CREDIT RISK ASSESSMENT UNDER RETAIL AND CORPORATE FINANCING BY COMMERCIAL BANKS OF NEPAL

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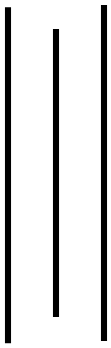

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RECOMMENDATION

This is to certify that the thesis

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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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DECLARATION

I hereby declare that the work reported in this thesis entitled to **Credit Risk Assessment under Retail and Corporate Financing by Commercial Banks of Nepal** submitted to Shanker Dev Campus, Putalisadak, Kathmandu, Faculty of Management, Tribhuvan University is my original work done in the form of partial fulfillment of the requirements for the Masters of Business Studies (MBS) under the supervision of **Dr. Shilu Manandhar Bajracharya,** Shanker Dev Campus.

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Abbreviations

NIBL	:	Nepal Investment Bank Limited
HBL	:	Himalayan Bank Limited
CPI	:	Consumer Price Index
RM	:	Representative Manager
GDP	:	Gross Domestic Product
NGO	:	Non Government Organisation
SBI	:	State Bank of India
NMB	:	Nepal Merchant Bank
BCBS	:	Basel Committee on Banking Supervision
NRB	:	Nepal Rastra Bank
CAR	:	Capital Adequacy Ratio
BIS	:	Bank for International Settlements
CV	:	Coefficient of Variation
SD	:	Standard Deviation
PE	:	Probable Error
FDR	:	Fixed Deposit Receipt
L/C	:	Letter of Credit
CRR	:	Cash Reserve Ratio
EI	:	Exposure Indicator
USD	:	United States Dollar
NPR	:	Nepalese Rupees
ECA	:	Export Credit Agencies
CRM	:	Credit Risk Mitigation

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Finance, the art and science of managing money, affects the lives of every person and every organization. Finance is concerned with the process, institutions, markets, and instructions involved in the transfer of money among and between individuals, businesses, and governments. Managerial Finance (which is concerned with the duties of the financial manager in the business firm) is important in all types of businesses including banks and other financial institutions, as well as industrial and retail firms. It is important in government operations, schools, and hospital and highway departments.

While the specifics vary among organizations, the key finance functions are the investment, financing, and dividend decisions for an organization. Funds are raised from external financial sources and allocated for different uses. The flow of funds within the enterprise is monitored. Benefits to financing sources take the form of returns, repayments, products, and services. These functions must be performed in business firm, governments, banks, agencies, and non-profit organizations alike.

Risk management is another important function any organization has to carry out. While the country is facing difficult political and economic situation, it has greater impact on banking activities. The most important and the greater risk that Nepal faces today is instable political situation, number of armed groups' activities in Terai, frequent strikes and shut down of markets and transportation by different political and ethnic groups. By extension, this is the greatest risk the banks in Nepal should be concerned with. Hence, facing it must be at the core of the every bank's own risk management strategy.

Here an attempt has been made to review the credit risk faced by commercial banks of Nepal under retail and corporate financing in the present scenario of the country.

1.2 Present Economic Situation in Nepal

Nepal's peace process took a key step forward with the orderly conduct of the historic constituent assembly elections in April 2008, which raised hopes of economic recovery and improved living standards.

Table No. 1.1 Contributions to growth

	GDP	Agriculture	Industry	Services
FY2059/60	3.8	1.3	0.6	1.7
FY2060/61	4.4	1.9	0.3	3.2
FY2061/62	3.2	1.4	0.5	1.6
FY2062/63	3.7	0.7	0.8	2.7
FY2063/64	2.7	0.4	0.7	2.2
FY2064/65	5.3	1.8	0.3	3.5

Source: Ministry of Finance, http://www.mof.gov.np

In FY 2065/66 Gross Domestic Product is estimated to grow by 4.7 percent at producers' price against the targeted 7.0 percent meaning that GDP will grow at the lower rate as compared to the target due to influence of external and internal factors.

Aided by the improved security situation, overall GDP growth went back up to 5.3% in FY2064/65 from 2.7% in FY2063/64. This rebound, which reflected the sustained expansion of services and a weather-induced recovery in agriculture, could have been greater had it not been for the deceleration of industry due to input supply disruptions and labor agitation.

In FY 2064/65 services that have 48% share in overall GDP, expanded by 7.0% contributing 3.5 percentage points to overall growth. Growth was broad-based within the sector. In particular, hotels and restaurants as well as financial intermediation benefited most from a sustained increase in tourist arrivals and the entry of new financial institutions. Real estate–related businesses as rural households displaced by the conflict started to return from urban areas to their homes.

Agriculture, with a 32.1% share in overall GDP, also registered strong growth of 4.7%, underpinned by a significant increase in paddy and other crop output, which was aided by favorable monsoon rains. Agriculture's contribution to GDP growth in FY2064/65 improved to 1.8 percentage points, from only 0.4 percentage points in FY2063/64. Contribution of this sector to GDP in the FY 2065/66 is estimated at 32.3 percent against previous year's 32.1 %.

Industrial growth, however, slackened to 1.9% in FY2064/65 from 3.9% in the FY2063/64—a combined effect of long-standing structural weaknesses, such as low productivity and the inadequate infrastructure base, as well as disruptions caused by growing labor unrest and acute power and fuel shortages. (The power shortages are due to low water levels in reservoirs.) Although manufacturing was hard hit by these disruptions, construction activities continued to grow moderately.

On the demand side, the economy continued to be driven by private consumption, in turn fueled by workers' remittances. However, private consumption's share declined marginally to about 77% of GDP as investment picked up—gross fixed capital formation increased to 21.1% of GDP from 20.4% in the previous year—in response to the improved security situation and emerging political stability.

Average consumer inflation rose to 7.7% in FY2064/65 from 6.4% a year earlier, mainly reflecting rising fuel and food prices and the higher inflation in India. Nepal's inflation is closely linked to India's; given the currency peg to the Indian rupee, close trade ties, and the open border. Inflation rose to 12.1% on a 12-month basis by Ashar 2065 and remained high through Poush 2065. Steeper transport costs that reflected fuel price adjustments, and a shortage of rice partly caused by India's temporary export ban, contributed to the increase in food prices. Given the hike in food prices (which make up 53% of the consumer price index basket), inflation has imposed a particular hardship on the poor. Inflation rate in FY 2065/66 year has remained very high. The point-to-point based CPI (Consumer Price Index) rose by 7.2 percent in mid-March 2008

The central bank kept its main policy (bank) rate unchanged at 6.25% and the cash-reserve ratio at 5.0% in FY2008. A sharp rise in net foreign assets during the year, generated by stronger remittance inflows, expanded banking system liquidity and raised reserve money by 21.2%, compared with 7.5% in FY2063/64. This led to a 25.2% expansion in broad money (M2), up from 14.0% in FY2063/64. To rein in rising inflation, the central bank adopted a tighter monetary policy for FY2065/66 by lifting the bank rate to 6.5% and the cash-reserve ratio to 5.5%.

Improved revenue mobilization helped contain the budget deficit at 2.0% of GDP (1.8% a year earlier) despite a surge in expenditure. Recurrent spending swelled by nearly 19%, mainly on account of peace process–related expenditures such as the constituent assembly elections and operation of the temporary camps for former CPNM combatants until they are integrated into society. Capital spending also jumped, by 40.5%, in an improved project implementation environment. Total revenue (including taxes, non tax revenue, and grants) grew robustly by 24.5% in FY2008—even after sturdy growth of 21.2% a year earlier—supported by stronger tax administration. It increased to 15.6% of GDP, a gain of about 1.5 percentage points from a year earlier.

The improved security and political situation facilitated increased use of external assistance (both grants and loans), although spending still fell short of the budget target. The lower than budgeted fiscal deficit helped contain domestic financing at the budgeted level of 1.6% of GDP.

On the external front, the current account in FY2064/65 moved to a surplus of 2.6% of GDP from a deficit of 0.1% a year earlier, buoyed by large workers' remittances (17.4% of GDP) and improved tourism receipts (2.3% of GDP), which more than offset a widening trade deficit. Export growth picked up to 12.8% (from 1.9% in FY2063/64), because of a significant rise in shipments to markets other than India. Still, the trade deficit widened by about 2 percentage points to 19.2% of GDP as imports surged by

26.3%, fueled mainly by large remittance spending on consumer goods and by higher oil prices.

With increased aid flows, the overall balance-of-payments surplus grew to 4.1% of GDP. Foreign exchange reserves climbed markedly to US Dollar 2.5 billion at end- FY2064/65, and subsequently rose to US Dollar 2.6 billion by Poush FY2065/66. Reserves are equivalent to about 7 months of imports of goods and services.

The Nepalese rupee depreciated by 5.3% against the United States dollar over the course of FY2064/65 due to its peg to the Indian rupee. The trade-weighted real effective exchange rate also depreciated, by 3.4%.

1.3 Development of Commercial Banks in Nepal

"A commercial bank refers to such type of bank other than specified banks related to co-operative, agricultural, industrial and other which deals in money exchange, accepting deposits and advancing loans etc." (Commercial Bank Act, 2031 B.S. Nepal). The commercial banks are those banks, which pool together the savings of the community and arrange them for the productive use. Commercial bank transfers monetary sources from the savers to users. They provide loans and advances from the money, which they receive through deposits.

The history of modern banking system is not so long in Nepal. In depth, evidence of money lending function was also found in practice before 8th century. In those days people use to borrow money from money lenders and paying some interest. In 14th century, Malla King Jayasthiti Malla divided people in 64 categories as per working occupation. One of them was "Tanka Dhari"; they practiced monetary transaction or money lending business. It shows that lending process was prevailing during the Malla rule in Nepal.

During the period of Rana rule, Prime Minister Ranodip established a financial institution "Tejarath Adda". Prior to establishment of Nepal Bank Ltd., certain extent of banking needs of people was fulfilled by the institution which was required to supply credit to government officials at 5 percent rate of interest, thereafter, they provided loan to general people against security of gold, silver & ornaments. Tejarath expanded the credit facilities by opening some branches.

Tejarath could not fulfill the credit needs of the whole society. It was a government institution that benefited government officials only. So the general people had to depend on moneylender. To make free the rural people from the grips of lenders and to develop trade and industry in the country the need for commercial bank was realized in the country.

Nepal's banking history had begun with the establishment of Nepal Bank Ltd. (NBL) in1937 AD with Rs.10 million of authorized capital and Rs.842 thousand of paid up capital. It is the first commercial bank in Nepal with semi government equity i.e. 51% of government ownership. After establishment of NBL, it replaced Tejarath Adda by taking over its operation and over its limitation. It has done pioneering function in spreading the banking habits among people.

To manage and control banking system development, monetary policy development, to regulate issue of currency and to mobilize capital for economic development "Nepal Rastra Bank" came into existence as central bank of Nepal in 1956 under Nepal Rastra Bank Act, 2012 BS. After this, NRB diverted its attention towards development of banking system by formulating relevant policies & procedure. Prior to this, there was no such formal organization to control and regulate the monetary system in the country. It is an autonomous body and fully owned by the government of Nepal, who works for the development of banking system in the country. NRB started issuing currency in 1959. To fulfill the growing credit requirement of the country, the commercial bank "Rastriya

Banijya Bank" was established in 1966 under RBB Act, 1964 with fully government equity that of authorized capital of Rs.10 million and paid up capital of Rs.2.5 million.

In 1980, the government introduced "Financial Sector Reforms". Government allowed the entry of foreign banks in Nepal as joint venture bank entered to accelerate the economic development of nation & to service high banking system. The first joint venture is Nabil Bank Ltd. (Former Name – Nepal Arab Bank Ltd.) is established in 1984. The financial scenario has changed with the introduction of joint venture banks in 1984. The number of commercial banks has been increasing since then.

Since 1984, various financial institutions like Joint Venture Banks, Domestic Commercial Banks, Development Banks, Finance Companies, Co-operative society have come into existence to cater the financial needs of the country thereby assisting financial development of the country. The total number of commercial banks and financial intuitions in Nepal is presented in table below.

Table No. 1.2 Banks and Financial Intuitions.

