RISK MANAGEMENT OF COMMERCIAL BANKS IN NEPAL
(A Comparative Study Between Nepal Credit and Commerce Bank Ltd. and Machhapuchhre Bank Ltd.)

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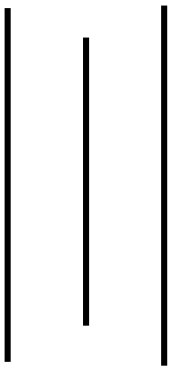
2nd Year Exam Symbol No.: 391426

A Thesis Submitted to:
Office of the Dean
Faculty of Management
Tribhuvan University



In partial fulfillment of the requirement for the degree of Master of Business Studies (MBS)

Kathmandu, Nepal
May 2011

RECOMMENDATION

This is to certify that the thesis

Submitted by:

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RISK MANAGEMENT OF COMMERCIAL BANKS IN NEPAL (A Comparative Study Between Nepal Credit and Commerce Bank Ltd. and Machhapuchhre Bank Ltd.)

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

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VIVA-VOCE SHEET

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And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the degree of

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DECLARATION

I hereby declare that the work reported in this thesis entitled "**Risk Management of Commercial Banks in Nepal (A Comparative Study Between Nepal Credit and Commerce Bank Ltd. and Machhapuchhre Bank Ltd.)"**submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the degree of Master of Business Studies (MBS) under the supervision of **Asso. Prof. Ruchila Pandey** of Shanker Dev Campus, T.U.

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2nd Year Exam Symbol No.: 391426

ACKNOWLEDGEMENT

This thesis entitled "*Risk Management of Commercial Banks in Nepal (A Comparative Study between Nepal Credit & Commerce Bank Ltd. and Machhapuchchhre Bank Ltd).*" has been carried out for the comparative study or risk management of Nepal Credit & Commerce Bank Ltd. and Machhapuchchhre Bank Ltd. This has been prepared in the form of the requirement of the Faculty of Management of Tribhuvan University for the partial fulfillment of the Masters of Business Studies.

I owe a debt of gratitude to many people who helped me complete this thesis. I would like to acknowledge the help of all. First of all I would like to express my deepest acknowledgement to thesis supervisor, Asso. Prof. Ruchila Pandey, Associate Professor of Shanker Dev Campus for giving me her invaluable guidance, support and time in completing this research.

In the process of data collection for this research, many people contributed to the task and I am particularly grateful for their contributions. I am greatly indebted to Ms. Gita Gyan Rai, staff of the NCC Bank and Mr. Anil Parsain, staff of MBL for providing me the data and other necessary information for preparing the thesis.

Finally, to my family, I wish to extend my loving thanks for their encouragement. My greatest debt of gratitude is to my friend, Mr. Jhak Bhadhur Budathoki, who helped me in data collection. This thesis could not have been written without his daily encouragement.

Simanta Pathak

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ABBRVATIONS

ABBS	Any Branch Banking Services
AML	Anti Money Laundeering
ATM	Automated Teller Machine
CA	Current Assets
CAR	Capital Adequacy Ratio
CD	Credit Deposit
CEO	Cheif Executive Officer
CIB	Credit Information Bureau
CL	Curent Liabilities
CPG	Credit Policies Guidelines
CRR	Cash Reserve Ratio
CV	Coefficient of Varition
ECA	Export Credit Rating Agencies
FDR	Fixed Deposit Receipt
FIRSL	Fixed Interest Rate Sensitive Liabilites
GDP	Gross Domestic Product
IRR	Interest Rate Risk
IRSA	Interest Rate Sensitive Assets
IRSL	Interest Rate Sensitive Liablities
L.C.	Letter of Credit
LLP	Loan Loss Provision
Ltd	Limited
MBL	Machhapuchchhre Bank Ltd
NCC Bank	Nepal Credit& Commerce Bank
NIM	Net Interest Margin
NPA	Non Performing Assets
NPL	Non Performing Loan
NRB	Nepal Rastra Bank
S.D.	Standard Deviation

CHAPTER - I

INTRODUCTION

1.1 General Background

Nepal is one of the under developed landlocked country due to the lack of political stability, illiteracy, political and non political insurgency. Our country is economically backward to the world. In Nepal growth is not possible without development of agricultural technology, industrialization, banking sector etc. The onward movement of the country solely depends upon its economic condition. The farsighted infrastructure and well developed financial system of the country plays a key role to meet the expected goal for the betterment of the country as a whole. Financial institution gathers scattered financial resources form the mass and distributed fund from commercial and economic activities to develop trade, industry and facilitate a process of economic development.

Sound banking system is the crucial means to accelerate the development of a country by strengthening the economic condition in this globalize economy of the twenty – first century. This requires the well-developed corporate culture, proper management of risk and return and healthy competitive environment that facilitate mobilization of small saving in the commercial and industrial sectors that will enhance the economic and social welfare of a country.

Bank is a financial institution, which deals with money by accepting various types of deposits, disbursing loan and rendering various types of financial services. It is the intermediary between the deficit and surplus of the financial resources. Banking when properly organized, aids and facilitates growth on trade and considered not as dealers in money but as the leader of development. Bank are not just the storehouse of the country's wealth but are the reservoirs of resources necessary for economic development (Radhaswami and Vasudevan, 1991).

In Nepal, banking sector started in 1937 A.D. with the establishment of Nepal Bank Ltd., Nepal Rastra Bank, and the central bank of Nepal, established in 1957 A.D. followed by Rastriya Banijya Bank in 1966 A.D. As Nepalese government took liberal economic policy, joint venture banks started to operate since 1984 A.D. with the establishment of Nepal Arab Bank Ltd. till the March 2011; thirty one commercial banks have been operating in the country.

With the growth rate of banking industry from the 1984 A.D., the risk on banking also made a mark simultaneously. Most of the Nepalese banks have suffered form credit risk, which is associated with the non-payment of loan by the borrowers. Nepal Bank Limited, Rastriya Banijya Bank are the greatest victims of such risk, leading the banks to have negative net worth.

Present challenges to the baking sector are: to mange the excess liquidity outstanding to invest the money in productive as well as new sector, to manage the accumulated non-performing loan. Commercial banks collect deposits from individuals and invest them as loan and advance to the borrowers and receive interest as the output of business. Commercial banks' profit and operating cost are borne by these interest collected from the borrowers. When interests as well as the principal are not collected in due time, the existence of the bank and the deposits of individuals will be in threat. So, necessary action must be taken by the banks and government to overcome this situation.

In addition to the credit bank faces other risks. According to the Nepal Rastra Bank Unified Directives 2005, the major source of risk is credit risk, liquidity risk, market risk and operation risk. But other risk except mention by NRB affect the banking sector .They are interest rate risk, inflation risk ,default risk, exchange rate risk, business risk etc.

In this world of globalization, the activities of banks and financial institutions have become more complex and challenging due to the privatization, free market and

economic liberalization etc. More over the development in science and information technologies has turned the world a small place because of which banks and financial institutions are needed to be much more conscious in their work.

1.1.1 Meaning of Risk and Risk Management

Risk is a term used to define a factor or factors that may have a negative impact on the profitability or success of a company. A risk could stem from external factors that a business may have little control over, or issues within the company itself. External factors of business risk are often out of the control of the company. Continuously declining the condition of economy, decreased demand for a product or service and changes to regulations affecting an industry are examples of external business risks. Risk Management is the process of assessing risk and developing strategies to manage it. Strategies include transferring the risk, avoiding the risk, reducing the negative effect of the risk, and accepting the consequences of a particular risk (http://risk-nagement.bestmanagementarticles.com).

1.2 Brief Introduction of Banks under Study

Two commercial banks, Nepal Credit & Commerce Bank Ltd. (NCC Bank) and Machhapuchchhre Bank Limited (MBL) have been selected for the study. This study shows the comparison of risk management between the joint venture based bank (NCC Bank) and national based bank (MBL).

1.2.1 Nepal Credit & Commerce Bank Limited

Nepal Credit & Commerce Bank Ltd. (NCC Bank) formally registered as Nepal - Bank of Ceylon Ltd. (NBOC), commenced its operation on 14th October, 1996 as a Joint Venture with Bank of Ceylon, Sri Lanka. It was the first private sector Bank with the largest authorized capital of Nrs. 1,000 million. Now it's paid up capital is Rs 1.4 billion. The Head Office of the Bank is located at Siddhartha Nagar, Rupandehi, the birthplace of LORD BUDDHA, while its Corporate Office is placed at Bagbazar, Kathmandu.

The name of the Bank was changed to Nepal Credit & Commerce Bank Ltd., (NCC Bank) on 10th September 2002, due to transfer of shares and management of the bank from Bank of Ceylon, an undertaking of Government of Sri Lanka to Nepalese Promoters.

At present, NCC Bank provides banking facilities and services to rural and urban areas of the Kingdom through its 17 branches. The Bank has developed corresponding agency relationship with more than 150 International Banks having worldwide network.

Nepal Credit & Commerce Bank Ltd. (NCC Bank) has the paid up capital of Rs. 699.1 million in 2007. The Bank is using Pumori Plus, the most commonly used software by Nepalese Banks. The Bank offers Any Branch Banking Service (ABBS) in branches operating in Kathmandu and Banepa. Telex and SWIFT are other modes of communication for efficient and effective transmission of information. In order to facilitate the customers with state of art technology, Bank is providing Debit Card facilities under the SCT (Smart Choice Technology) Network jointly in consortium with 12 other member Banks. This facility enables the customers to withdraw cash from any of the 26 ATM Terminals located at different parts of the country and to purchase goods from more than 250 shopping complexes and departmental stores under POS arrangement.

NCC Bank has strategic alliance with ICICI Bank, which facilitates its customers to remit their money to more than 670 locations of India through ICICI Bank branches and their correspondent Banks in India.

Its customers can affect their money transfer to India either through Speed Transfer Arrangement or through Demand Draft Arrangement. Under Speed Transfer Arrangement, money can be credited on-line to the beneficiary's account at more than 400 branches of ICICI Bank, India. Under Demand Draft Arrangement, the Bank can issue draft payable at more than 670 locations in India.

NCC Bank is globally connected through various prominent Banks in Asia, Europe and North America like American Express Bank, Standard Chartered Bank, UBAF etc. Its services across the globe include remittance, draft arrangement, import and export business, guarantee etc.

NCC Bank has considered risk as the primary threatening factor and due to this risk management is given high priority by the top management. For the proper management of risk, well defined policies and procedures are developed and followed by every level of management. In addition, Credit Committee, Management committee, Asset Liability Management Committee, Credit Collection Committee is the key departments of NCC Bank that play vital role in lessening the risk

1.2.2 Machhapuchchhre Bank Limited

Machhapuchchhre Bank Limited (MBL) was registered in 1998 as the first regional commercial bank to start banking business from the western region of Nepal with its head office in Pokhara. Today, with a paid up capital of above 1,430 million rupees, it is one of the full fledged commercial bank operating in Nepal; and it ranks in the topmost among the private commercial banks.

Machhapuchchhre Bank Limited is striving to facilitate its customer needs by delivering the best of services in combination with the state of the art technologies and best international practices.

This bank is the pioneer in introducing the latest technology in the banking industry in the country. It is the first bank to introduce centralized banking software named GLOBUS BANKING SYSTEM developed by Temenos NV, Switzerland. Currently it is using the latest version of GLOBUS, referred as T-24 BANKING SYSTEM. The bank provides modern banking facilities such as Any Branch Banking, ATM, Internet Banking and Mobile Banking to its valued customers.

The bank in the last few years have really opened up with branches spread all around the country. At this stage, it has its own Corporate Office at Lazimpat, Kathmandu

and branch offices in major cities of Nepal such as Kathmandu, Damauli, Bhairahawa, Birgunj, Banepa,Naryanghat,Nepaljung and different parts of Pokhara in addition to the Head Office in Naya Bazar, Pokhara. A full-fledged banking branch is in operation in Jomsom located high up in the mountains too. The bank aims to serve the people of both the urban and rural areas. The bank intends to open many more branches in the coming years, MBL (2010/11).

In Machhapuchchhre Bank Ltd. also, risk is considered as the main threatening factor by which here as well risk management is regarded as the key function of the bank in all levels of management. The Credit Committee, Internal Audit & Compliance Department is the key departments that are concerned with the management, compliance and evaluation of the risk management procedure.

1.3 Statement of the Problem

In general perception, the commercial banking is a very profitable industry with profit Rs. 2981.1 million in periods from mid July 2009 to mid January 2010. In this profit MBL's and NCC banks contribution is 102.4 and 294.5 million respectively. But unlike the common view, this industry is beleaguered with many challenges to sustain and outwit among those within the industry. Furthermore, there is growing competition with the establishment of new banks in the weak economic situation of the country. One of the major challenges is The government's policy of total liberalization of the banking industry from fiscal year 2009/10 A.D. making possible for the foreign banks to operate their branch in Nepal without joint venture of Nepalese investors could bring the mushrooming of the commercial banks and could result in the increased pressure for Nepalese commercial banks to face the competition of foreign banks. Similarly, Nepal Rastra Bank (NRB) declared to commercial bank to increase paid up capital to Rs.2 billion by the end of fiscal year 2013/14 has challenged most of the commercial bank of Nepal (www.nepalsharemarket.com.).

Poor lending practices, which are indicated by poor financial analysis of borrowers, inadequate or substandard collateral and improper portfolio analysis, poor tracking of

credit and intention of borrowers to default result in the high amount of Non Performing Loan. Similarly the concentration of loan and the recovery of loan combining with improper asset liabilities management decrease the profit, (NRB 2010). These could be another problem to be addressed in the research.

The interest rate on the both deposits and loan has been increasing each year. Like this, the inflation rate of the country has been increasing dramatically. Appreciation and depreciation of foreign exchange highly affect the bank. The increased foreign exchange transaction invites the increased risk due to the depreciation of the foreign exchange rate. The change in market rate probably affects the commercial banks profitability.

Moreover, the usage of computerization in banking such as computerized banking system, Internet Banking, Mobile Banking, ATM, Credit Card services has brought the electronic theft of the amount and increased the vulnerability of the bank and its customers. This may also be another problem to be addressed in the research.

In addition, the issuance of new 16 unified directives by the NRB in 2005 has also provided the commercial banks different measures related to credit risk, interest rate risk, foreign exchange risk, liquidity risk and operation risk coupled with maintaining adequate capital to safeguard the interest of investors, depositors and shareholders. In the same way, the implementation of Basel II from 2007, this is mainly concerned with the management of various types of risks and the capital framework for providing enough cushions to absorb the risks faced by commercial banks.

Within this competitive market scenario, the strength credit risk management, sound portfolio analysis, and proper management of asset and liabilities, compliance of NRB prudential and Basel II are crucial for these banks to sustain and grow in the industry. Nepal Credit & Commerce Bank Ltd. and Machhapuchchhre Bank Ltd. established as commercial banks could not be isolated with above mentioned challenges and problems faced by the entire banking industry. From the review of the

annual reports and interview with these banks officials, it is found tat both bank have been giving high priority to these problems for the prompt solution to show their continuous competency in the market.

Henceforth, the research problem defined above leads to the following research questions:

- How important is the management of different risk to the commercial banks?
- How do different risks affect the profitability of the commercial banks?
- How the different risks of commercial banks can be analyzed?
- What actions can minimize these risks in order to maximize the profit?
- Are the commercial banks implementing the NRB Directives and Based II?
- What are the different systems opted by the commercial banks?
- What is the main reason banking sector has been facing liquidity problem?

1.4 Objectives of the Study

This research aims to study and analyze how the selected commercial banks have managed different types of risk in this competitive Nepalese banking industry. The specific objectives of this study are:

- To analyze different types of risks of the NCC Bank and MBL.
- To analysis financial position of NCC Bank and MBL.
- To provide valuable suggestion to the top management about risk of respective bank and whole banking industry.

1.5 Focus of the Study

Banking sector is vital sector for economic growth in a country. For the growth and development of this sector proper management of risk by considering the return is required. In today's competitive scenario, several macro economic factors such as political, economical, social and technological factors have increased the challenges to the banking sector. Banking sector also involves several risks, which need to be handled promptly for the survival and growth.

As this study is made mainly to analyze the various risks and their management in

reference to NRB directives and measures, it will provide valuable insight to different stakeholders about the major problems of commercial banks and theirs action for its management.

The key stakeholders who will be largely facilitated by this study include:

- Commercial banks under the study will be highly benefited. It identifies major risks of the banks, their current risk management styles, NRB guidelines on risk management and organization of basic compliance of such guidelines etc. Further, the banks will have knowledge of their strengths and weaknesses.
- This study is useful to those individuals, who have interest on risk management.
- Investors, depositors, borrowers or the banks will also be benefited as it provides an insight into the organizational risk management patterns within the standards set by NRB.
- Students will also be benefited from this study as reference to carry out their study in the same subject.

1.6 Limitations of the study

This study has been performed on various constrains and certain limitations which are listed below

- The study is based on the secondary data provided by the NCC Bank and MBL. Therefore, the accuracy of results and conclusions highly depends on the reliability of the data.
- The evaluation is made through the analysis of financial statement published and presented by the banks. Therefore generalization of the whole banking industry cannot be made.
- Resource, time, money constraints and inaccessibility of sufficient information also limit the conclusion drawn from study.
- This study may not be precise as it is prepared to fulfill the partial requirement of the MBS program
- The study has covered only the five years data from fiscal year 2005/06to 2009/10.

1.7 Organization of the Study

The study has presented the systematic presentation of the research design, analysis, presentation and findings of the study. It has divided into five chapters

Chapter -I: Introduction

The first chapter of the study is introduction, which highlighted the basic information of the research area, various problems, objectives, importance, limitations and organization of the study.

Chapter - II: Review of Literature

The second chapter of the study assures readers that they are familiar with important research that has been carried out in similar areas by earlier scholars in related areas. It also establishes that the study as link in a chain of research that is developing and emerging knowledge about concerned field.

Chapter - III: Research Methodology

The third chapter refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. It describes the various research methods (i.e. research design, source of data, data collection techniques, data collection methods).

Chapter - IV: Data Presentation and Analysis

The developed information has finished in required form in fourth chapter. Information is presented and analyzed (i.e. both primaries as well as secondary source) by using various financial and statistical tools in specified form to meet the stated objective of study.

Chapter - V: Summary, Conclusion and Recommendations

On the basis of the results from data analysis, the researcher concluded about the research work. Besides, it also gives important suggestions to the concerned organization for better improvement.

CHAPTER - II
REVIEW OF LITERATURE

2.1 Conceptual Review

Problems of risk management are very much on the agenda in banking and finance. There is a clear sense that risk exposure of the financial system has been increased by the changes that have taken place over the past two decades. The changes may be due to the incapability of accumulating the credit, interest rate positions taken or derivative exposures that may or may not have been assumed to hedge balance sheet risk. For the minimization of this risk, commercial banks have felt the need of upgrading their risk management and control system.

2.1.1Meaning of Risk and Risk Management

Risk Management is a hot topic in the financial sector especially in the light of the recent losses of some multinational corporations e.g. collapses of Britain's Barings Bank, WorldCom and also due to the incident of 9/11. Rapid changes in business condition, restructuring of organizations to cope with ever increasing competition, development of new products, emerging markets and increase in cross border transactions along with complexity of transactions has exposed Financial Institutions to new risks dimensions. Thus the concept of risk has captured a growing importance in modern financial society.

By facilitating transactions and making credit and other financial products available, the financial sector is a crucial building block for private as well as public sector development. In its broadest definition, it includes everything from banks, stock exchanges, and insurers, to credit unions, microfinance institutions and moneylenders. As an efficient service provider, the financial sector simultaneously fulfils an important function in the overall economy. Various types of Financial Institutions actively working in Financial Sectors include Banks, DFIs, Micro Finance Banks, Leasing Companies, Assets Management Company, Mutual Funds, etc.

Thus today's operating environment demands systematic and more integrated risk management approach.

2.1.1.1 Risk

Banks are always faced with different types of risks that may have a potentially negative effect on their business. Risk-taking is an inherent element of banking and, indeed, profits are in part the reward for successful risk taking in business. On the other hand, excessive and poorly managed risk can lead to losses and thus endanger the safety of a bank's depositors. Risks are considered warranted when they are understandable, measurable, controllable and within a bank’s capacity to readily withstand adverse results. Sound risk management systems enable managers of banks to take risks knowingly, reduce risks where appropriate and strive to prepare for a future, which by its nature cannot be predicted.

Nepal Rastra Bank laid significant emphasis on the adequacy of a bank’s management of risk. Nepal Rastra Bank puts forward this document for the purpose of providing guidelines to all commercial banks on risk management systems that are expected to be in place. This document sets out minimum standards that shall be expected of a risk management framework. Overall risk management is of utmost importance to Banks, and as such, policies and procedures should be endorsed and strictly enforced by the senior management and the board of the Bank (www.nrb.org.np).

Risk by default has tow components; uncertainty and exposure. If both are not present, there is no risk. Definition of Risk as per Guidelines on Risk Management issued by State Bank of Pakistan is, "Financial risk in a banking organization is possibility that the outcome of an action or event could bring up adverse impacts. Such outcomes could either result in a direct loss of earnings / capital or may result in imposition of constraints on bank's ability to meet its business objectives. Such constraints pose a risk as these could hinder a bank's ability to conduct its ongoing business or to take benefit of opportunities to enhance its business."

2.1.1.2 Types of Risks

Risks are usually defined by the adverse impact on profitability of several distinct sources of uncertainty. More or less all financial institutions have to manage the following faces of risks:

- Credit Risk
- Market Risk
- Liquidity Risk
- Operational Risk
- Country Risk
- Legal Risks
- Compliance Risk
- Reputational Risk

Broadly speaking there are four risks as per Risk Management Guidelines which surround Financial Sector i.e. Credit Risk, Market Risk, Liquidity Risk and Operational Risk. These risk are elaborated here under:

Credit Risk

This is the risk incurred in case of a counter-party default. It arises from lending activities, investing activities and from buying and selling financial assets on behalf of others. This risk is associated with financing transactions i.e.:

- Default in repayment by the borrower and
- Default in obliging the commitment by another Financial Institution in case of syndicated arrangements.

It is the most critical risk in banking and one that must be managed carefully. It is also the risk that requires the most subjective judgment despite constant efforts to improve and quantify the credit decision process.

Market Risk

Market risk is defined as the volatility of income or market value due to fluctuations in underlying market factors such as currency, interest rates, or credit spreads. For commercial banks, the market risk of the stable liquidity investment portfolio arises from mismatches between the risk profile of the assets and their funding. This risk involves interest rate risk in all of its components: equity risk, exchange risk and commodity risk.

Liquidity Risk
The liquidity risk is defined as the risk of not being able to meet its commitments or not being able to unwind or offset a position by an organization in a timely fashion because it cannot liquidate assets at reasonable prices when required.

Operational Risk
This risk results from inadequacies in the conception, organization, or implementation of procedures for recording any events concerning bank's operations in the accounting system/information systems.

2.1.1.3 Need for Risk Management and Monitoring
There are a number of reasons as to why there is so much emphasis given to Risk Management in Financial Sector now a day. Some of them are listed below: -

- Present structure of joint stock companies, wherein owners are not the mangers, hence risks increase; therefore proper tools are required to achieve the desired results by covering the risks.
- The financial sector has come out of simple deposit and lending function.
- The world has become very complex so the financial transactions and instruments.
- Increase in the number of cross border transactions which caries its own risks.
- Emerging markets
- Terrorism Remittances

Risk monitoring in financial sector is very crucial and an inevitable part of risk management. Risk Monitoring is important in the financial sector due to the following reasons:

- Deals in others' money
- Direct stake of deposit holder.
- Much riskier sector than trading and manufacturing.
- Previous / Recent problems faced by banks i.e. stuck portfolio that is credit risk.
- Bankruptcy of Barings Bank due to short selling / long position that is market risk.
- Operational risk does not has immediate impact, but important for continuity and progress of organization.
- Appetite of a financial institution to take risk is related with the capital base of the institute so it caries a huge risk of over exposure.

2.1.1.4 Components of Risk Management Frame Work

Risk Management Frame Work has five components. First of all risk is Identified, then it is Assessed to classify, seek solution and management, after assessing quick Response and implementation of solution and the last phase is Monitoring of the risk management progress and Learning from this experience that such problem never occur again. Whole process is to be well communicated during the entire process of risk management if it is to be managed efficiently.

The International Organization for Standardization (ISO) has defined risk management as the identification, analysis, evaluation, treatment (control), monitoring, review and communication of risk. These activities can be applied in a systematic or ad hoc manner. The presumption is that systematic application of these activities will result in improved decision-making and, most likely, improved outcomes.

2.1.1.5 Structure of Risk Management

Depending upon the structure and operations of organization, financial risk management can be implemented in different ways. Risk management structure defines the different layers of an organization at which risk is identified and managed. Although there are different layers or level at which risk is managed but there are three layers which are common to all. i.e.

Risk Management

For managing risk there are certain basic principles which are to be followed by every organization:

- Corporate level Policies
- Risk management strategy
- Well-defined policies and procedures by senior management
- Dissemination, implementation and compliance of policies and procedures
- Accountability of individuals heading various functions/ business lines
- Independent Risk review function
- Contingency plans
- Tools to monitor risks

Institutions can reduce some risks simply by researching them. A bank can reduce its credit risk by getting to know its borrowers. A brokerage firm can reduce market risk by being knowledgeable about the markets it operates in.

Functionally, there are four aspects of financial risk management. Success depends upon.

A. A Positive Corporate Culture

No one can manage risk if they are not prepared to take risk. While individual initiative is critical, it is the corporate culture which facilitates the process. A positive risk culture is one which promotes individual responsibility and is supportive of risk taking.

B. Actively Observed Policies and Procedures
Used correctly, procedures are powerful tool of risk management. The purpose of policies and procedures is to empower people. They specify how people can accomplish what needs to be done. The success of policies and procedures depends critically upon a positive risk culture.

C. Effective use of Technology
The primary role technology plays in risk management is risk assessment and communication. Technology is employed to quantify or otherwise summarize risks as they are being taken. It then communicates this information to decision makers, as appropriate.

D. Independence or risk Management Professionals
To get the desired outcome from risk management, risk managers must be independent of risk taking functions within the organization. Enron's experience with risk management is instructive. The firm maintained a risk management function staffed with capable employees. Lines of reporting were reasonably independent in theory, but less so in practice.

2.1.1.6 Internal Controls
Para one on first page of the 'Guidelines on Internal Controls' issued by SBP provides: "Internal Control refers to policies, plans and processes as affected by the Board of Directors and performed on continuous basis by the senior management and all levels of employees within the bank. These internal controls are used to provide reasonable assurance regarding the achievement of organizational objectives. The system of internal controls includes financial, operational and compliance controls."

The current official definition of internal control was developed by the Committee of Sponsoring Organization (COSO) of the Treadway Commission. In its influential report, Internal Control - Integrated Framework, the Commission defines internal control as follows:

"Internal control is a process, effected by an entity's Board of Directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

- Effectiveness and efficiency of operations.
- Reliability of financial reporting.
- Compliance with applicable laws and regulations.
- This definition reflects certain fundamental concepts:

Internal control is a process. It is a means to an end, not an end in itself. Internal control is effected by people. It is not policy manuals and forms, but people at every level of an organization.

Internal control can be expected to provide only reasonable assurance, not absolute assurance, to an entity's management and board.

Internal control should assist and never impede management and staff from achieving their objectives. Control must be taken seriously. A well-designed system of internal control is worse than worthless unless it is complied with, since the as semblance of control will be likely to convey a false sense of assurance. Controls are there to be kept, not avoided. For

instance, exception reports should be followed up. Senior management should set a good example about control compliance. For instance, physical access restrictions to secure areas should be observed equally by senior management as by junior personnel.

Components of Internal Controls

Components of internal control also depend upon the structure of the business unit and nature of its operation. The COSO Report describes the internal control process as consisting of five interrelated components that are derived from and integrated with the management process. The components are interrelated, which means that each component affects and is affected by the other four. These five components, which are the necessary foundation for an effective internal control system, include:

I. Control Environment

Control environment, an intangible factor and the first of the five components, is the foundation for all other components of internal control, providing discipline and structure and encompassing both technical competence and ethical commitment.

II. Risk Assessments

Organizations exist to achieve some purpose or goal. Goals, because they tend to be broad, are usually divided into specific targets known as objectives. A risk is anything that endangers the achievement of an objective. Risk assessments is done to determine the relative potential for loss in programs and functions and to design the most cost-effective and productive internal controls.

III. Control Activities

Control activities mean the structure, policies, and procedures, which an organization establishes so that identified risks do not prevent the organization from reaching its objectives. Policies, procedures, and other items like job descriptions, organizational charts and supervisory standards, do not, of course, exist only for internal control purposes. These activities are basic management practices.

IV. Information and Communication, and

Organizations must be able to obtain reliable information to determine their risks and communicate policies and other information to those who need it. Information and communication, the fourth component of internal control, articulates this factor.

V. Monitoring

Life is change; internal controls are no exception. Satisfactory internal controls can become obsolete through changes in external circumstances. Therefore, after risks are identified, policies and procedures put into place, and information on control activities communicated to staff, superiors must then implement the fifth component of internal control, monitoring.

Even the best internal control plan will be unsuccessful if it is not followed. Monitoring allows the management to identify whether controls are being followed before problems occur. In the same way, management must review weaknesses identified by audits to determine whether related internal controls need revision.

Tools for Monitoring of Risk

Management Information System

M.I.S or Management Information System is the collection and analysis of data in order to support management's decision with respect to the achievement of objectives mentioned in the policies and procedures and the control of various risks therein.

It is this area i.e. M.I.S, where I.T can play a vital and effective role as with the help of I.T large information may be analyzed efficiently and with accuracy, so that effective decision may be taken by the management without the loss of any time.

