management topics. It explored the existing situation and identified the various components for further improvement in credit management. Both primary as well as secondary source of information were used for fulfilling the objectives. It may be useful for academicians, researcher, especially to bank management and any others who are directly or indirectly involved in banking activities. According to the analysis, the following points are highlighted to put forward for the further improvement of all commercial banks.

- 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 proper 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 committed at the time of taking credit from the bank.

- Good liquidity position is very necessary for commercial banks as it should be enough to meet the depositors' obligations as well as for good investment and for expansion. 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 good investment decision which increases the cooperate value of the firm.
- Financial and economic liberalization policy adopted by the NRB 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 and regulation. Every bank must follow these rules and regulation and central bank must examine timely whether the banks follow these rules.
- Banks are one of the most reputed organizations of our country. So, banks 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.
- The banking industry sector is characterized by intensive competition considering both the cost and the products. For this reason, the banks are forced to identify and adopt new and more efficient ways to fight their competitors and to gain more customers that will be retained and loyal. In this way, banks make efforts to reduce costs and make better offers by screening borrowers and differentiating the prices accordingly so as to maximize the profits and minimize the losses-risks.
- Loan sanction is risky work since it has to face many technical as well as legal procedures. Good corporate structure with well trained and professional staff will help to reduce the risk that may arise from the operational and procedural function of the loan.
- In most of the traditional banks, risk identification, measurement, mitigation and control are poor. Therefore, appropriate credit risk management should be introduced in the banks so that the level of credit will be reduced. These banks must be careful on

formulating marketing strategy to serve its customer and also careful in strengthen credit collection policy.

- In short, banking risk management will continue to grow from a minor to a major factor in banking management, turning from a defensive weapon to an important part of the offense to use. This means that the bankers must set aside the resources to acquire and use this weapon efficiently and effectively to compete in the globalizing economy.

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APPENDICES

Researcher Questionnaire

Dear Respondent,

I would like to request you to kindly fill up the following questionnaire prepared for 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 Nepalese Commercial banks. 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.

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

About Respondent

- Name:
- Office:
- Address:
- Position:

Annex 1,2, 3, 4 and 5 .

L.B.L.

Fiscal Year	For Credit and Advances to Total Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Loan loss to Total loan Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	83.88	22.47	71.313	35.08	1.1	0.0484
2066/067	81.49	5.522	68.11	7.4005	1.2	0.0144
2067/068	84.10	24.6	67.979	6.7011	1.21	0.0121
2068/069	73.13	36.12	58.372	49.247	1.31	0.0001
2069/070	73.10	36.48	61.178	17.741	1.78	0.2116
Total	395.70	125.2	326.95	116.17	6.6	0.2866
Mean	79.14		65.39		1.32	
S.D.	5.00		4.82		0.239	
C.V.	6.32		7.37		18.11	

Fiscal Year	For non performin loan to Total loan Ratio		For Interest income to total loan Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	0.05	0.2916	8.76	3.3489
2066/067	0.12	0.2209	9.97	0.3844
2067/068	0.9	0.0961	12.11	2.3104
2068/069	0.62	0.0009	11.77	1.3924
2069/070	1.26	0.4489	10.34	0.0625
Total	2.95	1.0584	52.95	7.4986
Mean	0.59		10.59	
S.D.	0.4601		1.2246	
C.V.	0.7798		11.56	

S.B.L.

Fiscal Year	For Credit and Advances to Total Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Performing Assets to Total Assets Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	85.18	2.341	72.625	40.32	1.29	2.547216
2066/067	83.65	0	72.598	39.969	1.36	2.328676
2067/068	86.43	7.728	72.111	34.051	1.39	2.238016
2068/069	79.42	17.89	65.004	1.6156	1.98	0.820836
2069/070	83.55	0.01	49.039	297.09	8.41	30.51458
Total	418.23	27.97	331.38	413.04	14.43	38.44932

Mean	83.65	66.26	2.886
S.D.	2.365	9.08	2.77
C.V.	2.83	13.71	96.08

Fiscal Year	For non performin loan to Total loan Ratio		For Interest income to total loan Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	0.45	0.5837	8.41	9.024
2066/067	0.42	0.6304	10.86	0.3069
2067/068	0.59	0.3894	13.01	2.5472
2068/069	2.25	1.0733	13.26	3.4077
2069/070	2.36	1.3133	11.53	0.0135
Total	6.07	3.9901	57.07	15.299
Mean		1.214		11.414
S.D.		0.8933		1.7492
C.V.		0.7358		15.33

E.B.L.