Bank and Financial Institutions	**2065 Ashad**	**2066 Ashad**
Commercial Banks “A” class	25	26
Development Banks	58	63
Finance Companies	78	77
Micro Finance	12	15
NRB Licensed Cooperatives (Limited Banking Transactions)	16	16
NRB Licensed NGO (Licensed for Micro Financing only)	46	45
Insurance Companies	25	25

Source :www.nrb.org.np

The lists of commercial banks in Nepal till July, 2009 and their established dates have been presented in following table.

Table No. 1.3 List of Licensed Commercial Banks in Nepal

S.N.	Name of Commercial Banks	Year (B.S)
1	Nepal Bank Limited	1994
2	Rastriya Banijya Bank	2022
3	NABIL Bank Ltd.	2041
4	Nepal Investment Bank Ltd.	2042
5	Standard Chartered Bank Nepal Ltd.	2043
6	Himalayan Bank Ltd.	2049
7	Nepal SBI Bank Ltd.	2050
8	Nepal Bangladesh Bank Ltd.	2050
9	Everest Bank Ltd.	2051
10	Bank of Kathmandu Ltd.	2051
11	Nepal Credit and Commerce Bank Ltd.	2053
12	Lumbini Bank Ltd.	2055
13	Nepal Industrial & Commercial Bank Ltd.	2055
14	Machhapuchhre Bank Ltd.	2056
15	Kumari Bank Ltd.	2056
16	Laxmi Bank Ltd.	2058
17	Siddhartha Bank Ltd.	2058
18	Agriculture Development Bank Ltd.	2025
19	Global Bank Ltd.	2064
20	Citizens Bank International Ltd.	2064
21	Prime Commercial Bank Ltd.	2065
22	Bank of Asia Nepal Ltd.	2065
23	Sunrise Bank Ltd.	2065
24	Development Credit Bank Ltd.	2058
25	NMB Bank Ltd.	2053
26	KIST Bank Ltd.	2065

Source: www.nrb.org.np/website of related banks.

1.4 Functions of Commercial Banks

Banks collect unused money from public by providing attractive sound interest and can earn profit by lending it on mainly in business organization, industrial and agricultural sectors and investing in government bonds. So, the main function of commercial banks is to mobilize idle resources in productive areas by collecting it from scattered sources and generating profit. There are many functions performed by commercial banks, which may be summarized follows:

1 Accepting Deposits

Commercial banks accept all kinds of deposits, especially under three main headings namely; current, saving and fixed deposits.

- **Current Deposit:**

This is also known as demand deposits whereby the banker incurs the obligations of paying legal tender on demand. Thus the bank does not pay any interest for the deposits.

- **Saving Deposit:**

Saving deposit is the deposit, which is collected from general savers, small depositors and low income depositors. The bank usually pays considerably low interest rate to the depositors against their deposits. Now a day most of the commercials banks are focusing on saving deposit which bears low interest rate.

- **Fixed Deposit:**

Fixed deposit is one of those in which the customer money is deposited for a fixed period of time; generally by those who do not need money for a stipulated time period. Thus bank pays higher rate of interest to the depositor.

2 Advancing Loans:

Commercial bank collects funds by taking all kinds of deposits, and then it mobilizes by providing loans and advances. Direct loans and advances are given to all types of persons against the personal security of the borrowers or against the security of movable and immovable properties. Loans are granted by banks in four forms, namely:

a. Overdrafts
b. Direct Loans
c. Cash Credit
d. Discounting bill of exchange

3 Agency Services:

A commercial bank provides a range of investment services. It undertakes to buy and sell securities on behalf of its clients. The banks undertake the payment of subscriptions, premium rents etc. It collects checks, bills, promissory notes, dividends, interest etc. on behalf of the customers. The bank charges a small amount of commission for those services. It also acts as correspondent or representative of its customers, other banks and financial institutions.

4 Credit Creation:

Credit creation is the very important function of the commercial banks. They accepts deposits and advance loans. When the bank advances loans, it opens an account to draw the money by cheque according to borrower's needs.

i. Other Functions:

Apart from above mentioned, commercial banks perform other major functions like assist in foreign trade, offers security brokerage services and financial advising. The other functions of the commercial banks can be briefly described as follows:

a. Assist in foreign trades:

Commercial bank discounts the bills of exchange drawn by Nepalese exporters on the foreign importers and enables the exporters to receive money in the native currency.

b. Offers Security Brokerage Services:

Many commercial banks have begun to market security brokerage services offering customers the opportunity to buy the stocks, bonds and other securities without having to go to a security dealer or broker.

c. Financial Advising

Many banks offer a wide range of financial advisory services from helping in financial planning and consulting business managers.

1.5 Profiles of the Banks under Study

In this section general introduction of the banks under study is being attempted to furnish for the easy reference of the samples to the research. The following banks are selected for the research.

- Nepal Investment Bank Limited
- Himalayan Bank Limited

Nepal Investment Bank Limited

Nepal Investment Bank Limited is the changed name of Nepal Indosuez Bank Ltd., the second joint venture bank in Nepal was established in 1985 under Company Act, 1964. Initially, the bank is managed by Banque Indosuez, Paris in accordance with Joint-venture and technical services agreement signed between it and Nepali Promoters. Fifty percent of the shares of Nepal Indosuez Bank Ltd. held by Credit Agricole Indosuez were

sold to the Nepalese Promoters on April 25, 2002 as per the transaction record of NEPSE. So, its shareholder participation is as follows:

"A" Class Liscensed Institutions	15 %
Insurance Companies	15 %
Organized Institutions	50 %
General Public	20 %

The main objective of the bank is to provide loans and advances to the agriculture, industries and commerce and to provide modern banking services to the people. Authorized capital of NIBL is Rs.2 billion, issued capital is Rs.1.2 billion and paid-up capital is Rs.1.2 billion.

Himalayan Bank Limited

Himalayan Bank Ltd. is a joint-venture bank with Habib Bank Ltd of Pakistan, was established in 1992 under the Company Act, 1964. The operation of the bank started from February, 1993. The main objective of the bank is to provide modern banking facilities like Tele Banking to the businessman, industrialists and other professionals and to provide loans on agriculture, commerce and industrial sectors. Authorized capital, issued capital and paid-up capital of HBL are Rs.2 billion, Rs.1.01 billion and Rs.1.01 billion respectively. Its share subscription is as follows:

Other Entities	65 %
Foreign Institution	20 %
General Public Shareholders	15 %

1.6 Statement of the Problem

The basic objectives of the banks are to uplift the economic activities and strengthen welfare of the general people to facilitate loan in different sector and to provide the banking services to the country and to its people. Today there are lots of financial institutions providing banking services to the people. General people find difficult in selecting the right institutions to deposit their savings as well as to take loan for their business and other purposes. They should be assured if the banks mobilize their saving from less risky investment with high return. Hence basically this study concentrates on the on the investment of commercial banks on loan and advances and the risk associated with it.

Various issues are dealt for the purpose of this study. Some of these issues are as follow:

a. What are the risks dealt by the commercial banks in the market and within the organization?
b. What are the major risks in lending?
c. Has commercial banks been able to avoid or manage those risks that come in the way to its destination?
d. Has commercial bank implemented Basel II framework which mandates a capital adequacy requirement based on international practices with appropriate level of customization based on domestic state of market developments?
e. What is the strength and weakness of the firm? In other words, whether the earning power and operating efficiency is satisfactory or not?

1.7 Objective of the Study

The general objectives of the study are as follows:

1. To study the credit risk faced by NIBL and HBL.

2. To analyze different types of risk faced by Nepal Investment Bank Limited and Himalayan Bank Limited.
3. To review level of capital maintained by selected commercial banks to protect its depositors and creditors.
4. To suggest and recommend some measures, on the basis of analyzing data and findings.

After the completion of this report, a concrete and reliable conclusion will be derived which will be able to portray a real picture of the organization's financial performance and risk management.

1.8 Significance of the study

As the financial services industry becomes more complex, financial information provided to directors becomes more difficult to understand. Quality governance is impossible without effective analysis and evaluation of financial information. Directors must posses the ability to understand and oversee risk. This study will certainly help managers and director of HBL and NIBL to minimize the risk under lending.

Besides this study will be useful to more people and organization such as:

- Government
- Trade Creditors
- Investors
- Stock brokers
- Academicians
- Policy formulators
- General Public

1.9 Limitations of Study

There will be some limitations while undergoing this study. The main limitations of this study will be:

i. The study period covers data for only five fiscal years from 2004/2005 to 2008/2009.
ii. The study will be done mostly on the basis of secondary data collected.
iii. As the study needs sufficient money in order to collect required information through various sources, the researcher could not afford it and the time dimension is very limited.
iv. The study will be done for the partial fulfillment of MBS program of T.U.
v. Although there are many commercial banks, the study limits to only two banks – Himalayan Bank Limited and Nepal Investment Bank Limited.

1.10 Organization of the Study

The whole study is divided into five different chapters as below.

Chapter 1: Introduction

Chapter 2: Review of Literature

Chapter 3: Research Methodology

Chapter 4: Data Presentation and Analysis

Chapter 5: Summary, Conclusion, Findings and Recommendation

The Chapter 1 "Introduction" provides the present economic situation in Nepal, overview of the financial sectors, introduction of banking, background of the study, an introduction to banks under study, statement of the problem, objectives of the study, limitation of the study and significance of the study.

The Chapter 2 is the “Review of Literature”. In the conceptual frame work; risk management, types, reason, capital adequacy framework are discussed with reference to the review of the related books and study. Similarly different articles and books, and Nepalese legislation and regulation relating to banking activities are also reviewed.

Chapter 3 explains the research methodology used in the study, which includes research designs, population and samples, data collection procedure, method of data analysis and method of data presentation.

Chapter 4 is the heart of the study. This chapter includes presentation and analysis of data using financial and statistical tools.

Fifth and the last chapter revolve with suggestions, which include the summary of main findings, recommendations and suggestions for further improvement and conclusions of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Risk management

Risk management is the process of measuring, or assessing risk and then developing strategies to manage the risk. In ideal risk management, a prioritization process is followed whereby the risks with the greatest loss and the greatest probability of occurring are handled first, and risks with lower probability of occurrence and lower loss are handled later.

In practice the process can be very difficult, and balancing between risks with a high probability of occurrence but lower loss vs. a risk with high loss but lower probability of occurrence can often be mishandled.

Risk management also faces a difficulty in allocating resources properly. This is the idea of opportunity cost. Resources spent on risk management could be instead spent on more profitable activities. Again, ideal risk management spends the least amount of resources in the process while reducing the effects of risks as much as possible.

2.2 Risk Management Process

A first step in the process of managing risk is to identify potential risks. The risks must then be assessed as to their potential severity of loss and to the probability of occurrence.

Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories:

- Avoidance
- Reduction
- Retention
- Risk Transfer

Ideal use of these strategies may not be possible. Some of them may involve trade offs that are not acceptable to the organization or person making the risk management decisions.

- **Risk avoidance**

Risk avoidance includes not performing an activity that could carry risk. An example would be not buying a property or business in order to not take on the liability that comes with it. Another would be not flying in order to not take the risk that the plane were to be hijacked. Avoidance may seem the answer to all risks, but avoiding risks also means losing out on the potential gain that accepting (retaining) the risk may have allowed. Not entering a business to avoid the risk of loss also avoids the possibility of earning the profits.

- **Risk reduction**

Risk reduction involves methods that reduce the severity of the loss. Examples include sprinklers designed to put out a fire to reduce the risk of loss by fire. This method may cause a greater loss by water damage and therefore may not be suitable.

- **Risk retention**

Risk retention involves accepting the loss when it occurs. True self insurance falls in this category. All risks that are not avoided or transferred are retained by default.

- **Risk transfer**

It refers to causing another party to accept the risk, typically by contract. Insurance is one type of risk transfer. Other times it may involve contract language that transfers a risk to another party without the payment of an insurance premium. Liability among construction or other contractors is very often transferred this way.

Some ways of managing risk fall into multiple categories. Risk retention pools are technically retaining the risk for the group, but spreading it over the whole group, involves transfer among individual members of the group. This is different from traditional insurance, in that no premium is exchanged between members of the group.