Asset-Liability Management Committee (ALCO)

In most cases, day-to-day risk assessment and management is assigned to a specialized committee, such as an Asset-Liability Management Committee (ALCO). Duties pertaining to key elements of the risk management process should be adequately separated to avoid potential conflicts of interest - in other words, a financial institution's risk monitoring and control functions should be sufficiently independent from its risk-taking functions. Larger or more complex institutions often have a designated, independent unit responsible for the design and administration of balance sheet management, including interest rate risk. Given today's widespread innovation in banking and the dynamics of markets, banks should identify any risks inherent in a new product or service before it is introduced, and ensure that these risks are promptly considered in the assessment and management process.

Corporate Governance Principles

Corporate governance relates to the manner in which the business of the organization is governed, including setting corporate objectives and a institution's risk profile, aligning corporate activities and behaviors with the expectation that the management will operate in a safe and sound manner, running day-to-day operations within an established risk profile, while protecting the interests of depositors and other stakeholders. It is defined by a set of relationships between the institution's management, its board, its shareholders, and other stakeholders.

The key elements of sound corporate governance in a bank include:

- A well-articulated corporate strategy against which the overall success and the contribution of individuals can be measured.
- Setting and enforcing clear assignment of responsibilities, decision-making authority and accountabilities that are appropriate for the bank's risk profile.
- A strong financial risk management function (independent of business lines), adequate internal control systems (including internal and external audit functions), and functional process design with the necessary checks and balances.
- Corporate values, codes of conduct and other standards of appropriate behavior, and effective systems used to ensure compliance. This includes special monitoring of a bank's risk exposures where conflicts of interest are expected to appear (e.g., relationships with affiliated parties).
- Financial and managerial incentives to act in an appropriate manner offered to the

board, management and employees, including compensation, promotion and penalties. (i.e., compensation should be consistent with the bank's objectives, performance, and ethical values).

- Transparency and appropriate information flows internally and to the public.
- Tools mentioned above can be utilized in identifying and managing different risks in the following manner:

I. Credit Risk

It is managed by setting prudent limits for exposures to individual transaction, counterparties and portfolios. Credits limits are set by reference to credit rating established by Credit Rating Agencies, methodologies established by Regulators and as per Board's direction.

- Monitoring of per party exposure
- Monitoring of group exposure
- Monitoring of bank's exposure in contingent liabilities
- Bank's exposure in clean facilities
- Analysis of bank's exposure product wise
- Analysis of concentration of bank's exposure in various segments of economy
- Product profitability reports

II. Market Risk

Financial Institutions should also have an adequate system of internal controls to oversee the interest rate risk management process. A fundamental component of such a system is a regular, independent review and evaluation to ensure the system's effectiveness and, when appropriate, to recommend revisions or enhancements.

Interest rate risk should be monitored on a consolidated basis, including the exposure of subsidiaries. The institution's board of directors has ultimate responsibility for the management of interest rate risk. The board approves the business strategies that determine the degree of exposure to risk and provides guidance on the level of interest rate risk that is acceptable to the institution, on the policies that limit risk exposure, and on the procedures, lines of authority, and accountability related to risk management. The board also should systematically review risk, in such a way as to fully understand the level of risk exposure and to assess the performance of management in monitoring and controlling risks in compliance with board policies. Reports to senior management should provide aggregate information and a sufficient level of supporting detail to facilitate a meaningful evaluation of the level of risk, the sensitivity of the bank to changing market conditions, and other relevant factors.

The Asset and Liability Committee (ALCO) plays a key role in the oversight and coordinated management of market risk. ALCOs meet monthly. Investment mandates and risk limits are reviewed on a regular basis, usually annually to ensure that they remain valid.

Risk Management and Risk Budgets

A risk budget establishes the tolerance of the board or its delegates to income or capital loss due to market risk over a given horizon, typically one year because of the accounting cycle. (Institutions that are not sensitive to annual income requirements may have a longer horizon, which would also allow for a greater degree of freedom in portfolio management.). Once an annual risk budget has been established, a system of risk limits needs to be put in place to guard against actual or potential losses exceeding the risk budget. There are two types of risk limits, and both are necessary to constrain losses to within the prescribed level (the risk budget).

The first type is stop-loss limits, which control cumulative losses from the mark-to-market of existing positions relative to the benchmark. The second is position limits, which control potential losses that could arise from future adverse changes in market prices. Stop-loss limits are set relative to the overall risk budget. The allocation of the risk budget to different types of risk is as much an art as it is a science, and the methodology used will depend on the set-up of the individual investment process. Some of the questions that affect the risk allocation include the following:

- What are the significant market risks of the portfolio?
- What is the correlation among these risks?
- How many risk takers are there?
- How is the risk expected to be used over the course of a year?

Compliance with stop-loss limits requires frequent, if not daily, performance measurement. Performance is the total return of the portfolio less the total return of the benchmark. The measurement of performance is a critical statistic for monitoring the usage of the risk budget and compliance with stop-loss limits. Position limits also are set relative to the overall risk budget, and are subject to the same considerations discussed above. The function of position limits, however, is to constrain potential losses from future adverse changes in prices or yields.

III. Liquidity Risk

The Basel Committee has established certain quantitative standards for internal models when they are used in the capital adequacy context.

- Allocation of capital into various types of business after taking into account the operational risks i.e. disruption of business activity, which has especially increased due to excessive EDP usage
- Allocation of the capital is also made amongst various products i.e. long term, short term, consumer, corporate etc. considering the risks involved in each product and its life cycle to avoid any liquidity crunch for which gap analysis is made. This is the job of ALCO
- For instance Contingent liabilities not more than 10 times of capital,
- Fund based not more than 6 times of capital
- Capital market operations not more than 1 time of capital
- However these limits cannot exceed the regulations.
- Parameters of controls
- Regulatory Requirements
- Board's directions
- Prudent practices

For liquidity management organizations are compelled to hold reserves for unexpected liquidity demands. The ALCO has responsibility for setting and monitoring liquidity risk limits. These limits are set by Regulatory Bodies and under Board's directions keeping in mind the market condition and past experience.

The Basel Accord comprises a definition of regulatory capital, measures of risk exposure, and rules specifying the level of capital to be maintained in relation to these risks. It introduced a de facto capital adequacy standard, based on the risk-weighted composition of a bank's assets and off-balance-sheet exposures that ensures that an adequate amount of capital and reserves is maintained to safeguard solvency. The 1988 Basel Accord primarily addressed banking in the sense of deposit taking and lending (commercial banking under US law), so its focus was credit risk.

In the early 1990s, the Basel Committee decided to update the 1988 accord to include bank capital requirements for market risk. This would have implications for non-bank securities firms.

Thus, the formula for determining capital adequacy can be illustrated as follows:

= Tier I + Tier 2 + Tier 3 *- 8% .
Risk-weighted Assets + (Market Risk Capital Charge x 12.5)

IV. Operational Risk
To manage this risk documented policies and procedures are established. In addition, regular training is provided to ensure that staffs are well aware of organization's objective, statutory requirements.

- Reporting of major/ unusual/ exceptional transactions with respect to ensuring the compliance of the principles of KYC and Anti-money laundering measure
- Analysis of system problems

Conclusion
For any business to grow and stay in the market management style is a key and Risk management is basically the management style of managing the risks.

It is so important and that State Bank of Pakistan plans to replace Prudential Regulations with Risk management guidelines, which will be adopted by banks according to their size and complexity of operations.

Risk is inherent in every business and every organization has to manage it according to its size and nature of operation because without it no organization no organization can survive in long run (www.ezineartical.com). Review of NRB Directives Related to Risk Management of Commercial Banks.

2.2.1 Overview
Banks are always faced with different types of risks that may have a potentially negative effect on their business. Risk-taking is an inherent element of banking and, indeed, profits are in part the reward for successful risk taking in business. On the other hand, excessive and poorly managed risk can lead to losses and thus endanger the safety of a bank's depositors. Risks are considered warranted when they are understandable, measurable, controllable and within a bank’s capacity to readily withstand adverse results. Sound risk management systems enable managers of banks to take risks knowingly, reduce risks where appropriate and strive to prepare for a future, which by its nature cannot be predicted.

Nepal Rastra Bank laid significant emphasis on the adequacy of a bank’s management of risk. Nepal Rastra Bank puts forward this document for the purpose of providing guidelines to all commercial banks on risk management systems that are expected to be in place. This document sets out minimum standards that shall be expected of a risk management framework. Overall risk management is of utmost importance to Banks, and as such, policies and procedures should be endorsed and strictly enforced by the senior management and the board of the Bank.

2.2.2 Risk Management Guideline (RMG)
The guideline at hand does not replace, rather supplements the existing regulations and guidelines. The guideline will become a focal point of reference for all requirements of the Nepal Rastra Bank for overall risk policy formulation and management. The guideline applies to the commercial banks in Nepal. It is not intended to be so comprehensive that it covers each and every aspect of risk management activity. This guideline provides minimum standard for the risk management practice to be exercised in the banks. A bank may establish a more comprehensive and sophisticated framework than that outlined in the guideline. This

is entirely acceptable as long as all essential elements of the guideline are fully taken into account.

The guideline is in line with internationally accepted risk management principles and the best practices. It is also aligned with the revised version of Core Principles for Effective Banking Supervision, which the Basel Committee published in October 2006. Core Principle 7 on 'Risk Management Processes' mentions that "banks and banking groups must have comprehensive risk management processes (including Board and senior management oversight) to identify, evaluate, monitor and control or mitigate all material risks and to assess their overall capital adequacy in relation to their risk profile. These processes should be commensurate with the size and complexity of the bank". Other relevant Core Principles (CP) includes credit risk (CP8), market risk (CP13) liquidity risk (CP14), operational risk (CP15) and interest rate risk (CP16). Moreover, principles set for the specific risk categories (Credit, Market, Operational, and Liquidity) are presented in the box.

The types and degree of risks an organization may be exposed to depend upon a number of factors such as its size, complexity, business activities, volume etc. This guideline covers the most common risks of Nepalese commercial banks; mainly Credit Risk, Market Risk, Operational Risk and Liquidity Risk. Depending on the nature and size of business, banks can introduce several stringent measures for the efficient risk management.

There are several risks like; strategic risk, reputation risk, legal risk etc. which can be measured in terms of qualitative criteria. Banks risk management process should incorporate all the risks associated with its business activities. This guideline presents the broader principles and concepts for the risk management in banking business. It provides minimum standard as well as general guidelines to encourage banks for directing their efforts towards stringent measures for risk management. Only objective of the RMG is to contribute towards maintaining and improving financial safety and soundness through better risk management practices in the banks (Source: www.nrb.org.np).

2.2.3 Managing Credit Risk

2.2.3.1 Overview

Credit risk is the likelihood that a debtor or financial instrument issuer is unwilling or unable to pay interest or repay the principal according to the terms specified in a credit agreement resulting in economic loss to the bank. Credit risk also refers the risk of negative effects on the financial result and capital of the bank caused by borrower's default on its obligations to the bank.

Credit risk is the major risk that banks are exposed during the normal course of lending and credit underwriting. Credit risk arises from non-performance by a borrower. For most banks, loans are the largest and most obvious source of credit risk; however, credit risk could stem from activities both on and off balance sheet. It may arise from either an inability or an unwillingness to perform in the pre-committed contracted manner. In a bank's portfolio, losses arise from outright default due to inability or unwillingness of a customer or counter party to meet commitments in relation to lending, trading, settlement and other financial transactions. Alternatively losses may result from reduction in portfolio value due to actual or perceived deterioration in credit quality.

This section presents fundamental credit risk management policies and practices that are recommended for adoption by the banks. The guideline outlines general principles that are

designed to govern the implementation of more detailed lending procedures and practices within the banks.

A typical Credit risk management framework in a bank may be broadly categorized into following main components; Board and senior Management's Oversight Organizational structure Systems and procedures for identification, acceptance, measurement Monitoring and control risks

Board and Senior Management's Oversight

Board Oversight

The Board of directors has a vital role in granting credit as well as managing the credit risk of the bank. It is the overall responsibility of a bank's Board to approve credit risk strategy and significant policies relating to credit risk and its management which should be based on the overall business strategy. Overall strategy as well as significant policies have to be reviewed by the board regularly.

Each bank, depending upon its size, should constitute a Credit Risk Management Committee (CRMC), ideally comprising of head of credit department and treasury. This committee should be empowered to oversee credit risk taking activities and overall credit risk management function. The CRMC should be mainly responsible for;

- The implementation of the credit risk policy/strategy approved by the Board.
- Monitor credit risk and ensure compliance with limits approved by the Board.

Recommend to the Board, for its approval, clear policies on standards for presentation of credit proposals, financial covenants, rating standards and benchmarks. Recommend delegation of credit approving powers, prudential limits on large credit exposures, standards for loan collateral, portfolio management, loan review mechanism, risk concentrations, risk monitoring and evaluation, pricing of loans, provisioning, regulatory/legal compliance.

The responsibilities of the board with regard to credit risk management shall include to**:**

- Ensure that appropriate policies, plans and procedures for credit risk management are in place. Ensure the bank implements sound fundamental policies;
- Define the bank's overall risk tolerance in relation to credit risk;
- Ensure that top management as well as staffs responsible for credit risk management possess sound expertise and knowledge to accomplish the risk management function;
- Ensure that bank's significant credit risk exposure is maintained at prudent levels and consistent with the available capital. Review trends in portfolio quality and the adequacy of bank's provision for credit losses;
- Ensure that internal audit reviews the credit operations to assess whether or not the bank's policies and procedures are adequate and implemented;
- Review exposures to insiders and their related parties, including policies related thereto;
- Ratify exposures exceeding the level of the management authority delegated to management and be aware of exposures; and

- Outline the content and frequency of management report to the board on credit risk management.
- Developing credit policies and credit administration procedures for Board approval;
- Implementing credit risk management policies to ensure effective credit risk management process;
- Ensuring the development and implementation of appropriate reporting system;
- Monitoring and controlling the nature and composition of the bank's credit portfolio;
- Monitoring the quality of credit portfolio and ensuring that the portfolio is soundly and conservatively valued and probable losses are adequately provided for;
- Establishing internal controls and setting clear lines of accountability and authority; and
- Building lines of communication for the timely dissemination of credit risk management policies, procedures and other credit risk management information to all the credit staffs.

Organizational Structure

Organizational structures may vary according to size, complexity and diversification of bank's activities. The structure should facilitate effective management oversight and proper execution of credit risk management and control processes. It is necessary to maintain the bank's overall credit risk exposure within the parameters set by the board of directors

It is the responsibility of bank's Board to approve the overall lending authority structure and explicitly delegate credit approval authority to senior management, the credit committee and other lending authorities. Lending authority assigned to the officers should be commensurate with their experience, ability and personal character. Banks may adopt multiple credit approvers for sanctioning various functions such as credit ratings, risks approvals etc. to institute a more effective system of check and balance. There should also be periodic review of lending authority assigned to officers.

2.2.3.2 Credit Strategy, Policies, Procedures and Limits

Credit Strategy

The primary purpose of bank's credit strategy is to determine the risk appetite. Risk appetite, at the organizational level, is the amount of risk exposure, or potential adverse impact from an event, that the bank is willing to accept. Once it is determined, the bank shall develop a plan to optimize return while keeping credit risk within predetermined limits. The credit risk strategy thus should cover:

The bank's plan to grant credit based on various client segments and products, economic sectors, geographical location, currency and maturity; Target market within each lending segment and level of diversification/concentration;

Pricing strategy

Credit risk strategy should be developed on the basis of bank's target market and its internal strength. The strategy should provide continuity in approach and take into account cyclic

aspect of country's economy and the resulting shifts in composition and quality of overall credit portfolio. The credit procedures should aim to obtain a deep understanding of the bank's clients, their credentials and their businesses in order to fully know their customers. These strategies should be reviewed periodically and amended, as deemed necessary; it should be viable in the long run.

Credit Policies

Every bank has to develop Credit Policies Guidelines (CPG) that clearly outline the bank's view of business development priorities and the terms and conditions that should be adhered to for loans to be approved. The CPG should be updated at a regular interval to reflect changes in the economic out look and the evolution of the bank's loan portfolio. To make it effective, policies should be communicated timely and should be implemented by all levels of the bank through appropriate procedures. It should be distributed to all lending authorities and credit officers. Credit policies establish framework for making investment and lending decisions and reflect bank's tolerance for credit risk. Any significant deviation to these policies must be communicated to the Senior Management/Board and corrective measures should be taken. At a minimum, credit policies should include:

Areas of credit in which the bank plans to lend and does not lend (acceptable and unacceptable lines of credit). These areas can be on the basis of credit facilities, type of collateral security, types of borrowers, or geographic sectors on which the bank may focus; Bank's formal credit approval process; detailed and formalized credit evaluation/ appraisal process, administration and documentation; Credit approval authority at various levels; Clear guidelines for each of the various types of credits, such as loans, overdrafts, mortgages, leases, etc. Concentration limits on single counter party and group of connected counter parties, particular industries or economic sectors, geographic regions and specific products. Banks can set their own stringent internal exposure limits comply with any prudential limits or restrictions set by the Nepal Rastra Bank; Authority for approval of allowance for probable losses and write-offs;

Credit Pricing

Roles and responsibilities of units/staff involved in credit; Guidelines on regular monitoring and reporting system. Guidelines on management of problem loans; and Internal rating (Risk grading) systems including definition of each risk grade and clear demarcation for each risk grade.

The credit policy should spell out the process to ensure appropriate reporting and approval of credit extension beyond prescribed limits. The policy should also spell out approvals of disbursements of excess over limits, and other exceptions to credit policy. In order to be effective, credit policies must be communicated throughout the bank, implemented through appropriate procedures, and periodically revised to take into account changing internal and external circumstances.

Credit Procedures

The credit procedures should aim to obtain a deep understanding of the bank's clients and their businesses in order to fully know their customers. Banks should develop procedures that adequately capture salient issues regarding the borrower's industry; macro economic factors; the purpose of credit; source of repayment; track record and repayment history of the borrower; repayment capacity of the borrower; the proposed terms and conditions and

covenants; adequacy and enforceability of collaterals; and appropriate authorization for the loan.

Credit Limits

An important element of credit risk management is to establish exposure limits covering on-balance sheet and off-balance sheet credit exposures for single counter party and group of connected counter parties. The objective of setting credit limit is to prevent banks from relying excessively on a large borrower or group of borrowers. Banks are expected to develop their own stringent limit structure while remaining within the exposure limits set by the Nepal Rastra Bank. The size of the limits should be based on the credit strength of the counterparty, purpose of credit, economic conditions and the bank's risk appetite. Limits should also be set for respective products, activities, specific industry, economic sectors and/or geographic regions to avoid concentration risk. Credit limits should be reviewed regularly at least annually or more frequently if counter party's credit quality deteriorates. All requests of increase in credit limits should be substantiated.

2.2.3.3 Credit Origination

A sound and well-defined criteria for new credits as well as the expansion of existing credits is necessary for credit risk management. Before allowing a credit facility, the bank should make an assessment of risk profile of the customer/transaction. This may include:

- Credit assessment of the borrower

  (macro-economic factors, industry and firm specific analysis)
- The purpose of credit and source of repayment.
- The track record / repayment history of borrower.
- Repayment capacity and other sources of income of the borrower.
- Terms, conditions and covenants for the credit agreement.
- Consistency in past history and future projections; Expected future cash flow of the borrower.
- Adequacy, enforceability and liquidity status of collaterals.
- Approval from appropriate authority

Banks have to make sure that the credit is used for the purpose it was borrowed. Where the obligor has utilized funds for purposes not shown in the original proposal, banks should take steps to determine the implications on creditworthiness. In case of corporate loans where borrower own group of companies such diligence becomes more important. Banks should classify such connected companies and conduct credit assessment on consolidated/group basis.

Banks utilize collateral and guarantees to help mitigate risks inherent in individual credits but transactions should be entered into primarily on the strength of the borrower's repayment capacity. Collateral cannot be a substitute for a comprehensive assessment of the borrower or counter party, nor can it compensate for insufficient information.

Banks should have policies covering the acceptability of various forms of collateral, procedures for the ongoing valuation of such collateral, and a process to ensure that collateral

is, and continues to be, enforceable and realizable. With regard to guarantees, banks should evaluate the level of coverage being provided in relation to the credit-quality and legal capacity of the guarantor.

Approving New Credits and Extension of Existing Credits

In case of new relationships consideration should be given to the integrity and reputation of the borrowers or counter party as well as its legal capacity to assume the liability. Prior to entering into any new credit relationship the banks must become familiar with the borrower or counter party and be confident that they are dealing with individual or organization of sound reputation and credit worthiness. However, a bank must not grant credit simply on the basis of the fact that the borrower is perceived to be highly reputable i.e. name lending should be A bank's credit-granting approval process should establish accountability for decisions taken and designate who has the authority to approve credits or changes in credit terms. A potential area of abuse arises from granting credit to connected and related parties, whether companies or individuals. Related parties typically include a bank's promoters, major shareholders, subsidiaries, affiliate companies, directors, and executive officers. The relationship includes the ability to exert control over or influence a bank's policies and decision-making, especially concerning credit decisions (please refer to NRB Directive no 3 on Transactions with Related Parties). A bank's ability to systematically identify and track extensions of credit to insiders is crucial. The issue is whether credit decisions are made on a rational basis and according to approved policies and procedures.

2.2.3.4 Credit Administration

Credit administration is a critical function in maintaining the safety and soundness of a bank. The credit administration function is basically a back office activity that supports and controls extension and maintenance of credit. A typical credit administration unit should perform the functions of credit documentation, disbursement and monitoring; loan repayment; and maintenance of credit files, collateral and security documents. Once a credit is granted, it is the responsibility of Credit Administration to ensure that the credit is properly maintained. It is the responsibility of credit administration to ensure completeness of documentation (loan agreements, guarantees, transfer of title of collaterals etc) in accordance with approved terms and conditions. This includes keeping the credit file up to date, obtaining current financial information, sending out renewal notices and preparing various documents such as loan agreements. While developing credit administration areas, banks should ensure:

- The efficiency and effectiveness of credit administration operations, including monitoring documentation, contractual requirements, legal covenants, collateral, etc.;
- The accuracy and timeliness of information provided to management information systems;
- The adequacy of control over all "back office" procedures; and
- Compliance with prescribed management policies and procedures as well as applicable laws and regulations.

For the various components of credit administration to function appropriately, senior management must understand and demonstrate that it recognizes the importance of this element of monitoring and controlling credit risk

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. Such a system would enable an 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. Monitoring procedures and systems should be in place so as to provide an early indication of the deteriorating financial health of a borrower.

Banks should ensure that all security documents are kept in a fireproof safe. Registers for documents should be maintained to keep track of their movement. Procedures should also be established to track and review relevant insurance coverage for certain facilities/collateral. Physical checks on security documents should be conducted on a regular basis.

The credit files should include all of the information necessary to ascertain the current financial condition of the borrower or counter party as well as sufficient information to track the decisions made and the history of the credit. Bank should devise procedural guidelines and standards for maintenance of credit files. The credit files not only include all correspondence with the borrower but also contain sufficient information necessary to assess financial health of the borrower and its repayment performance. It should be filed in organized way so that external/internal auditors or NRB inspector could review it easily.

2.2.3.5 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.

2.2.3.6 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
- 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.
- Given below are some key indicators that depict the credit quality of a loan:

Financial Position and Business Conditions
The most important aspect about an obligor is its financial health, as it would determine its repayment capacity. Business/industry risk, borrower's position within the industry and external factors such as economic condition, government policies, and regulations should be taken into consideration. The Key financial performance indicators on profitability, equity, leverage and liquidity should be analyzed on a regular basis.
Conduct of Accounts
In case of existing obligor the operation in the account would give a fair idea about the quality of credit facility. Banks should monitor the obligor's account activity, repayment history and instances of excesses over credit limits. For trade financing, banks should monitor cases of repeat in extensions of due dates for trust receipts and bills.

Loan Covenants
Bank should regularly review the credit in terms of the obligor's ability to adhere to financial covenants stated in the loan agreement, and any breach detected should be addressed promptly.

Collateral Valuation
Banks need to reassess value of collaterals on periodic basis. The frequency of such valuation depends upon nature of collaterals. Appropriate inspection should be conducted to verify the existence and valuation of the collateral.

2.2.3.7 Credit Risk Review & Stress Testing
The bank must establish a mechanism of independent, ongoing assessment of credit risk management process. All facilities except those managed on a portfolio basis should be subjected to individual risk review at least once in a year. The results of such review should be properly documented and reported directly to the board. The purpose of such reviews is to assess the credit administration process, the accuracy of credit rating and overall quality of loan portfolio independent of relationship with the obligor. Banks should conduct credit review with updated information on the counter party's financial and business conditions, as well as conduct of account.

An important element of sound credit risk management is analyzing what could potentially go wrong with individual credits and the overall credit portfolio if conditions/environment, in which borrowers operate, change significantly. The results of this analysis should then be factored into the assessment of the adequacy of provisioning and capital of the bank. Such stress analysis can reveal previously undetected areas of potential credit risk exposure that could arise in times of crisis.
Possible scenarios that banks should consider in carrying out stress testing include:
Significant economic or industry sector downturns;
- Adverse market-risk events; and
- Unfavorable liquidity conditions.

Banks should have industry profiles in respect of all industries where they have significant exposures. Such profiles must be reviewed /updated on a regular basis. Each stress test should

be followed by a contingency plan as regards recommended corrective actions. Senior management must regularly review the results of stress tests and contingency plans. The results must serve as an important input into a review of credit risk management framework and setting limits and provisioning levels.

2.2.3.8 Managing Problem Credits

Bank should establish a system that helps identify problem loan ahead of time when there may be more options available for remedial measures. Banks should clearly set out how they will manage their problem credits. Once the loan is identified as problem, it should be managed under a dedicated remedial process. Responsibility for such credits may be assigned to the originating business function, a specialized workout section, or a combination of both, depending upon the size and nature of the credit and the reason for its problems. When a bank has significant credit-related problems, it is important to segregate the workout function from the credit origination function. The additional resources, expertise and more concentrated focus of a specialized workout section normally improve collection results. In such case, the Recovery Unit (RU), as a separate unit, shall manage accounts with sustained deterioration (a risk rating of sub Standard or worse).

The RU's primary functions can be to:
Determine Account Action Plan/Recovery Strategy Pursue all options to maximize recovery, including placing customers into legal proceedings or liquidation as appropriate. Ensure adequate and timely loan loss provisions are made based on actual and expected losses. Regular review of substandard or worse accounts. A problem loan management process encompasses the following basic elements.

Negotiation and follow-up

Proactive effort should be taken in dealing with counter parties to implement remedial plans, by maintaining frequent contact and internal records of follow-up actions. Often rigorous efforts made at an early stage prevent banks from litigations and loan losses.

Remedial Strategies

Sometimes appropriate remedial strategies such as restructuring of loan facility, enhancement in credit limits or reduction in interest rates help improve obligor's repayment capacity. However it depends upon business condition, the nature of problems being faced and most importantly borrower's commitment and willingness to repay the loan. If timely action is not taken to address problem loans, opportunities to strengthen or collect on these poor-quality assets may be missed and losses may accumulate to a point where they threaten a bank's solvency. An assessment of workout procedures should consider the organization of this function, including departments and responsible staff, and assess what the performance of the workout units has been by reviewing attempted and successful recoveries (in terms of both number and volume) and the average time for recovery. The work out methods utilized and the involvement of senior management should also be evaluated.

Collateral and Security Document

Banks have to ascertain the loan recoverable amount by updating the values of available collateral with formal valuation. Security documents should also be reviewed to ensure the completeness as well as enforceability of contracts and collateral/guarantee.

Reporting and Reviewing
Problem credits should be subject to more frequent review and monitoring. The review should update the status and development of the loan accounts and progress of the remedial plans. Progress made on problem loan should be reported to the senior management.

2.2.3.9 Management Information System (MIS)
Bank's quality of risk management is based on the accuracy, validity, reliability and timeliness of information available. Bank's credit risk measurement process is highly dependent on the quality of management information systems. The information thus generated enables the board and all levels of management to fulfill their respective oversight roles, including determining the adequate level of capital that the bank should be holding. Banks should have a management information system in place to ensure that exposures approaching risk limits are brought to the attention of senior management. All exposures should be included in a risk limit measurement system. The information system should be able to aggregate credit exposures to individual borrowers and counter parties and report on exceptions to credit risk limits on a meaningful and timely basis.

2.2.4 Managing Market Risk
2.2.4.1 Overview
Market risk refers to the risk to a bank resulting from movements in market prices, in particular, changes in interest rates, foreign exchange rates, and equity and commodity prices. Market risk is defined as the risk of losses in on and off-balance sheet positions arising from movements in market prices. The risks subject to this requirement are: The risks pertaining to interest rate related instruments and equities in the trading book; Foreign exchange risk and commodities risk throughout the bank.

Market risk exposure may be explicit in portfolios of securities/equities and instruments that are actively traded. On the other hand, it may be implicit such as interest rate risk due to mismatch of loans and deposits. Besides, market risk may also arise from activities categorized as off- balance sheet item. Therefore market risk is potential for loss resulting from adverse movement in market risk factors such as interest rates, foreign exchange rates, and equity and commodity prices. The risk arising from these factors have been discussed below.

Foreign Exchange Risk
Foreign exchange risk is the risk of negative effects in the financial result and capital of the bank caused by changes in exchange rates. It is the current or prospective risk to earnings and capital arising from adverse movements in currency exchange rates. It refers to the impact of adverse movement in currency exchange rates on the value of open foreign currency position. As a result, banks may suffer losses due to changes in discounts of the currencies concerned. The foreign exchange positions arise from the following activities:

- Trading in foreign currencies through spot, forward and option transactions as a market maker or position taker, including the unheeded positions arising from customer-driven foreign exchange transactions;
- Holding foreign currency positions in the banking book (e.g. in the form of loans, bonds, deposits or cross-border investments); or
- Engaging in derivative transactions that are denominated in foreign currency for trading

or hedging purposes.