Fiscal Year	For Credit and Advances to Total Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Performing Assets to Total Assets Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	73.43	3.45216	64.12	2.49	2.39	0.125316
2066/067	76.24	0.9063	66.89	1.04	2.13	0.008836
2067/068	76.98	2.86286	67.24	2.39	1.91	0.015876
2068/069	73.22	4.27662	64.26	2.08	1.93	0.011236
2069/070	76.57	1.64352	66.00	0.09	1.82	0.046656
Total	376.44	13.1415	328.52	8.09	10.18	0.20792
Mean		75.288		65.70		2.036
S.D.		1.621		1.27		0.204
C.V.		2.153		1.94		0.1002

Fiscal Year	For non performin loan to Total loan Ratio		For Interest income to total loan Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	0.48	0.0001	7.57	8.620096
2066/067	0.16	0.107584	9.95	0.309136
2067/068	0.34	0.021904	12.22	2.937796
2068/069	0.84	0.123904	12.3	3.218436
2069/070	0.62	0.017424	10.49	0.000256
Total	2.44	0.270916	52.53	15.08572
Mean	0.488		10.506	
S.D.	0.233		1.7369	
C.V.	47.71		16.53	

NABIL

Fiscal Year	For Credit and Advances to Total Deposit Ratio		For Credit and Advances to Total Assets Ratio		For Performing Assets to Total Assets Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	73.87	1.8496	60.55	0.12	1.48	0.749956
2066/067	71.17	16.4836	60.25	0.42	2.28	0.004356
2067/068	78.29	9.3636	63.25	5.51	2.42	0.005476
2068/069	77.91	7.1824	59.73	1.37	2.87	0.274576
2069/070	74.9	0.1089	60.72	0.03	2.68	0.111556
Total	376.14	34.9881	304.50	7.46	11.73	1.14592
Mean	75.23		60.90		2.346	
S.D.	2.645		1.2215		0.4787	
C.V.	3.516		2.01		20.41	

Fiscal Year	For non performin loan to Total loan Ratio		For Interest income to total loan Ratio	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2065/66	0.8	0.3844	8.82	5.875776
2066/067	0.14	1.6384	10.41	0.695556
2067/068	1.77	0.1225	12.5	1.577536
2068/069	2.26	0.7056	12.85	2.579236
2069/070	2.13	0.5041	11.64	0.156816
Total	7.1	3.355	56.22	10.88492
Mean	1.42		11.244	
S.D.	0.819		1.475	
C.V.	0.5769		13.12	

where,Mean = $\sum X/n$, C.V. = S.D. / Mean

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

Annex 6. Calculation of Correlation and Regression Coefficient.

Where,

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

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

L.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
2065/066	1.10	1.22	16.08	1.21	1.342	17.688	1.4884	258.566
2066/067	1.20	1.66	18.17	1.44	1.992	21.804	2.7556	330.149
2067/068	1.21	1.76	19.89	1.4641	2.1296	24.0669	3.0976	395.612
2068/069	1.31	1.50	16.91	1.7161	1.965	22.1521	2.25	285.948
2069/070	1.78	1.50	19.26	3.1684	2.67	34.2828	2.25	370.948
n = 5	6.6= $\sum X$	7.64= $\sum Y_1$	90.31= $\sum Y_2$	8.99= $\sum X^2$	10.10= $\sum XY_1$	119.99= $\sum XY_2$	11.84= $\sum Y_1^2$	1641.22= $\sum Y_2^2$

$r_{(R.O.A.)} = \frac{n\sum XY_1 - \sum X \sum Y_1}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_1^2 - (\sum Y_1)^2\}}} = 0.0745$

P.E. $_{(R.O.A.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.2999$

$r_{(R.O.E.)} = \frac{n\sum XY_2 - \sum X \sum Y_2}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_2^2 - (\sum Y_2)^2\}}} = 0.4671$

P.E. $_{(R.O.E.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.2358$

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. 7.64= 5a + 6.6 b ---------1st