2.3 Why Risk Management?

With continuing increases in the scale and complexity of the banking business and in the pace of their financial transactions demand, bankers employ sophisticated risk management techniques and monitor rapidly changing risk exposure. At the same time, advances in information technology have lowered the cost of acquiring, managing, and analyzing data, and have enabled ongoing advances in risk management at leading institutions worldwide. Therefore, for the banks in any emerging market countries have to increase their focus on risk management in an effort to build more robust and sound financial system and to position them to participate more fully in the global economy

2.4 Pre-requisite for Risk Management

There are also prerequisites for banks to develop the ability to measure and manage risk effectively. First in order to measure risk, the country must have solid accounting and disclosure standards that provide accurate, relevant, comprehensive and timely information so that banks can assess the condition and performances of borrowers and counter parties. To ensure accuracy, accounting systems need to be supplemented by auditing system and backed up by enforceable legal penalties for providing fraudulent or misleading information to government agencies and outsiders. Banks need a staff with sufficient expertise in risk management to identify and evaluate risk. An adequate legal system and credit culture in which borrowers are expected to repay and are penalized if they do not, are yet further pre-requisite for sound and accurate risk management, finally, the potential for conflicts of interest on risk management must be limited.

2.5 Legal Provision Regarding Risk Management in Nepal

Regarding, risk management there are certain directives given by Nepal Rastra Bank to commercial bank to minimize various types of risks. According, to NRB act, 2012, section 22, subsection 38, the major risks faced by bank are divided into following categories:

1 Liquidity risk
2 Interest risk
3 Foreign exchange risk
4 Credit risk

(Source: Directives 1-11 given by NRB)

2.6 Fundamental Elements of Sound Risk Management

The fundamental elements of sound risk management are easy to describe in the abstract but are far more difficult to apply case by case. Each situation is unique, built around the roles and capabilities of individuals and the structures, activities and objectives of the institutions. What works for one firm may, of course, possibly be unsatisfactory for another. Moreover, in the context of particular firm, the definition of sound or adequate risk management system is ever changing, as new technology accommodates innovations and better information as market efficiency grows. To remain competitive, institutions must adopt and constantly improve their process. Apart from these contingencies, however certain basics apply quite generally. In any institutions, support for crucial programs must come from the top. Each entity's senior management and governing board must set the institutions risk appetite by establishing appropriate policies, limits and standards, and ensuring that they are followed and enforced. Throughout the institution, risk must then be measured, monitored and reported to key decision makers. There must also be adequate accountability, clear lines of authority and separation of duties between business function and those involved in risk management and internal control.

2.7 Types of Risks Bank Face

Any profit maximizing business, including banking, confronts macroeconomic risks (the effect of recession) and microeconomic risks (new competitive threats). Credit risk, the risk that a borrow defaults on a bank loan is the risk most people think of in the Context of banks, because of the lending side of the intermediary function. In general sense risk is defined as the volatility of standard deviation of the net cash flows of the firm. The bank's profitability depends on the management of risk. Inadequate risk management may threaten the solvency of a bank.

- **Credit risk**

Credit risk is the major risk that banks are exposed to during the normal course of lending and credit underwriting. Credit Risk is the risk of delay in the servicing of the loan or risk that an asset or a loan becomes irrecoverable.

- **Liquidity Funding risk**

This is the risk of insufficient liquidity for normal operating requirements, that is, the ability of the bank to meet its liabilities when they fall due. Funding risk is the risk that a bank is unable to fund its day- to -day operations.

- **Payment risk**

Payment risk is created if one party to a deal pays money or deliver assets before receiving its own cash or assets, there by exposing, it to potential loss. The term systematic risk also refers to payment risk.

- **Interest Rate risk**

Interest rate risk arises if interest rate mismatches in both the volume and maturity of interest sensitive assets, liabilities, and off-balance sheet items. An unanticipated movement in interest rates can seriously affect the profitability of the banks.

- **Price risk or Market risk**

Banks incur market risk on instruments traded in well-defined markets. If a bank is holding instruments on accounts (E.g., bonds, equities), then it is exposed to price or market risk, the risk that the price of the instrument will be volatile.

- **Foreign Exchange or Currency risk**

Under flexible exchange rates, any net short or long open position in a given currency will expose the bank to foreign exchange risk, a special type of market risk. A bank with global operations experiences multiple currency risk, which arises from adverse exchange rate fluctuations.

- **Sovereign and Political risks**

Sovereign risk normally refers to the risk that a government will default on debt owed to a private bank. Political risk is the risk of political interference in the operation of a bank. It can range from banks being subjected to interest rate or exchange Control regulations, to nationalization or privatization of loans.

- **Operating Risk**

It is the risk associated with loss arising from fraud or unexpected expenses such as from legal action. The most important type of operational risk involves breakdowns in internal controls and corporate governance.

- **Global Banking risk**

Global diversification of assets often allows a bank to improve upon its risk management, there by raising profitability and shareholder value added. The banks with branches or subsidiaries in other Countries part of their infrastructure exposed to currency, exchange Control, and political risk.

2.8 Risk Assessment

Risk assessment of a particular project is a very detailed and minute process. The relationship manager (RM) collects the raw information from various sources before the assessment.

The risk assessment procedure can be divided into Numeric Risk Grading and Core Risk Assessment.

1. Numeric Risk Grading

Under this system of risk assessment the various risks associated with the project are given a combination of numeric and alphabetic representation/value such that the project is assigned a specific risk grade.

The process and components under numeric risk grading system are as under:

a. Industry Risk

Under this segment risk value is assigned to the project on the basis of evaluation of industry components such as current market trend, level and interest of competition, barriers to entry of other firms in similar business industry, market base, and effect of change in the external environment factors in the business.

b. Business Risk

Under this segment risk value is assigned on the basis of evaluation of the components associated with the business such as nature and quality of product, current market positioning of the product, number of suppliers of raw materials used in the production of the product and number of buyers of the product management, quality, technology used etc.

c. Financial Risk

Under this segment if the project is running business then numeric value is assigned on a basis of financial evaluation on the components such as sales trend, profit trend, cash flow, liquidity, solvency (Debt Equity Ratio) etc. However if the project is a startup venture then a standard numeric value is assigned.

d. Account Performance Risk

Here the numeric risk value is assigned on the basis of past account performance of the com any (for running business) with the bank such as number of years of relationship with the banks, timely repayment of interest and principle amount, utilization of the credit facility extended etc. However if a project is a start up venture than a standard numeric value is assigned.

e. Security Coverage

Under this section numeric value is assigned to the project on the basis of security coverage for the amount of the loan to be extended. Here security refers to the value of the tangible collateral security such as land and building, plant and machinery, other fixed assets, hypothecated (charge held by the Bank) current assets like inventory stock and account receivable. If the value of tangible security is 100% of the amount of loan extended / to be extended, a standard numeric risk value is assigned and for a greater or lesser than 100% of the loan amount, a different numeric value is assigned to the project.

By adding the total of numeric risk value assigned to the project under industry risk, financial risk, business risk and account performance risk, an alphabetic risk value is assigned to the project. The combined alphabetic risk value assigned for security coverage gives the credit risk grade for the project. By looking at this credit risk grade, management can identify the quality of loan and the amount of the risk associated with the project is calculated.

2. Core Risk Assessment

This occupies the core part of the CA (Credit Application) prepared by the RM for approval of credit facilities to be extended to the project under review. The component dealt under this segment are the same as under the credit risk grading segment, however far more vast and detail. The RM will have to invest sufficient time, effort and knowledge in order to out source the information needed for the assessment of the risk associated with the project and the probable mitigations.

Here the RM identifies various risk associated under the following risk segment and then probable mitigation / solutions to those risk.

- Industry Risk
- Business and management risk
- Financial / cash flow risk
- Facility Structure
- Security Risk
- Account Performance Risk

If the identified risk doesn't have an existing solution than a specific control measure is developed in order to mitigate those risks.

2.9 Capital Adequacy Framework

Capital Adequacy determines the capacity of the bank in terms of meeting the time liabilities and other risks such as credit risk, operational risk, etc. In the most simple formulation, a bank's capital is the "cushion" for potential losses, which protects the bank's depositors or other lenders. Banking regulators in most countries define and monitor CAR to protect depositors, thereby maintaining confidence in the banking system.

2.9.1 Basel Framework

Prior to 1988, there was no uniform international regulatory standard for setting bank capital requirements. In 1988, the Basel Committee on Banking Supervision (BCBS) 1 developed the Capital Accord to align the capital adequacy requirements applicable especially to banks in G-10 countries - which is known as Basel I. There are two key concepts introduced under Basel I. First, it defined what banks could hold as capital, as well as designating capital as Tier 1 or Tier 2 according to its loss-absorbing or creditor-protecting characteristics. The second key concept introduced in Basel I was that capital should be held by banks in relation to the risks that they face. The major risks faced by banks relate to the assets held on balance sheet. Thus, Basel I calculated banks' minimum capital requirements as a percentage of assets, which are adjusted in accordance to their risk and assigning risk weights to assets. Higher weights are assigned to riskier assets such as corporate loans, and lower weights are assigned to less risky assets, such as exposures to government.

The BCBS released the "International Convergence of Capital Measurements and Capital Standards: Revised Framework", popularly known as Basel II, on June 26, 2004. This framework was updated in November 2005 and a comprehensive version of the framework was issued in June 2006. Basel II builds significantly on Basel I by increasing the sensitivity of capital to key bank risks. In addition, Basel II recognizes that banks can face a multitude of risks, ranging from the traditional risks associated with financial

intermediation to the day-to-day risks of operating a business as well as the risks associated with the ups and downs of the local and international economies. As a result, the new framework more explicitly associates capital requirements with the particular categories of major risks that banks face.

The new capital framework also recognizes that large, usually internationally active banks have already put in place sophisticated approaches to risk measurement and management based on statistical inference rather than judgment alone. Thus, the framework allows banks, under certain conditions, to use their own 'internal' models and techniques to measure the key risks that they face, the probability of loss, and the capital required to meet those losses. In developing the new framework, the Basel Committee wanted to incorporate many elements that help promote a sound and efficient financial system over and above the setting of minimum capital requirements. With this in mind, the Basel II framework incorporates three complementary 'pillars' that draw on the range of approaches to help ensure that banks are adequately capitalized in commensurate with their risk profile.

The BCBS recommendations on capital accord are important guiding framework for the regulatory capital requirement to the banking industry all over the world and Nepal is no exception. Realizing the significance of capital for ensuring the safety and soundness of the banks and the banking system, at large, NRB has developed and enforced capital adequacy requirement based on international practices with appropriate level of customization based on domestic state of market developments. The existing regulatory capital is largely based on the Basel committee's 1988 recommendations.

With a view of adopting the international best practices, NRB has already expressed its intention to adopt the Basel II framework in a simplified form. This framework provides the guidelines for the implementation of Basel II framework in Nepal. Reminiscent of the International convergence of capital measurements and capital standards, this framework

also builds around three mutually reinforcing pillars, viz. minimum capital requirements, supervisory review process and disclosure requirements.

2.9.2 Objective

The main objective of this framework is to develop safe and sound financial system by way of sufficient amount of qualitative capital and risk management practices. This framework is intended to ensure that each commercial banks maintain a level of capital which,

1. Is adequate to protect its depositors and creditors.
2. Is commensurate with the risk associated activities and profile of the commercial bank.
3. Promotes public confidence in the banking system.

2.9.3 Pre-requisites

The effective implementation of this framework is dependent on various factors. Some such pre-requisites are:

1) Implementation of Basel Core Principles for effective Banking Supervision
2) Adoption of the sound practices for the management of Operational Risk
3) Formulation and adoption of comprehensive risk management policy
4) Adherence to high degree of corporate governance

The board of directors of each bank is responsible for establishing and maintaining, at all times, an adequate level of capital. The capital standards herein are the minimum that is acceptable for banks that are fundamentally sound, well managed, and which have no material financial or operational weaknesses. Thus, the banks are generally expected to operate the limits prescribed by this framework.

This capital adequacy framework is applicable uniformly to all "A" class financial institutions on a stand-alone basis and as well as on a consolidated basis, where the bank is member of a consolidated banking group. For the purpose of capital adequacy, the consolidated bank means a group of financial entities, parent or holding company of which a bank is a subsidiary. All banking and other relevant financial activities (both regulated and unregulated) conducted within a group including a bank shall be captured through consolidation. Thus, majority owned or controlled financial entities should be fully consolidated. If any majority owned subsidiaries institutions are not consolidated for capital purposes, all equity and other regulatory capital investments in those entities attributable to the group will be deducted and the assets and liabilities, as well as third party capital investments in the subsidiary will be removed from the bank's balance sheet for capital adequacy purposes.