In the foreign exchange business, banks also face the risk of default of the counter parties or settlement risk. Thus, banks may incur replacement cost, which depends upon the currency rate movements. Banks also face another risk called time-zone risk, which arises out of time lags in settlement of one currency in one center and the settlement of another currency in another time zone. The foreign exchange transactions with counter parties situated outside Nepal also involve sovereign or country risk.

Interest Rate Risk
Interest rate risk is the risk of negative effects on the financial result and capital of the bank caused by changes in interest rates. Changes in interest rates affect a bank's earnings by changing its net interest income and the level of other interest-sensitive income and operating expenses. Changes in interest rates also affect the underlying value of the bank's assets, liabilities and off-balance sheet instruments because the present value of future cash flows change when interest rates change. The immediate impact of variation in interest rate is on bank’s net interest income, while a long term impact is on bank’s net worth since the economic value of bank’s assets, liabilities and off -balance sheet exposures are affected. An effective risk management process that maintains interest rate risk within prudent levels is essential for the safety and soundness of banks.
Interest rate risk arises when there is a mismatch between positions, which are subject to interest rate adjustment within a specified period. Interest rate risk is usually assessed from two common perspectives. Earnings perspective, which focuses on the impact of variation in interest rate on accruals or reported earnings, and economic value perspective, which reflects the impact of fluctuation in the interest rates on economic value of a financial institution.

Commodity Risk
A bank that is active in commodities trading should also account for variations in the "convenience yield" between derivatives positions, such as forwards and swaps, and cash positions in the commodity. All significant levels of commodity exposures should be properly managed.

Equity Price Risk
It is risk to earnings or capital that results from adverse changes in the value of equity related portfolios of a bank. Price risk associated with equities could be systematic or unsystematic. The former refers to sensitivity of portfolio’s value to changes in overall level of equity prices, while the later is associated with price volatility that is determined by firm specific characteristics.

2.2.4.2 Market Risk Management
Each bank should put in place a set of systems and procedures appropriate to its size and complexity of its operations for identifying, measuring monitoring and controlling market risk. The risk appetite in relation to market risk should be assessed keeping in view the capital of the bank as well as exposure to other risks. Once the market risk appetite is determined, the bank should develop a strategy for market risk-taking in order to maximize returns while keeping exposure to market risk at or below the pre-determined level.

Board and Senior Management Oversight

Management of market risk should start from the board and top management level. Effective board and senior management oversight of the bank's overall market risk exposure is a foundation of risk management process. For its part, the board of directors has following responsibilities;

- Define banks overall risk tolerance in relation to market risk.
- Ensure that bank's overall market risk exposure is maintained at prudent levels and consistent with the available capital.
- Ensure that top management as well as individuals responsible for market risk management possesses sound expertise and knowledge to accomplish the risk management function.
- Ensure that the bank implements sound fundamental principles that facilitate the identification, measurement, monitoring and control of market risk.

The board of directors should periodically review the financial results of the bank and, based on these results, determine if changes need to be made to the strategy. While the board gives a strategic direction and goals, it is the responsibility of top management to transform those directions into procedural guidelines and policy document and ensure proper implementation of those policies.

Accordingly, senior management is responsible to:
Develop and implement procedures that translate business policy and strategic direction set by BOD into operating standards that are well understood by bank's personnel. Ensure adherence to the lines of authority and responsibility that board has established for measuring, managing, and reporting market risk. Oversee the implementation and maintenance of Management Information System that identify, measure, monitor, and control bank's market risk. Establish effective internal controls to monitor and control market risk.

The banks should formulate market risk management polices which are approved by board. The policy should clearly define the lines of authority and the responsibilities of the Board of Directors, senior management and other personnel responsible for managing market risk; set out the risk management structure and scope of activities; and identify risk management issues, such as market risk control limits, delegation of approving authority.

The boards of directors and senior management have ultimate responsibility for understanding the nature and level of market risk taken by the bank. Board oversight may be delegated to an appropriate subcommittee such as the Asset and Liability Committee (ALCO) or Risk Management Committee.

Structure
The organizational structure used to manage market risk varies depending upon the nature size and scope of business activities of the bank. Since the structure varies at a minimum it should take into account following aspect. The structure should be in line with the overall strategy and risk policy set by the BOD. Those who take risk (front office) must know the organization's risk profile, products that they are offering, and the limits assigned to them.

The risk management function should be independent, reporting directly to senior management or BOD.

Establishment of strong MIS for controlling, monitoring and reporting market risk.
Besides the role of Board as discussed earlier a typical organization set up for Market Risk Management should include: -

- The Risk Management Committee
- The Asset-Liability Management Committee (ALCO)
- The Middle Office.

Risk Management Committee

It is generally a board level subcommittee constituted to supervise overall risk management functions of the bank. The structure of the committee may vary in banks depending upon the size and volume of the business. Generally it includes head of Credit, Market and operational risk Management divisions. It will decide the policy and strategy for integrated risk management containing various risk exposures of the bank including the market risk. The responsibilities of Risk Management Committee with regard to market risk management aspects include Formulate policies and guidelines for identification, measurement, monitoring and control for all major risk categories.

Ensuring the bank has clear, comprehensive and well-documented policies and procedural guidelines relating to risk management and the relevant staff fully understands those policies.

Ensuring that resources allocated for risk management are adequate given the size nature and volume of the business and the personnel involved in measuring, monitoring and controlling risk possess sufficient knowledge and expertise. Reviewing and approving market risk limits, including triggers or stop losses for traded and accrual portfolios. Ensuring robustness of financial models and the effectiveness of all systems used to calculate market risk. Ensuring that the bank has a strong management information system relating to risk reporting.

Asset-Liability Committee

ALCO is a senior management level committee responsible for supervision/management of Market Risk (mainly interest rate and liquidity risks). The committee generally comprises of senior managers from treasury, Chief Financial Officer, business heads generating and using the funds of the bank, credit, and individuals from the departments having direct link with interest rate and liquidity risks. The CEO or any senior person nominated by CEO is the head of the committee. The size as well as composition of ALCO depends on the size of each bank, business mix and organizational complexity. To be effective ALCO should have members from each area of the bank that significantly influences liquidity risk. Major responsibilities of the committee include:

- Monitoring the structure /composition of bank’s assets and liabilities Identifying balance sheet management issues like balance sheet gaps, interest rate gap/profiles etc. that are leading to under-performance.
- Developing maturity profile and mix of incremental assets and liabilities.
- Determining interest rates the bank and deciding on the future business strategy.
- Reviewing and documenting bank's funding policy.
- Deciding the transfer pricing policy of the bank.
- Evaluating market risk involved in launching of new products.
- Reviewing deposit-pricing strategy for the local market.
- Receiving and reviewing reports on liquidity risk, market risk and capital management
- Reviewing liquidity contingency plan for the bank.

ALCO should ensure that risk management is not limited to collection of data only. Rather, it will ensure that detailed analysis of assets and liabilities is carried out so as to assess the overall balance sheet structure and risk profile of the bank. The ALCO should cover the entire balance sheet/business of the bank while carrying out the periodic analysis.

Middle Office

The risk management functions relating to treasury operations are mainly performed by middle office. Besides the existence of front office and back office, the concept of middle office has recently been introduced so as to monitor measure and analyze risks inherent in treasury operations of banks independently. The unit also prepares reports for the information of senior management as well as bank's ALCO. Basically the middle office performs risk review function of day-to-day activities. Being a highly specialized function, it should be staffed by people who have relevant expertise and knowledge. The methodology of analysis and reporting may vary from bank to bank depending on their degree of sophistication and exposure to market risks. These same criteria will govern the reporting requirements demanded for the Middle Office, which may vary from simple gap analysis to computerized VAR modeling.

Middle Office staff may prepare forecasts (simulations) showing the effects of various possible changes in market conditions related to risk exposures. Banks using VAR or modeling methodologies should ensure that its ALCO is aware of and understand the nature of the output, how it is derived, assumptions and variables used in generating the outcome and any shortcomings of the methodology employed.

Segregation of duties should be evident in the middle office, which must report to ALCO independently of the treasury function. In respect of banks without a formal Middle Office, it should be ensured that risk control and analysis should rest with a department with clear reporting independence from Treasury or risk taking units, until normal Middle Office framework is established.

Risk Measurement

Accurate and timely measurement of market risk is necessary for proper risk management and control. Each bank should evolve measurement process, which is capable of identifying, and quantifying market risk factors that affect the value of traded and non-traded portfolios, income stream and other business activities using all available data. There is a wide range of risk measurement techniques ranging from static measurement techniques (Gap analysis) to highly sophisticated dynamic modeling (Monte Carlo Simulation), the banks may employ any technique depending upon the nature size and complexity of the business.

Banks may adopt multiple risk measurement methodologies to capture market risk in various business activities; however management should have an integrated view of overall market risk across products and business lines. The measurement system ideally should: Assess all material risk factors associated with a bank's assets, liabilities, and Off Balance sheet positions. Utilize generally accepted financial concepts and risk measurement techniques. Have well documented assumptions and parameters. It is important that the assumptions underlying the system are clearly understood by risk managers and top management.

Regardless of the measurement system, the usefulness of each technique depends on the validity of the underlying assumptions and accuracy of the basic methodologies used to

model risk exposure. The integrity and timeliness of data relating to current positions are key elements of risk measurement system.

Risk Monitoring

Risk monitoring processes should be established to evaluate the performance of bank's risk strategies/policies and procedures. A separate unit performs the function of risk monitoring or it can be a part of banks internal audit depending on the size and complexity of business. It is important that the monitoring function should be independent of units taking risk, which reports directly to the risk management committee.

Banks should have an information system that is accurate, informative and timely to ensure dissemination of information to management to support compliance with board policy. Reporting of risk measures should be regular and should clearly compare current exposures to policy limits. Further past forecast or risk estimates should be compared with actual results to identify any shortcomings in risk measurement techniques. The board on regular basis should review these reports. While the types of reports for board and senior management could vary depending upon overall market risk profile of the bank, at a minimum following reports should be prepared. Summaries of bank's aggregate market risk exposure Reports demonstrating bank's compliance with policies and limits Summaries of finding of risk reviews of market risk policies, procedures and the adequacy of risk measurement system including any findings of internal/external auditors or consultants.

Risk Control

Banks should have adequate internal controls to ensure the integrity of their market risk management process. These internal controls should be an integral part of the institution's overall system of internal control. Bank's internal control structure ensures the effectiveness of process relating to market risk management. Staff responsible for risk monitoring and control procedures should be independent of the functions they review. Key elements of internal control process include internal audit and review and an effective risk limit structure. An effective system of internal control for market risk should ensure that:

- There is a strong control environment;
- There is in place an adequate process for identifying and evaluating risk;
- There are adequate control activities such as policies, procedures and methodologies; and
- There is an effective management information system.

Management should ensure that sufficient safeguards exist to minimize the potential that individuals initiating risk-taking positions may inappropriately influence key control functions of the risk management process such as the development and enforcement of policies and procedures, the reporting of risks to senior management, and the conduct of back-office functions.

Limits

Banks need to set limits, including operational limits, for the different trading desks and/or traders which may trade various products, instruments in different markets. Limits need to be clearly understood, and any changes clearly communicated to all relevant/related parties. Risk Taking Units must have procedures that monitor activity to ensure that they remain within approved limits at all times. Limit breaches or exceptions should be made known to

appropriate senior management without delay. There should be explicit policy as to how such breaches are to be reported to top management and the actions to be taken.

Audit

Market risk measurement process should be reviewed and validated on a regular basis. This review function can be performed by a number of units in the organization including internal audit department. The audit or review should take into account.

- The appropriateness of bank's risk measurement system given the nature, scope and complexity of bank's activities
- The accuracy or integrity of data being used in risk models.
- The reasonableness of scenarios and assumptions
- The validity of risk measurement calculations.

Stress Testing

Bank's risk measurement system should support a meaningful evaluation of the effect of stressful market conditions on the bank. Stress testing should be designed to provide information on the kinds of conditions under which strategies or positions would be most vulnerable, and thus may be tailored to the risk characteristics of the bank. Possible stress scenarios might include:

- Abrupt changes in the general level of market rates;
- Changes in the relationships among key market rates (i.e. basis risk);
- Changes in the slope and the shape of the yield curve (i.e. yield curve risk);
- Changes in the liquidity of key financial markets or changes in the volatility of market rates; or
- Conditions under which key business assumptions and parameters break down.

In conducting stress tests, special consideration should be given to instruments or markets where concentrations exist as such positions may be more difficult to liquidate or offset in stressful situations. Banks should consider "worst case" scenarios in addition to more probable events. Management and the board of directors should periodically review both the design and the results of such stress tests, and ensure that appropriate contingency plans are in place.

2.2.5 Managing Liquidity Risk

Liquidity risk is the potential for loss to a bank arising from either its inability to meet its obligations or to fund increases in assets as they fall due without incurring unacceptable cost or losses.

2.2.5.1 Overview

Liquidity is the ability of an institution to transform its assets into cash or its equivalent in a timely manner at a reasonable price to meet its commitments as they fall due. Liquidity risk is considered a major risk for banks. It arises when the cushion provided by the liquid assets are not sufficient enough to meet its obligation. In such a situation banks often meet their liquidity requirements from market. Funding through market depends upon liquidity in the market and borrowing bank’s liquidity.

Liquidity risk can best be described as the risk of a funding crisis. Plan for growth and unexpected expansion of credit can be the main sources of such funding crisis. Banks with large off-balance sheet exposures or the banks, which rely heavily on large corporate deposit, have relatively high level of liquidity risk. Further the banks experiencing a rapid growth in assets should have major concern for liquidity.

Liquidity risk should not be seen in isolation, because financial risks are not mutually exclusive and liquidity risk often triggered by consequence of these other financial risks such as credit risk, market risk etc. For instance, a bank increasing its credit risk through asset concentration etc may be increasing its liquidity risk as well. Similarly a large loan default or changes in interest rate can adversely impact a bank’s liquidity position. Further if management misjudges the impact on liquidity of entering into a new business or product line, the bank’s strategic risk would increase.

Liquidity Risk Indicators

Given below are some early warning indicators that have potential to ignite liquidity problem for a bank. Bank management needs to monitor carefully such indicators and exercise careful scrutiny wherever it deems appropriate. Examples of such internal indicators are:

- A negative trend or significantly increased risk in any area or product line.
- Concentrations in either assets or liabilities.
- Deterioration in quality of credit portfolio.
- A decline in earnings performance or projections.
- Rapid asset growth funded by volatile large deposit.
- A large size of off-balance sheet exposure.
- Deteriorating third party evaluation (negative rating) about the bank and negative publicity.
- Unwarranted competitive pricing that potentially stresses the banks.

2.2.5.2 Liquidity Risk Management

The formality and sophistication of risk management processes established to manage liquidity risk should reflect the nature, size and complexity of a bank's activities. Sound liquidity risk management employed in measuring, monitoring and controlling liquidity risk is critical to the viability of any bank. Banks should have a thorough understanding of the factors that could give rise to liquidity risk and put in place mitigating controls.

A liquidity risk management involves not only analyzing banks on and off-balance sheet positions to forecast future cash flows but also how the funding requirement would be met. The later involves identifying the funding market the bank has access, understanding the nature of those markets, evaluating banks current and future use of the market and monitor signs of confidence erosion.

Bank's Liquidity Risk Management Procedures should be comprehensive and holistic. At the minimum, they should cover formulation of overall liquidity strategy, risk identification, measurement, and monitoring and control process.

Board and Senior Management Oversight

The board has to ensure that the bank has necessary liquidity risk management framework and bank is capable of confronting uneven liquidity scenarios. The prerequisites of an effective liquidity risk management include an informed board, capable management, and staff having relevant expertise and efficient systems and procedures. It is primarily the duty of board of directors to understand the liquidity risk profile of the bank and the tools used to manage liquidity risk. Generally, in this respect the responsibilities of the Board include:

Providing guidance on the level of tolerance for liquidity risk; Establishing an appropriate structure for the management of liquidity risk and identifying lines of authority and responsibility for managing liquidity risk exposure; Appointing senior managers who have the ability to manage liquidity risk and delegate to them the required authority to accomplish the job; Continuously monitoring the bank's performance and overall liquidity risk profile through reviewing various reports; Ensuring that senior management takes necessary steps to identify, measure, monitor and control liquidity risk; and Reviewing adequacy of the contingency plans of the banks.

Senior management is responsible for the implementation of sound policies and procedures keeping in view the strategic direction and risk appetite specified by board. To effectively oversee the daily and long-term management of liquidity risk senior managers should:

develop and implement procedures and practices that translate the board's goals, objectives, and risk tolerances into operating standards that are well understood Dby bank personnel and consistent with the board's intent.

Adhere to the lines of authority and responsibility that the board has established for managing liquidity risk.

Oversee the implementation and maintenance of management information and other systems that identify, measure, monitor, and control the bank's liquidity risk. Establish effective internal controls over the liquidity risk management process.

2.2.5.3 Liquidity Risk Strategy and Policies

Banks should formulate and implement appropriate liquidity risk management policies approved by the Board of Directors. The liquidity strategy must be documented in a liquidity policy, and communicated throughout the bank. The strategy should be evaluated periodically to ensure that it remains valid. Specific details of the policy may vary from bank to bank according to the nature, size and complexity of their business. At minimum it should cover general liquidity strategy (short-and long-term), specific goals and objectives in relation to liquidity risk management, process for strategy formulation and the level within which it is approved. The strategy should provide continuity in approach and should be reviewed and amended periodically as deemed necessary; it should be viable in the long term and through various economic cycles. The liquidity risk strategy defined by board should enunciate specific policies on particular aspects of liquidity risk management, such as:

Composition of Assets and Liabilities

The strategy should outline the mix of assets and liabilities to maintain liquidity. Liquidity risk management and asset/liability management should be integrated to avoid steep costs associated with having to rapidly reconfigure the asset liability profile from maximum profitability to increased liquidity.

Diversification and Stability of Liabilities

The strategy should ensure that the bank have a diversified sources of funding day-to-day liquidity requirements. A bank would be more resilient to tight market liquidity conditions if its liabilities were derived from more stable sources. To comprehensively analyze the stability of liabilities/funding sources the bank need to identify:

- Liabilities that would stay with the bank under any circumstances;
- Liabilities that run-off gradually if problems arise; and
- That run-off immediately at the first sign of problems.

Access to Inter-bank Market

The inter-bank market is one of the sources of liquidity. However, the strategies should take into account the fact that in crisis situations access to inter bank market could be difficult as well as costly.

Contingency Funding Plan

Designing contingency funding plan to enable banks meet their funding needs under stress scenarios. Such a plan, commonly known as Contingency Funding Plan (CFP), is a set of policies and procedures that serve as a blue print for a bank to meet its funding needs in managing liquidity risk in a timely manner and at a reasonable cost. The CFP should project the future cash flows and funding sources of a bank under market scenarios including aggressive asset growth or rapid liability erosion.

2.2.5.4 Liquidity Policy

The banks should formulate liquidity policies, which are recommended by senior management/ALCO and approved by the Board of Directors. While specific details vary across banks according to the nature of their business, the key elements of any liquidity policy include:

General liquidity strategy (short- and long-term), specific goals and objectives in relation to liquidity risk management, process for strategy formulation and the level within the bank it is approved;

Roles and responsibilities of individuals performing liquidity risk management functions, including structural balance sheet management, pricing, marketing, contingency planning, management reporting, lines of authority and responsibility for liquidity decisions;

- Liquidity risk management structure for monitoring, reporting and reviewing liquidity;
- Liquidity risk management tools for identifying, measuring, monitoring and controlling liquidity risk (including the types of liquidity limits and ratios in place and rationale for establishing limits and ratios); Contingency plan for handling liquidity crises.

The liquidity policy should be communicated down the line throughout in the organization. There should be periodic review in a regular basis and when there are any material changes in the bank's current and prospective liquidity risk profile. Such changes could arise from internal circumstances (e.g. changes in business focus) or external circumstances (e.g. changes in economic conditions). Reviews provide the opportunity to update and amend the

bank’s liquidity policies in light of the bank’s liquidity management experience and development of its business. Banks should establish appropriate procedures and processes to implement their liquidity policies. The procedural manual should explicitly outline necessary operational steps and processes to execute the relevant liquidity risk controls. The manual should be periodically reviewed and updated to take into account new activities, changes in risk management approaches and systems.

Asset Liability Committee

Bank should develop appropriate structure for managing overall liquidity of the bank. Generally the function of liquidity risk management is performed by an ALCO. Ideally ALCO comprises of senior management from each key area of the bank that assumes and manages liquidity risk. It is important that these members have clear authority over the units responsible for executing liquidity-related transactions so that ALCO directives reach these line units unimpeded. The ALCO should meet on a regular basis. Generally responsibilities of ALCO include developing and maintaining appropriate risk management policies and procedures, MIS reporting, limits, and oversight programs. ALCO usually delegates day-to-day operating responsibilities to the bank's treasury department. However, ALCO should establish specific procedures and limits governing treasury operations before making such delegation. To ensure that ALCO can control the liquidity risk arising from new products and future business activities, the committee members should interact regularly with the bank's risk managers and strategic planners.

2.2.5.5 Liquidity Risk Management Process

An effective liquidity risk management includes systems to identify, measure, monitor and control its liquidity exposures. Management should be able to accurately identify and quantify the primary sources of a bank's liquidity risk in a timely manner. To properly identify the sources, management should understand both existing as well as future risk that the bank can be exposed to. Management should always be alert for new sources of liquidity risk at both the transaction and portfolio levels. Key elements of an effective risk management process include an efficient MIS, systems to measure, monitor and control existing as well as future liquidity risks and reporting them to senior management.

Management Information System

An effective management information system (MIS) is essential for sound liquidity management decisions. Bank should be able to monitor its day-to-day liquidity position and risk control. Liquidity MIS should be developed keeping a crisis monitoring in mind. Accuracy and timeliness of information are important elements for monitoring liquidity. Since bank liquidity is primarily affected by large, aggregate principal cash flows, detailed information on every transaction may not improve analysis.

An appropriate mechanism for monitoring activities helps in proper identification of liquidity risks through early warning indicators, which have the potentials of igniting the problem. Management should develop systems that can capture significant information. The content and format of reports depend on a bank's liquidity management practices, risks, and other characteristics. Management should regularly consider how best to summarize complex or detailed issues for senior management or the board. Besides several types of information important for managing day-to-day activities and for understanding the bank's inherent liquidity risk profile includes.

- Asset quality and its trends
- Earnings projections.
- The bank's general reputation in the market and the condition of the market itself.
- The type and composition of the overall balance sheet structure.
- The type of new deposits being obtained, as well as its source, maturity, and price.

Liquidity Risk Measurement and Monitoring

An effective measurement system is essential for adequate management of liquidity risk. Banks should institute systems that enable them to capture liquidity risk ahead of time so that appropriate remedial measures could be prompted to avoid any significant losses. An effective measurement and monitoring system is essential for adequate management of liquidity risk.

Banks vary in relation to their liquidity risk depending upon their size and complexity of business. Therefore they require liquidity risk measurement techniques accordingly. For instance banks having large networks may have access to low cost stable deposit, while small banks have significant reliance on large size bank deposits.

Liquidity risk measurement and monitoring system not only helps in managing liquidity in times of crisis but also optimize return through efficient utilization of available funds. Abundant liquidity does not obviate the need for a mechanism to measure and monitor liquidity profile of the bank.

Presented below are some commonly used liquidity measurement and monitoring techniques adopted by the banks;

Contingency Funding Plans

The major risk a bank runs is liquidity risk. Under any circumstances a bank has to honor its commitments. As a result, it has to make sure that enough liquidity is available to meet fund requirements in situations like liquidity crisis in the market, policy changes by central bank, a name problem of the bank etc. So, a bank's balance sheet should have enough liquid assets for meeting contingencies. A liquidity contingency plan should be in place to ensure a bank is prepared to combat any crisis situation.

Maturity Ladder

Banks may utilize flow measures to determine their cash position. A maturity ladder analysis estimates a bank's inflows and outflows and thus net deficit or surplus (GAP) over a time horizon. A maturity ladder is a useful device to compare cash inflows and outflows both on a day-to-day basis and over a series of specified time periods. A simple example of maturity ladder is presented in the NRB Ni.Fa.No.5.1 under NRB Directives No. 5. The number of time frames in such maturity ladder is of significant importance and up to some extent depends upon nature of bank's liability or sources of funds. Banks need to focus on the maturity of its assets and liabilities in different tenors. Mismatch is accompanied by liquidity risk and excessive longer tenor lending against shorter-term borrowing can put a bank's balance sheet in a very critical and risky position. To address this risk and to make sure a bank does not expose itself in excessive mismatch, a bucket-wise (e.g. next day, 2-7 days, 7 days-1 month, 1-3 months, 3-6 months, 6 months-1 year, 1-2 year, 2-3 years, 3-4 years, 4-5 years, over 5 year) maturity profile of the assets and liabilities is prepared to understand mismatch in every bucket.

In the short term, bank's flow of funds could be estimated more accurately and also such estimates are of more importance as these provide an indication of actions to be taken immediately. Further, such an analysis for distant periods will maximize the opportunity for the bank to manage the GAP well in advance before it crystallizes. Consequently banks should use short time frames to measure near term exposures and longer time frames thereafter.

Banks need to calculate daily GAP for next one or two weeks, monthly gap for next six months or a year and quarterly thereafter. Preparing an estimate of cash flows, following aspect needs to be considered;
The funding requirement arising out of off- Balance sheet commitments also need to be accounted for.

Many cash flows associated with various products are influenced by interest rates or customer behavior. Banks need to take into account behavioral aspects along with contractual maturity. In this respect past experiences could give important guidance to make any assumption.

Some cash flows may be seasonal or cyclical. Management should also consider increases or decreases in liquidity that typically occur during various phases of an economic cycle.

Banks should have liquidity sufficient to meet fluctuations in loans and deposits. As a safety measure banks should maintain a margin of excess liquidity. To ensure that this level of liquidity is maintained, management should estimate liquidity needs in a variety of scenarios.

Liquidity Ratios and Limits
Banks may use a variety of ratios to quantify liquidity. These ratios can also be used to create limits for liquidity management. Such ratios would be meaningless unless used regularly and interpreted taking into account qualitative factors. Ratios should always be used in conjunction with more qualitative information about borrowing capacity, such as the likelihood of increased requests for early withdrawals, decreases in credit lines, decreases in transaction size, or shortening of term funds available to the bank. To the extent that any asset-liability management decisions are based on financial ratios, a bank's asset-liability

managers should understand how a ratio is constructed, the range of alternative information that can be placed in the numerator or denominator, and the scope of conclusions that can be drawn from ratios. Because ratio components as calculated by banks are sometimes inconsistent, ratio- based comparisons of banks or even comparisons of periods at a single bank can be misleading.

One of the most serious sources of liquidity risk comes from a bank's failure to "roll over" a maturing liability. Cash flow ratios and limits attempt to measure and control the volume of liabilities maturing during a specified period of time. Liability concentration ratios and limits help to prevent a bank from relying on too few providers or funding sources. Limits are usually expressed as either a percentage of liquid assets or an absolute amount. Sometimes they are more indirectly expressed as a percentage of deposits, purchased funds, or total liabilities. For example: liquid assets to total deposit ratio, credit to deposit ratio, total loans/total deposits, short term liabilities to liquid assets ratio, total loans/total equity capital, borrowed funds/total assets etc are examples of common ratios used by banks to monitor current and potential funding levels.

In addition to the statutory limits of liquid assets requirement and cash reserve requirement, the board and senior management should establish limits on the nature and amount of liquidity risk they are willing to assume. The limits should be periodically reviewed and adjusted when conditions or risk tolerances change. When limiting risk exposure, senior management should consider the nature of the bank’s strategies and activities, it’s past performance, the level of earnings, capital available to absorb potential losses, and the board's tolerance for risk. Balance sheet complexity will determine how much and what types of limits a bank should establish over daily and long-term horizons. Liquidity ratios and limit can be early indicators of excessive risk or inadequate liquidity risk management.

Foreign Currency Liquidity Management

Each institution should have a measurement, monitoring and control system for its liquidity positions in the major currencies in which it is active. In addition to assessing its aggregate foreign currency liquidity needs and the acceptable mismatch in combination with its domestic currency commitments, an institution should also undertake separate analysis of its strategy for each currency. Merely meeting the NRB Foreign Currency Exposure limits is not enough to manage the institution's exposure to foreign currency risk. Banks should develop their own strong internal risk management process based on the size, nature and complexities of their business exposure.

Internal Controls

Banks should institute review process that should ensure the compliance of various procedures and limits prescribed by senior management. The structure (unit) for review should be independent of the funding areas. Reviewers should verify the level of liquidity risk and management's compliance with limits and operating procedures. Any exception to that should be reported immediately to the board for necessary actions.

2.2.6 Managing Operational Risk

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and system or from external events.

2.2.6.1 Overview

Rapid development in the pace of financial innovation is making the activities of bank and their risk profiles (i.e. the level of risk across an institution's activities and/or risk categories) more complex. A clear understanding of operational risk is critical to the effective management and control of this risk category. Operational risk is the risk of negative effects on the financial result and capital of the bank caused by omissions in the work of employees, inadequate internal procedures and processes, inadequate management of information and other systems, and unforeseeable external events.

Operational risk event types having the potential to result in substantial losses include: Internal fraud; for example, intentional misreporting of positions, employee theft, and insider trading on an employee's own account. External fraud; for example, robbery, forgery, cheque kiting, and damage from computer hacking.

Employment practices and workplace safety; for example, workers compensation claims, violation of employee health and safety rules, organized labor activities, discrimination claims, and general liability.