$\sum XY_1 = a\sum X + b\sum X^2$ i.e. 10.10= 6.6a +8.99b -------2nd

Multiplying equation 1st by 1.362 and subtracting equation 2nd from equation 1st,

we have, a = 1.4762

Putting the value of 'a' in equation 1st, we get b = 0.0392

Regression equation of Y_2 on X ie. R.O.E. on P.L.L. (Y = a + bX)

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

$\sum Y_2 = Na + b\sum X$ i.e. 90.31= 5a + 6.6b ----------1st

$\sum XY_2 = a\sum X + b\sum X^2$ i.e. 119.99= 6.6a +8.99b -------2nd

Multiplying equation 1st by 1.362 and subtracting equation 2nd from equation 1st,we have, a = 14.333, Putting the value of 'a' in equation 1st, we get b = 2.8242

S.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
2065/66	1.29	1.22	26.92	1.6641	1.5738	34.7268	1.4884	724.6864
2066/067	1.36	1.06	17.10	1.8496	1.4416	23.256	1.1236	292.41
2067/068	1.39	1.28	16.14	1.9321	1.7792	22.4346	1.6384	260.4996
2068/069	1.98	1.12	15.31	3.9204	2.2176	30.3138	1.2544	234.3961
2069/070	8.41	1.43	19.29	70.7281	12.0263	162.229	2.0449	372.1041
n = 5	14.43 = $\sum$ X	6.11 = $\sum Y_1$	94.76 = $\sum Y_2$	80.09 = $\sum X^2$	19.04 = $\sum XY_1$	272.96 = $\sum XY_2$	7.55 = $\sum Y_1^2$	1884.09 = $\sum Y_2^2$

$$r_{(R.O.A.)} = \frac{n\sum XY_1 - \sum X \sum Y_1}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_1^2 - (\sum Y_1)^2\}}} = 0.7824$$

$$P.E._{(R.O.A.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.1170$$

$$r_{(R.O.E.)} = \frac{n\sum XY_2 - \sum X \sum Y_2}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_2^2 - (\sum Y_2)^2\}}} = -0.0089$$

$$P.E._{(R.O.E.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.3016$$

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. 6.11= 5a + 14.43 b ---------1st

$\sum XY_1 = a\sum X + b\sum X^2$ i.e. 19.04 = 14.43a +80.09b -------2nd

Multiplying equation 1st by 5.55 and subtracting equation 2nd from equation 1st, we have, a = 1.1164

Putting the value of 'a' in equation 1st, we get b = 0.0366

Regression equation of Y_2 on X ie. R.O.E. on P.L.L. (Y = a + bX)

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

$\sum Y_2 = Na + b\sum X$ i.e. 94.76= 5a + 14.43b ----------1^{st}

$\sum XY_2 = a\sum X + b\sum X^2$ i.e. 272.96= 14.43a +80.09b -------2^{nd}

Multiplying equation 1^{st} by 5.55 and subtracting equation 2^{nd} from equation 1^{st}, we have, a = 18.99

Putting the value of 'a' in equation 1^{st}, we get b = -0.0132

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
2065/066	2.39	1.73	30.20	5.7121	4.1347	72.178	2.9929	912.04
2066/067	2.13	2.09	37.75	4.5369	4.4517	80.4075	4.3681	1425.063
2067/068	1.91	2.10	33.75	3.6481	4.011	64.4625	4.41	1139.063
2068/069	1.93	2.11	35.03	3.7249	4.0723	67.6079	4.4521	1227.101
2069/070	1.82	2.39	35.31	3.3124	4.3498	64.2642	5.7121	1246.796
n = 5	6.6= $\sum X$	7.64= $\sum Y_1$	90.31= $\sum Y_2$	8.99= $\sum X^2$	10.10= $\sum XY_1$	119.99= $\sum XY_2$	11.84= $\sum Y_1^2$	1641.22 = $\sum Y_2^2$

$$r_{(R.O.A.)} = \frac{n\sum XY_1 - \sum X \sum Y_1}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_1^2 - (\sum Y_1)^2\}}} = 0.0745$$

$$P.E._{(R.O.A.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.2999$$

$$r_{(R.O.E.)} = \frac{n\sum XY_2 - \sum X \sum Y_2}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_2^2 - (\sum Y_2)^2\}}} = 0.4671$$

$$P.E._{(R.O.E.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.2358$$

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. 7.64= 5a + 6.6 b ---------1^{st}