2.10 Review of Related Studies

Before this thesis, some students have conducted several thesis works. Some of them, that are relevant for this study, are presented below.

Mr. Binod Basnet (2008), in his thesis paper entitled, "Credit Risk Assessment under Consortium Financing by Nepalese Commercial Banks" has made an attempt to analyze risk associated with consortium financing in reference to the project related to medical college financed by Bank of Kathamndu. In this thesis, he has presented profitability of medical college and return in investing in the project. He concluded that risk associated with consortium financing is minimal and risk is shared amount the financial institution even the project fails. He has recommended consortium financing is less risky and it will yield high return.

Mr. Manoj Damaru Shrestha (2006), in his thesis paper entitled "Capital Adequacy Norms for Commercial Banks and its Impact" has examined the capital adequacy ratio of commercial banks with reference to Bank of Katmandu and Himalayan Bank Limited. He has also presented capital to deposit ratio and credit to deposit ratio of both banks. He has

concluded that both commercial banks have adequate capital as per NRB. They have mobilized their deposit and disbursed loan in the ratio to capital fund. The higher the capital fund, there is higher chance of collecting deposit and flowing more credits. He has suggested banks have to maintain substantial capital to flow more credit and collects more deposit, and at the same time to safeguard depositors savings.

Mr. Kailash Karki (2008), in his thesis paper entitled "Risk Management of Himalayan Bank Limited", has studied performance of Himalayan Bank with reference to the risk Himalayan Bank has faced and managed, and ratios related to Capital Adequacy Ratio, Credit to Deposit Ratio, Liquidity Gap Analysis and profitability. He has concluded bank is performing well and bank has better management of risk associated with credit, operation and market. He has recommended the bank should maintain enough liquidity, follow sound credit collection policy and make effective marketing strategies.

Ms. Sunita Maharjan (2007), in her thesis paper entitled "A Study on Analysis of Investment Portfolio of Joint Venture Banks in Nepal" has studied investment portfolio of commercial banks. She has done risk and return and ratio analysis of different investment portfolios like Loan and Advances, Government Securities and Shares and Debenture. She has concluded Loan and Advances are highly risky investment and yield high return. Government Securities are less risky and yield less return. Similarly shares and debenture is also high risky securities. Being high risky, Loan and Advances has high return and it's the key sources of income for commercial banks. She has recommended diversifying the investment and formulating appropriate investment policy.

Ms. Sylvia Tuladhar (2005), in her thesis entitled "Financial Performance Analysis of Himalayan Bank Limited" has studied financial performance of Himalaan Bank Limited in reference to the ratio analysis. She has concluded Himalayn bank has been able to invest on various securities and projects which are less risky compared to Loan and Advances. She has highlighted, Himalayan Bank has disbursed loan and advances more than the deposit it has accumulated. At the same time, Himalayan Bank has been able to

maintain its liquidity position. She has also recommend bank to diversify the investments into less risky sectors.

2.11 Research Gap

In this thesis paper, risk related to credit and the capital adequacy of the banks has been studied. Credit is the biggest source of income for the commercial banks. At the same time it also bears high risk. In order to flow loan and advances, the commercial banks have to maintain capital adequacy ratio as per the NRB directive.

In the thesis paper of Mr. Binod Basnet (2008) entitled "Credit Risk Assessment under Consortium Financing by Nepalese Commercial Banks", risk associated with consortium financing with reference to the project related to medical college has been studied and analyzed. Consortium financing is the type of investment that bears less risk since risk is shared among the group of banks, and return is also shared among the group of banks. In this thesis paper overall assessment of credit risk has been done.

In the thesis paper of Mr. Manoj Damaru Shrestha (2006) entitled “Capital Adequacy Norms for Commercial Banks and its Impact” capital adequacy ratio of commercial banks with reference to Bank of Katmandu and Himalayan Bank Limited has been presented. He has also presented capital to deposit ratio and credit to deposit ratio of both banks. However risk associated with credit, operation and other risk has not been reviewed. The credit risk as well as other risk has been reviewed in this thesis paper.

Mr. Kailash Karki (2008), in his thesis paper entitled “Risk Management of Himalayan Bank Limited”, has studied ratios related to Capital Adequacy Ratio, Credit to Deposit Ratio, Liquidity Gap Analysis and profitability in order to analyze the different risks. He has only reviewed non performing loan ratio. He has not presented and considered other data related to loan and advances. In this thesis paper, specifically data related to loan and advances have been presented and examined.

Ms. Sunita Maharjan (2007) in her thesis paper entitled "A Study on Analysis of Investment Portfolio of Joint Venture Banks in Nepal" has done risk and return and ratio analysis of different investment portfolios like Loan and Advances, Government Securities and Shares and Debenture. In this thesis paper, data related to loan and advances have been presented and risk associated credit has been reviewed. Return on Loan and advances have been calculated and other data relating to loan and advances have been presented for the analysis.

Ms. Sylvia Tuladhar (2005) in her thesis entitled "Financial Performance Analysis of Himalayan Bank Limited" has studied financial performance of Himalaan Bank Limited in reference to the ratio analysis. She has recommend bank to diversify the investments into less risky sectors. In this thesis paper, ratios relation to credit and capital has been analyzed.

Above none of the reviewer has mentioned about the Basel framework that is related to the capital adequacy framework. In this thesis paper, Basel framework has been reviewed and credit risk exposures of related banks have been examined.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Research means to research the problems again and again to find out something more about the problem. Similarly methodology refers the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind it. Thus research methodology is a way to systematically research the problem. (Wolf and Pant, 2003).

Research method refers to the methods/way that is used for conduction of research or performing research operations. In other words, research methods are those methods, which are used by the researcher during the course of studying his/her research problem. Research methodology is a way to solve the research problem systematically. The research methodology is wider than that of research methods i.e. research methods are a part of research methodology. The research methodology considers the logic behind the methods used in the context of research study and explains why particular methods or technique is used. It also highlights about how the research problem has been defined, what data have been collected, what particular methods has been adopted, why the hypothesis has been formulated etc.

This chapter highlights about the methodology adopted in the process of present study. It also focuses about sources and limitations of the data, which are used in the present study. 'Research Methodology' is a way for systematically solving the research problem. In other words, research methodology indicates the methods and processes employed in the entire aspects of the study. "Research methodology" refers to the various sequential steps (along with a rationale, of each such step) to be adopted by a researcher in studying a problem with certain object/objects in view" (Kothari,1994:19). So, it is the methods,

steps, and guidelines, which are to be followed in analysis, and it is a way presenting the collected data with meaningful analysis.

3.2 The Research Design

The researcher makes a plan of his/her study before undertaking the research work. This will enable to save time and resources. Such a plan of study or blue print for study is called a research design (strategy).

A research design is a plan for the collection and analysis of data. “A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure”- (Claire Seltiz and others, Research Methods in Social Sciences, 1962:50). It presents a serious of guideposts to enable the researcher to progress in right direction in order to achieve the goal. The design may be as specific presentation of the various steps in the research problem, presentation of the problem, formulation of hypothesis, conceptual clarity, and methodology, survey of literature and documentation, bibliography, data collection, testing of the hypothesis, interpretation, presentation and report writing.

For the analytical purpose, in this research the annual reports published by the respective banks and other publications of the related banks, monthly newsletter, articles and other publication of Nepal Rastra Bank, were collected. The research design followed is descriptive and exploratory.

3.3 The Data Gathering Procedure

To obtain the objective of this study, information has been collected from selected bank such as annual reports, newsletters, and bulletins and of course from the websites. Various publications published by NRB, unpublished periodicals, magazines, dissertations, information from NRB sites has also been used to undertake this study. Most of the data used in this study is secondary sources of data

3.3.1 Population and sample

The term population of data denotes for the data of each organization which is within the boundary of specific organization where as sample of data are the data of those organization which has been selected from that whole population in a few numbers. Random selected method is to be used while selecting sample organizations for this study. The population data for this study comprises all banks which are currently operating in Nepal. At present, there are 26 commercial banks operating in Nepal. Due to time and resource factors, it is not possible to study all of them regarding the study topic. All the commercial banks that are operating in Nepal are considered as the population. From all the commercial bank of Nepal following two commercial Banks has been selected as sample for the analysis. The selected sample banks are as follows:

- Nepal Investment Bank Ltd. (NIBL)
- Himalayan Bank Ltd. (HBL)

3.3.2 Sources and Types of Data

The data collected from field is field data i.e. primary data. Primary data are collected from primary sources in the field. The data collected from some one else and used already and made available as published or unpublished statistics are known as secondary data. Mainly the study will be based on secondary data. Sources of secondary data will be published data like annual reports of banks, financial statement, review & reports, journals, articles from various magazine, statistical reports, previous thesis & dissertation, Homepages and related text books and so on. Data & information collection will be made by following way:

- Library research
- Internet / Homepages
- Study articles, journals & related materials from various sources.
- Collection and study of review & reports of NRB, NIBL and HBL.

3.3.3 Tools for Analysis

In order to ascertain investment analysis of any firm, various analytical tools can be used. According to the nature of statement of data, suitable or appropriate tools make the analysis more effective and significant for achieving objective. Two tools; financial and statistical can be used in this study.

3.3.3.1 Financial tools

As this study is related to investment portfolio analysis, financial tools are more applicable. Financial tools are those which are used for the analysis and interpretation of financial data. These tools can be used to get the precise knowledge of a business which in turn, is fruitful in exploring the strengths and weaknesses of the investment policies and strategies. For the sake of analysis, following various financial tools have been used in order to meet the purpose of the study.

1. Return on Loan and Advances

The return on loan and advances is calculated by dividing interest earned from loan and advances by total amount of loan and advances. This can be stated as:

$$\text{Return on Loan and Advances} = \frac{\text{Interest Earned from Loan and Advances}}{\text{Total Amount of Loan And Advances}}$$

2. Average Rate of Return

When historical returns are used, following formula is used to calculate an average rate of return:

$$\text{Average Rate of Return } (\bar{R}) \; X \frac{\sum_{t=1}^{n} R_t}{n}$$

Or, $\bar{R} = \frac{R_1 + R_2 + R_3 + ... + R_n}{n}$

Where,

R_1, R_2, R_3 = Rate of return in different period

n = No. of period

3. Standard Deviation

Risk is defined as the variability of the returns of a period. The one-period rate of return is the basic random variable used in measuring an investment's risk. One such measure of risk is the standard deviation. Standard deviation is defined as the positive square root of the mean of the square of the deviation taken from arithmetic mean.

Risk on individual assets or standard deviation for assets can be calculated using historical returns with this equation:

Standard Deviation (σ) = $\sqrt{\frac{(R - \bar{R})^2}{n}}$

Where,

R = Rate of return on individual assets

$\bar{R}$ = Average rate of return on individual assets

n = Number of years or observations

3.3.3.2 Financial Ratios

An arithmetic relationship between two figures is ratio. In other words, the relationship between two accounting figures expressed in mathematical term is known as financial ratio. "Ratio analysis is used to compare a firm's financial performance and status to that

of other firms or to itself on time" - Gitman, Lawarance, J. (1988), "Principle of Managerial Finance", Fifth Edition, San Diego State University, Harper Collins, Page 275. Ratio is always computed by dividing one item of relationship with the other.

Ratio analysis is technique of analysis and interpretation of financial statement through mathematical expression. To evaluate the performance of an organization by creating the ratios from the figures of different accounts is known as ratio analysis. It is very helpful for decision making. Ratio analysis serves as a stepping-stone for an inter-firm comparison to take remedial measure. It helps management in evolving future 'Market Strategies'. Ratio analysis is an important technique of financial analysis. In this study, only such ratios which are related to investment portfolio of joint venture banks are taken here. Hence, in this study, following ratios are calculated and analyzed:

1. Total Investment to Total Deposit Ratio

This ratio can be calculated by dividing total investment by total deposit.

It can be mentioned as:

$$\text{Total Investment to Total Deposit Ratio} = \frac{\text{Total Investment}}{\text{Total Deposits}}$$

2. Loan and Advances to Total Deposit Ratio

Loan and Advances to total deposit ratio can be calculated by dividing loan and advances by total deposits.