Clients, products and business practices; for example, fiduciary breaches, misuse of confidential customer information, improper trading activities on the bank's account, money laundering, and sale of unauthorized products.

Damage to physical assets; for example, terrorism, vandalism, earthquakes, fires and floods. Business disruption and system failures; for example, hardware and software failures, telecommunication problems, and utility outages.

Execution, delivery and process management; for example; data entry errors, collateral management failures, incomplete legal documentation, unapproved access given to client accounts, non-client counter party undue performance, and vendor disputes.

Operational risk is associated with the problems of accurately processing, settling, and taking or making delivery on trades in exchange for cash. It also arises in record keeping, processing system failures and compliance with various regulations. It is associated with human error, system failures and inadequate procedures and controls. It is the risk of loss arising from the potential that inadequate information system; technology failures, breaches in internal controls, fraud, unforeseen catastrophes, or other operational problems may result in unexpected losses or reputation problems. Operational risk exists in all products and business activities.

The board should provide senior management with clear guidance and direction regarding the principles underlying the framework and approve the corresponding policies developed by senior management.

Board and senior management's oversight

The ultimate responsibility of operational risk management rests with the board of directors. The Board of Directors should be aware of the major aspects of the bank's operational risks. The board should approve and review periodically the bank's operational risk management framework. Bank should establish an organizational culture that places a high priority on effective operational risk management and adherence to sound operating controls. The board should establish tolerance level and set strategic direction in relation to operational risk. Such a strategy should be based on the requirements and obligation to the stakeholders of the bank.

Senior management should transform the strategic direction given by the board through operational risk management policy. Board delegates the management of this process and execution of such process must be ensured. The policy should include:

The strategy formulated by the board.

- The systems and procedures to institute effective operational risk management framework.
- The structure of operational risk management function and the roles and responsibilities of individuals involved.

Board of the bank should approve the policy. The policy establishes a process to ensure that any new or changed activity will be evaluated for operational risk prior to come into effect. The management should ensure that it is communicated and understood throughout the bank. The management also needs to place proper monitoring and control processes in order to have effective implementation of the policy. The policy should be regularly reviewed and updated, to ensure it continue to reflect the environment within which the bank operates.

Operational Risk Function
A separate independent function should be established for effective management of operational risks in the bank. The structure (unit) performs the jobs related to identify, measure, monitor and report operational risks as a whole and ensure that the management of operational risk in the bank is carried out as per strategy and policy. The function helps to establish policies and standards and coordinate various risk management activities. Besides, it should also provide guidance relating to various risk management tools, monitors and handle incidents and prepare reports for management and BOD.

2.2.6.2 Operational Risk Management
Management should evaluate the adequacy of tools and techniques both in terms of its efficiency and effectiveness. Steps should be taken to design and implement cost- effective solutions to reduce the operational risk to an acceptable level. The extent and nature of the controls adopted by the banks can be different, very often such measures encompass areas such as Code of Conduct, Delegation of authority, Segregation of duties, audit coverage, compliance, succession planning, mandatory leave, staff compensation, recruitment and training, dealing with customers, complaint handling, record keeping, MIS, physical controls, etc

Risk Assessment and Quantification
A number of techniques are evolving but still operational risk remains the most difficult risk category to quantify. Banks should identify and assess the operational risk inherent in all material products, activities, processes and systems and its vulnerability to these risks. Banks should also ensure that before new products, activities, processes and systems are introduced or undertaken, the operational risk inherent in them is subject to adequate assessment procedures**.** It would not be feasible at the moment to expect banks to develop such measures. However the banks could systematically track and record frequency, severity and other information on individual loss events. Such a data could provide a meaningful information for assessing the bank's exposure to operational risk and developing a policy to mitigate / control that risk.

Risk Monitoring and Reporting
Banks should develop a regular reporting of the information to senior management and the board of directors that supports the proactive management of operational risk.

Senior Management should Establish a Program to

Monitor assessment of the exposure to all types of operational risk faced by the bank; Assess the quality and appropriateness of mitigating actions, including the extent to which identifiable risks can be transferred outside the bank; and Ensure that adequate controls and systems are in place to identify and address problems before they become major concerns.

Regular monitoring activities can offer the advantage of timely detecting and correcting deficiencies in the policies, processes and procedures for managing operational risk. Promptly detecting and addressing these deficiencies can substantially reduce the severity of a loss. This mechanism should be appropriate to the scale of risk and activity undertaken. Management should ensure that information is received by the appropriate channel, on a timely basis, in a form and format that helps in the monitoring and control of the business.

Control Mechanism
Banks should assess the feasibility of alternative risk limitation and control strategies. Banks should adjust their operational risk profile using appropriate strategies, in light of their overall risk appetite and profile. To be effective, control activities should be an integral part of the regular activities of a bank. A framework of formal, written policies and procedures is necessary; it needs to be reinforced through a strong control culture that promotes sound risk management practices.

Contingency Planning
Banks should have disaster recovery and business continuity plans to ensure its ability to operate as a going concern and minimize losses in the event of severe business disruption. The business disruption and contingency plans should take into account different types of scenarios to which the bank may be vulnerable and should be commensurate with the size and complexity of its operations. Management should identify critical business processes, including those where there is dependence on external vendors or other third parties, for which rapid resumption of service would be most essential.

2.3 Review of Articles
Santomero (1997), in his article,*" Risk Management of Commercial Banks"* has analyzed the various risk faced by commercial banks. According to him, the major risk of commercial bank includes credit, market risk, interest risk, counterparty risk and liquidity risk. He has categorized this risk into following categories: Risk that can be eliminated by simple business practices.

- Risk that must be actively managed at the firm level.
- Risk that can be transferred to other participants.

According to him, the main reason for the risk management is:

- Managerial self interest
- Non linearity of tax structure
- Cost of financial distress
- Existence of capital market imperfection.

Kupper (2000), in his research, "*Risk Management in Banking"* has made a study to identify the different types of risk and prescribes the method to handle those risks. He has identified three types of risk in the banking business (i.e. credit risk, market risk and operation risk) According to his study; credit risk has almost 70 % of shares in total banking risks. The typical credit risk share of total capital is 80% in Wholesale Banking, 50 % on Personal Banking and 10 % on financial Market.

He has presented the role of a banks' risk management function in the context of the need to break the vicious cycle of risk. The cycle refers to the process by which a bank assumes uneconomic risks and by definition, key large losses. As a consequence, the risk appetite of the bank is reduced, lending and trading risks are foregone and the bank loses market share. In turn, the bank adopts an aggressive marketing strategy to regain market share and the cycle starts over. His vicious cycle aptly describes the risk taking practices observed in the industry time and time again.

Bijaya Tiwari (2004) in his article "Problem and challenges of governments control bank" published in The Himalyan times states that Nepal's financial institution have failed in delivering beneficial services to needy people by developing credit-giving centers in rural areas without which sustained economic growth is impossible. On the other hand banks and financial institutions have enough liquidity but they are finding it difficult to find suitable places for investment. Problems such as insecurity, lack of market research from banks, low investment opportunities, weak operational policies for carrying out financial transaction, among others have contributed to the problems of this sector. Despite these central banks directives regulating banks and financial institution, private and government banks are functioning haphazardly. Nepal Bank Limited (NBL) Agriculture Devolvement Bank and Rastriya Banijya Bank (RBB), the three largest banks, occupy about 50% of the country's banking assets. Effective reform of these three banks is keys to improved performance of the whole sector. The process currently underway to reform these three institutions, despite paying huge amounts to foreign experts, has not given expected results. Besides NBL, ADB and RBB, the Non-Performing Assets (NPA) of some private banks is also very high. If the government and central bank allow the financial sector reforms to focus only on RBB ADB and NBL, it might become a futile effort. The current management of RBB, ADB and NBL has not been able to reduce their NPL even after two years, which has crossed over 60%.

Gopal Tiwari (2004), in his article, *"Financial Sector Hobbled with Chaos, Fragility"* states that Nepal's financial institution have failed in delivering beneficial services to needy people by developing credit-giving centers in rural areas without which sustained economic growth is impossible. On the other hand banks and financial institutions have enough liquidity but they are finding it difficult to find suitable places for investment. Problems such as insecurity, lack of market research from banks, low investment opportunities, weak operational policies for carrying out financial transaction, among others have contributed to the problems of this sector. Despite central banks directives regulating banks and financial institution, private and government banks are functioning haphazardly. Nepal Bank Limited (NBL) and Rastriya Banijya Bank (RBB), the two largest banks, occupy about 50 percent of the country's banking assets. Effective reform of these two is key to improved performance of the whole sector. The process currently underway to reform these two institutions, despite paying huge amounts to foreign experts, has not given expected results. Besides NBL and RBB, the Non-performing Assets (NPA) of some private banks is also very high. If the government and central bank allow the financial sector reforms to focus only on RBB and NBL, it might become futile effort. The current management of RBB and NBL has not been able to reduce

their NPL even after two years, which has crossed over 60 percent. Earlier KPMG had calculated NPL at 30- 35 percent.

2.4 Review of Thesis

Sabitri Shrestha (2003), in her Master's thesis, "*Impact and Implementation of NRB Guidelines*" has tried to find out the impact of NRB directives on commercial banks.
She has analyzed whether the directives are actually implemented and are being monitored by NRB or not. She has stated that both NABIL and Nepal SBI are implementing the NRB directives.
She concludes that all the changes in NRB Directives made both positive and negative impacts on the commercial banks. Even though this study is limited to only two sample (i.e. Nabil Bank and Nepal SBI Bank) among the entire population, it clears the new directives issued by NRB make good impact to more than bad impact on the various aspect of the banks. It can be seen that the provision has been changed and the increased provisioning amount has decreased the profitability of commercial banks. Apart from, loan exposure has been cut down to customers due to the borrower limits have been brought down by NRB. Therefore reduction in loan amount result to decrease the interest incomer from loans, which will decrease the profits of the banks in coming years. Decreasing profitability push towards lesser dividends to the shareholders and less bonus to employees. Not only the negatives sides but also there are positive sides of new directives. Recently the problems of banks are increasing operating cost and decreasing loan amount resulting decrease in profits of the banks but it shows it is only for short there because the directives are more effective to protect the banks from bad loans, which protect the banks from bankruptcy as well as protection of deposits of depositors. Increase in capital adequacy ration strengthen the banks financial position, loan related provision will made safety of loans except the risk reducing provision would protect the bank from liquidation. Above all it can be concluded that newly issued directives are more effective than previous one although hit has brought some problems towards banks. To decrease the decreasing profits of the banks, they should research the alternatives like more investment in other business, bank should adopt new technology according to the demand of time and must not depend o only interest income for profit.

Shama Bhattarai (2005), in her master's thesis "*Implementation of Directives Issued by Nepal Rastra Bank"* with an objective to find out the impact of the NRB directives on commercial bank.
She has made an attempt to analyze various aspects of NRB directives with respect to Capital Adequacy and Loan Classification and Provisioning as per her view the process of continual review and classification of loans and advances enables banks to monitor the quality of their loan portfolios and to take remedial action to counter deterioration in the credit quality of their portfolios.

She concluded that with the new provisions the banks will have its provision amount increasing in coming years and subsequently profitability of the banks will also come down However, the true picture of the quality of the asset will be painted in the coming years to come. She recommends, —The banks should be very careful while analyzing the paying capacity of is credit clients. With longer period of past due, the bank will end up increasing its provisions which will keep the bottom line low if the bank is not careful".

Balmukunda Dhungana (2006), in his master thesis, *"A Study on NRB Prudential Directives Issued to Finance Companies"* has made a research on the impact of NRB directives to the

finance companies. The major objective of the study was the impact of the NRB directives in the smooth functioning and profitability of finance companies.

He has analyzed about the norms and standards laid down by Nepal Rastra Bank relating to finance companies in Nepal in respect of Capital Adequacy, Collection of Funds, Statutory Deposit & Liquidity Requirements, Loan Classification and Loan Loss Provisioning, Investments in Shares and securities, Non Banking Assets, and interest income.

The main finding in his study regarding the impact of the new directives on the finance companies and the result thereof are protection of the depositors money through increased capital adequacy ratio and pressure on finance companies to increase their capital base for collecting more funds form public stringent loan loss provisioning and thereby reduction on operation profit and consequently less bonus to employees and less dividends to shareholders.

Reducing interest spread making business competitive there by forcing finance. Companies to be customer oriented. Increase in operational procedures of the finance companies, which increase the operational costs. Forcing those finance companies that were relying on software for report generation to modify software.

A short term decline in profitability resulting in fewer bonuses to employees and less dividend to the shareholders.

ed demand for shareholders contribution in the capital base by foregoing dividends for loan loss provisioning and various other reserves to increase the capital base.

Although new directives are welcomed by finance companies, the same has not been complied with properly.

Khadka (2006), has carried out research on *"A Comparative Study on Investment Policy of Commercial Banks"* with an objective to find out the relationship between deposits, investment, loans and advances and net profit.

She has analyzed on balance sheet and off balance sheet operation of selected commercial banks from which she concludes NBL is comparatively less successful in on balance sheet as will as off balance sheet operations than that of other commercial banks. It predicts that in the coming days if it count not mobilize and utilize its resources as efficiently as other CBs to maximize the returns; it would lag behind in the competitive market of banking. Profitability position of NBL is comparatively worse than that of other CBs. It predicts that NBL may not maintain the confidence of shareholders, depositors and its customers if it cannot increase its volume even in future.

Shrestha (2007), in her master's thesis,*" A study of Non Performing Loan & Loan loss provision of Commercial Bank"* with an objective to find out the relationship between loan and loan loss provision and impact of loan loss provision on the profitability of the commercial bank.

She has analyzed about proportion of non-performing loan in the selected commercial bank. At the same time she has study and analyzes the guidelines and provisions pertaining to loan classification and loan loss provisioning.

The major finding in her study was that the NBL has the highest portion of the loan in total asset followed by NABIL and SCBNL. She concludes that the SCBL shows the risk-averse attitude. Likewise the non-performing loan to total loan is found highest in NBL, NABIL and SCBNL. Likewise the Loan Loss Provision is also highest in NBL where as the SCBL has the least Loan Loss Provision.

Subba (2008), in his study "*Risk Management of Commercial Banks in Nepal* "has made an attempt to find out the risk management of commercial banks. He has concluded that:

Proper risk management is required to remain competitive in the market and achieve the goals. The major banking risks include credit risk, market risk (i.e. liquidity risk, foreign exchange risk, interest risk) and operation risk. Among these credit risk has the major impact on banking Poor management of asset and liabilities having different maturity period is the main problem that brings market risk.

Commercial Banks (MBL and Kumari Bank taken as sample) have their own set of policies and practices, which is in consistence with NRB guidelines. Operational risk can be reduced if banks take major step in preparing and implementing the different operational guidelines and policies.

His study is made on credit risk, market risk (interest risk, foreign exchange risk, liquidity risk) and operation risk and their management is the key areas where further research can be made.

2.5 Research Gap

From the review of literatures, it has been found that some research has been made in the risk management of banking sectors. Few theses have been prepared on the credit risk. These researches are related only with loan loss provision and non-performing loan and not detail of risk management of banking sector. So, further research on concentration risk, collateral risk can be conducted etc.

Though the different thesis has been written in the NRB Directives and their implementation, all these researches are about the loan provisioning and capital adequacy. Likewise, no research has been made regarding foreign exchange and interest rate risk of a bank. Similarly, the legal risk, which has the significant portion in total risk, has not been studied till now. Hence the research has been conducted.

CHAPTER - III
RESEARCH METHODOLOGY

3.1Introduction

Research is believed to be derived from the French word researcher meaning to search again. The research work is undertaken following a systematic way, which is called the research methodology. As per Kothari, it is the way to solve systematically about the research problem.

The system of collecting data for research projects is known as research methodology. The data may be collected for either theoretical or practical research for example management research may be strategically conceptualized along with operational planning methods and change management. Some important factors in research methodology include validity of research data, Ethics and the reliability of measures most of your work is finished by the time you finish the analysis of your data. Formulating of research questions along with sampling weather probable or non probable is followed by measurement that includes surveys and scaling. This is followed by research design, which may be either experimental or quasi-experimental. The last two stages are data analysis and finally writing the research paper, which is organized carefully into graphs and tables so that only important relevant data is shown. Thus the overall approach to the research is presented in this chapter. This chapter consists of research design, sample size and selection process, data collection procedure and data processing techniques and tools.

3.2 Research Design

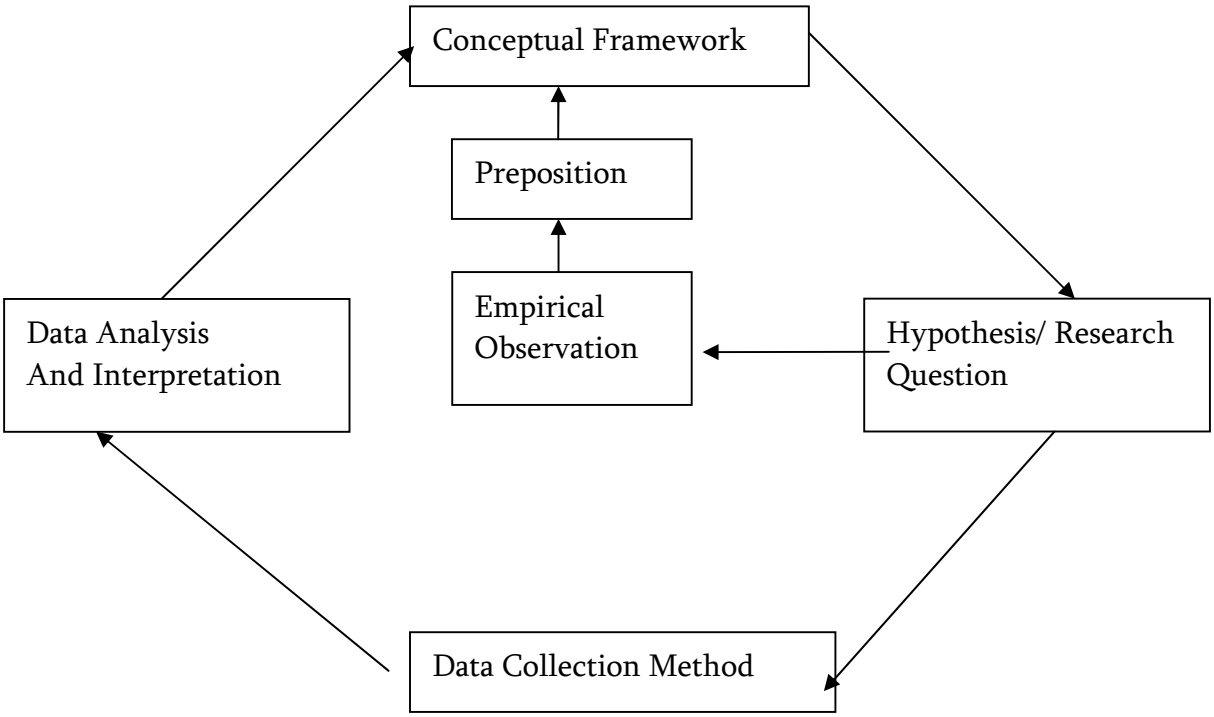
This study is the combination of descriptive and analytical type of research. Historical data are used to analyze different risks of a bank and each risk is analyzed separately. Historical data are used to identify and analyze past status of the bank's performance based on which future recommendation has been made. Similarly, management system, organizational structure and policies for mitigating the risk and

risk management procedures have been presented in descriptive form so as to identify the current status from which pitfalls can be identified. From collection of past data and information from key informants, the risk management system has been analyzed and recommendations have been made for improving the risk management of banks. Since only two banks (NCC bank and MBL) have been selected for the study, this study is a comparative study between these two banks in different risks and their management system.

Both primary and secondary data are used for analysis of various risks. In credit, interest and liquidity risk, secondary data published in annual reports of banks under study and NRB publications are mainly used. However, some primary data, collected through personal interview and questionnaires, are also used in analysis of credit risk and hypothesis test of such data are also made whenever felt necessary. The operation risk is all about the descriptive research as the quantification of operation risk variable is not feasible.

Figure 3.1

Research Design



3.3 Population and Samples

Population is the aggregative or totality of statistically data forming a subject of investigation. Wolf and Pant (2002) defines the term "population" for research as the universe of research study in which the research is based. Since the research topic is about risk management of commercial banks, all the commercial banks of Nepal form population of the study. The population for the study comprises 29 commercial banks. Among the total population only two commercial banks are take as sample for the comparative study. The sample is chosen with an objective to find out the risk management of two commercial banks, which have completed 5 years. NCC Bank and MBL are taken for the study.

3.4 Sources of Data and Collection Procedure

For this study, both primary and secondary data are used. Secondary data are collect mainly form published sources like annual report, prospectus., balance sheet, newspaper, journal, internet and other sources. Secondary data published in the annual reports of concerned organizations are collected through personal visit in respective organization as well as from their web sites whereas, the primary data are mainly collected via questionnaire, interview and direct observation. For the credit risk analysis, information is collected through questionnaire form 4 staffs each from both NCC Bank and MBL working in Credit and credit Control Divisions.

3.5 Data Processing and Presentation

The data obtained from the different sources are in raw form. The raw data is processed and converted into required form. For this study, required data are taken from the secondary source (bank's publication) and presented in this study. For presentation, different tables are used. Besides primary data, collected form different sources, are also presented wherever required. Raw data are attached in annexure. Computation has been done with the help of scientific calculator and computer software program.

3.6 Data Analysis Tools

In order to get the concrete results from this research, data are analyzed by using different types of tools. As per topic requirements, emphasis is given on statistical tools rather than financial tools. So for this study following statistical tools are used. Analyzing data is an important and vital task in a study report for achieving the objectives of the study by using some tools. The analysis of data is done according to the data available. Various calculated results can obtained through financial, accounting and statistical tools. In this study Statistical and Financial tools are used to measure the strength of the concerning banks.

3.6.1Statistical Tools

Arithmetic Mean

Arithmetic Mean has widely used in this study. It has been used as to calculate the average for 5 years data in some cases for 4 years due to unavailability of complete data. This tool has been used to calculate the single figure that can represent the whole data for the period. The Arithmetic Mean of loan, deposits, net profit, non-performing loan, loan loss provision etc, has been calculated in this study. It is computed by sing following formula:

$$\text{Mean } (\overline{X}) = \frac{X}{n}$$

Where,

$\overline{X}$ = Mean

X = Sum of all the Variable X

n = Variables involved

Standard Deviation

The standard deviation is the best tools to study fluctuation in any data. It is usually denoted by the letter sigma (δ). Karl Pearson suggested it as a widely used measure of dispersion and is defined as the positive square root of their arithmetic mean of squares of the deviation of the given observations from their arithmetic mean of a set of value. It can be computed by using following formula. (Sthapit Ajaya, 2004, Business Statistics)

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

Where,

$\overline{X}$ = Mean

X = Variable

n = Variables involved

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

Coefficient of Variation

In conjunction with standard deviation, coefficient of variation (c.v.) is also computed which is the relative measure based on standard deviation. It is defined as the standard deviation divided by the mean of expected return. It is used to standardize the risk per unit of return. A project with a low c. v. has less risk per rupee than a project with a high c. v.

$$\textbf{C.V.} = \frac{\text{Standard deviation}}{\text{Expected return}} \times 100\%$$

Correlation Coefficient

By this statistical tool, the degree of relationship between to variables is identified. In other words, this tool is used to describe the degree to which one variable is linearly related to other variables. Two or more variables are said to be correlated if change in the value of one variable appears to be linked with the change in the other variables. The correlation analysis refers the closeness of the relationship between the variables. Correlation may be positive or negative and ranges from -1 to +1. Simple correlation between Net profit and Loan & Advances is computed in this thesis. For example, let's say that the correlation between Net profit and Loan & Advances is positive. It indicates that when Loan and Advances increases, Net profit of the bank also increases in same direction and vice versa. For our study following reference is used

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

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

Simple Correlation Coefficient (r) = $$\frac{n\phi X_1 X_2 \; Z(\phi X_1)(\phi X_2)}{\sqrt{n\phi X_1{}^2 \; Z(\phi X_1)^2}\sqrt{n\phi X_2{}^2 \; Z(\phi X_2)^2}}$$

Alternately,

r = $$\frac{Cov(X_1 X_2)}{VarX_1, VarX_2}$$

Where,

Covariance (X_1, X_2) = $$\frac{1}{n} \qquad (X_1 \; Z\overline{X}_1)(X_2 \; Z\overline{X}_2)$$

n = Total number of observations.

X_1 and X2 = two variables, correlation between them are calculated.

Trend Analysis

A widely and most commonly used method to describe the trend is the method of least square. Under this method, a trend line is fitted to the data satisfying the following two conditions.

Let the trend line between the dependent variable y and the independent variable x be represented by:

Y = a +bx..... (i)

Then for any given value of independent variable x, the estimate value of y denoted by Y_e given by above equation is;

Y_e =a +bx

Where,

Y_e = Dependent Variable i.e. Estimated Value

a = Intercept of trend line

b= slope of the trend line or amount of change that comes in y for a unit change in x.

To determine the straight line trend, we have to determine the values of a and b.

To find the values of a and b, we solve the following two equations:

$$Y \; X na \; \Gamma b \quad x \ldots\ldots\ldots\ldots\ldots\ldots (ii)$$

And,

$$XY \; X a \quad X \; \Gamma b \quad X^{2} \ldots\ldots\ldots\ldots\ldots\ldots (iii)$$

The equation (ii) is obtained by multiplying on both sides of equation (i),the equation (iii) is obtained by multiplying equation (i) by X and taking on both sides.

The values of a and b can obtained by solving (ii) and (iii) then calculated value are substituted in equation (i) which gives the equation of the trend line.

3.6.2 Financial Tools

Credit Risk Ratio

The probability that some of bank's assets, especially its loans, will decline in value and perhaps become worthless is known as credit risk. The following two ratios of the most widely used indicators of bank credit risk.

The ratio of non performing asstes to total loans and leases

$$= \frac{\text{non performing asstes}}{Total\ loans\ lease}$$

Nonperforming assts are income generating assets, including loans that are past due for 90 days or more. As the ratio rise, the institution's credit risk grows, and institution may be failure.

Annual provision for loan losses to total loar Annual provision for loan losses

~~Total loans or total equity capital~~

If the loans losses come to exceed equity capital, the institutions credit risk will overwhelm the owners' stake in the firm and it will collapse.

Operating Efficiency Ratio

One possible management response is to improve the efficiency of the organization in managing its resource .This may mean installing new labor saving machinery (such as computer and automated tellers) to increase the productivity of employees in processing transactions .it may also mean a conscious decision to expand the overall size of the organization tom take advantage of any remaining economies of scale.

Increased efficiency is indicated by how well expenses are controlled relative to revenues and how productive each employee is in terms of revenues and income generated, assets managed, and accounts handled. The most popular indicators of how efficient a bank or financial institutions are as follows.

$$\text{Operating expense ratio} = \frac{\text{Total operating expenses}}{\text{Total operating revenues}}$$

$$\text{Income productivity ratio} = \frac{\text{Net income}}{\text{No of employee}}$$

Increasing operating expense ratio shows the management is unable to control the operating expenses and vice versa. Income productivity ratio tends to be higher among the top earners .Banks with the best profits seem to generate and manage more assets and income per employee and often pay their more productivity employees higher salaries

Liquidity Ratios

It is the applicable to measure the ability of the firms to meet short term obligations. As name denotes the liquidity refers to the ratio between liquid assets and liability. The ability of firm to meet its obligation in the short term is known as liquidity. It reflects the short term financial strength of the business. In order to ensure short term solvency, the company must maintain adequate liquidity. But liquidity ratio must be optimum. If the company maintain unnecessary high liquidity ratio then it may adversely effect in the profitability of the company, which can lose the opportunity to

earn high profit, means everybody knows that investing all assets in safe liquid assets doesn't have a good return. As well as, high liquidity may unnecessary tie up in the current assets. On the other hand if a company doesn't maintain adequate liquidity then it will result in bad credit ratings, less creditors confidence eventually may lead to bankruptcy. Thus the company should endeavor to maintain proper balance between inadequate liquidity and unnecessary liquidity for the survival and for avoiding risk.

$$\text{Liquidity Risk Ratio} = \frac{\text{Cash and government securities}}{\text{Total assets}}$$

High ratio indicates the liquidity position is good .Low ratio indicates the liquidity risk is high i.e. there is liquidity problem .To overcome the liquidity problem, the financial institution can increase a bank's cash and readily marketable assets ,such as government securities ,or using long term liabilities to fund the bank's operations.

Loan and Advances to Total Deposit Ratio

This ratio is calculated to find out how successfully the selected banks are utilizing their total collections or deposits on loan and advances for the purpose of earning profit and total liquidity position of the bank. Greater ratio shows the better utilization of total deposits and high liquidity risk. This ratio can be obtained dividing loan and advances by total deposits, which can be shown as,

$$\text{Loan and Advances to Total Deposit Ratio} = \frac{\text{Total loan and Advances}}{\text{Total Deposit}}$$

Market risk

Market risk refers to the risk to a bank resulting from movements in market prices, in particular, changes in interest rates, foreign exchange rates, and equity and commodity prices. Market risk is defined as the risk of losses in on and off-balance sheet positions arising from movements in market prices.

The impact of changing interest rates on a bank's margin of profit is usually called interest rate risk. Interest rate risk: the bank's interest rate risk is related to the changes in asset and liability returns and values caused by movements in interest rates .The most widely used measure of bank interest rate risk is:

$$\text{Interest rate risk ratio} = \frac{\text{Interest sensitive assets (ISA)}}{\text{Interest sensitive liabilities (ISL)}}$$

Interest rate risk ratio measure the danger of loss due to changing in the market interest rates. Particularly in periods of wide interest rate movements, this ratio reflects the risk the bank is willing to take that it can predict the future direction of interest rates. If a bank has a ratio above 1.0,the bank's returns will be lower if interest rates decline and higher if they increase.