$\sum XY_1 = a\sum X + b\sum X^2$ i.e. 10.10= 6.6a +8.99b -------2^{nd}

Multiplying equation 1^{st} by 1.362 and subtracting equation 2^{nd} from equation 1^{st}, we have, a = 1.4762

Putting the value of 'a' in equation 1^{st}, we get b = 0.0392

Regression equation of Y_2 on X ie. R.O.E. on P.L.L. (Y = a + bX)

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

$\sum Y_2 = Na + b\sum X$ i.e. 90.31= 5a + 6.6b ----------1^{st}

$\sum XY_2 = a\sum X + b\sum X^2$ i.e. 119.99= 6.6a +8.99b -------2nd

Multiplying equation 1st by 1.362 and subtracting equation 2nd from equation 1st, we have, a = 14.333

Putting the value of 'a' in equation 1st, we get b = 2.8242

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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
2065/066	1.48	2.55	66.70	2.19	3.77	98.72	6.50	4448.89
2066/067	2.28	2.37	57.48	5.198	5.40	131.05	5.62	3303.95
2067/068	2.42	2.43	33.10	5.856	5.88	80.10	5.91	1095.61
2068/069	2.87	2.80	37.69	8.236	8.04	108.17	7.84	1420.54
2069/070	2.68	3.25	40.85	7.182	8.71	109.48	10.56	1668.72
n = 5	11.73= $\sum X$	13.4= $\sum Y_1$	235.82= $\sum Y$	28.662= $\sum X^2$	31.80= $\sum XY_1$	527.52= $\sum XY2$	36.43= $\sum Y_1^2$	11937.71= $\sum Y2^2$

$$r_{(R.O.A.)} = \frac{n\sum XY_1 - \sum X \sum Y_1}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_1^2 - (\sum Y_1)^2\}}} = 0.4732$$

$$P.E._{(R.O.A.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.2341$$

$$r_{(R.O.E.)} = \frac{n\sum XY_2 - \sum X \sum Y_2}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y_2^2 - (\sum Y_2)^2\}}} = -0.8426$$

$$P.E._{(R.O.E.)} = \frac{[0.6745(1-r^2)]}{\sqrt{n}} = 0.0875$$

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. 13.4= 5a + 11.73 b ---------1st

$\sum XY_1 = a\sum X + b\sum X^2$ i.e. 31.80= 11.73a +28.66b -------2nd

Multiplying equation 1st by 2.443and subtracting equation 2nd from equation 1st, we have, a = 1.958

Putting the value of 'a' in equation 1st, we get b = 0.3078

Regression equation of Y_2 on X ie. R.O.E. on P.L.L. (Y = a + bX)

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

$\sum Y_2 = Na + b\sum X$ i.e. 90.31= 5a + 6.6b ----------1^{st}
$\sum XY_2 = a\sum X + b\sum X^2$ i.e. 119.99= 6.6a +8.99b -------2^{nd}
Multiplying equation 1^{st} by 1.362 and subtracting equation 2^{nd} from equation 1^{st}, we have, a = 14.333
Putting the value of 'a' in equation 1^{st}, we get b = 2.8

Annex 7. T-test Calculation of Sample Banks.
Laxmi Bank Limited.
1. T-test Calculation between R.O.A. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.A(Y)	XY	Y^2	(X- ∑ X/ n)	(X- ∑ X/ n) ^{2}
2065/066	1.10	1.22	1.342	1.4884	-0.22	0.0484
2066/067	1.20	1.66	1.992	2.7556	-0.12	0.0144
2067/068	1.21	1.76	2.1296	3.0976	-0.11	0.0121
2068/069	1.31	1.50	1.965	2.25	-0.01	0.0001
2069/070	1.78	1.50	2.67	2.25	0.46	0.2116
n = 5	6.6= ∑ X	7.64=∑ Y_1	10.10= ∑ XY_1	11.84= ∑ Y^2	0	0.2865 =∑ X(X- ∑ X/ n) ^{2}