This ratio can be stated as:

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

3. Loan and Advances to Total Investment

This ratio shows that the banks' investment on loan and advances out of total outside investment. It can be calculated by dividing loan and advances by total outside investment i.e.

$$\text{Loan and Advances to TOI Ratio} = \frac{\text{Loan and Advances}}{\text{Total Ouside Investment}}$$

4. Capital Adequacy Ratio

Capital Adequacy ratio is the ratio of a bank's primary capital to its assets (loans and investments). It is used as a measure of its financial strength and stability. According to the Capital Adequacy Standard set by Bank for International Settlements (BIS), banks must have a primary capital base equal at least to eight percent of their assets.

It is calculated as below

$$\text{CAR} = \frac{CapitalFund}{TotalBankk'sAssets}$$

3.3.3.3 Statistical tools

Various statistical tools can be used to analyze the data available to the researcher. These tools are used in research in order to draw the reliable conclusion through the analysis of financial data. Following statistical tools are used in this study.

- Arithmetic Mean
- Coefficient of Variation (C.V.)
- Karl Person's Coefficient of Correlation

1. Arithmetic Mean

Arithmetic mean is the ration of the sum of all the observations to the number of observation. Let, X_1, X_2, X_3, ……..., X_n denotes 'n' variate values of the random variable X, then the arithmetic mean denoted by $\overline{X}$ is defined by the following formula.

$$\overline{X} = \frac{X_1 + X_2 + X_3 + ... + X_n}{n} = \frac{X}{n}$$

Where,

$\overline{X}$ = Arithmetic mean

X = Sum of observations

n = Number of observations

The arithmetic mean is a single value of selected series which represents them in average. Out of the various central tendencies, a mean is one of the useful tools to find out the average value of the given data.

2. Coefficient of Variation (C.V.)

The coefficient of variance is the relative measure of dispersion, comparable across distribution which is defined as the ratio of the standard deviation to the mean expressed in percent. It is calculated by following equation:

$$\text{Coefficient of Variation (C.V.)} = \frac{\text{S.D.}}{\text{Mean}} \times 100 = \frac{\sigma_i}{\overline{R}_i} \times 100$$

Where,

σ_i = Standard deviation of asset i

$\overline{R}_i$ = Average return

Coefficient of variance is also useful in comparing the amount of variation in data groups with different mean. It is the relative measure of dispersion. A distribution with smaller coefficient of variance is said to be more homogeneous or uniform than the other. On other hand, a series with greater coefficient of variance is said to be more variable of heterogeneous than the other.

3. Karl Person's Coefficient of Correlation

Karl Pearson's method, popularly known as Pearsonian coefficient of correlation, is most widely used in practice The correlation coefficient between two variables X and Y, usually denoted by r(X,Y), r_{xy} is a numerical measure of linear relationship between them and is define by

$$r_{xy} = \frac{N \quad XY - f \quad XA f \quad YA}{\sqrt{N \quad X^2 Z f \quad XA^2}\sqrt{N \quad Y^2 Z f \quad YA^2}}$$

Where,

r_{xy} = Correlation coefficient between variable X and Y

N = Number of observations

Personian correlation coefficient lies always between -1 and +1. When r = +1, there is perfect positive correlation. Similarly, if r = -1, There is perfect negative correlation between the variables. And, it has a zero value i.e. r = 0, there are no correlation between the variables.

4. Probable Error

Probable error of correlation is an old measure testing the reliably of an observed value of correlation coefficient. It is calculated to find the extend to which correlation coefficient is dependable as it depends upon the condition of random sampling probable error of correlation coefficient denoted by P.E. (r) is obtained as,

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

Where,

r = Calculated correlation coefficient

n = Number of observations

- If r ΦP.E. (r), then the value of r is not at all significant.
- If r ΨP.E. (r), then r is definitely significant.

3.4 Method of Analysis & Presentation

All data will not be in readymade format or data obtained from various sources can not be directly used in their original form. Data should be manipulated according to needs. Data, information, figures and facts so obtained need to be checked, rechecked, edited and tabulated for computation. All data may not necessary, select essential data, classify them and tabulate them such a way that the will represent some qualitative as quantitative results. Then only tabulated data will be used in the research. For the purpose of study, collected and obtained data are scanned and tabulated under various heads. Selected suitable tools and proper analysis make data effective. The various calculated results obtained through financial and statistical tools are tabulated under different heading. Then they are compared, analyzed with each other to interpret results.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

In this chapter, the data have been analyzed and interpreted using financial tools following the research methodology dealt in the third chapter. In the course of analysis, data gathered from the various sources have been inserted in the tabular form according to their homogeneous nature. The results of the analysis have been compared with conventional standard with respect to ratio analysis, directives of NRB and other factors while using the tools. Furthermore, many suitable graphs, lines and diagrams have also been used to clarify the actual position of the banks.

4.2 Credit Risk

Credit risk or default risk refers to the uncertainty associated with loan repayment. Symptoms of poor loan quality include high level of non-performing assets, loan losses and examiner classified loans. A high proportion of loan relative to total assets and the rapid growth of loan portfolio are potential early warning signals of credit risk, which may indicate potential failure.

Credit risk is the major risk that banks are exposed to during the normal course of lending and credit underwriting. Credit risk is the probability that a Bank’s borrower or counter party will fail to meet its payment obligations in accordance with the terms of approval of the credit. This includes non-repayment of capital and/or interest within the agreed time frame, at the agreed rate of interest and in the agreed currency. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters.

For most banks, loans are the largest and most obvious source of credit risk; however, other sources of credit risk exist throughout the activities of a bank, including in the

banking book and the trading book, and both on and off the balance sheet. Banks increasingly face credit risk in various financial instruments other than loans, including acceptances, inter bank transactions, trade financing, foreign exchange transactions, and in the extension of commitments and guarantees and the settlement of transactions.

4.3 Loan and Advances

The bank faces greatest risk in loan and advances. Loan and Advance is the largest sources of credit risk. The total loan and advances at the end of FY 2008/09 stood at 36 billion for NIBL, and 25 billion for HBL.

The banks give loan and advances under following category.

A. Fund Based Loan

Under the fund based loan banks provide the following types of loan

1. Corporate and Business Loan
   i. Term Loan

Term loan refers to loan for a specific amount that has a specified repayment schedule and a floating interest rate.

   ii. Working Capital Loan

Working Capital Loan refers to the loan provided in order to finance everyday operations of a company.

   iii. Overdraft

Overdraft refers to the amount by which withdrawals exceeds deposits, or the extension of credit by a bank to allow for such a situation.

iv. Demand/Short Term Loan

A loan which is repayable on demand (i.e. without prior notice), rather than on a specific date is said to be a Demand Loan. Short Term loan refers to a loan payable within one year period.

v. Trust Receipt / Importers Loan

Under this a bank allows an importer to take delivery of imported goods but retains the title to them. This arrangement allows the importer to acquire and sell goods without making payment under a letter of credit.

vi. Packing Credit Loan

Packing Credit loan means the credit limit provided by the bank to the exporters till the packing of the finished materials. This facility is basically given to the exporters to enable them to import the required raw materials.

vii. Export Loan

Export loan is provided to ship a product outside a country or region.

2. Other Loan

The other types of loan that banks provide are briefly explained as below.

i. Loan against Fixed Deposit Receipt (FDR)

Bank also provides loan against Fixed Deposit Receipt of any commercial banks.

ii. Loan against Government Bonds / First Class Bank Guarantee

Bank provide loan against government bonds and first class bank guarantee.

iii. Priority Sector / Deprived Sector Loan

Commercial banks have obligation to provide loan to priority sector / deprived sector. Banks have to allocate certain amount for the priority / deprived sector.

iv. Consortium Financing

Consortium financing refers to the funding by group of banks. It helps to minimize risk since all the banks in group share the risk.

3. Consumer Loan

Money loaned to individuals (usually on non-secured basis) for personal, family, or household purposes; as opposed to business or commercial lending. However NRB has issued directive to strictly discourage this type of loan.

B. Non-Fund Based Loan

Under the non fund based loan banks provide the following types of loan

1. Letter of Credit

L/C is binding document that a buyer can request from the bank in order to guarantee that the payment for goods will be transferred to the seller. Basically, a letter of credit gives the seller reassurance that he will receive the payment for the goods. In order for the payment to occur, the seller has to present the bank with the necessary shipping documents confirming the shipment of goods within a given time frame. It is often used in international trade to eliminate risks such as unfamiliarity with the foreign country, customs, or political instability. LC is one of the major sources of income for commercial banks. Selected banks have setup separate department for issuing LC/guarantees. In HBL it's called International Banking and in NIBL it's called Trade Finance.

2. Bonds/Guarantee

Bonds / Guarantee are issued by the banks. It also raises income for the banks. Bonds are issued to raise capital and bank provides interest in such bonds. Guarantees are issued in favor of account holder.

3. Forward Contract

A forward contract is simply an agreement between two parties to buy or sell an asset at a certain future time for a certain price agreed.

The loan and advance of NIBL and HBL for the last five fiscal years can be tabulated as below.

Table No. 4.1 Total Loan and Advance of NIBL and HBL

NPR In Millions

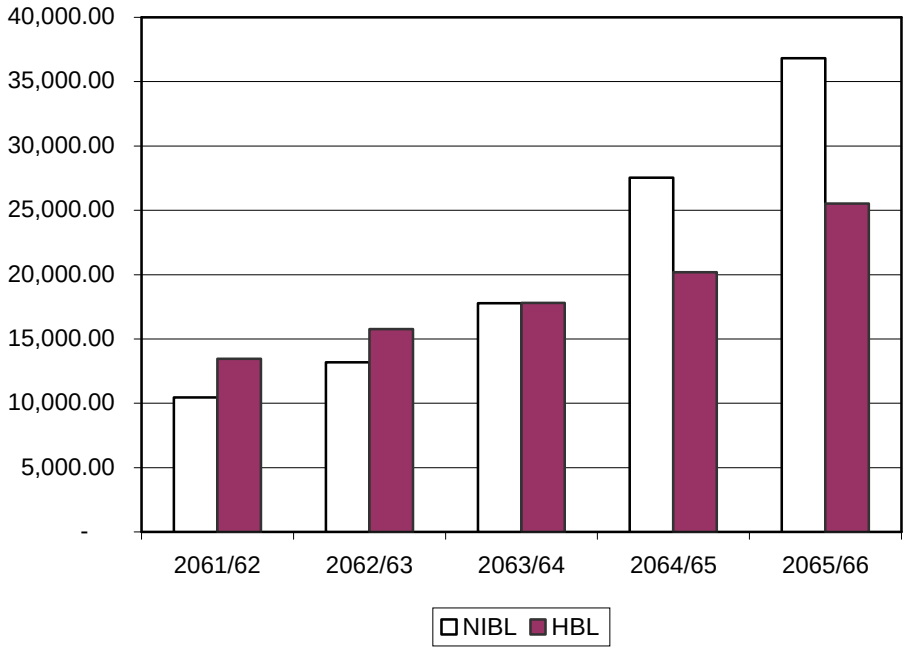
	NIBL		HBL	
Fiscal Years	**NPR**	**Growth**	**NPR**	**Growth**
2061/62	10,453.16	-	13,451.17	-
2062/63	13,178.15	21%	15,761.98	15%
2063/64	17,769.10	26%	17,793.72	11%
2064/65	27,529.31	35%	20,180.00	12%
2065/66	36,827.16	25%	25,519.52	21%
Total	**105,756.88**		**92,706.38**	

Source: Annual Report of NIBL and HBL

The above table shows the total loan and advance of NIBL and HBL. NIBL has tremendous growth rate as compared to HBL. NIBL has greater amount of risk to be managed regarding the loan and advances. However all the loans are not non-performing loan. It is obvious that bank cannot recover the entire loan it has provided to the borrowers. Hence NBR has issued a directive and made it mandatory to follow by the commercial banks.

The figures have been dramatically presented as below.

Figure No. 4.1 Loan and Advance of NIBL and HBL



4.3.1 Classification of Loan and Advances

As per NRB Directives (Directive No.2/066) loans and advances are classified as pass, standard, doubtful and loss.