Risk and Return Ratio

Risk and Return analysis is also called Net Profit to Loan and Advance Ratio. This Ratio indicates how efficiently the bank as employed its resources in the form of Loan and Advances. This ratio is calculated dividing Net profit of the bank by Total loan and Advances.Net profit refers to that profit which is after deduction provision of tax and employee bonus. Hence this ratio measures banks profitability with respect to loan and advance .Higher the ratio better is the performance of bank.

$$\text{Risk and Return Ratio} \frac{\text{Net Profit}}{\text{Loan and Advances}}$$

3.7 Limitations of the Research Methodology

Each Methodology suffers from some kind of limitations. Therefore, the methodology used in this research cannot be different from the common limitations of same type of researches. However, in analyzing the risk management of the selected sample, the tools applied cannot best describe the relationship between the variables under study since it is affected by numerous other assumptions. Also the study is limited to the numerical data and the numerical values for measuring the risk management, keeping the thought and intensions away.

CHAPTER - IV

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter gives the presentation, detail analysis and interpretation of the accumulated data from which concrete result can be obtained. Here only secondary data are used for the analysis of different risks of the sample banks (NCC Bank and MBL). To make the study more effective, precise and easily understandable, this chapter is categorized in three parts; presentation, analysis and interpretation. In presentation section, data are tabulated. These tabulated data are then analyzed using different statistical tools mentioned in chapter three.

42.1 For the first Objective of the Study, the Different Types of Risks of NCC Bank and MBL are Analyzed

Risks are usually defined by the adverse impact on profitability of several distinct sources of uncertainty. More or less all financial institutions have to manage the following faces of risks:

a)Credit Risk

This is the risk incurred in case of a counter-party default. It arises from lending activities, investing activities and from buying and selling financial assets on behalf of others. This risk is associated with financing transactions i.e.:

- Default in repayment by the borrower and
- Default in obliging the commitment by another Financial Institution in case of syndicated arrangements.

It is the most critical risk in banking and one that must be managed carefully. It is also the risk that requires the most subjective judgment despite constant efforts to improve and quantify the credit decision process.

Management of Credit Risk

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 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 identification of deterioration in any loan
- The frequency of site visits

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.

Given below are some key indicators that depict the credit quality of a loan:

1. Financial Position and Business Conditions

The most important aspect about an obligor is its financial health, as it would determine its repayment capacity. Business/industry risk, borrower's position within the industry and external factors such as economic condition, government policies, and regulations should be taken into consideration. The Key financial performance indicators on profitability, equity, leverage and liquidity should be analyzed on a regular basis.

2. Conduct of Accounts

In case of existing obligor the operation in the account would give a fair idea about the quality of credit facility. Banks should monitor the obligor's account activity, repayment history and instances of excesses over credit limits. For trade financing, banks should monitor cases of repeat in extensions of due dates for trust receipts and bills.

3. Loan Covenants

Bank should regularly review the credit in terms of the obligor's ability to adhere to financial covenants stated in the loan agreement, and any breach detected should be addressed promptly.

4. Collateral Valuation

Banks need to reassess value of collaterals on periodic basis. The frequency of such valuation depends upon nature of collaterals. Appropriate inspection should be conducted to verify the existence and valuation of the collateral.

b) Market Risk

Market risk is defined as the volatility of income or market value due to fluctuations in underlying market factors such as currency, interest rates, or credit spreads. For commercial banks, the market risk of the stable liquidity investment portfolio arises from mismatches between the risk profile of the assets and their funding. This risk involves interest rate risk in all of its components: equity risk, exchange risk and commodity risk.

Market risk refers to the risk to a bank resulting from movements in market prices, in particular, changes in interest rates, foreign exchange rates, and equity and commodity prices. Market risk is defined as the risk of losses in on and off-balance sheet positions arising from movements in market prices. The risks subject to this requirement are:

- The risks pertaining to interest rate related instruments and equities in the trading book;
- Foreign exchange risk and commodities risk throughout the bank.

Market risk exposure may be explicit in portfolios of securities/equities and instruments that are actively traded. On the other hand, it may be implicit such as interest rate risk due to mismatch of loans and deposits. Besides, market risk may also arise from activities categorized as off- balance sheet item. Therefore market risk is potential for loss resulting from adverse movement in market risk factors such as interest rates, foreign exchange rates, and equity and commodity prices.

Management of Market Risk

Each bank should put in place a set of systems and procedures appropriate to its size and complexity of its operations for identifying, measuring monitoring and controlling market risk. The risk appetite in relation to market risk should be assessed keeping in view the capital of the bank as well as exposure to other risks. Once the market risk appetite is determined, the bank should develop a strategy for market risk-taking in order to maximize returns while keeping exposure to market

risk at or below the pre-determined level.

c) Liquidity Risk

The liquidity risk is defined as the risk of not being able to meet its commitments or not being able to unwind or offset a position by an organization in a timely fashion because it cannot liquidate assets at reasonable prices when required. Liquidity is the position of the firm to meet current or short-term obligations. General public or customers deposit their savings at the banks in different accounts having full confidence of repayment by the banks whenever they require. To show a good current position and maintain the confidence, every firm must keep proper cash balance with them while investing in different securities and granting loan for excess fund.

Liquidity is the ability of an institution to transform its assets into cash or its equivalent in a timely manner at a reasonable price to meet its commitments as they fall due. Liquidity risk is considered a major risk for banks. It arises when the cushion provided by the liquid assets are not sufficient enough to meet its obligation. In such a situation banks often meet their liquidity requirements from market. Funding through market depends upon liquidity in the market and borrowing bank's liquidity.

Management of Liquidity Risk

The formality and sophistication of risk management processes established to manage liquidity risk should reflect the nature, size and complexity of a bank's activities. Sound liquidity risk management employed in measuring, monitoring and controlling liquidity risk is critical to the viability of any bank. Banks should have a thorough understanding of the factors that could give rise to liquidity risk and put in place mitigating controls.

A liquidity risk management involves not only analyzing banks on and off-balance sheet positions to forecast future cash flows but also how the funding requirement

would be met. The later involves identifying the funding market the bank has access, understanding the nature of those markets, evaluating banks current and future use of the market and monitor signs of confidence erosion.

Bank's Liquidity Risk Management Procedures should be comprehensive and holistic. At the minimum, they should cover formulation of overall liquidity strategy, risk identification, measurement, and monitoring and control process.

d) Operational Risk

This risk results from inadequacies in the conception, organization, or implementation of procedures for recording any events concerning bank's operations in the accounting system/information systems. Operational risk is associated with the problems of accurately processing, settling, and taking or making delivery on trades in exchange for cash. It also arises in record keeping, processing system failures and compliance with various regulations. It is associated with human error, system failures and inadequate procedures and controls. It is the risk of loss arising from the potential that inadequate information system; technology failures, breaches in internal controls, fraud, unforeseen catastrophes, or other operational problems may result in unexpected losses or reputation problems. Operational risk exists in all products and business activities.

Operational risk arises from the potential inadequate information systems, operational problems, breaches in internal controls, fraud or unforeseen catastrophes that result in unexpected losses. There is operational risk associated with virtually any banking activity but the greater dependence on technology and centralized operations is one of the reasons for banks in becoming increasingly exposed to operation risk. Though, operation risk cannot be quantified, it has a significant impact on the banking operations. The operation risk of the bank is analyzed below.

Types of operational Risk

1. Transactional Risk

Transaction risk refers to such types of risk, which arises from the mistake of the bank employees, while making transaction. This is the one of the biggest problem in banking operation. This risk is mainly associated with human error, while making transaction.

When asked to bank's operation manager and other key staffs, the major types of transactional risk includes.

Cash shortage and Overage

The cash short and over is the main transaction risk in banking sector. Problem of cash shortage and over is associated with the employees of cash department. Cash short and over of a staff refers to a situation having not balance in actual closing balance of cash and record of difference of actual cash inflow and outflow. This error occurs due to mistake of teller. Both cash short and over is not good far a bank. Cash short is associated with the employee who does mistake and he must pay himself. Where cash over must deposit in bank because customer may come to claim cash.

Gitya Gyan Rai a staff of NCC Bank states the cash short and over is a regular phenomenon in banking sector, which can be minimized but cannot be completely eliminated due to human error. Mr anil Parsain, Branch Manager of MBL thimi branch, states the rare cases of cash short and over in his branch due to conscious staff of cash department.

2. Documentation Risk

Documentation risk refers to the risk, which arises from the acceptance of mistake and fraud document by the bank. At document base business such as letter of credit (L.C.) ,credit provided by bank in different sector after taking collateral against loan may happened documentation risk. If banks open a L.C. and provides

loan against the false documentation, the bank has to suffer loss. Similarly when purchasing cheque and bills, if the document is not genuine, this leads the banks to suffer a huge loss. This documentation risk arises due to bad intention of bank employee and client and negligence of bank staffs.

When interviewed to key employees of both banks, it is found that banks have taken high precaution for document risk. There is no such a cases that banks have suffered huge loss due to fraud documentation

Operational Risk Management

Management should evaluate the adequacy of tools and techniques both in terms of its efficiency and effectiveness. Steps should be taken to design and implement cost- effective solutions to reduce the operational risk to an acceptable level. The extent and nature of the controls adopted by the banks can be different, very often such measures encompass areas such as Code of Conduct, Delegation of authority, Segregation of duties, audit coverage, compliance, succession planning, mandatory leave, staff compensation, recruitment and training, dealing with customers, complaint handling, record keeping, MIS, physical controls, etc

4.2.2 For the Second Objective of the study in Financial Position of NCC Bank and MBL. For this Different risk are Compared

4.2.2.1 Annual Provision for Loan Losses to Total Loans

If the loans losses come to exceed equity capital, the institutions credit risk will overwhelm the owners' stake in the firm and it will collapse. The ratio annual provision for loan losses to total loans shows the risk of bank's loan. Higher ratio shows the more risk on credit.

Table 4.1

Annual Provision for Loan Losses to Total Loans

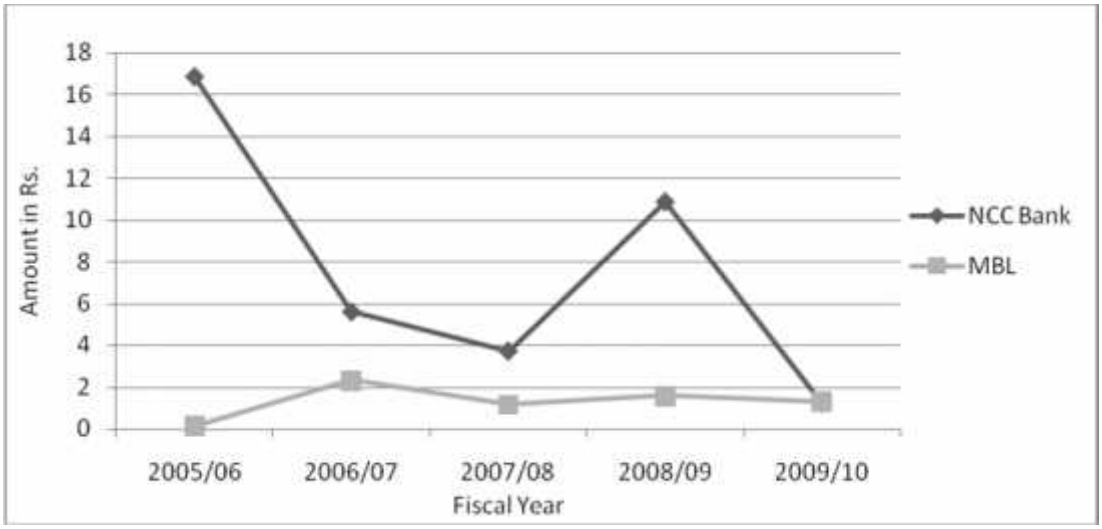
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Loan Loss Provision**	**Total Loans**	**Ratio %**	**Loan Loss Provision**	**Total Loans**	**Ratio %**
2005/06	782710	4643262	16.86	8867.90	6068913	0.15

2006/07	206868	3707642	5.6	165494	7096898	2.33
2007/08	163875	4417856	3.71	101064	8674976	1.17
2008/09	745573	6858194	10.87	197024	12467188	1.58
2009/10	121088	9942332	1.22	197486	14972534	1.32
		Total	38.26		Total	6.55
		Mean	7.65		Mean	1.31
		S.D	5.59		S.D	0.54
		C.V. %	73.06		C.V. %	41.53

Source: Annual Reports (See Annex 1)

Figure 4.1
Annual Provisions for Loan Losses to Total Loans



The above table and graph shows that the loan of NCC bank is more risky then the loan of MBL. The ratio annual provision for loan losses to total loans shows the risk of bank's loan. Higher ratio shows the more risk on credit. At 2005/06 ratio of NCC Bank was 16.86% which shows high risk on bank credit but till next two year it has decreased continuously but fiscal year 2008/09 the ratio increased dramatically. Where, the ratio of MBL is comparatively lower than NCC Bank. From this we can conclude that the risk on credit of MBL is lower than NCC Bank. At 2005/06 the ratio was 0.146 % and it was increased at 2006/7 then after decreased, again it was increased and decreased. It shows that the ratio of MBL is slightly fluctuated than NCC Bank.

Like wise, the standard deviation of NCC Bank and MBL are 5.59% and 0.54 % respectively. Higher standard deviation has higher risk and vice versa. It shows that NCC Bank has high risk on credit than MBL. Similarly CV of NCC Bank and MBL are 73.06 %and 41.53 % respectively. It shows that risk per unit on credit of NCC Bank is higher than MBL.

4.2.2.2 Operating Expense Ratio

Increased efficiency is indicated by how well expenses are controlled relative to revenues and how productive each employee is in terms of revenues and income generated, assets managed, and accounts handled Increasing operating expense ratio shows the management is unable to control the operating expenses and vice versa.

Table 4.2

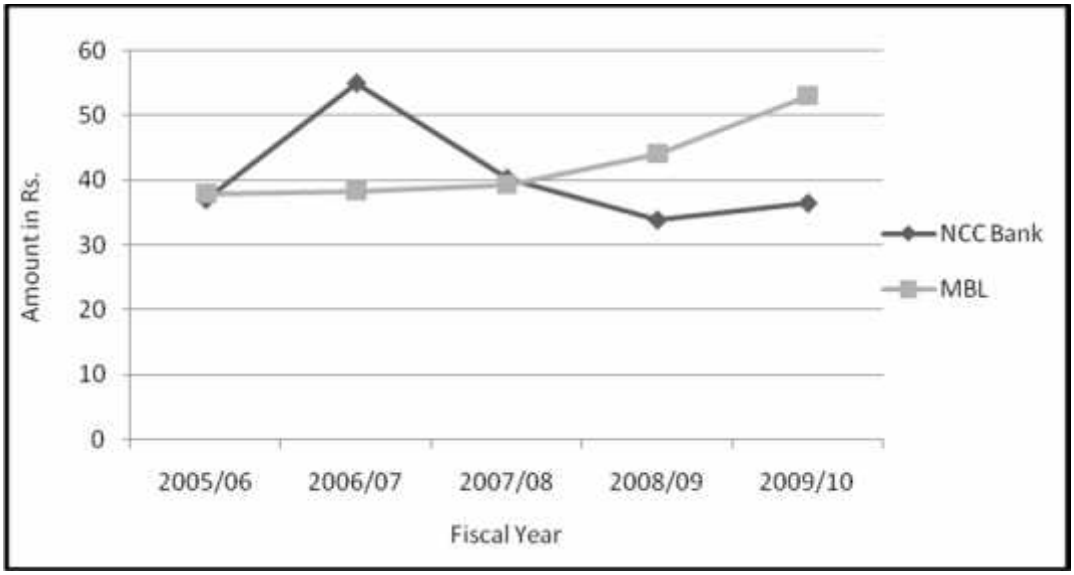
Operating Expense Ratio

(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Operating expenses**	**Operating Revenues**	**Ratio %**	**Operating expenses**	**Operating Revenues**	**Ratio %**
2005/06	118007	318129	37.09	129521	341597	37.92
2006/07	145779	265372	54.94	158308	413889	38.25
2007/08	172002	426351	40.34	198005	504345	39.26
2008/09	189479	558243	33.94	271019	614591	44.10
2009/10	216466	592532	36.53	371187	699676	53.05
		Total	202.84		Total	212.58
		Mean	40.57		Mean	42.52
		S.D	7.47		S.D	5.72
		C.V. %	18.41		C.V. %	13.44

Source: Annual Reports (See Annex 2)

Figure 4.2
Operating Expense Ratios



presented table and graph shows the comparative analysis of operating expenses and operating revenue of NCC Bank and MBL. The operating expense ratio of MBL is increasing from 2005/06 to till now .It shows that management is unable to control the operating expenses and to increase the revenue as compared with expenses. So, the operating risk of MBL is increasing. From this trend, in future the banks profit will be declined and finally it will affect the net profit and dividend of MBL. The ratio of NCC Bank was37.09% at 2005/06 and it is decreased at 2006/07 due to decrease in operating revenues and increase in operating expenses. In fiscal year 2007/08 and 2008/09 the ratio was decreased due to heavily increased in operating income. We can conclude that MBL has more operating risk than NCC Bank.

4.2.2.3 Income Productivity Ratio

Income productivity ratio tends to be higher among the top earners .Banks with the best profits seem to generate and manage more assets and income per employee and often pay their more productivity employees higher salary.

Table 4.3
Income Productivity Ratios

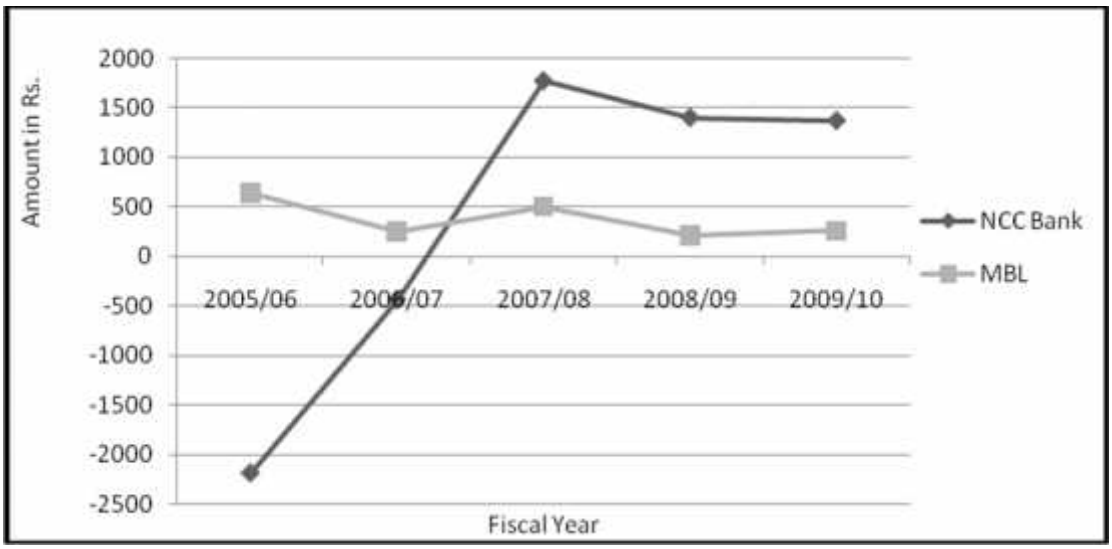
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Net Income**	**No of Employee**	**Ratio %**	**Net Income**	**No of Employee**	**Ratio %**
2005/06	-569744	260	-2191	125628	196	641
2006/07	-115828	262	-442	57933	234	248
2007/08	498755	282	1769	127824	254	503
2008/09	415461	297	1398	92935	439	212
2009/10	423773	310	1367	128046	492	260
		Total	1901		Total	1864
		Mean	380.2		Mean	372.8
		S.D	1498.37		S.D	169.14
		C.V. %	394.10		C.V. %	45.37

Source: Annual Reports (See Annex 3)

Figure 4.3

Income Productivity Ratios



Above presented table and graph shows the comparative analysis of income productivity ratio of NCC Bank and MBL. At fiscal year 2005/06 and 2006/7 the NCC Bank has negative income productivity ratio due to the net loss. Where as MBL has positive ratio at the same time. After fiscal year 2007/08 both bank has positive ratio but NCC Bank has higher ratio then MBL due to more profit then MBL. From fiscal year 2007/08 NCC Bank with the best profits seem to generate and manage more assets and income per employee and often pay their more

productivity employees higher salaries then MBL.IN fiscal year 2009/10 per employee income of NCC Bank and MBL is 1367 and 260 in thousand respectively. It shows that NCC Bank has higher profits to generate and manage more assets and income per employee.

4.2.2.4 Liquidity Risk Ratios

High ratio indicates the liquidity position is good .Low ratio indicates the liquidity risk is high i.e. there is liquidity problem .To overcome the liquidity problem, the financial institution can increase a bank's cash and readily marketable assets ,such as government securities ,or using long term liabilities to fund the bank's operations. This ratio is low if funds are kept idle as cash and bank balance but this reduces profitability. When the bank makes loan, its profitability as well as risk will be increase. Thus, higher liquidity ratio indicates less profitable return and vice-versa.

Table 4.4

Liquidity Risk Ratios

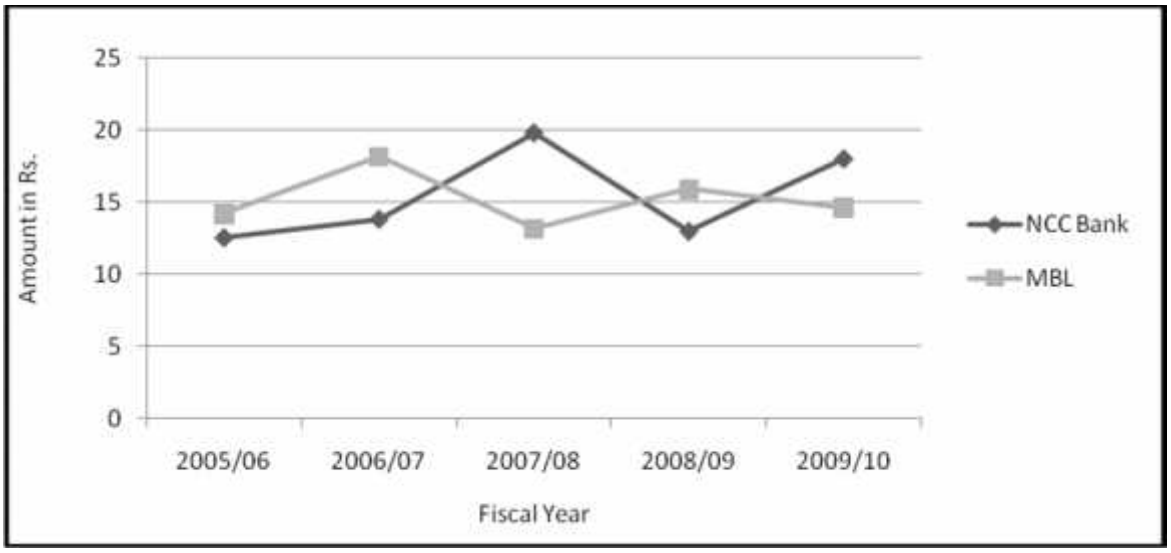
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Cash and Government Securities**	**Total Assets**	**Ratio %**	**Cash and Government Securities**	**Total Assets**	**Ratio %**
2005/06	805056	6427700	12.53	1283217	9046271	14.19
2006/07	833828	6036676	13.81	1978083	10897281	18.15
2007/08	1632240	8241334	19.81	1659715	12608246	13.16
2008/09	1373388	10590847	12.97	2770833	17447570	15.89
2009/10	2296299	12761075	18.00	3121281	21337370	14.63
		Total	77.12		Total	76.02
		Mean	15.42		Mean	15.20
		S.D	2.93		S.D	1.71
		C.V. %	18.99		C.V. %	11.27

Source: Annual Reports(See Annex 4)

Figure 4.4

Liquidity Risk Ratios



Above given table and graph shows the liquidity position of NCC Bank and MBL from fiscal year 2005/06 to 2009/10. Higher liquidity ratio shows good position of liquidity. The average liquidity position of MBL is 15.20% where NCC Bank has 15.42%. In average MBL bank has low liquidity risk then NCC Bank.MBL facing more liquidity problem then NCC Bank.

Like wise, the standard deviation of NCC Bank and MBL are 2.93%and 1.71% respectively. Lower standard deviation shows lower risk and vice versa. It seems that MBL has low liquidity risk then NCC Bank. Similarly Coefficient of variation of MBL is lower than NCC Bank .Higher CV shows higher risk. At last we can conclude that MBL has good liquidity position than NCC Bank.

4.2.2.5 Loan and Advances to Total Deposit Ratio

The core banking function is to mobilize the funds obtained from the depositors to borrowers and earn profit and loan and advances to total deposit ratio, often called Credit Deposit Ratio (CD ratio), is the fundamental parameter to ascertain fund deployment efficiency of commercial bank. In other words, this ratio is calculated to find out how successfully the banks are utilizing their total deposits on credit or loans and advances for profit generating purposes as loans and advances yield high

rate of return. Greater CD ratio implies the better utilization of total deposits and better earning, however, liquidity requirements also needs due consideration. Hence 70-80% ratio is considered as appropriate. This ratio is calculated by dividing total credit by total deposits.

Table 4.5

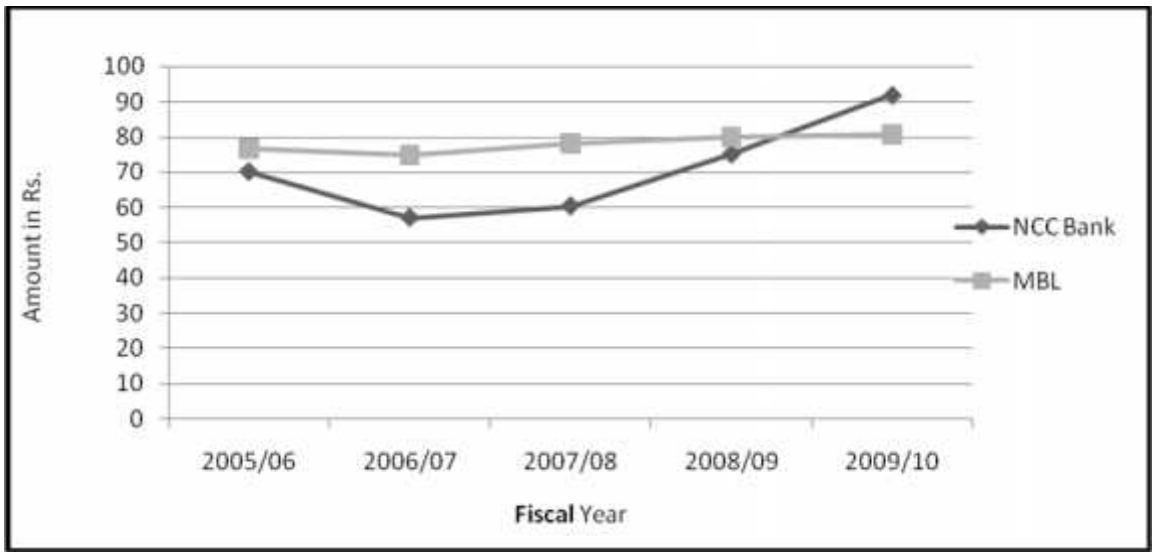
Loan and Advances to Total Deposit Ratio

(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Loan and Advances**	**Total Deposits**	**Ratio %**	**Loan and Advances**	**Total Deposits**	**Ratio %**
2005/06	4643262	6619581	70.14	6068913	7893298	76.88
2006/07	3707642	6500343	57.04	7096898	9474968	74.90
2007/08	4417856	7320236	60.35	8674976	11101180	78.14
2008/09	6858194	9127749	75.14	12467188	15596249	79.94
2009/10	9942332	10824693	91.85	14972534	18536211	80.78
		Total	354.52		Total	390.64
		Mean	70.90		Mean	78.13
		S.D	12.34		S.D	2.11
		C.V. %	17.40		C.V. %	2.70

Source: Annual Reports (See Annex 5)

Figure 4.5
Loan and Advances to Total Deposit Ratio



Above table and graph shows the loan and advance to total deposit ratio of NCC Bank and MBL. 70-80% ratio is considered as appropriate. From fiscal year 2005/06 to 2009/10 MBL has good ratio because ratio in this time lies between 70 % to 80%. But NCC bank has fluctuating ratio. Only fiscal year 2005/06 and 2008/09 the ratio was appropriate. At 2009/10 the ratio was 91.85%, which shows that bank gave 91.85% loan of total deposit .From this bank has facing liquidity problem.

Likewise, Standard Deviation of MBL was 2.11% which is lower than NCC Bank i.e. 12.34%. It shows MBL has less risk then NCC Bank. CV gives same result as standard deviation.

4.2.2.6 Trend Analysis for next five Years

This is known as time series analysis. The objectives of this analysis are to analyze the trend of deposit collection and its utilization of NCC Bank and MBL. This topic analyzes the trend of loan & advances and deposits and its projection for the next five years the basis of past performance and records available.

The projections are based on the following assumptions:

- The bank will run in this present position i.e. trend will repeat itself.
- Other things will remain constant or unchanged.
- The economy will remain in the present stage.
- Nepal Rastra Bank will not change its guidelines relating to commercial banks.
- The forecast will hold true only when the limitation of least square method is carried out.