We have, a = 1.4762 and b = 0.0392from Annex 7.
Null hypothesis (H_0): b = 0, the slope of the line is zero.
Alternative hypothesis (H_1): b ≠ 0, the slope of the line is not zero.
Now, using the formula for standard error of y, we have

$$S_y. = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 0.2338$$

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

$$S_b = \frac{S_y}{\sqrt{\sum(X-\sum X\backslash n)^2}} = 0.4368$$

Therefore, t-value of beta (b)

$$T_{cal} = \frac{b-o}{S_b} = 0.0897$$

u = n-2 = 5-2 = 3
$T_t = T_{0.05,3} = 3.182$
Since, the calculated 't' is less than tabulated 't' at 5 % levels of significance, null hypothesis is accepted. .
2. T-test Calculation between R.O.E. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.E.(Y_2)	XY_2	Y_2^2
2065/066	1.10	16.08	17.688	258.566
2066/067	1.20	18.17	21.804	330.149
2067/068	1.21	19.89	24.0669	395.612
2068/069	1.31	16.91	22.1521	285.948
2069/070	1.78	19.26	34.2828	370.948
n = 5	6.6= ∑ X	90.31= ∑ Y_2	119.99= ∑ XY_2	1641.22= ∑ Y_2^2

We have, a = 14.333 and b = 2.8242 from Annex 7.Here,

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

$$S_y. = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 1.6258$$

$$S_b = \frac{S_y}{\sqrt{\sum(X-\sum X\backslash n)^2}} = 3.0372$$

Therefore, t-value of beta (b)

$$T_{cal} = \frac{b-o}{S_b} = 0.9299$$

Since, the calculated 't' is less than tabulated 't' at 5 % levels of significance, null hypothesis is accepted.

Siddhartha Bank Limited.

1. T-test Calculation between R.O.A. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.A (Y)	XY	Y^2	$(X- \sum X/ n)$	$(X- \sum X/ n)^2$
2065/066	1.29	1.22	1.5738	1.4884	-1.596	2.547
2066/067	1.36	1.06	1.4416	1.1236	-1.526	2.329
2067/068	1.39	1.28	1.7792	1.6384	-1.496	2.2380
2068/069	1.98	1.12	2.2176	1.2544	-0.906	0.821
2069/070	8.41	1.43	12.0263	2.0449	5.524	30.515
n = 5	14.43 $= \sum X$	6.11 $= \sum Y_1$	19.04 $= \sum XY_1$	7.55 $= \sum Y_1^2$	0	38.45 = $\sum X(X- \sum X/ n)^2$

We have, a = 1.1164 and b = 0.0366 from Annex 7.

Here,

Null hypothesis (H_0): b = 0, the slope of the line is zero.

Alternative hypothesis (H_1): $b \neq 0$, the slope of the line is not zero.

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

$$S_y. = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 0.1031$$

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

$$S_b = \frac{S_y}{\sqrt{\sum(X-\sum X\backslash n)^2}} = 0.0166$$

Therefore, t-value of beta (b)

$$T_{cal} = \frac{b-o}{S_b} = 2.2048$$

$T_t = T_{0.05,3} = 3.182$

Since, the calculated 't' is less than tabulated 't' at 5 % levels of significance, null hypothesis is accepted.

2. T-test Calculation between R.O.E. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.E. (Y)	XY	Y^2
2065/066	1.29	26.92	34.7268	724.6864
2066/067	1.36	17.10	23.256	292.41
2067/068	1.39	16.14	22.4346	260.4996
2068/069	1.98	15.31	30.3138	234.3961
2069/070	8.41	19.29	162.229	372.1041
n = 5	14.43= $\sum X$	94.76= $\sum Y_2$	272.96= $\sum XY_2$	1884.09= $\sum Y_2^2$

We have, a = 18.99 and b = -0.0132 from Annex 7.

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

$$S_y. = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 5.422$$

$$S_b = \frac{S_y}{\sqrt{\sum (X - \sum X \backslash n)^2}} = 0.874$$

Therefore, t-value of beta (b)

$$T_{cal} = \frac{b-o}{S_b} = -0.0151$$

T_{cal} = 0.0151

Since, the calculated 't' is less than tabulated 't' at 5 % levels of significance, null hypothesis is accepted. .

Everest Bank Limited.

1. T-test Calculation between R.O.A. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.A (Y)	XY	Y^2	$(X - \sum X/ n)$	$(X - \sum X/ n)^2$
2065/066	2.39	1.73	4.1347	2.9929	0.354	0.125
2066/067	2.13	2.09	4.4517	4.3681	0.094	0.008
2067/068	1.91	2.10	4.011	4.41	-0.126	0.015
2068/069	1.93	2.11	4.0723	4.4521	-0.106	0.011
2069/070	1.82	2.39	4.3498	5.7121	-.216	0.046
n = 5	10.18 = $\sum X$	10.42 = $\sum Y_1$	21.019 = $\sum XY_1$	21.935 = $\sum Y_1^2$	0	0.205 = $\sum X(X - \sum X/ n)^2$

We have, a = 4.105 and b =-0.9926 from Annex 7.