1	Pass	:	Maturity up to 3 months
2	Sub Standard	:	Maturity from 3 to 6 months
3	Doubtful	:	Maturity from 6 months to 1 year
4	Loss	:	Maturity more that 1 Year.

Pass loan is also called Performing Loan. The Sub Standard, Doubtful and Loss loan are Non Performing Loan.

4.3.2 Loan Loss Provisioning

As per NRB directive (Directive No.2/066), commercial banks are required to make provision. The total provisioning percentage of amount to maintain under above classification is shown in the following table.

Table No. 4.2 Loan Loss Provisioning

S.N.	Classification	Loan Loss Provision
1	Good Loan	1%
2	Sub Standard	25%
3	Doubtful	50%
4	Bad Debt	100%

Source: NRB Directive

The following table shows the provision made by NIBL and HBL in the said categories of loan as of Ashad 2065/66.

Table No. 4.3 Total Provisioning of NIBL and HBL

NPR in Millions

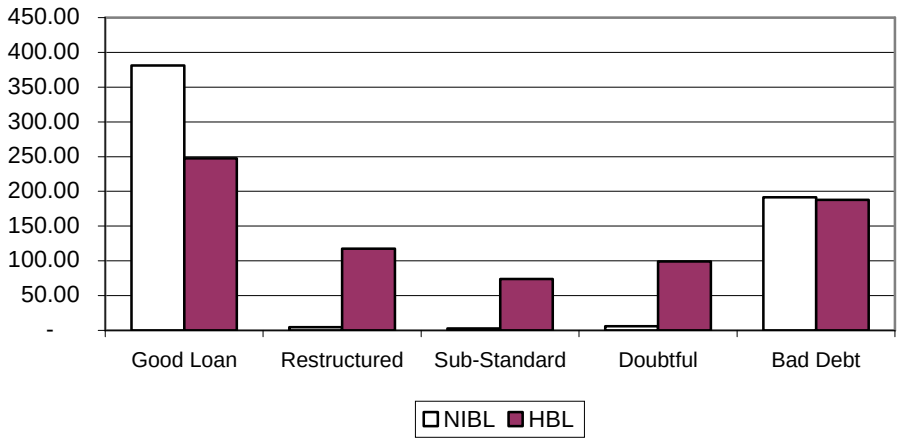
Classification	Provision (NIBL)	Provision (HBL)
Good Loan	381.20	247.69
Restructured	4.66	117.61
Sub-Standard	2.69	74.16
Doubtful	5.74	99.03
Bad Debt	191.66	187.88
Total	**585.95**	**726.36**

Source: Annual Report of NIBL and HBL

From the above tables, we can figure out that commercial banks maintain provision for the possible bad debt and doubtful debts. In order to minimize the risk relating to loan and advances, NRB has made it mandatory to make provisioning for each category of loan.

The figures have been dramatically presented as below.

Figure No. 4.2 Loan Loss Provisioning



The following table shows the total loan of NIBL and HBL in different categories as of Ashad 2065/66 according to their latest published annual report.

Table No. 4.4 Total Loan under different categories

NPR In millions

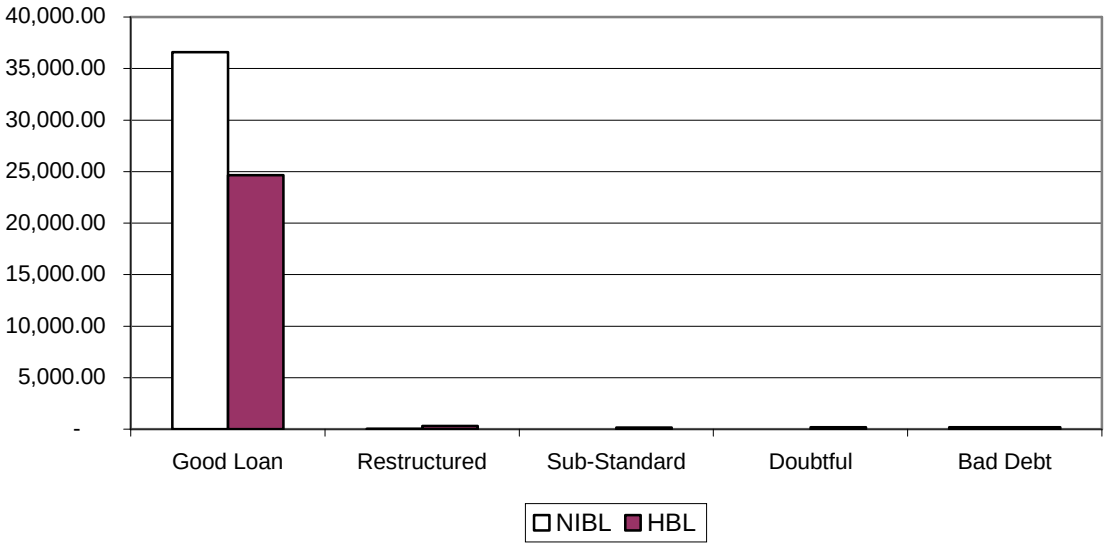
Classification	Total Loan (NIBL)	Total Loan (HBL)
Good Loan	36,576.26	24,666.64
Restructured	36.99	301.57
Sub-Standard	10.77	167.83
Doubtful	11.49	194.70
Bad Debt	191.66	188.78
Total	**36,827.16**	**25,519.52**

Source: Annual Report of NIBL and HBL

Comparing above tables, we can find, NIBL has not maintained 100 % provision for Bad Debt as per NRB directive. The same has been maintained by HBL. The amount of loan disbursed by NIBL till date is NPR 36 billion and by HBL till date is NPR 25 million. The non-performing loans of both banks are nominal.

The figures have been dramatically presented as below.

Figure No. 4.3 Total Loan



4.3.3 Performing and Non Performing Loan

According to NRB Directive No. 2/066, good loan and restructured loan is called performing loan, and remaining categories is called non-performing loan. Non performing loan include Sub-Standard, Doubtful and Bad debt. NRB has issued directive to the commercial banks to maintain sufficient provision for non performing loan. This has been dealt in the above section.

In FY 2065/66 the performing loan of NIBL stood at 36,613.25 millions whereas non performing loan stood at 213.91 million. In the same period, performing loan of HBL stood at 24,968.21 million whereas non performing loan stood at 551.31 million.

The Non-performing loan and performing loan of NIBL and HBL can be tabulated as below.

Table No. 4.5 Performing and Non-Performing Loan of NIBL and HBL

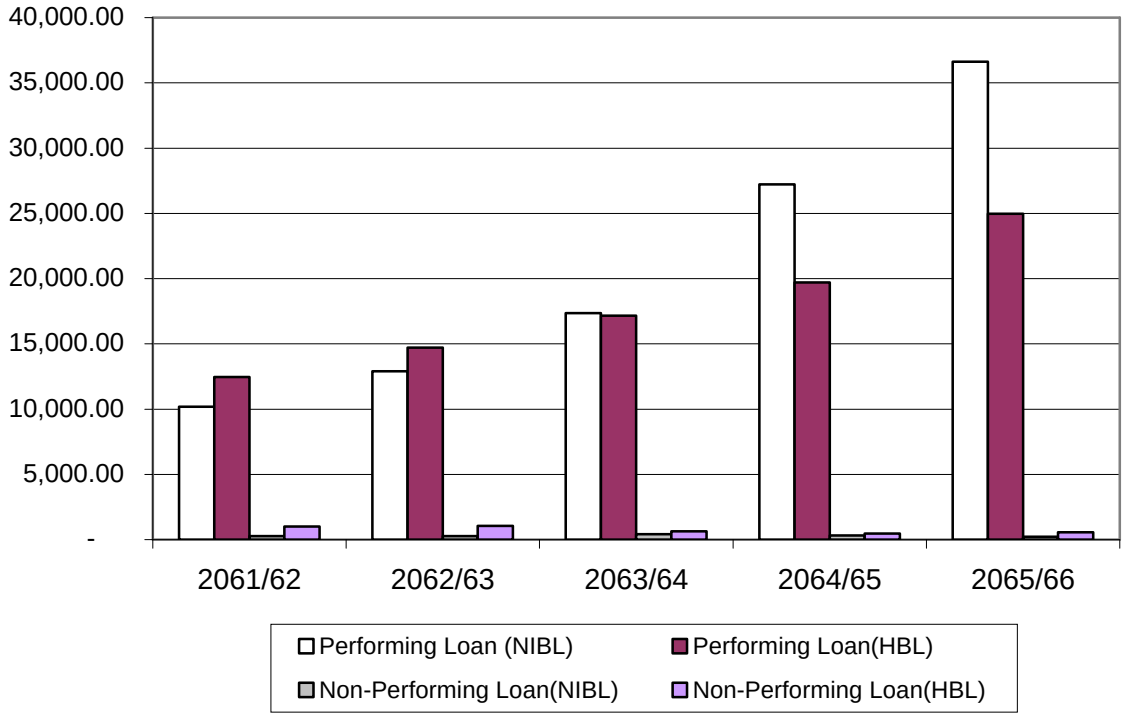
NPR in millions

	NIBL		HBL	
Years	**Performing Loan**	**Non-Performing Loan**	**Performing Loan**	**Non-Performing Loan**
2061/62	10,172.29	280.87	12,449.82	1,001.35
2062/63	12,905.66	272.49	14,721.22	1,040.76
2063/64	17,347.13	421.97	17,152.11	641.62
2064/65	27,219.83	309.47	19,702.38	477.23
2065/66	36,613.25	213.91	24,968.21	551.31
Total	**104,258.16**	**1,498.72**	**88,993.74**	**3,712.26**

Source: Annual Report of NIBL and HBL

The figures have been dramatically presented as below.

Figure No. 4.4 Performing and Non-Performing Loan



Non-Performing loan of both banks are very nominal. If we compare HBL and NIBL, NIBL has very nominal non-performing loan than HBL. Lower the non-performing loan better is the Bank's performance. The ratio of non-performing loan to the total loan has been calculated in the next section.

Similarly performing loans of both banks are substantial. There has been a constant growth in the performing loan of the selected banks. The NIBL growth rate is accelerating as compared to HBL, however HBL has maintained constant growth rate.

4.3.3.1 Non-Performing Loan Ratio

Non-Performing Loan Ratio refers to the ratio of Non-Performing loan to total loan. The less is the ratio, the less is the risk. The following table shows the non-performing loan ratio of banks under study.

Table No. 4.6 Non-Performing Loan Ratio

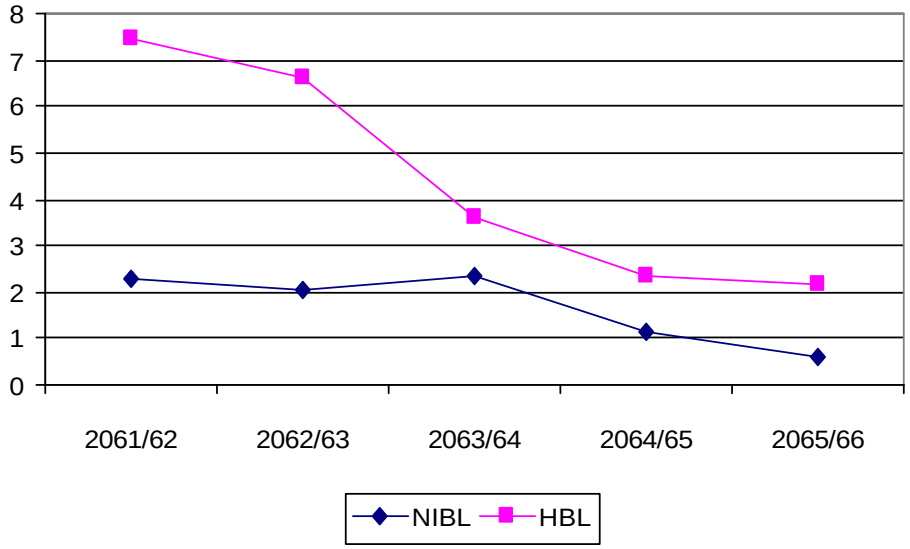
Years	NIBL	HBL
2061/62	2.26	7.44
2062/63	2.07	6.60
2063/64	2.37	3.61
2064/65	1.13	2.36
2065/66	0.58	2.16

Source: Annual Report of NIBL and HBL

Non-performing loan of NIBL is lesser. It's below 1 %. It indicates NIBL has invested in more safety sectors than HBL. The risk associated with loan and advances of NIBL is lesser as compared to HBL. NIBL has better management of risk regarding loan and advances. However the risk is nominal for both banks.