A) Trend Analysis of Loan &Advances and Total Deposit of NCC Bank

Table 4.6

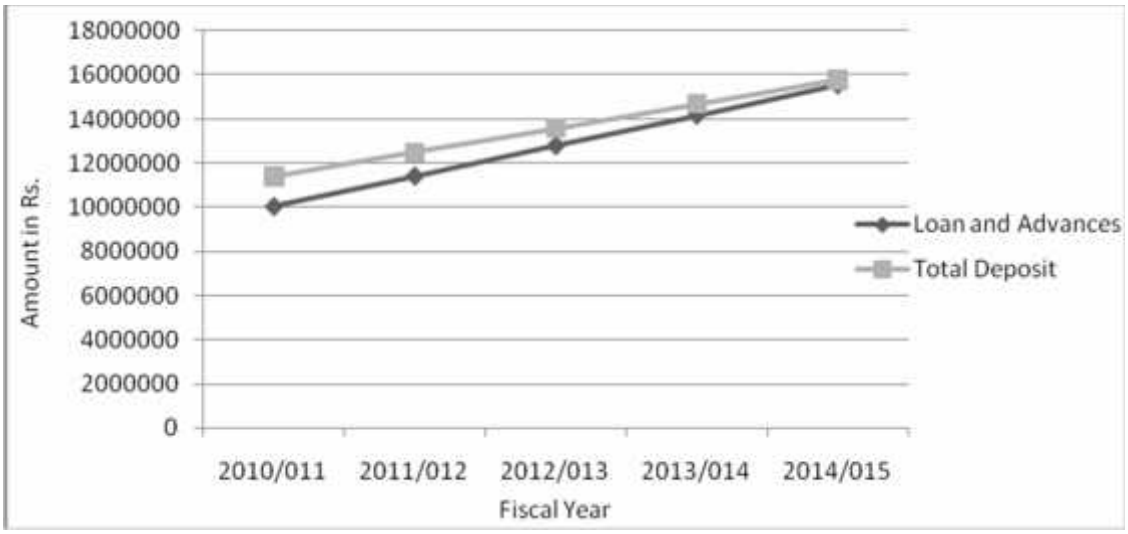
Trend analysis of loan &Advances and Total Deposit of NCC Bank

(Rs in Thousand)

Fiscal Year	Loan and Advances	Total Deposit
2010/011	10038465	11389809
2011/012	11413334.2	12493572
2012/013	12788203.4	13597335
2013/014	14163072.6	14701098
2014/015	15537941.8	15804861

Source: Annual Report (See Annex 6 &7)

Figure 4.6
Trend analyses of loan &Advances and Total Deposit of NCC Bank



Above Table and Figure shows the trend analysis of Loan & Advances and Total deposit of NCC Bank for fiscal year 2010/11 to 2014/15. Mainly this ratio shows the liquidity position of the bank. Till fiscal year 2014/015 NCC Bank faced liquidity problem due to higher loan and advance to total deposit ratio. From this we can forecasts that in future NCC Bank may face the big challenges from liquidity problem. For this bank should maintain this ratio between 70% to 80%.

B) Trend analysis of loan &Advances and Total Deposit of MBL

Table 4.7

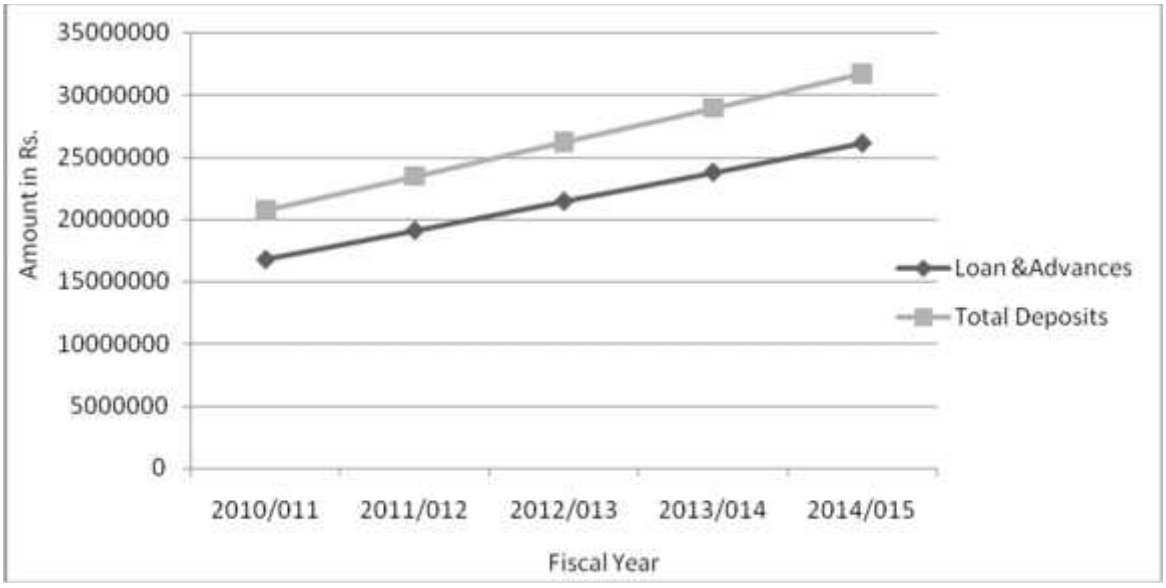
Trend analysis of loan &Advances and Total Deposit of MBL

(Rs in Thousand)

Fiscal Year	Loan and Advances	Total Deposit
2010/011	16809361.4	20742513.3
2011/012	19127114.6	23483224
2012/013	21444867.8	26223934.7
2013/014	23762621	28964645.4
2014/015	26080374.2	31705356.1

Source: Annual Report (See Annex 6&7)

Figure 4.7
Trend Analysis of loan &Advances and Total Deposit of MBL



Above Table and Figure shows the trend analysis of Loan & Advances and Total deposit of MBL for fiscal year 2010/11 to 2014/15. Mainly this ratio shows the liquidity position of the bank. Till fiscal year 2014/015 NCC Bank has not liquidity problem due to proper manage of loan and advance to total deposit ratio. From this we can forecasts that in future MBL may have not challenges from liquidity problem. Bank management is giving priority for liquidity management.

4.2.2.7 Interest Rate Risk Ratio

Interest rate risk ratio measure the danger of loss due to changing in the market interest rates. Particularly in periods of wide interest rate movements, this ratio reflects the risk the bank is willing to take that it can predict the future direction of interest rates. If a bank has a ratio above 1.0, the bank's returns will be lower if interest rates decline and higher if they increase.

Table 4.8
Interest Rate Risk Ratio

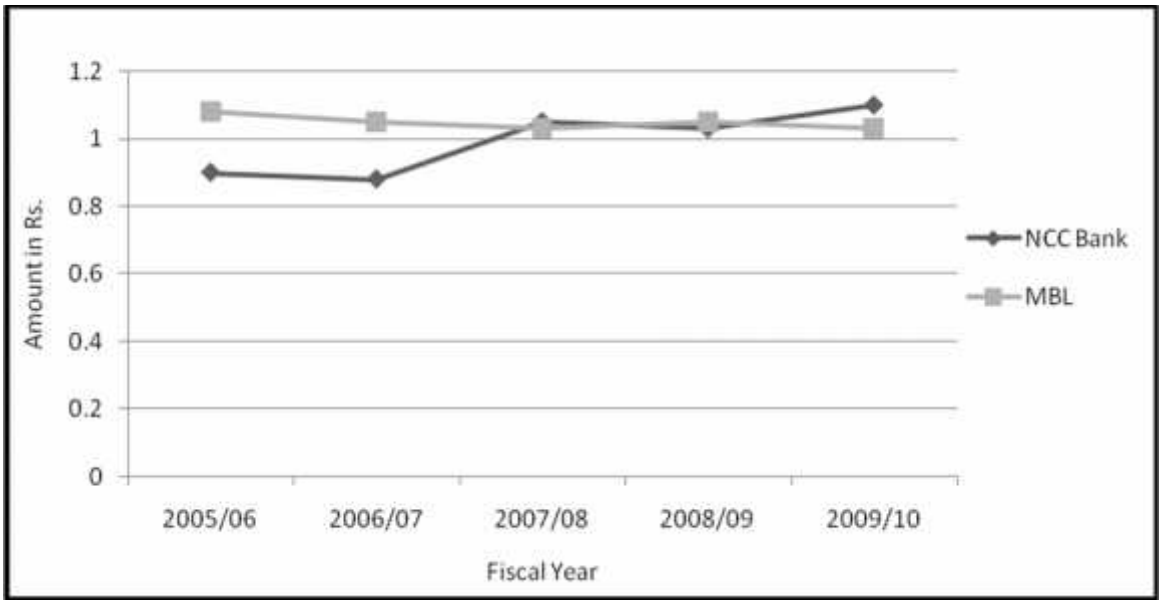
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**ISA**	**ISL**	**Ratio %**	**ISA**	**ISL**	**Ratio %**
2005/06	6039962	6736737	0.9	8778531	8117904	1.08
2006/07	5778091	65470120	0.88	10353450	9908855	1.05
2007/08	7950855	7556251	1.05	11778242	11395976	1.03
2008/09	9814703	9491927	1.03	16484180	15777827	1.05
2009/10	12238631	11031467	1.1	20190607	19509127	1.03
		Total	4.96		Total	5.24
		Mean	0.99		Mean	1.05
		S.D	0.087		S.D	0.0184
		C.V. %	8.79		C.V. %	1.76

Source: Annual Reports (See Annex 8)

Figure 4.8

Interest Rate Risk Ratios



Above table and graph illustrates the interest rate risk ratio of NCC Bank and MBL. If a bank has a ratio above 1.0, the bank's returns will be lower if interest rates decline and higher if it increases. If a bank has a ratio below 1.0, the bank's return will be higher if interest rates decline and lower if it increases .At average the ratio of MBL is above 1 which shows that ,if increases in interest rate the banks profit will increase and vice versa. At fiscal year 2005/06 and 2006/07 the

NCC Bank has ratio below 1.0 and there after till fiscal year 2009/10 ratio it is above 1.

Like wise the standard Deviation and Coefficient of variation of MBL Bank is lower than NCC Bank. This shows that MBL has lower Interest rate risk then NCC Bank. If a bank has ratio below 1, at that time interest rate and banks returns has negative relation.

4.2.2.8 Risk and Return Ratio

Risk and Return analysis is also called Net Profit to Loan and Advance Ratio. Return on loan and advances ratio indicates how efficiently the bank has utilized its resources in the form of loan and advances to generate good return. It measures the earning capacity of a commercial bank. This ratio is calculated by dividing net profit by loan and advances. Mathematically.

$$\text{Net Profit to Loan and Advance Ratio} = \frac{\text{Net Profit}}{\text{Loan and Advances}}$$

Table 4.9
Net Profit to Loan and Advance Ratios

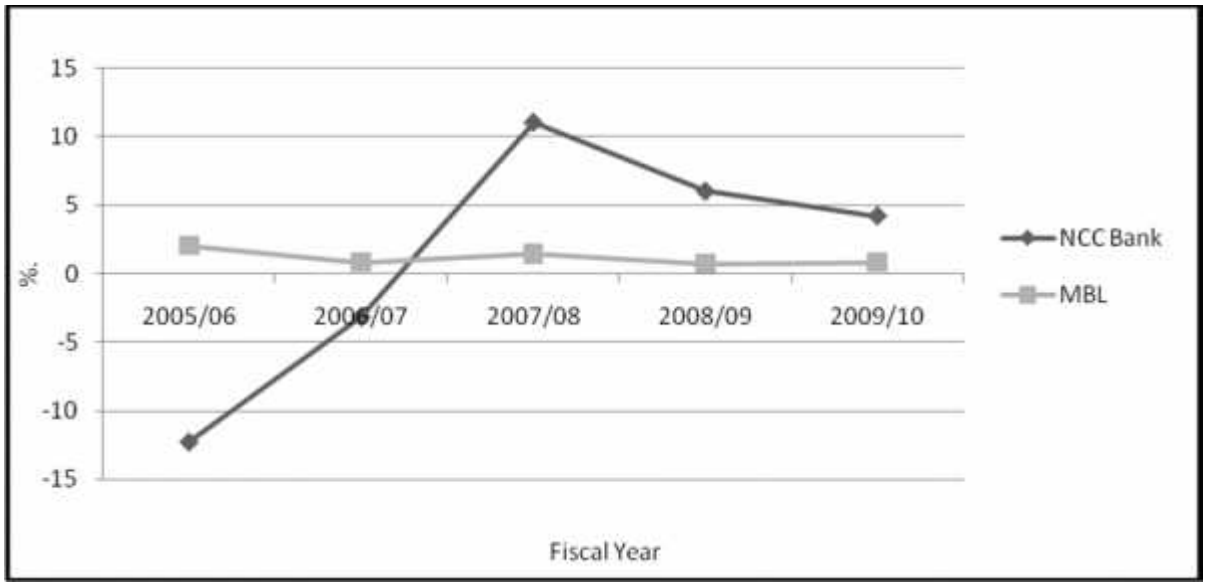
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Net Profit**	**Loan and Advances**	**Ratio %**	**Net Profit**	**Loan and Advances**	**Ratio %**
2005/06	-569745	4643262	-12.27	125628	6068913	2.07
2006/07	-115929	3707642	-3.13	57933	7096898	0.82
2007/08	489755	4417857	11.09	127824	8674976	1.47
2008/09	415461	6858194	6.06	92935	12467188	0.75
2009/10	423773	9942332	4.26	128046	14972534	0.86
		Total	6.01		Total	5.96
		Mean	1.20		Mean	1.19
		S.D	8.06		S.D	0.49
		C.V. %	671.67		C.V. %	1.76

Source: Annual Reports (See Annex 9)

Figure 4.9

Net Profits to Loan and Advance Ratios



Above presented table and graph shows the net profit to loan and advances ratio of NCC Bank and MBL. Fiscal year 2005/06 NCC Bank has huge loss and it was decreased at fiscal year 2006/07.Then after NCC Bank able to earn net profit .It was happened from payment of bad debt. At fiscal year 2007/08 the ratio was 11.09% after

that the ratio was decreased due to increase in loan and advances but decreased in profit. It was happened due to decreased at gap of interest rate. Ratio of MBL also decreased due to tough competition in the banking sector. At average the ratio of MBL is lower than NCC bank. It seems NCC Bank utilizing its total deposit effectively rather than MBL.

Like wise, Standard deviation and coefficient of variation of NCC Bank is higher then MBL. It shows that NCC Banks has higher risk to earn profit then MBL.

4.2.2.9 Correlation Analysis between Net Profit and Loan & Advance

Name of Bank	Correlation between Net Profit & Loan and Advance	Relation
NCC	0.5015	Positive
MBL	0.2395	Positive

Source: Annual Report (See Annex 10)

The correlations coefficient between Net Profit and Loan &Advance of NCC Bank and MBL are positive. NCC bank has moderate correlation between Net profit and Loan where MBL has low degree of positive correlation. For example if we increase loan and Advance by 100% then return of NCC Bank will increase by 50.15%. But due to low degree of correlation if we increase 100% loan and Advance then return of MBL will increase only by 23.95%.

If we compare the correlation between Net profit and loan & Advance of both Banks. We can conclude that NCC Bank has higher earning at their loan then MBL.

4.2.2.10 Non Performing Asstes to total Loans and Advances Ratio

Nonperforming assts are income generating assets, including loans that are past due for 90 days or more. Here, non performing assets are cash and bank balance, Money at call and short notice, investments, Loan and advances etc. As the ratio

rise, the institution's credit risk grows, and institution may be failure.

Table 4.10

Non Performing Assets to Total Loans and Advances Ratio

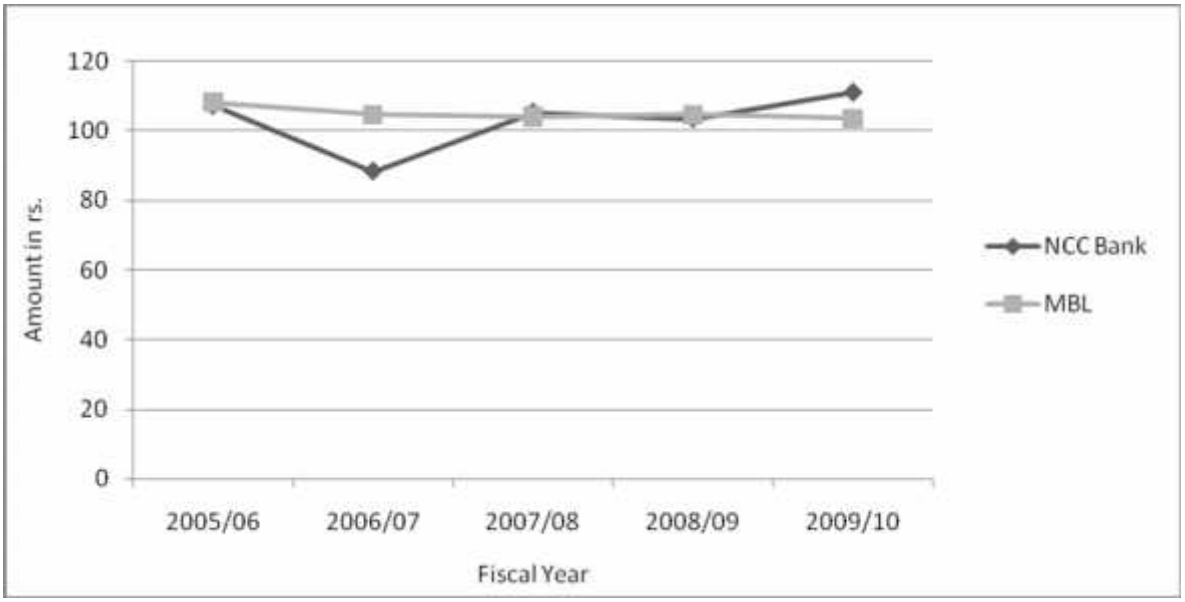
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**NPA**	**Total Loans**	**Ratio %**	**NPA**	**Total Loans**	**Ratio %**
2005/06	6039962	5636737	107.15	8778531	8117904	108.14
2006/07	5778092	6547012	88.26	10353450	9908856	104.5
2007/08	7950855	7556551	105.21	11778242	11316288	104.01
2008/09	9814703	9491927	103.40	16484180	15777827	104.48
2009/10	12238631	11031467	110.95	20190607	19509126	103.49
		Total	514.97		Total	524.62
		Mean	102.99		Mean	104.92
		S.D	7.78		S.D	1.65
		C.V. %	7.56		C.V. %	1.57

Source: Annual Reports (See Annex 11)

Figure 4.10

Non Performing Assets to Total Loans and Advances Ratio



The above table and graph exhibit the non performing asstes to Total loans and Advances of two commercial banks for five consecutive years. The ratio of NCC Bank was decreased at 2006/07 and increase at next year then it is decreasing slowly. But fiscal year 2009/10 the ratio increased. How ever the ratio of MBL was decreased till 2007/08 and increasing slowly. But it is decreased in fiscal year 2009/10. In average, It shows the credit risk of NCC Bank is lower than MBL. The average ratio of NCC Bank is 103 % where as ratio in MBL is 105%.

Like wise, the standard deviation of NCC Bank and MBL are 7.78 % and 1.65 % respectively. From standard deviation we can conclude that MBL has less credit risk then NCC Bank. Higher standard deviation shows higher risk and vice versa. Similarly, Coefficient of variation of MBL is lower than NCC Bank .CV measures the risk per unit .Lower CV shows lowers risk and vice versa.NCC Bank has highest CV than that of MBL which shows more variable ratio of NCC Bank then MBL.

4.3 Major Findings of the Study

Having completed the basic analysis required for this study, the final and the most important task of the researcher is to enlist the findings. This will give meaning to the desired result. A comprehensive summary of the major findings of this study is presented below.

The main findings of the study derived from the analysis of financial data of NCC Bank and MBL are given below.

- From annual provision for loan losses to total loan ratios of NCC Bank and MBL. We can conclude that NCC bank has higher credit risk then MBL because NCC Bank has higher average ratio than MBL.
- Operating expenses ratio shows how effectively bank expenses are controlled related to revenues. MBL has higher operating ratio than NCC Bank.
- Income productivity ratio shows employee productivity of bank. Here NCC Bank has higher ratio. It shows that NCC Bank generating best profit by effective utilizing its employee than MBL.
- Liquidity ratio of NCC Bank and MBL are not more significant difference. But little bit the ratio of NCC Bank is higher then MBL. It shows NCC Bank has more liquidity risk than MBL.
- Loan &advances to Total Deposit ratio shows how successfully the banks are utilizing their total deposits on credit or loans and advances for generate profit. Here the ratio of MBL is higher than NCC Bank. It shows MBL are more effectively utilized its deposits than NCC Bank.
- Trend analysis of Loan and Advances to Total deposit from 2010/11 to 2014/15 shows in future NCC Bank may face more liquidity problem than MBL but NCC Bank has more profit due to better utilizing its total deposits.
- If interest risk ratio has below 1, at that time interest rates & banks return has negative relation. Here the ratio of NCC bank is below 1and the ration of MBL is above 1. Now interest rates is in increasing trend from this MBL has more opportunity to earn higher profit than NCC Bank.

- At average, net profit to loan and advance ratio is lower than NCC Bank. It seems NCC Bank utilizing its total deposit with effectively to earn profit rather than MBL. But the standard deviation of NCC Bank has e than MBL. It shows NCC Bank has higher risk to earn profit than MBL.
- Correlation analysis between net profit and loan &advance shows NCC Bank has moderate positive correlation while MBL has low degree of positive correlation. It shows if the NCC Bank increase its loan and advance by same percentage of MBL. At that time NCC Bank will earn higher profit than MBL.

CHAPTER - IV

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter gives the presentation, detail analysis and interpretation of the accumulated data from which concrete result can be obtained. Here only secondary data are used for the analysis of different risks of the sample banks (NCC Bank and MBL). To make the study more effective, precise and easily understandable, this chapter is categorized in three parts; presentation, analysis and interpretation. In presentation section, data are tabulated. These tabulated data are then analyzed using different statistical tools mentioned in chapter three.

42.1 For the first Objective of the Study, the Different Types of Risks of NCC Bank and MBL are Analyzed

Risks are usually defined by the adverse impact on profitability of several distinct sources of uncertainty. More or less all financial institutions have to manage the following faces of risks:

a)Credit Risk

This is the risk incurred in case of a counter-party default. It arises from lending activities, investing activities and from buying and selling financial assets on behalf of others. This risk is associated with financing transactions i.e.:

- Default in repayment by the borrower and
- Default in obliging the commitment by another Financial Institution in case of syndicated arrangements.

It is the most critical risk in banking and one that must be managed carefully. It is also the risk that requires the most subjective judgment despite constant efforts to improve and quantify the credit decision process.

Management of Credit Risk

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 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 identification of deterioration in any loan
- The frequency of site visits

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.

Given below are some key indicators that depict the credit quality of a loan:

1. Financial Position and Business Conditions

The most important aspect about an obligor is its financial health, as it would determine its repayment capacity. Business/industry risk, borrower's position within the industry and external factors such as economic condition, government policies, and regulations should be taken into consideration. The Key financial performance indicators on profitability, equity, leverage and liquidity should be analyzed on a regular basis.

2. Conduct of Accounts

In case of existing obligor the operation in the account would give a fair idea about the quality of credit facility. Banks should monitor the obligor's account activity, repayment history and instances of excesses over credit limits. For trade financing, banks should monitor cases of repeat in extensions of due dates for trust receipts and bills.

3. Loan Covenants

Bank should regularly review the credit in terms of the obligor's ability to adhere to financial covenants stated in the loan agreement, and any breach detected should be addressed promptly.

4. Collateral Valuation

Banks need to reassess value of collaterals on periodic basis. The frequency of such valuation depends upon nature of collaterals. Appropriate inspection should be conducted to verify the existence and valuation of the collateral.

b) Market Risk

Market risk is defined as the volatility of income or market value due to fluctuations in underlying market factors such as currency, interest rates, or credit spreads. For commercial banks, the market risk of the stable liquidity investment portfolio arises from mismatches between the risk profile of the assets and their funding. This risk involves interest rate risk in all of its components: equity risk, exchange risk and commodity risk.

Market risk refers to the risk to a bank resulting from movements in market prices, in particular, changes in interest rates, foreign exchange rates, and equity and commodity prices. Market risk is defined as the risk of losses in on and off-balance sheet positions arising from movements in market prices. The risks subject to this requirement are:

- The risks pertaining to interest rate related instruments and equities in the trading book;
- Foreign exchange risk and commodities risk throughout the bank.

Market risk exposure may be explicit in portfolios of securities/equities and instruments that are actively traded. On the other hand, it may be implicit such as interest rate risk due to mismatch of loans and deposits. Besides, market risk may also arise from activities categorized as off- balance sheet item. Therefore market risk is potential for loss resulting from adverse movement in market risk factors such as interest rates, foreign exchange rates, and equity and commodity prices.

Management of Market Risk

Each bank should put in place a set of systems and procedures appropriate to its size and complexity of its operations for identifying, measuring monitoring and controlling market risk. The risk appetite in relation to market risk should be assessed keeping in view the capital of the bank as well as exposure to other risks. Once the market risk appetite is determined, the bank should develop a strategy for market risk-taking in order to maximize returns while keeping exposure to market

risk at or below the pre-determined level.

c) Liquidity Risk

The liquidity risk is defined as the risk of not being able to meet its commitments or not being able to unwind or offset a position by an organization in a timely fashion because it cannot liquidate assets at reasonable prices when required. Liquidity is the position of the firm to meet current or short-term obligations. General public or customers deposit their savings at the banks in different accounts having full confidence of repayment by the banks whenever they require. To show a good current position and maintain the confidence, every firm must keep proper cash balance with them while investing in different securities and granting loan for excess fund.

Liquidity is the ability of an institution to transform its assets into cash or its equivalent in a timely manner at a reasonable price to meet its commitments as they fall due. Liquidity risk is considered a major risk for banks. It arises when the cushion provided by the liquid assets are not sufficient enough to meet its obligation. In such a situation banks often meet their liquidity requirements from market. Funding through market depends upon liquidity in the market and borrowing bank's liquidity.

Management of Liquidity Risk

The formality and sophistication of risk management processes established to manage liquidity risk should reflect the nature, size and complexity of a bank's activities. Sound liquidity risk management employed in measuring, monitoring and controlling liquidity risk is critical to the viability of any bank. Banks should have a thorough understanding of the factors that could give rise to liquidity risk and put in place mitigating controls.

A liquidity risk management involves not only analyzing banks on and off-balance sheet positions to forecast future cash flows but also how the funding requirement

would be met. The later involves identifying the funding market the bank has access, understanding the nature of those markets, evaluating banks current and future use of the market and monitor signs of confidence erosion.

Bank's Liquidity Risk Management Procedures should be comprehensive and holistic. At the minimum, they should cover formulation of overall liquidity strategy, risk identification, measurement, and monitoring and control process.

d) Operational Risk

This risk results from inadequacies in the conception, organization, or implementation of procedures for recording any events concerning bank's operations in the accounting system/information systems. Operational risk is associated with the problems of accurately processing, settling, and taking or making delivery on trades in exchange for cash. It also arises in record keeping, processing system failures and compliance with various regulations. It is associated with human error, system failures and inadequate procedures and controls. It is the risk of loss arising from the potential that inadequate information system; technology failures, breaches in internal controls, fraud, unforeseen catastrophes, or other operational problems may result in unexpected losses or reputation problems. Operational risk exists in all products and business activities.

Operational risk arises from the potential inadequate information systems, operational problems, breaches in internal controls, fraud or unforeseen catastrophes that result in unexpected losses. There is operational risk associated with virtually any banking activity but the greater dependence on technology and centralized operations is one of the reasons for banks in becoming increasingly exposed to operation risk. Though, operation risk cannot be quantified, it has a significant impact on the banking operations. The operation risk of the bank is analyzed below.

Types of operational Risk

1. Transactional Risk

Transaction risk refers to such types of risk, which arises from the mistake of the bank employees, while making transaction. This is the one of the biggest problem in banking operation. This risk is mainly associated with human error, while making transaction.

When asked to bank's operation manager and other key staffs, the major types of transactional risk includes.

Cash shortage and Overage

The cash short and over is the main transaction risk in banking sector. Problem of cash shortage and over is associated with the employees of cash department. Cash short and over of a staff refers to a situation having not balance in actual closing balance of cash and record of difference of actual cash inflow and outflow. This error occurs due to mistake of teller. Both cash short and over is not good far a bank. Cash short is associated with the employee who does mistake and he must pay himself. Where cash over must deposit in bank because customer may come to claim cash.

Gitya Gyan Rai a staff of NCC Bank states the cash short and over is a regular phenomenon in banking sector, which can be minimized but cannot be completely eliminated due to human error. Mr anil Parsain, Branch Manager of MBL thimi branch, states the rare cases of cash short and over in his branch due to conscious staff of cash department.

2. Documentation Risk

Documentation risk refers to the risk, which arises from the acceptance of mistake and fraud document by the bank. At document base business such as letter of credit (L.C.) ,credit provided by bank in different sector after taking collateral against loan may happened documentation risk. If banks open a L.C. and provides

loan against the false documentation, the bank has to suffer loss. Similarly when purchasing cheque and bills, if the document is not genuine, this leads the banks to suffer a huge loss. This documentation risk arises due to bad intention of bank employee and client and negligence of bank staffs.

When interviewed to key employees of both banks, it is found that banks have taken high precaution for document risk. There is no such a cases that banks have suffered huge loss due to fraud documentation

Operational Risk Management

Management should evaluate the adequacy of tools and techniques both in terms of its efficiency and effectiveness. Steps should be taken to design and implement cost- effective solutions to reduce the operational risk to an acceptable level. The extent and nature of the controls adopted by the banks can be different, very often such measures encompass areas such as Code of Conduct, Delegation of authority, Segregation of duties, audit coverage, compliance, succession planning, mandatory leave, staff compensation, recruitment and training, dealing with customers, complaint handling, record keeping, MIS, physical controls, etc

4.2.2 For the Second Objective of the study in Financial Position of NCC Bank and MBL. For this Different risk are Compared

4.2.2.1 Annual Provision for Loan Losses to Total Loans

If the loans losses come to exceed equity capital, the institutions credit risk will overwhelm the owners' stake in the firm and it will collapse. The ratio annual provision for loan losses to total loans shows the risk of bank's loan. Higher ratio shows the more risk on credit.