Here,

Null hypothesis (H_0): b = 0, the slope of the line is zero.

Alternative hypothesis (H_1): b ≠ 0, the slope of the line is not zero.

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

$$S_y. = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 0.09$$

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

$$S_b = \frac{S_y}{\sqrt{\sum(X-\sum X\backslash n)^2}} = 0.1972$$

Therefore, t-value of beta (b)

$$T_b = \frac{b-o}{S_b} = 5.033$$

For the PLL and ROA, The calculated value of t = 5.033 which is bigger than tabulated value of t i.e.3.182 at 5 % levels of significance ,Therefore null hypothesis is rejected..

2. T-test Calculation between R.O.E. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.E. (Y)	XY	Y^2
2065/066	2.39	30.20	72.18	912.04
2066/067	2.13	37.75	80.41	1425.06
2067/068	1.91	33.75	64.46	1139.06
2068/069	1.93	35.03	67.61	1227.10
2069/070	1.82	35.31	64.26	1246.79
n = 5	10.18= $\sum$ X	172.04= $\sum$ Y	348.92= $\sum$ XY	5950.06= $\sum Y^2$

We have, a = 48.65 and b = -6.995 from Annex 7.

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

$$S_{y.} = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 3.240$$

$$S_b = \frac{S_y}{\sqrt{\sum(X-\sum X\backslash n)^2}} = 7.099$$

Therefore, t-value of beta (b)

$$T_b = \frac{b-o}{S_b} = 0.9854$$

Since, the calculated ' t' is less than tabulated 't' at 5 % levels of significance, null hy pothesis is accepted.

NABIL Bank Limited.

1. T-test Calculation between R.O.A. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.A (Y)	XY	Y^2	(X- $\sum$ X/ n)	(X- $\sum$ X/ n) ^{2}
2065/066	1.48	2.55	3.77	6.50	-0.866	0.749
2066/067	2.28	2.37	5.40	5.62	-0.066	0.004
2067/068	2.42	2.43	5.88	5.91	0.074	0.005
2068/069	2.87	2.80	8.04	7.84	0.524	0.274
2069/070	2.68	3.25	8.71	10.56	0.334	0.111
n = 5	11.73 = $\sum$ X	13.4 = $\sum Y_1$	31.80 = $\sum XY_1$	36.43 = $\sum Y_1^2$	0	1.143 = $\sum$ X(X- $\sum$ X/ n) ^{2}

We have, a = 1.958 and b =-0.3078 from Annex 7.

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

$$S_y. = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 0.3615$$

$$S_b = \frac{S_y}{\sqrt{\sum(X-\sum X\backslash n)^2}} = 0.3379$$

Therefore, t-value of beta (b)

$$T_b = \frac{b-o}{S_b} = 0.9109$$

Since, the calculated ' t' is less than tabulated 't' at 5 % levels of significance, null hypothesis is accepted.

2. T-test Calculation between R.O.E. & P.L.L.

Fiscal Year	P.L.L. (X)	R.O.E. (Y)	XY	Y^2
2065/066	1.48	66.70	98.72	4448.89
2066/067	2.28	57.48	131.05	3303.95
2067/068	2.42	33.10	80.10	1095.61
2068/069	2.87	37.69	108.17	1420.54
2069/070	2.68	40.85	109.48	1668.72
n = 5	11.73= ∑ X	235.82= ∑Y	527.52=∑XY	11937.71=$\sum Y^2$

We have, a = 101.21and b = -23.04 from Annex 7.

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

$$S_y. = \sqrt{\frac{\sum Y^2 - a\sum Y - b\sum XY}{N-2}} = 8.65$$

$$S_b = \frac{S_y}{\sqrt{\sum(X-\sum X\backslash n)^2}} = 8.083$$

Therefore, t-value of beta (b)

$$T_b = \frac{b-o}{S_b} = 2.8504$$

Since, the calculated ' t' is less than tabulated 't' at 5 % levels of significance, null hypothes hypothesis is accepted.