The figures have been dramatically presented as below.

Figure No. 4.5 Non Performing Loan Ratio



4.3.3.2 Interest Income from Loan and Advances

Loan and advance is the largest sources of credit risks. However it is also the largest source of income for commercial banks as mentioned earlier. Both selected banks have earned substantial amount of interest income from loan and advances.

Interest Income earned by the NIBL and HBL can be tabulated as below, from their annual report of last five years.

Table No. 4.7 Interest Income from Loan and Advances

NPR in millions

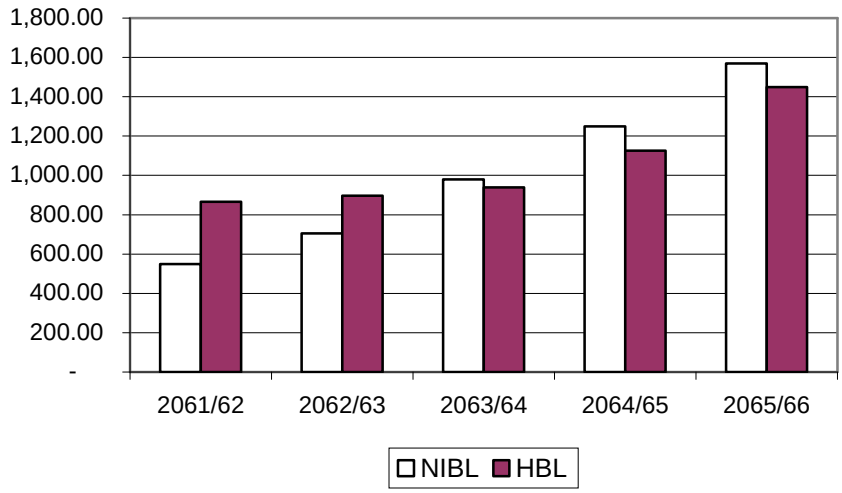
Years	NIBL	HBL
2061/62	548.40	865.77
2062/63	705.56	896.82
2063/64	979.28	938.61
2064/65	1,249.47	1,126.11
2065/66	1,569.18	1,449.89

Source: Annual Report of NIBL and HBL

NIBL interest income has significantly increased each year from 2061/62 till the end of last year. NIBL non performing loan is 2.26 % to 2.07 % from 2061/62 to 2065/66. HBL interest income has substantially increased from 2064/65 to 2065/65. The Non performing loan of HBL in the same year period is only 2.36 %. From this we can figure out, investment in less risky sector will increase the income constantly.

The figures have been dramatically presented as below.

Figure No. 4.6 Interest Income from Loan and Advances



4.3.3.3 Interest Income to Loan and Advances

In the previous section data relating to the interest income from loan and advances has been presented. In this section the percentage of interest income to the loan and advances has been tabulated.

The following table will indicates the percentage change in interest income as compared to loan and advances.

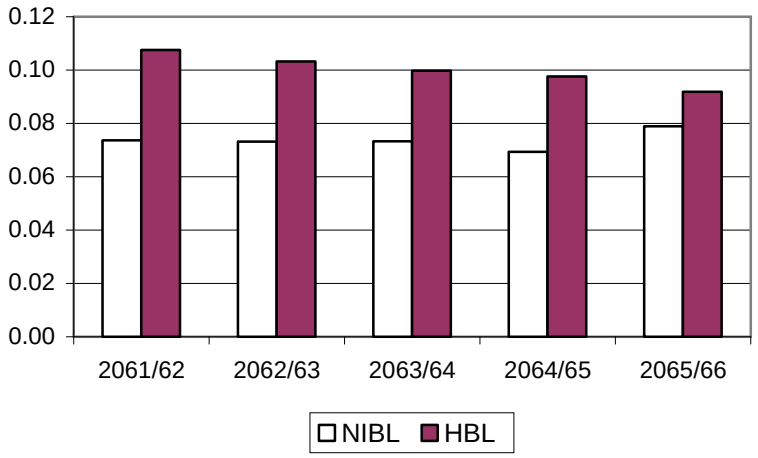
Table No. 4.8 Interest Income to Loan and Advances

Years	NIBL	HBL
2061/62	7.36%	10.75%
2062/63	7.32%	10.32%
2063/64	7.33%	9.98%
2064/65	6.93%	9.76%
2065/66	7.89%	9.18%

Source: Annual Report of NIBL and HBL

The figures have been presented as below.

Figure No. 4.7 Interest Incomes to Loan and Advances



Above table shows the share of interest income to total loan and advance. NIBL interest to loan and advances percentage is lesser as compared to HBL. This is because NIBL has more loan and advance as compared to HBL. But interest income is not substantially higher as compared to HBL. NIBL has 1.5 billion of interest income against Rs.36.6 billion of performing loan whereas HBL as 1.4 billion of interest income against Rs.24.9 billion of performing loan in the year 2065/66. This is the reason why the ratio of Interest Income to Loan and Advances of NIBL is lesser that HBL.

4.3.3.4 Risk and Return on Loan and Advances

The major portion of short-term investment of commercial banks is the loan and advances provided to various sectors of the market. It is the main source of income for the commercial banks.

The risk and return on investment regarding loan and advances can be calculated as follows:

$$\text{Return on Loan and Advances } (R_l) = \frac{\text{Interest Income from Loan and Advances}}{\text{Total Investment on Loan and Advances}}$$

$$\text{Average Rate of Return on Loan and Advances } (\bar{R}_l) = \frac{\sum_{t=1}^{n} R_l}{n}$$

Now, risk on loan and advances are denoted by $\exists_l$ and can be calculated by using following formula.

$$\sigma_l = \sqrt{\frac{\sum_{t=1}^{n} (R_l - \bar{R}_l)^2}{n}}$$

$$\text{Coefficient of Variation } (CV_l) = \frac{\sigma_g}{\bar{R}_g}$$

Where,

n = no. of historical years (period)

The following table shows the calculated values of return on loan and advances, standard deviation and coefficient of variation.

Table No. 4.9 Calculation of return on loan and advances, SD and CV

	NIBL	HBL
n	5	5
R1	7.366	9.998
SD	0.30603	0.27906
CV	0.0415	0.02791

Source: ANNAXTURE A, B

Above table and calculation shows the risk and return on investment on loan and advances of NIBL and HBL.

The average return on loan and advances is 7.366 % over the past five years for NIBL. Similarly the standard deviation is 0.30603 % and coefficient of variation is 0.0415 or 4.15 % shows the risk of investment on loan and advances which is very nominal for NIBL.

The average return on loan and advances is 9.998 % over the past five years for HBL. Similarly the standard deviation is 0.27906 % and coefficient of variation is 0.02791 or 2.791 % shows the risk of investment on loan and advances. The risk associated with loan and advances is for HBL is also minimal.

4.3.3.5 Net Profit to Loan and Advances

The following table will indicates net profit to loan and advances percentages.

Table No. 4.10 Net Profit to Loan and Advances

Years	NIBL	HBL
2061/62	2.22%	2.48%
2062/63	2.66%	3.12%
2063/64	2.82%	2.89%
2064/65	2.53%	3.26%
2065/66	2.45%	3.04%

Source: Annual Report of NIBL and HBL

The net profit percentage to loan and advance in FY 2065/66 is 2.45 % for NIBL as compared to 3.04 % for HBL. NIBL has less interest income against greater amount of loan and advances as compared to HBL.

4.3.4 Securities against Loan and Advances

The following table shows securities amount pledge with NIBL and HBL against loan and advances till the end of Ashad FY 2065/66.

Table No. 4.11 Securities Against Loan and Advances

NPR in Millions

S.N.	Paritculars	NIBL	HBL
1	Collateral of Movable / Immovable Asets	33,045.93	21,495.44
2	Local Licensed Instutious Guarantee	-	-
3	Government Guarantee	-	-
4	Internationally rated Foreign Bank Guarantee	-	76.84
5	Export Documents	-	285.35
6	Fixed Deposit Receipts	149.84	298.44
7	Government Bonds	13.15	13.02
8	Counter Guarantee	-	-
9	Personal Guarantee	8.64	5.10
10	Other Securities	3,609.60	334.54
	Total	**36,827.16**	**22,508.72**

Source: Annual Report of NIBL and HBL

4.4 Other Risk

Commercial banks in Nepal face risk other than credit risk. Other major risk that banks faces are

1. Interest Rate Risk
2. Liquidity Risk
3. Operational Risk
4. Foreign Exchange Risk

4.4.1 Interest Rate Risk

Interest rate risk arises if interest rate mismatches in both the volume and maturity of interest sensitive assets, liabilities, and off-balance sheet items. An unanticipated movement in interest rates can seriously affect the profitability of the banks.

The spread for NIBL and HBL, using total assets over the last five years is given below:

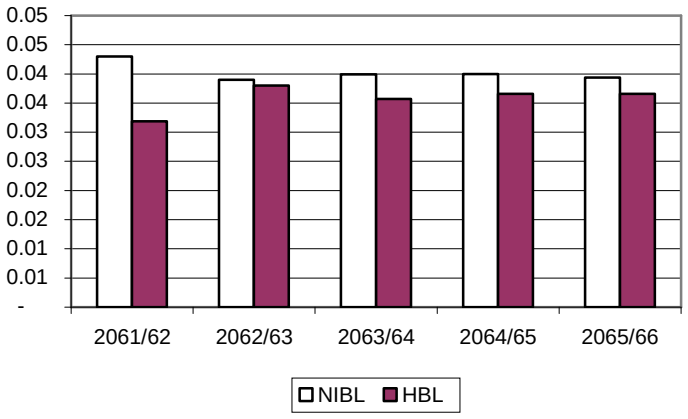
Table No. 4.12 Interest Spread Table

Years	NIBL	HBL
2061/62	4.30%	3.19%
2062/63	3.90%	3.80%
2063/64	3.99%	3.57%
2064/65	4.00%	3.66%
2065/66	3.94%	3.66%

Source: Annual Report of NIBL and HBL

The figures have been presented as below.

Figure No. 4.8 Interest Spread



The interest spread of NIBL is quite fluctuating as compared to HBL. The falling general interest rate would bring down both interest income and interest expense. The interest

rate offered to the customer as per the deposit they bring to the bank. By mutual agreement rates are set for the selected accounts. This is due to the fact that Nepal Rastra Bank has now withdrawn the regulation regarding spread and banks are now free to change their interest rate according to their policy. The spread to be maintained previously according to N.R.B was 5% before the democracy. However in normal saving scheme both banks have maintained constant interest rate for the customer.

We can calculate the standard deviation of the above spread to measure the risk of interest rate. The standard deviation for individual series is calculated as follow:

$$\pm \text{X}\sqrt{\frac{(x\,\text{Z}\bar{x})^2}{N}}$$

Table No. 4.13 Calculation of Standard Deviation of Spread

	NIBL	HBL
Average	4.03	3.58
S.D	0.02	0.0426

Source: ANNAXTURE C

Here, the standard deviation of spread of NIBL is up to 0.02 and HBL is up to 0.0426 which implies that the level of interest risk faced by banks is very minimal.

4.4.2 Liquidity Risk

A bank has adequate liquidity when sufficient funds can be raised by increasing liabilities or by converting assets promptly and at a reasonable rate. A bank is considered to be liquid if it has ready access to immediately spend able funds at reasonable cost at the time when they are needed. Banks faced with liquidity risk is forced to borrow emergency funds at excessive cost to cover its immediate cash needs, reducing its earnings.

4.4.2.1 Credit to Deposit Ratio

Credit to deposit ratio means the percentage of deposit used for loan disbursement. Total credit to deposit ratio for NIBL and HBL is shown below.