Table 4.1

Annual Provision for Loan Losses to Total Loans

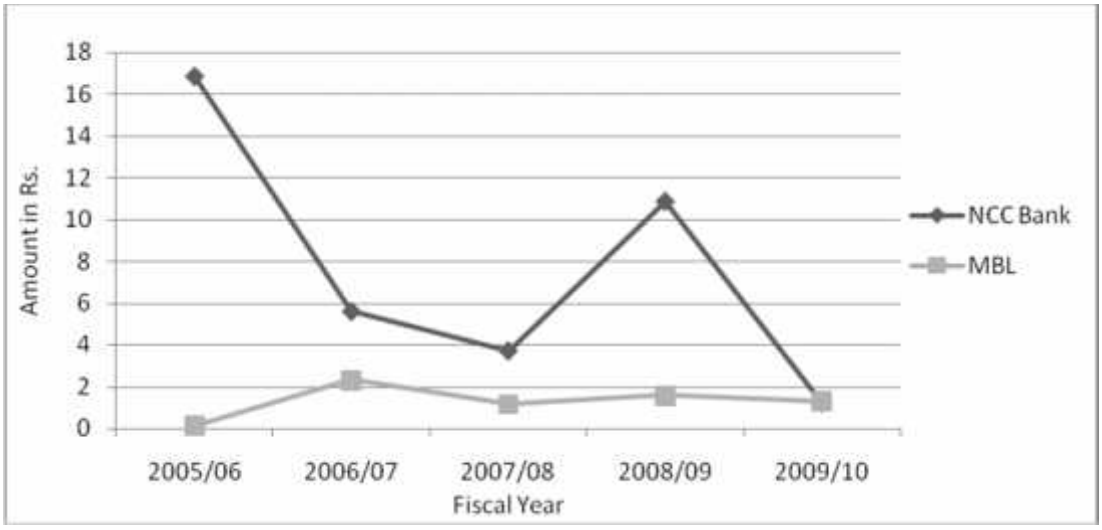
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Loan Loss Provision**	**Total Loans**	**Ratio %**	**Loan Loss Provision**	**Total Loans**	**Ratio %**
2005/06	782710	4643262	16.86	8867.90	6068913	0.15
2006/07	206868	3707642	5.6	165494	7096898	2.33
2007/08	163875	4417856	3.71	101064	8674976	1.17
2008/09	745573	6858194	10.87	197024	12467188	1.58
2009/10	121088	9942332	1.22	197486	14972534	1.32
		Total	38.26		Total	6.55
		Mean	7.65		Mean	1.31
		S.D	5.59		S.D	0.54
		C.V. %	73.06		C.V. %	41.53

Source: Annual Reports (See Annex 1)

Figure 4.1

Annual Provisions for Loan Losses to Total Loans



The above table and graph shows that the loan of NCC bank is more risky then the loan of MBL. The ratio annual provision for loan losses to total loans shows the risk of bank's loan. Higher ratio shows the more risk on credit. At 2005/06 ratio of NCC Bank was 16.86% which shows high risk on bank credit but till next two year it has decreased continuously but fiscal year 2008/09 the ratio increased dramatically. Where, the ratio of MBL is comparatively lower than NCC Bank. From this we can conclude that the risk on credit of MBL is lower than NCC Bank. At 2005/06 the ratio was 0.146 % and it was increased at 2006/7 then after decreased, again it was increased and decreased. It shows that the ratio of MBL is slightly fluctuated than NCC Bank.

Like wise, the standard deviation of NCC Bank and MBL are 5.59% and 0.54 % respectively. Higher standard deviation has higher risk and vice versa. It shows that NCC Bank has high risk on credit than MBL. Similarly CV of NCC Bank and MBL are 73.06 %and 41.53 % respectively. It shows that risk per unit on credit of NCC Bank is higher than MBL.

4.2.2.2 Operating Expense Ratio

Increased efficiency is indicated by how well expenses are controlled relative to revenues and how productive each employee is in terms of revenues and income generated, assets managed, and accounts handled Increasing operating expense ratio shows the management is unable to control the operating expenses and vice versa.

Table 4.2

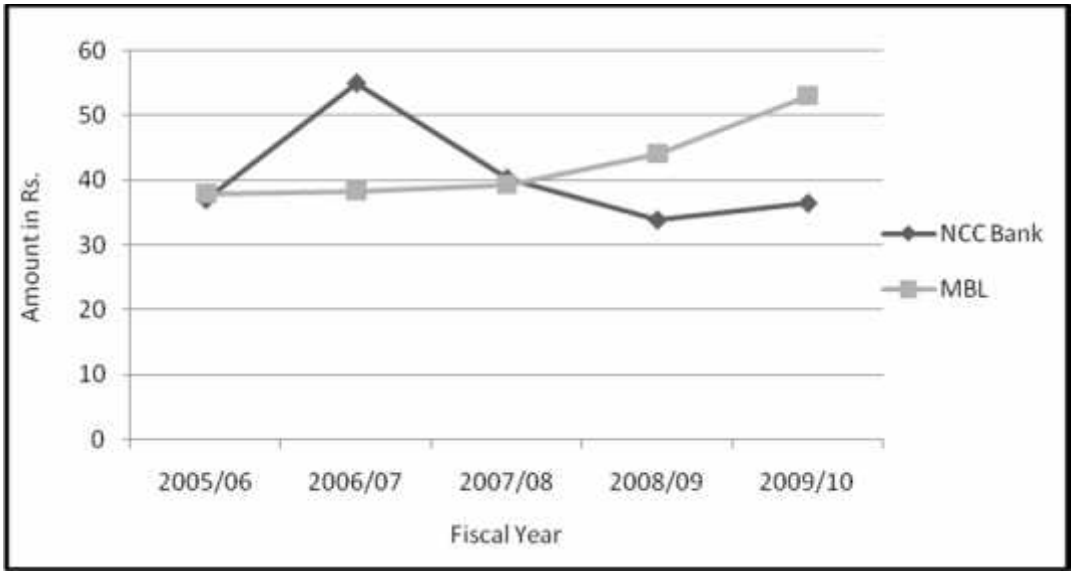
Operating Expense Ratio

(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Operating expenses**	**Operating Revenues**	**Ratio %**	**Operating expenses**	**Operating Revenues**	**Ratio %**
2005/06	118007	318129	37.09	129521	341597	37.92
2006/07	145779	265372	54.94	158308	413889	38.25
2007/08	172002	426351	40.34	198005	504345	39.26
2008/09	189479	558243	33.94	271019	614591	44.10
2009/10	216466	592532	36.53	371187	699676	53.05
		Total	202.84		Total	212.58
		Mean	40.57		Mean	42.52
		S.D	7.47		S.D	5.72
		C.V. %	18.41		C.V. %	13.44

Source: Annual Reports (See Annex 2)

Figure 4.2
Operating Expense Ratios



presented table and graph shows the comparative analysis of operating expenses and operating revenue of NCC Bank and MBL. The operating expense ratio of MBL is increasing from 2005/06 to till now .It shows that management is unable to control the operating expenses and to increase the revenue as compared with expenses. So, the operating risk of MBL is increasing. From this trend, in future the banks profit will be declined and finally it will affect the net profit and dividend of MBL. The ratio of NCC Bank was37.09% at 2005/06 and it is decreased at 2006/07 due to decrease in operating revenues and increase in operating expenses. In fiscal year 2007/08 and 2008/09 the ratio was decreased due to heavily increased in operating income. We can conclude that MBL has more operating risk than NCC Bank.

4.2.2.3 Income Productivity Ratio

Income productivity ratio tends to be higher among the top earners .Banks with the best profits seem to generate and manage more assets and income per employee and often pay their more productivity employees higher salary.

Table 4.3
Income Productivity Ratios

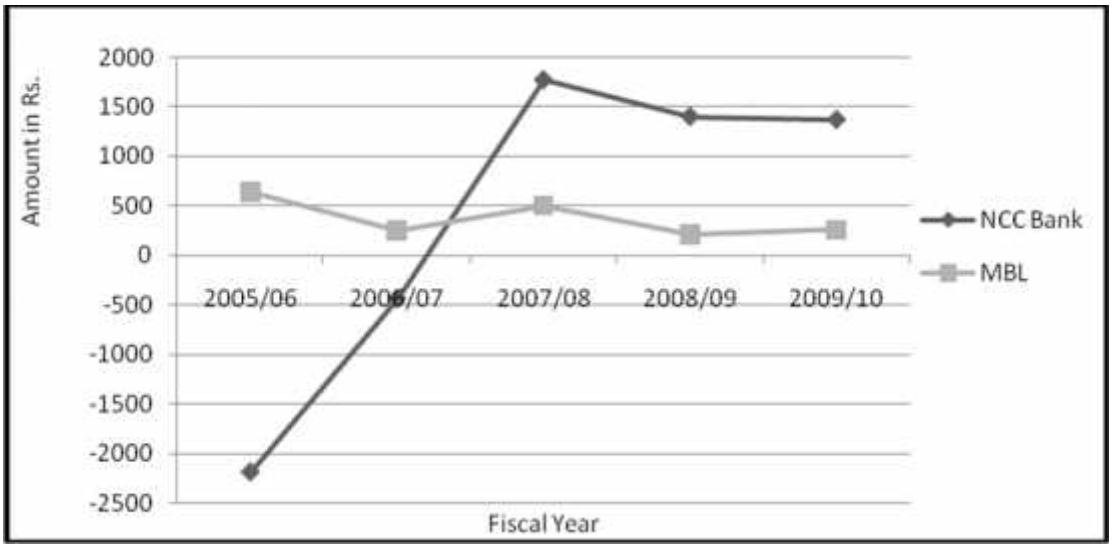
	NCC Bank			MBL		
Fiscal Year	**Net Income**	**No of Employee**	**Ratio %**	**Net Income**	**No of Employee**	**Ratio %**
2005/06	-569744	260	-2191	125628	196	641
2006/07	-115828	262	-442	57933	234	248
2007/08	498755	282	1769	127824	254	503
2008/09	415461	297	1398	92935	439	212
2009/10	423773	310	1367	128046	492	260
		Total	1901		Total	1864
		Mean	380.2		Mean	372.8
		S.D	1498.37		S.D	169.14
		C.V. %	394.10		C.V. %	45.37

(Rs in Thousand)

Source: Annual Reports (See Annex 3)

Figure 4.3

Income Productivity Ratios



Above presented table and graph shows the comparative analysis of income productivity ratio of NCC Bank and MBL. At fiscal year 2005/06 and 2006/7 the NCC Bank has negative income productivity ratio due to the net loss. Where as MBL has positive ratio at the same time. After fiscal year 2007/08 both bank has positive ratio but NCC Bank has higher ratio then MBL due to more profit then MBL. From fiscal year 2007/08 NCC Bank with the best profits seem to generate

and manage more assets and income per employee and often pay their more productivity employees higher salaries then MBL.IN fiscal year 2009/10 per employee income of NCC Bank and MBL is 1367 and 260 in thousand respectively. It shows that NCC Bank has higher profits to generate and manage more assets and income per employee.

4.2.2.4 Liquidity Risk Ratios

High ratio indicates the liquidity position is good .Low ratio indicates the liquidity risk is high i.e. there is liquidity problem .To overcome the liquidity problem, the financial institution can increase a bank's cash and readily marketable assets ,such as government securities ,or using long term liabilities to fund the bank's operations. This ratio is low if funds are kept idle as cash and bank balance but this reduces profitability. When the bank makes loan, its profitability as well as risk will be increase. Thus, higher liquidity ratio indicates less profitable return and vice-versa.

Table 4.4

Liquidity Risk Ratios

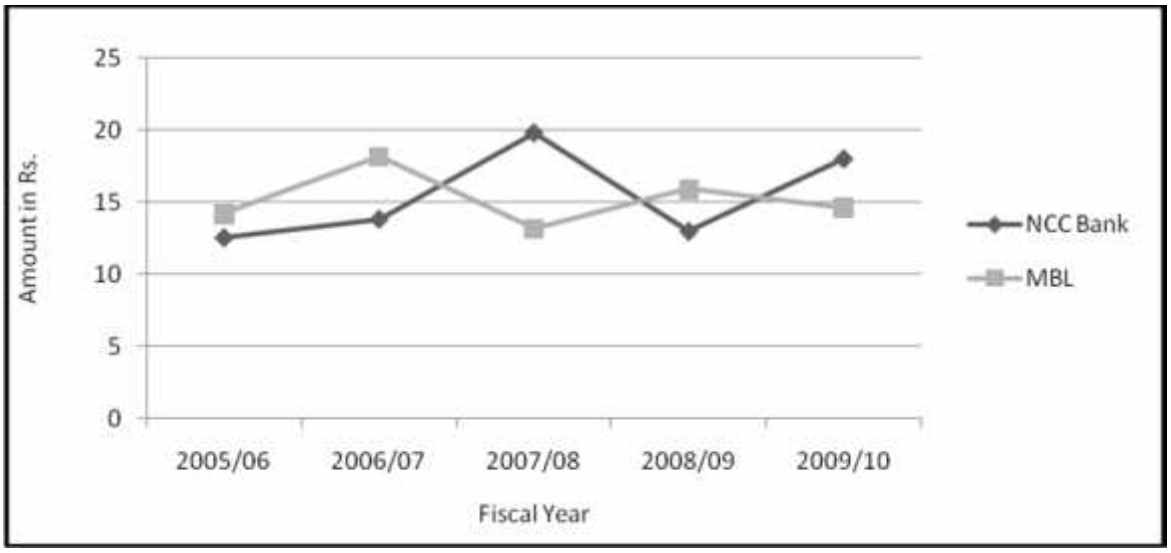
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Cash and Government Securities**	**Total Assets**	**Ratio %**	**Cash and Government Securities**	**Total Assets**	**Ratio %**
2005/06	805056	6427700	12.53	1283217	9046271	14.19
2006/07	833828	6036676	13.81	1978083	10897281	18.15
2007/08	1632240	8241334	19.81	1659715	12608246	13.16
2008/09	1373388	10590847	12.97	2770833	17447570	15.89
2009/10	2296299	12761075	18.00	3121281	21337370	14.63
		Total	77.12		Total	76.02
		Mean	15.42		Mean	15.20
		S.D	2.93		S.D	1.71
		C.V. %	18.99		C.V. %	11.27

Source: Annual Reports(See Annex 4)

Figure 4.4

Liquidity Risk Ratios



Above given table and graph shows the liquidity position of NCC Bank and MBL from fiscal year 2005/06 to 2009/10. Higher liquidity ratio shows good position of liquidity. The average liquidity position of MBL is 15.20% where NCC Bank has 15.42%. In average MBL bank has low liquidity risk then NCC Bank.MBL facing more liquidity problem then NCC Bank.

Like wise, the standard deviation of NCC Bank and MBL are 2.93%and 1.71% respectively. Lower standard deviation shows lower risk and vice versa. It seems that MBL has low liquidity risk then NCC Bank. Similarly Coefficient of variation of MBL is lower than NCC Bank .Higher CV shows higher risk. At last we can conclude that MBL has good liquidity position than NCC Bank.

4.2.2.5 Loan and Advances to Total Deposit Ratio

The core banking function is to mobilize the funds obtained from the depositors to borrowers and earn profit and loan and advances to total deposit ratio, often called Credit Deposit Ratio (CD ratio), is the fundamental parameter to ascertain fund deployment efficiency of commercial bank. In other words, this ratio is calculated to find out how successfully the banks are utilizing their total deposits on credit or loans and advances for profit generating purposes as loans and advances yield high

rate of return. Greater CD ratio implies the better utilization of total deposits and better earning, however, liquidity requirements also needs due consideration. Hence 70-80% ratio is considered as appropriate. This ratio is calculated by dividing total credit by total deposits.

Table 4.5

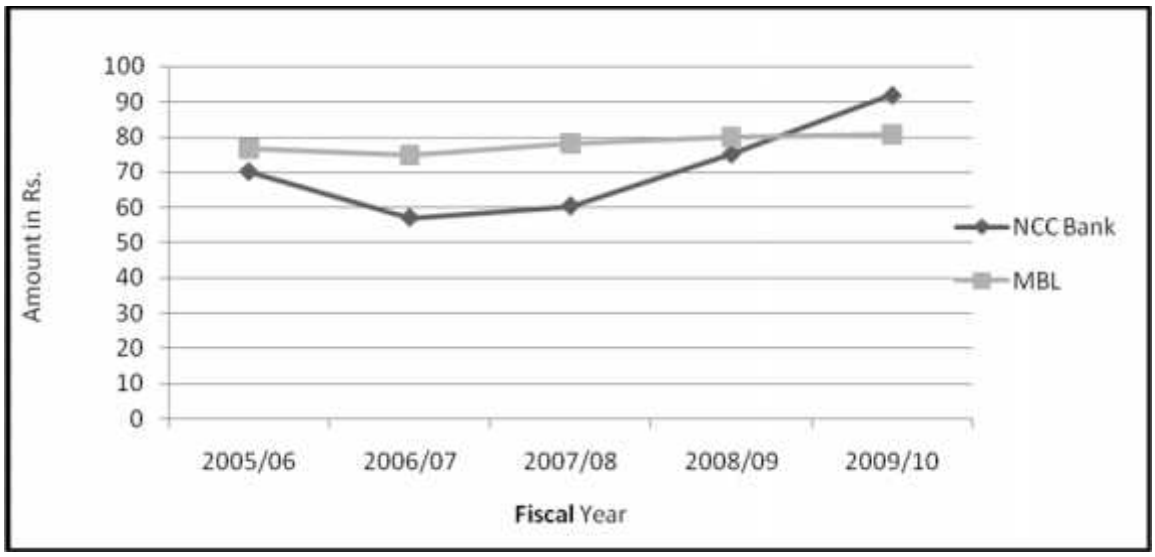
Loan and Advances to Total Deposit Ratio

(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Loan and Advances**	**Total Deposits**	**Ratio %**	**Loan and Advances**	**Total Deposits**	**Ratio %**
2005/06	4643262	6619581	70.14	6068913	7893298	76.88
2006/07	3707642	6500343	57.04	7096898	9474968	74.90
2007/08	4417856	7320236	60.35	8674976	11101180	78.14
2008/09	6858194	9127749	75.14	12467188	15596249	79.94
2009/10	9942332	10824693	91.85	14972534	18536211	80.78
		Total	354.52		Total	390.64
		Mean	70.90		Mean	78.13
		S.D	12.34		S.D	2.11
		C.V. %	17.40		C.V. %	2.70

Source: Annual Reports (See Annex 5)

Figure 4.5
Loan and Advances to Total Deposit Ratio



Above table and graph shows the loan and advance to total deposit ratio of NCC Bank and MBL. 70-80% ratio is considered as appropriate. From fiscal year 2005/06 to 2009/10 MBL has good ratio because ratio in this time lies between 70 % to 80%. But NCC bank has fluctuating ratio. Only fiscal year 2005/06 and 2008/09 the ratio was appropriate. At 2009/10 the ratio was 91.85%, which shows that bank gave 91.85% loan of total deposit .From this bank has facing liquidity problem.

Likewise, Standard Deviation of MBL was 2.11% which is lower than NCC Bank i.e. 12.34%. It shows MBL has less risk then NCC Bank. CV gives same result as standard deviation.

4.2.2.6 Trend Analysis for next five Years

This is known as time series analysis. The objectives of this analysis are to analyze the trend of deposit collection and its utilization of NCC Bank and MBL. This topic analyzes the trend of loan & advances and deposits and its projection for the next five years the basis of past performance and records available.

The projections are based on the following assumptions:

- The bank will run in this present position i.e. trend will repeat itself.
- Other things will remain constant or unchanged.
- The economy will remain in the present stage.
- Nepal Rastra Bank will not change its guidelines relating to commercial banks.
- The forecast will hold true only when the limitation of least square method is carried out.

A) Trend Analysis of Loan &Advances and Total Deposit of NCC Bank

Table 4.6

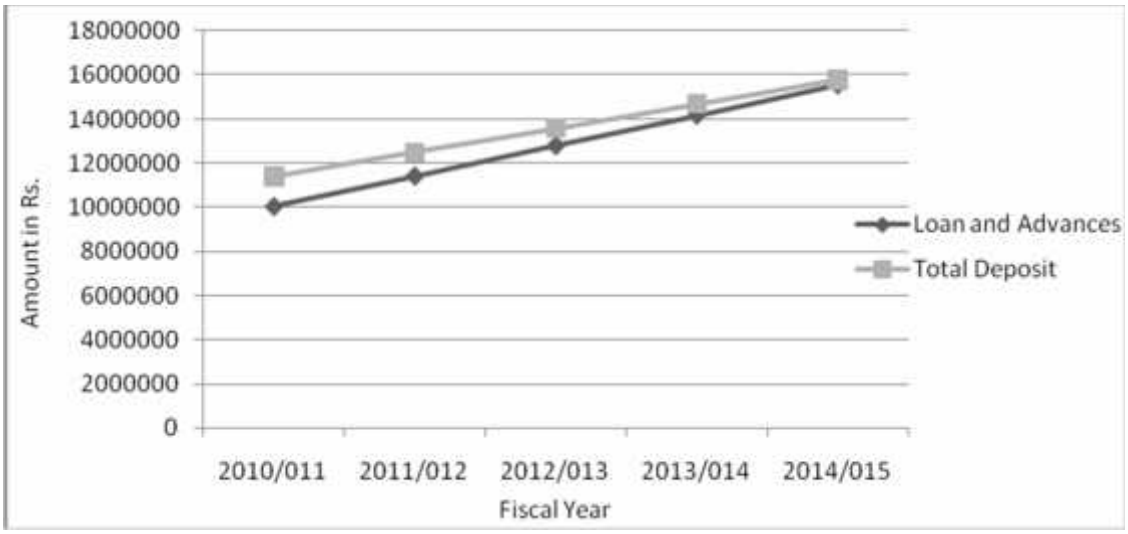
Trend analysis of loan &Advances and Total Deposit of NCC Bank

(Rs in Thousand)

Fiscal Year	Loan and Advances	Total Deposit
2010/011	10038465	11389809
2011/012	11413334.2	12493572
2012/013	12788203.4	13597335
2013/014	14163072.6	14701098
2014/015	15537941.8	15804861

Source: Annual Report (See Annex 6 &7)

Figure 4.6
Trend analyses of loan &Advances and Total Deposit of NCC Bank



Above Table and Figure shows the trend analysis of Loan & Advances and Total deposit of NCC Bank for fiscal year 2010/11 to 2014/15. Mainly this ratio shows the liquidity position of the bank. Till fiscal year 2014/015 NCC Bank faced liquidity problem due to higher loan and advance to total deposit ratio. From this we can forecasts that in future NCC Bank may face the big challenges from liquidity problem. For this bank should maintain this ratio between 70% to 80%.

B) Trend analysis of loan &Advances and Total Deposit of MBL

Table 4.7

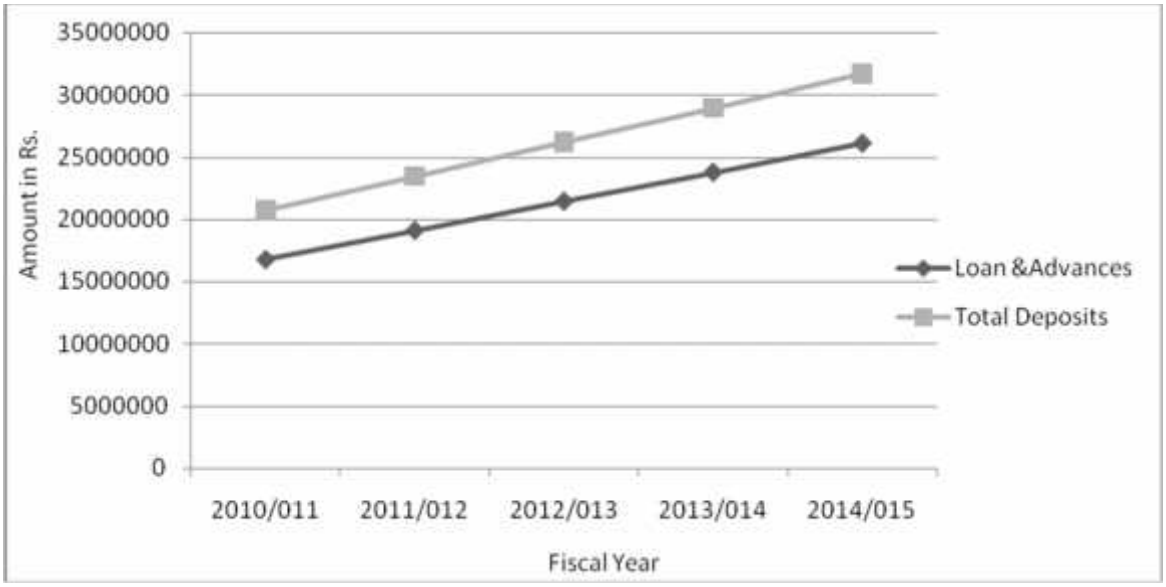
Trend analysis of loan &Advances and Total Deposit of MBL

(Rs in Thousand)

Fiscal Year	Loan and Advances	Total Deposit
2010/011	16809361.4	20742513.3
2011/012	19127114.6	23483224
2012/013	21444867.8	26223934.7
2013/014	23762621	28964645.4
2014/015	26080374.2	31705356.1

Source: Annual Report (See Annex 6&7)

Figure 4.7
Trend Analysis of loan &Advances and Total Deposit of MBL



Above Table and Figure shows the trend analysis of Loan & Advances and Total deposit of MBL for fiscal year 2010/11 to 2014/15. Mainly this ratio shows the liquidity position of the bank. Till fiscal year 2014/015 NCC Bank has not liquidity problem due to proper manage of loan and advance to total deposit ratio. From this we can forecasts that in future MBL may have not challenges from liquidity problem. Bank management is giving priority for liquidity management.

4.2.2.7 Interest Rate Risk Ratio

Interest rate risk ratio measure the danger of loss due to changing in the market interest rates. Particularly in periods of wide interest rate movements, this ratio reflects the risk the bank is willing to take that it can predict the future direction of interest rates. If a bank has a ratio above 1.0, the bank's returns will be lower if interest rates decline and higher if they increase.

Table 4.8
Interest Rate Risk Ratio

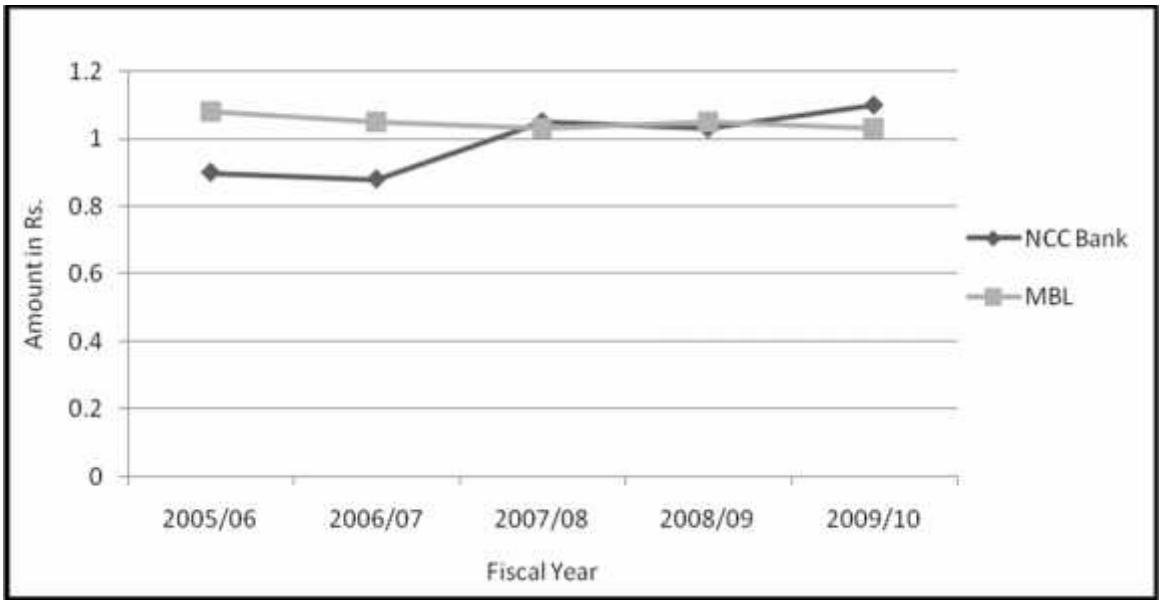
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**ISA**	**ISL**	**Ratio %**	**ISA**	**ISL**	**Ratio %**
2005/06	6039962	6736737	0.9	8778531	8117904	1.08
2006/07	5778091	65470120	0.88	10353450	9908855	1.05
2007/08	7950855	7556251	1.05	11778242	11395976	1.03
2008/09	9814703	9491927	1.03	16484180	15777827	1.05
2009/10	12238631	11031467	1.1	20190607	19509127	1.03
		Total	4.96		Total	5.24
		Mean	0.99		Mean	1.05
		S.D	0.087		S.D	0.0184
		C.V. %	8.79		C.V. %	1.76

Source: Annual Reports (See Annex 8)

Figure 4.8

Interest Rate Risk Ratios



Above table and graph illustrates the interest rate risk ratio of NCC Bank and MBL. If a bank has a ratio above 1.0, the bank's returns will be lower if interest rates decline and higher if it increases. If a bank has a ratio below 1.0, the bank's return will be higher if interest rates decline and lower if it increases .At average the ratio of MBL is above 1 which shows that ,if increases in interest rate the banks profit will increase and vice versa. At fiscal year 2005/06 and 2006/07 the

NCC Bank has ratio below 1.0 and there after till fiscal year 2009/10 ratio it is above 1.

Like wise the standard Deviation and Coefficient of variation of MBL Bank is lower than NCC Bank. This shows that MBL has lower Interest rate risk then NCC Bank. If a bank has ratio below 1, at that time interest rate and banks returns has negative relation.

4.2.2.8 Risk and Return Ratio

Risk and Return analysis is also called Net Profit to Loan and Advance Ratio. Return on loan and advances ratio indicates how efficiently the bank has utilized its resources in the form of loan and advances to generate good return. It measures the earning capacity of a commercial bank. This ratio is calculated by dividing net profit by loan and advances. Mathematically.

$$\text{Net Profit to Loan and Advance Ratio} = \frac{\text{Net Profit}}{\text{Loan and Advances}}$$

Table 4.9
Net Profit to Loan and Advance Ratios

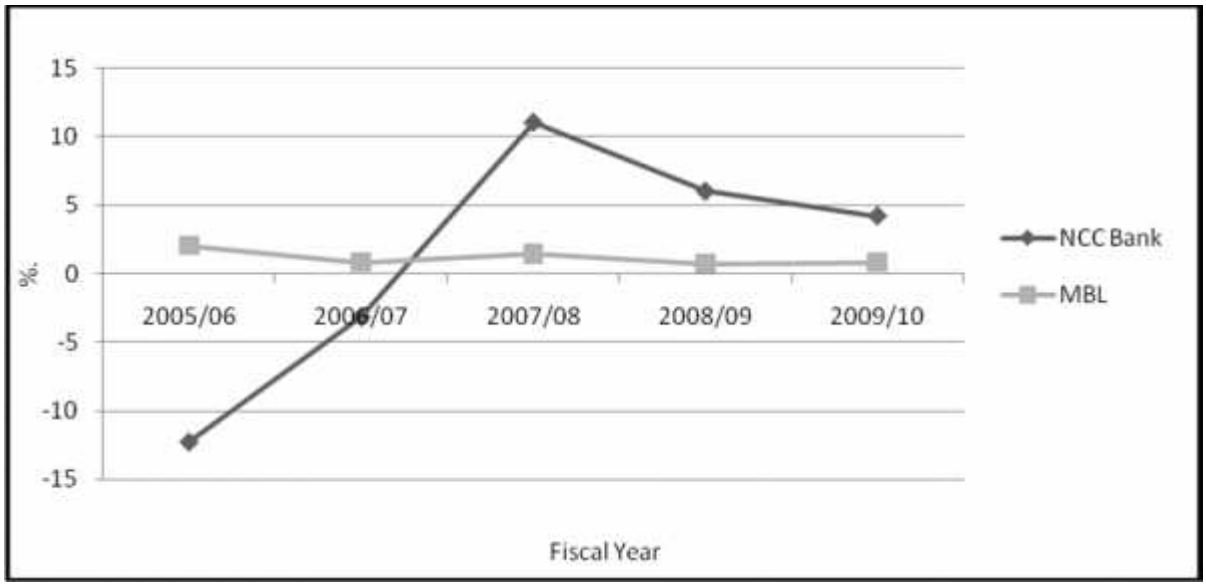
(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**Net Profit**	**Loan and Advances**	**Ratio %**	**Net Profit**	**Loan and Advances**	**Ratio %**
2005/06	-569745	4643262	-12.27	125628	6068913	2.07
2006/07	-115929	3707642	-3.13	57933	7096898	0.82
2007/08	489755	4417857	11.09	127824	8674976	1.47
2008/09	415461	6858194	6.06	92935	12467188	0.75
2009/10	423773	9942332	4.26	128046	14972534	0.86
		Total	6.01		Total	5.96
		Mean	1.20		Mean	1.19
		S.D	8.06		S.D	0.49
		C.V. %	671.67		C.V. %	1.76

Source: Annual Reports (See Annex 9)

Figure 4.9

Net Profits to Loan and Advance Ratios



Above presented table and graph shows the net profit to loan and advances ratio of NCC Bank and MBL. Fiscal year 2005/06 NCC Bank has huge loss and it was decreased at fiscal year 2006/07.Then after NCC Bank able to earn net profit .It was happened from payment of bad debt. At fiscal year 2007/08 the ratio was 11.09% after

that the ratio was decreased due to increase in loan and advances but decreased in profit. It was happened due to decreased at gap of interest rate. Ratio of MBL also decreased due to tough competition in the banking sector. At average the ratio of MBL is lower than NCC bank. It seems NCC Bank utilizing its total deposit effectively rather than MBL.

Like wise, Standard deviation and coefficient of variation of NCC Bank is higher then MBL. It shows that NCC Banks has higher risk to earn profit then MBL.

4.2.2.9 Correlation Analysis between Net Profit and Loan & Advance

Name of Bank	Correlation between Net Profit & Loan and Advance	Relation
NCC	0.5015	Positive
MBL	0.2395	Positive

Source: Annual Report (See Annex 10)

The correlations coefficient between Net Profit and Loan &Advance of NCC Bank and MBL are positive. NCC bank has moderate correlation between Net profit and Loan where MBL has low degree of positive correlation. For example if we increase loan and Advance by 100% then return of NCC Bank will increase by 50.15%. But due to low degree of correlation if we increase 100% loan and Advance then return of MBL will increase only by 23.95%.

If we compare the correlation between Net profit and loan & Advance of both Banks. We can conclude that NCC Bank has higher earning at their loan then MBL.

4.2.2.10 Non Performing Asstes to total Loans and Advances Ratio

Nonperforming assts are income generating assets, including loans that are past due for 90 days or more. Here, non performing assets are cash and bank balance, Money at call and short notice, investments, Loan and advances etc. As the ratio

rise, the institution's credit risk grows, and institution may be failure.

Table 4.10

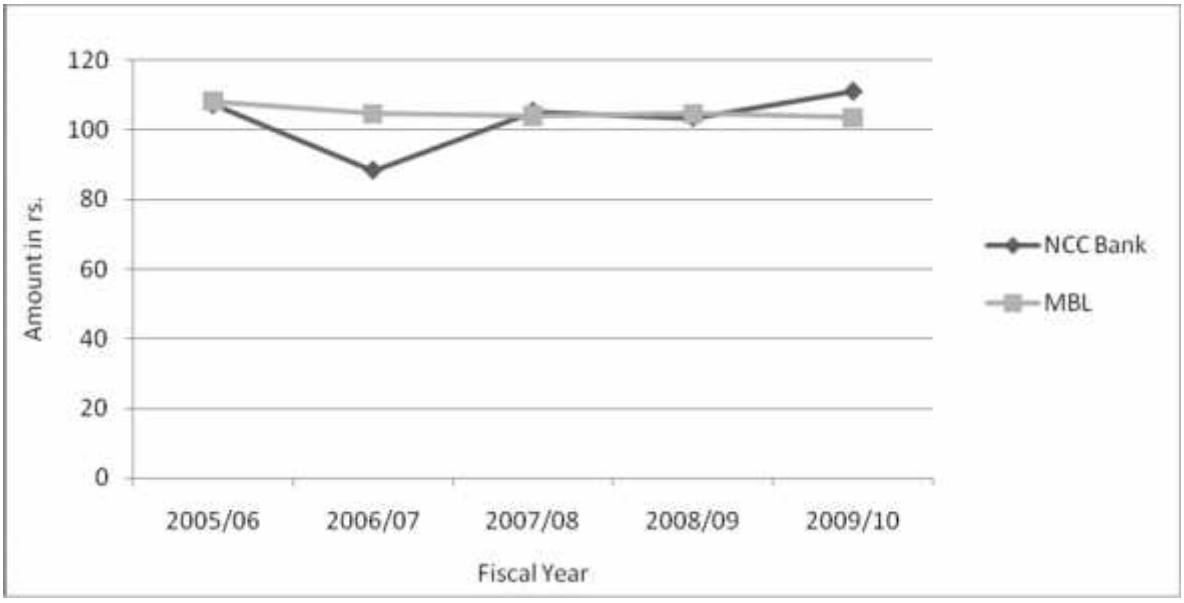
Non Performing Assets to Total Loans and Advances Ratio

(Rs in Thousand)

	NCC Bank			MBL		
Fiscal Year	**NPA**	**Total Loans**	**Ratio %**	**NPA**	**Total Loans**	**Ratio %**
2005/06	6039962	5636737	107.15	8778531	8117904	108.14
2006/07	5778092	6547012	88.26	10353450	9908856	104.5
2007/08	7950855	7556551	105.21	11778242	11316288	104.01
2008/09	9814703	9491927	103.40	16484180	15777827	104.48
2009/10	12238631	11031467	110.95	20190607	19509126	103.49
		Total	514.97		Total	524.62
		Mean	102.99		Mean	104.92
		S.D	7.78		S.D	1.65
		C.V. %	7.56		C.V. %	1.57

Source: Annual Reports (See Annex 11)

Figure 4.10
Non Performing Assets to Total Loans and Advances Ratio



The above table and graph exhibit the non performing asstes to Total loans and Advances of two commercial banks for five consecutive years. The ratio of NCC Bank was decreased at 2006/07 and increase at next year then it is decreasing slowly. But fiscal year 2009/10 the ratio increased. How ever the ratio of MBL was decreased till 2007/08 and increasing slowly. But it is decreased in fiscal year 2009/10. In average, It shows the credit risk of NCC Bank is lower than MBL. The average ratio of NCC Bank is 103 % where as ratio in MBL is 105%.

Like wise, the standard deviation of NCC Bank and MBL are 7.78 % and 1.65 % respectively. From standard deviation we can conclude that MBL has less credit risk then NCC Bank. Higher standard deviation shows higher risk and vice versa. Similarly, Coefficient of variation of MBL is lower than NCC Bank .CV measures the risk per unit .Lower CV shows lowers risk and vice versa.NCC Bank has highest CV than that of MBL which shows more variable ratio of NCC Bank then MBL.

4.3 Major Findings of the Study

Having completed the basic analysis required for this study, the final and the most important task of the researcher is to enlist the findings. This will give meaning to the desired result. A comprehensive summary of the major findings of this study is presented below.

The main findings of the study derived from the analysis of financial data of NCC Bank and MBL are given below.

- From annual provision for loan losses to total loan ratios of NCC Bank and MBL. We can conclude that NCC bank has higher credit risk then MBL because NCC Bank has higher average ratio than MBL.
- Operating expenses ratio shows how effectively bank expenses are controlled related to revenues. MBL has higher operating ratio than NCC Bank.
- Income productivity ratio shows employee productivity of bank. Here NCC Bank has higher ratio. It shows that NCC Bank generating best profit by effective utilizing its employee than MBL.
- Liquidity ratio of NCC Bank and MBL are not more significant difference. But little bit the ratio of NCC Bank is higher then MBL. It shows NCC Bank has more liquidity risk than MBL.
- Loan &advances to Total Deposit ratio shows how successfully the banks are utilizing their total deposits on credit or loans and advances for generate profit. Here the ratio of MBL is higher than NCC Bank. It shows MBL are more effectively utilized its deposits than NCC Bank.
- Trend analysis of Loan and Advances to Total deposit from 2010/11 to 2014/15 shows in future NCC Bank may face more liquidity problem than MBL but NCC Bank has more profit due to better utilizing its total deposits.
- If interest risk ratio has below 1, at that time interest rates & banks return has negative relation. Here the ratio of NCC bank is below 1and the ration of MBL is above 1. Now interest rates is in increasing trend from this MBL has more opportunity to earn higher profit than NCC Bank.

- At average, net profit to loan and advance ratio is lower than NCC Bank. It seems NCC Bank utilizing its total deposit with effectively to earn profit rather than MBL. But the standard deviation of NCC Bank has e than MBL. It shows NCC Bank has higher risk to earn profit than MBL.
- Correlation analysis between net profit and loan &advance shows NCC Bank has moderate positive correlation while MBL has low degree of positive correlation. It shows if the NCC Bank increase its loan and advance by same percentage of MBL. At that time NCC Bank will earn higher profit than MBL.

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1.2

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APPENDICES

Annex 1

Calculation of Mean, Standard Deviation and Coefficient of Variation of Annual provision for loan losses to total loans

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$
2005/06	16.86	7.65	84.79	0.15	1.31	1.35
2006/07	5.6	7.65	4.20	2.33	1.31	1.04
2007/08	3.71	7.65	15.52	1.17	1.31	0.02
2008/09	10.87	7.65	10.37	1.58	1.31	0.07
2009/10	1.22	7.65	41.34	1.32	1.31	0.00
	∑X=38.26	7.65	∑(X-)^2 =156.18	∑X=		$\sum(X-\overline{X})^2$=1.48

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{38.26}{5}=7.65$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{156.18}{5}}=5.59$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{5.59}{7.65}\times 100\%=73.06\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{6.55}{5}=1.31$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{1.48}{5}}=0.54$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{0.54}{1.31}\times 100\%=41.53\%$

Annex 2

Calculation of Mean, Standard Deviation and Coefficient of Variation of

Operating expense Ratio

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	**(X-** $\overline{X}$ **)²**	**Ratio(X)**	$\overline{X}$	**(X-** $\overline{X}$ **)²**
2005/06	37.09	40.57	12.10	37.92	42.52	21.16
2006/07	54.94	40.57	206.50	38.25	42.52	18.23
2007/08	40.34	40.57	0.05	39.26	42.52	10.63
2008/09	33.94	40.57	43.96	44.10	42.52	2.50
2009/10	36.53	40.57	16.32	53.05	42.52	110.88
	∑X=202.84		∑(X- $\overline{X}$)² =278.93	∑X=212.58		∑(X- $\overline{X}$)² =163.40

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n} = \frac{202.84}{5} = 40.57$

Standard Deviation $= \sqrt{\frac{1}{n} \sum (X - \overline{X})^2} = \sqrt{\frac{278.93}{5}} = 7.47$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{7.47}{40.57} \times 100\% = 18.41\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n} = \frac{212.58}{5} = 42.52$

Standard Deviation $= \sqrt{\frac{1}{n} \sum (X - \overline{X})^2} = \sqrt{\frac{163.40}{5}} = 5.72$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{5.72}{42.52} \times 100\% = 13.44\%$

Annex 3

Calculation of Mean, Standard Deviation and Coefficient of Variation of Income productivity ratio

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$
2005/06	(2191)	380.2	6611069.44	641	372.8	71931.24
2006/07	(442)	380.2	676012.84	248	372.8	16575.04
2007/08	1769	380.2	1928765.44	503	372.8	16952.04
2008/09	1398	380.2	1035916.84	212	372.8	25856.645
2009/10	1367	380.2	973774.24	260	372.8	12723.84
	$\sum X=1901$		$\sum(X-\overline{X})^2$ =11225538.8	$\sum X=1864$		$\sum(X-\overline{X})^2$ =143038.80

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{1901}{5}=380.2$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{11225538.80}{5}}=1498.37$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{1498.37}{380.20}\times 100\%=394.10\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{1864}{5}=372.8$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{143038.80}{5}}=169.14$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{169.14}{372.8}\times 100\%=45.37\%$

Annex 4

Calculation of Mean, Standard Deviation and

Coefficient of Variation of Liquidity Ratio

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$
2005/06	12.53	15.42	8.35	14.19	15.20	1.02
2006/07	13.81	15.42	2.59	18.15	15.20	8.70
2007/08	19.81	15.42	19.27	13.16	15.20	4.16
2008/09	12.97	15.42	6.00	15.89	15.20	0.48
2009/10	18.00	15.42	6.66	14.63	15.20	0.32
	$\sum X=77.12$		$\sum(X-\overline{X})^2=42.87$	$\sum X=76.02$		$\sum(X-\overline{X})^2=14.68$

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{77.12}{5}=15.42$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{42.87}{5}}=2.93$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{2.93}{15.42}\times 100\%=18.99\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{76.02}{5}=15.20$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{14.68}{5}}=1.71$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{1.71}{15.20}\times 100\%=11.27\%$

Annex 5

Calculation of Mean, Standard Deviation and Coefficient of Variation of Loan and Advances to Total Deposit Ratio

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$
2005/06	70.14	70.90	0.58	76.88	78.13	1.56
2006/07	57.04	70.90	192.10	74.90	78.13	10.43
2007/08	60.35	70.90	111.30	78.14	78.13	0.00
2008/09	75.14	70.90	17.98	79.94	78.13	3.28
2009/10	91.85	70.90	438.90	80.78	78.13	7.02
	$\sum X=354.52$		$\sum(X-\overline{X})^2=760.86$	$\sum X=390.64$		$\sum(X-\overline{X})^2=22.29$

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{354.52}{5}=70.90$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{760.86}{5}}=12.34$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{12.34}{70.90}\times 100\%=17.40\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{390.64}{5}=78.13$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{22.29}{5}}=2.11$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}}\times 100\%=\frac{2.11}{78.13}\times 100\%=2.70\%$

Annex 6
The Trend value of Loan and Advances of NCC Bank

(Rs. in Thousand)

Fiscal Year	Loan and Advances (y)	x=t- 2007/08	x^2	xy	y = a + bx Trend Values
2005/06	4643262	-2	4	-9286524	10038465
2006/07	3707642	-1	1	-3707642	11413334.2
2007/08	4417856	0	0	0	12788203.4
2008/09	6858194	1	1	6858194	14163072.6
2009/10	9942332	2	4	19884664	15537941.8
	$\phi y = 29569287$	$\phi x=0$	$\phi x^2=10$	$\phi xy=13748692$	

Let the trend line be,

$y = a + bx$ ..... (i)

The two normal equation are

$\phi y = na + b \phi x$ ..... (ii)

$\phi xy = a \phi x + b \phi x^2$ ..... (iii)

…From (ii) $a = \frac{y}{N}$ ..... (iv)

From (iii) $b = \frac{xy}{x^2}$ ..... (v)

Here, N = 5

$a = \frac{y}{N} = \frac{29569287}{5} = 5913857.4$ or, a = 5913857.4

$y = \frac{xy}{x^2} = \frac{13748692}{10} = 1374869.2$ or, b = 1374869.2

…The straight line trend for total loan and advances is,
y = a + bx⎮ 5913857.4+ 1374869.2 ⎮X

For year 2010/2011, y = a + bx⎮ 5913857.4+ 1374869.2 ⎮3

x = 3 y = Rs. 10038465 Thousand

Other trend values have been calculated accordingly

(Rs. Thousand)

Fiscal Year (t)	**x = t – 2007/2008**	**y (Loan and Advances) = a+bx**
2010/11	3	10038465
2011/12	4	11413334.2
2012/13	5	12788203.4
2013/14	6	14163072.6
2014/15	7	15537941.8

The Trend value of Loan and Advances of MBL

(Rs. in Thousand)

Fiscal Year	**Loan and Advances (y)**	**x=t- 2007/08**	**x^2**	**xy**	**y = a + bx Trend Values**
2005/06	6068913	-2	4	-12137826	16809361.4
2006/07	7096898	-1	1	-7096898	19127114.6
2007/08	8674976	0	0	0	21444867.8
2008/09	12467188	1	1	12467188	23762621
2009/10	14972534	2	4	29945068	26080374.2
	ϕy = 49280509	ϕx=0	ϕx^2=10	ϕxy=23177532	

Let the trend line be,

y = a + bx ..... (i)

The two normal equation are

ϕ y = na + b ϕx ..... (ii)

$\phi xy = a \phi x + b \phi x^2$ ..... (iii)

…From (ii) $a = \frac{y}{N}$ ..... (iv)

From (iii) $b = \frac{xy}{x^2}$ ..... (v)

Here, N = 5

$a \text{ X} \frac{y}{N}$ X $\frac{49280509}{5}$ X 9856101.8 or, a = 9856101.8

$y \text{ X} \frac{xy}{x^2}$ X $\frac{23177532}{10}$ = 2317753.2 or, b = 2317753.2

…The straight line trend for total Loan and Advances is,

y = a + bx | 9856101.8+ 2317753.2 | X

For year 2010/2011, y = a + bx | 9856101.8+ 2317753.2 | 3

x = 3 y = Rs. 16809361.4 Thousand

Other trend values have been calculated accordingly. (Rs. Thousand)

Fiscal Year (t)	x = t – 2007/2008	y (Loan and Advances) = a+bx
2010/2011	3	16809361.4
2011/2012	4	19127114.6
2012/2013	5	21444867.8
2013/2014	6	23762621
2014/2015	7	26080374.2

Annex 7

The Trend value of Deposit of NCC Bank

(Rs. in Thousand)

Fiscal Year	Total Deposit(Y)	X=t-2007/08	x^2	XY	Y= a +bx (Trend Value)
2005/06	6619581	-2	4	-13239162	11389809.4
2006/07	6500343	-1	1	-6500343	12493572.4
2007/08	7320236	0	0	0	13597335.4
2008/09	9127749	1	1	9127749	14701098.4

2009/10	10824693	2	4	21649386	15804861.4
	$\phi Y=40392602$	$\phi X = 0$	ϕx^2 =10	ϕxy XKKI MTDM	

Let the trend line be,

$y = a + bx$ ..... (i)

The two normal equation are

$\phi y = na + b \phi x$ ..... (ii)

$\phi xy = a \phi x + b \phi x^2$ ..... (iii)

…From (ii) $a = \frac{y}{N}$ ..... (iv)

From (iii) $b = \frac{xy}{x^2}$ ..... (v)

Here, N = 5

$a \text{ X} \frac{y}{N}$ X $\frac{40392602}{5}$ X 8078520.4 Or, a = 8078520.4

$y \text{ X} \frac{xy}{x^2}$ X $\frac{11037630}{10}$ = 1103763 or, b = 1103763

…The straight line trend for Total Deposit is,
y = a + bx⏐ 8078520.4+ 1103763⏐X

For year 2010/2011 y = a + bx⏐ 8078520.4+ 1103763 ⏐3

x = 3 y = Rs. 11389809.4Thousand

Other trend values have been calculated accordingly

(Rs. Thousand)

Fiscal Year (t)	**x = t – 2007/2008**	**y (Loan and Advances) = a+bx**
2010/2011	3	11389809.4
2011/2012	4	12493572.4
2012/2013	5	13597335.4
2013/2014	6	14701098.4
2014/2015	7	15804861.4

The Trend value of Deposit of MBL

(Rs. in Thousand)

Fiscal Year	**Total Deposit(Y)**	**X=t-2007/08**	**x^2**	**XY**	**Y= a +bx (Trend Value)**
2005/06	7893298	-2	4	-15786596	20742513.3
2006/07	9474968	-1	1	-9474968	23483224
2007/08	11101180	0	0	0	26223934.7
2008/09	15596249	1	1	15596249	28964645.4
2009/10	18536211	2	4	37072422	31705356.1
	ϕy=62601906	ϕx =0	ϕ x^2 = 10	ϕxy =27407107	

Let the trend line be,

$y = a + bx$ ..... (i)

The two normal equation are

$\phi y = na + b \phi x$ ..... (ii)

$\phi xy = a \phi x + b \phi x^2$ ..... (iii)

…From (ii) $a = \frac{y}{N}$ ..... (iv)

From (iii) $b = \frac{xy}{x^2}$ ..... (v)

Here, N = 5

$a \text{ X} \frac{y}{N}$ X $\frac{62601906}{5}$ X 12520381.2 or, a = 12520381.2

$y \text{ X} \frac{xy}{x^2}$ X $\frac{27407107}{10}$ = 2740710 or, b = 2740710.7

…The straight line trend for Total Deposit is,

y = a + bx| 12520381.2+ 2740710 | X

For year 2010/2011, y = a + bx| 12520381.2+ 2740710 | 3

x = 3 y = Rs. 20742513.3 Thousand

Other trend values have been calculated accordingly

(Rs. Thousand)

Fiscal Year (t)	x = t – 2007/2008	y (Total Deposit) = a+bx
2010/2011	3	20742513.3
2011/2012	4	23483224
2012/2013	5	26223934.7
2013/2014	6	28964645.4
2014/2015	7	31705356.1

Annex 8

Calculation of Mean, Standard Deviation and

Coefficient of Variation of Interest Rate Risk Ratio

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	**(X-** $\overline{X}$ **)²**	**Ratio(X)**	$\overline{X}$	**(X-** $\overline{X}$ **)²**
2005/06	0.9	0.99	0.0081	1.08	1.05	0.0009
2006/07	0.88	0.99	0.0121	1.05	1.05	0.0000
2007/08	1.05	0.99	0.0036	1.03	1.05	0.0004
2008/09	1.03	0.99	0.0016	1.05	1.05	0.0000
2009/10	1.1	0.99	0.0121	1.03	1.05	0.0004
	∑X=4.96		∑(X- $\overline{X}$)² =0.0375	∑X=5.24		∑(X- $\overline{X}$)² =0.0017

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n} = \frac{4.96}{5} = 0.99$

Standard Deviation $= \sqrt{\frac{1}{n} \sum (X - \overline{X})^2} = \sqrt{\frac{0.0375}{5}} = 0.087$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{0.087}{0.99} \times 100\% = 8.79\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n} = \frac{5.24}{5} = 1.05$

Standard Deviation $= \sqrt{\frac{1}{n} \sum (X - \overline{X})^2} = \sqrt{\frac{0.0017}{5}} = 0.0184$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{0.0184}{1.05} \times 100\% = 1.76\%$

Annex 9

Calculation of Mean, Standard Deviation and Coefficient of Variation of Net Profit to Loan and Advance Ratios

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$	**Ratio(X)**	$\overline{X}$	$(X-\overline{X})^2$
2005/06	-12.27	1.2	181.44	2.07	1.09	0.96
2006/07	-3.13	1.2	18.49	0.82	1.09	0.07
2007/08	11.09	1.2	97.81	1.47	1.09	0.01
2008/09	6.06	1.2	23.62	0.75	1.09	0.12
2009/10	4.26	1.2	3.06	0.86	1.09	0.05
	$\sum X=6.01$		$\sum(X-\overline{X})^2 =324.42$	$\sum X=5.96$		$\sum(X-\overline{X})^2 =1.21$

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{6.01}{5}=1.20$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{324.42}{5}}=8.06$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{8.06}{1.20} \times 100\% = 671.67\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n}=\frac{5.46}{5}=1.09$

Standard Deviation $\sqrt{\frac{1}{n}\sum(X-\overline{X})^2}=\sqrt{\frac{1.21}{5}}=0.49$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{0.49}{1.09} \times 100\% = 44$

Annex 10
Correlation analysis between Net Profits and Loan

&Advance Ratios of NCC Bank

Net Profit(X)	**Loan and Advances(Y)**	**U'**	**V'**	**U'V'**	U'^2	V'^2
-569745	4643262	-69.8408	-127.06	8873.94	4877.737	16144.13
-115929	3707642	-24.4592	-220.622	5396.226	598.2525	48673.86
489755	4417857	36.1090	-149.6	-5401.94	1303.874	22380.17
415461	6858194	28.6798	94.4337	2708.338	822.5309	8917.716
423773	9942332	29.511	402.8475	11888.43	870.8991	162286.1
ϕ X =643315	ϕ Y=29569287	ϕ U'=0	ϕ V'=0	ϕ U'V'=23465	ϕ U'^2 = 8473.294	ϕ V'^2 = 258402

Correlation coefficient between Net profit and Loan & Advances of NCC Bank

Simple Correlation Coefficient (r) = $$\frac{n\phi U'V' \mathrm{Z} (\phi U')(\phi V')}{\sqrt{n\phi U'^2 \mathrm{Z} (\phi U')^2}\sqrt{n\phi V'^2 \mathrm{Z} (\phi V')^2}}$$

$$= \frac{5 * 23465 \mathrm{Z} 0}{\sqrt{5 * 8473.294 \mathrm{Z} 0}\sqrt{5 * 258402 \mathrm{Z} 0}}$$

$$= 0.5015$$

Assume U'= $\frac{X \mathrm{Z} A}{h}$ and V' = $\frac{X \mathrm{Z} B}{h}$

Where,

A=Assume mean in values of X variable= $\frac{X}{n}$ =128663

B=Assume mean in values of Y variable= $\frac{X}{n}$ =5913857.4

h = Common Factor=10000

Annex 11

Calculation of Mean, Standard Deviation and Coefficient of Variation of Non performing asstes to total loans and advances ratio

	NCC Bank			MBL		
Fiscal Year	**Ratio(X)**	$\overline{X}$	**(X-** $\overline{X}$ **)^2**	**Ratio(X)**	$\overline{X}$	**(X-** $\overline{X}$ **)^2**
2005/06	107.15	102.99	17.31	108.14	104.92	10.37
2006/07	88.26	102.99	216.97	104.5	104.92	0.18
2007/08	105.21	102.99	4.93	104.01	104.92	0.83
2008/09	103.40	102.99	0.17	104.48	104.92	0.19
2009/10	110.95	102.99	63.36	103.49	104.92	2.04
	∑X=514.97		∑(X- $\overline{X}$)^2 =302.74	∑X=524.62		∑(X- $\overline{X}$)^2 =13.61

Mean, S.D. and C.V. of NCC Bank

Mean ($\overline{X}$) = $\frac{X}{n} = \frac{514.97}{5} = 102.99$

Standard Deviation $= \sqrt{\frac{1}{n} \sum (X - \overline{X})^2} = \sqrt{\frac{302.74}{5}} = 7.78$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{7.78}{102.99} \times 100\% = 7.56\%$

Mean, S.D. and C.V. of MBL

Mean ($\overline{X}$) = $\frac{X}{n} = \frac{524.62}{5} = 104.92$

Standard Deviation $= \sqrt{\frac{1}{n} \sum (X - \overline{X})^2} = \sqrt{\frac{13.61}{5}} = 1.65$

Coefficient Variation= $\frac{\text{Standard deviation}}{\text{Expected return}} \times 100\% = \frac{1.65}{104.92} \times 100\% = 1.57\%$