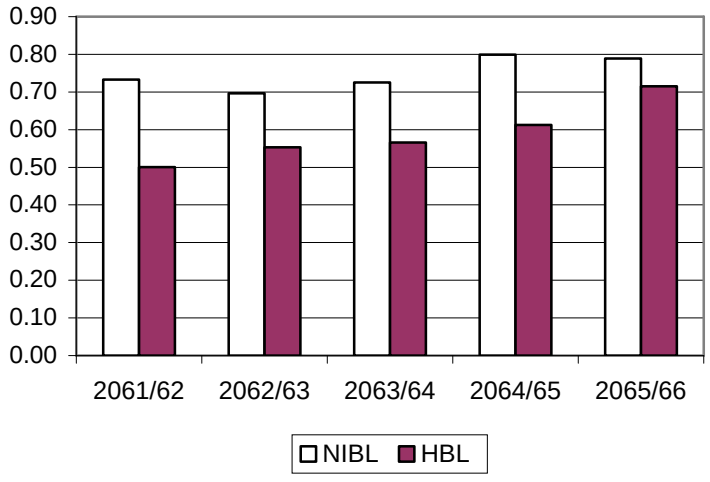
Table No. 4.14 Credit to Deposit Ratio

Years	NIBL	HBL
2061/62	73.33%	50.07%
2062/63	69.63%	55.27%
2063/64	72.56%	56.57%
2064/65	79.91%	61.23%
2065/66	78.86%	71.49%
Average	**74.86%**	**58.93%**

Source: Annual Report of NIBL and HBL

The figures have been dramatically presented as below.

Figure No. 4.9 Credit to Deposit Ratio



From the above table, it is seen that the credit to deposit ratio in average for NIBL is 74.86% from the last five year trend which means that up to 74.86% of total deposit of the bank in average are used for credit purpose and remaining are used

for fulfilling the other cash demands which implies that the bank is highly liquid. Similarly for HBL average credit to deposit ratio is 58.93 % which implies that 58.93 % of deposit is used for credit purpose. HBL have high level of liquidity that NIBL.

4.4.2.2 Correlation Analysis between Total Deposit and Total Loan and Advances

Total Deposit and Total Loan and Advances variables of NIBL and HBL for the past five years have been pressed in the following table.

Table No. 4.15 Total Deposit and Total Loan and Advances

Amount in Millions

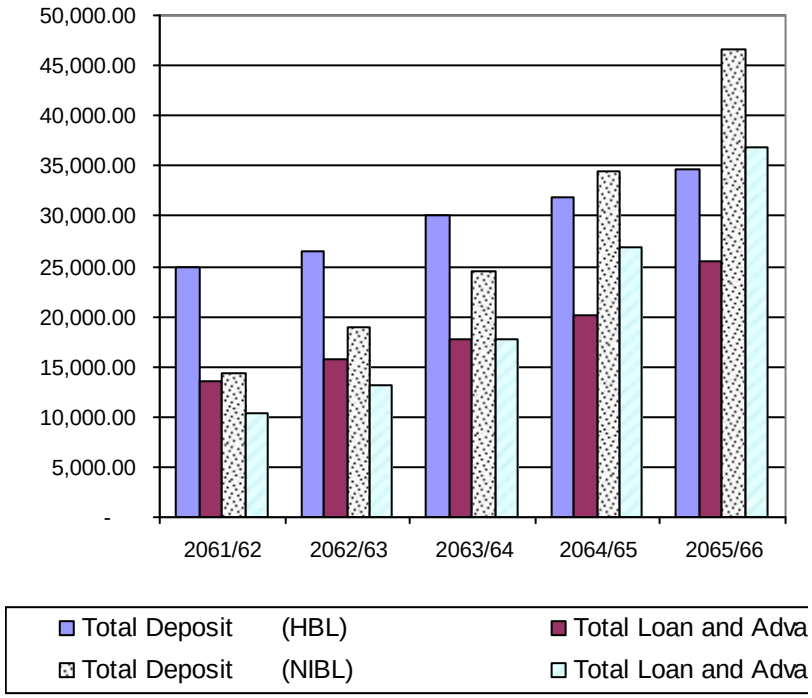
	HBL		NIBL	
Fiscal Years	Total Deposit (X)	Total Loan and Advances (Y)	Total Deposit (X)	Total Loan and Advances (Y)
2061/62	24,814.01	13,451.17	14,255.00	10,453.00
2062/63	26,490.85	15,761.98	18,927.00	13,178.00
2063/64	30,048.42	17,793.72	24,489.00	17,769.00
2064/65	31,842.79	20,180.00	34,451.00	26,966.00
2065/66	34,681.35	25,519.52	46,698.00	36,827.00
Total	**147,877.42**	**92,706.38**	**138,820.00**	**105,193.00**

Source: Annual Report of NIBL and HBL

Total lending of NIBL is 105,193.00 million against deposit of NPR 138,820.00 million. Similarly total lending of HBL is 92,706.38 million against deposit 147,877.42 million. This shows that NIBL has used almost 75 % of the deposit for lending purpose. On the other hand HBL has used only 60 % of the total deposit for lending. This shows HBL is highly liquid than NIBL, however NIBL have greater mobilization of deposit as compared to HBL.

The figures can be dramatically presented as below.

Figure No. 4.10 Deposit and Loan and Advances



The calculated values of correlation coefficient (r) and probable error (PE) can be presented as below.

Table No. 4.16 Calculation of correlation coefficient and probable error

	NIBL	HBL
r	0.39	0.12
PE	0.26	0.3

Source: ANNAXTURE D, E

Above table shows that the correlation coefficient and probable error of coefficient between total deposit and total investment on loan and advances are 0.39 and 0.26 respectively for NIBL. Here, correlation coefficient between X variable and Y variable is

0.39. It implies the high degree of positive correlation. However, correlation coefficient is not greater than six times of PE.

Similarly the correlation coefficient and probable error of coefficient between total deposit and total investment on loan and advances are 0.12 and 0.30 respectively for HBL. Here, correlation coefficient between X variable and Y variable is 0.12. It implies that there is a positive correlation. However, correlation coefficient is lesser than PE. It indicates that the correlation between total deposit and loan and advances is positively correlated and correlation is not at significant level.

4.4.2.3 Cash Reserve Ratio (CRR)

Cash Reserve Ratio is the amount of funds that bank has to keep with Nepal Rastra Bank. As per NRB directive No. 13/066, 'A' Class commercial banks has to maintain cash reserve (CRR) of 5.5 % of total deposit with NBR. The CRR percentage of NIBL and HBL can be shown as below.

Table No. 4.17 Liquidity (CRR)

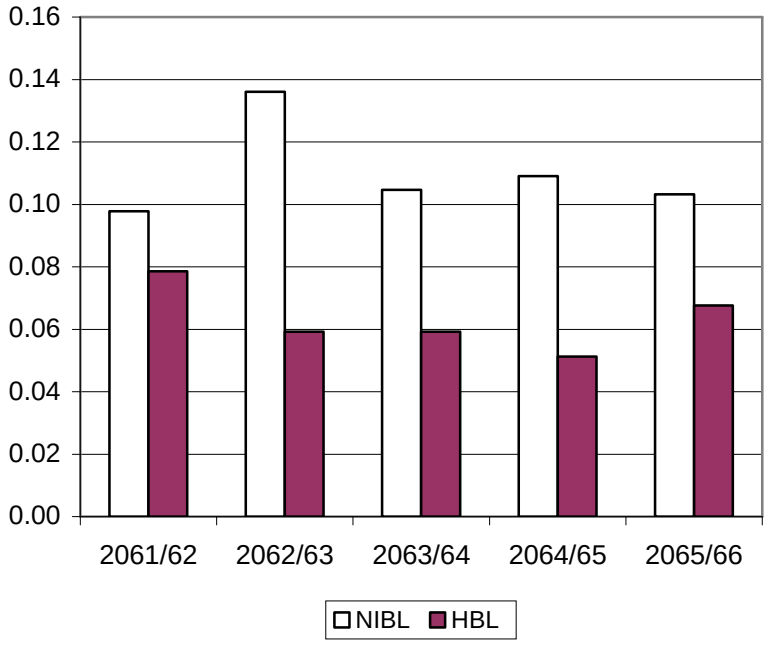
Years	NIBL	HBL
2061/62	9.78%	7.86%
2062/63	13.61%	5.92%
2063/64	10.47%	5.92%
2064/65	10.91%	5.13%
2065/66	10.32%	6.76%
Average	**11.02%**	**6.32%**

Source: Annual Report of NIBL and HBL

The CRR ratio of NIBL is 11.02 % which means that NIBL has kept 11.02 % of cash deposit with NRB. Similarly HBL has maintained 6.32 % of its cash deposit with NRB. Above table shows NIBL is highly liquid than HBL.

The figures have been dramatically presented as below.

Figure No. 4.11 Credit Reserve Ratio



4.4.3 Operational Risk

Managing operational risk is becoming an important feature of sound risk management practices in modern financial markets in the wake of phenomenal increase in the volume of transactions, high degree of structural changes and complex support system. The most important type of operational risk involves breakdowns in internal controls and corporate governance. Such breakdowns can lead to financial loss through error, fraud, or failure to perform in a timely manner or cause the interest of the bank to be compromised. At present there is no agreement upon universal definition of operational risk. Many banks have defined operational risk as any risk not categorized as market or credit risk and some have defined it as the risk of loss arising from various types of human or technical error. All banks see some form of link between credit, market, and operational risk as

type of operational risk. Some banks view it as a separate risk category with its own discrete risk factors.

4.4.3.1 Measurement of Operational Risk

Measuring operational risk requires both estimating the probability of an operational loss event and potential size of the loss. The process of operational risk assessment needs to address the likelihood of particular operational risk occurring, the magnitude of the effect of the operational risk on business objectives and the options available to manage and initiate actions to reduce/mitigate operational risk. Operational risk, as defined by the Basel committee (An Integrated Risk Management, Pg 89) is “the risk of direct or indirect loss resulting from inadequate or failed internal processes, people, and systems or from external events." The definition excludes strategic and operational risk, but includes legal risk. Operational risk can broadly be classified in the following categories:

- **Information technology risk:** system failure, internet virus, inaccurate data, poor quality of communication etc.
- **Human resources risk:** recruitment procedures, incompetent staff, holiday policy etc.
- **Loss to assets risk:** risk that damages and interrupts business. The damage could be due to fire, flood or earthquake.
- **Relationship risk:** changes in regulatory requirements, claims, customer satisfaction, lawsuits etc.

There are three approaches to the assessment of capital requirements for operational risk viz, basic indicator approach, standardized approach and internal measurement approach.

Under basic indicator approach, operational risk capital is allocated using a single indicator as a proxy for an institutions overall operational risk exposure. Gross income is proposed as the indicator, with each bank holding capital for operational risk equal to a fixed percentage, multiplied by its individual amount of gross income.

Under the standardized approach, banks activities are divided into a number of standardized business units and business lines, as given by the Banks For International Settlements (BIS). Within each business line, regulators specify a broad indicator that is intended to reflect the size or volume of a banks activity in the area. The indicator serves as a rough proxy for the amount of operational risk within each of these business lines; within each line the required capital is calculated by multiplying an indicator, such as gross income or asset size of the business line, by a fixed percentage. The total capital charge is the simple sum of the required capital across each business line.

In the case of internal measurement approach, banks internal loss data are used and the method to calculate the required capital is uniformly set by supervisors. Banks activities are categorized into number of business lines. Within each business line or loss type combination, the supervisor specifies an Exposure Indicator (EI) a proxy for the size of a particular business lines operational risk exposure. In addition to EI, for each business line or loss type combination, banks measure based on their internal loss data, a parameter representing the probability of the occurrence of loss event as well as a parameter representing the loss given that event. Expected loss is arrived at by the multiplication of expected loss, loss given that event and probability of occurrence of loss event.

4.4.4 Foreign Exchange Rate Risk

According to NRB directive 5/066 (section 4), following directives are given to commercial bank for minimizing foreign exchange risk:

- Commercial banks are required to send foreign exchange statement to NRB with possible effect of fluctuation in exchange rate within 7 days of each week.
- Banks are required to maintain foreign exchange reserve to minimize the above said risk.
- Banks are required to show the net position on the basis of long period and shot period foreign exchange monetary benefit.

- Banks are required to maintain foreign exchange reserve up to 30% of core capital to minimize the above said risk.

The bank under study, apart from following the directives of NRB, regarding minimization of foreign exchange risk, has also adopted the following techniques:

It converts its foreign currency liabilities into assets, thus neutralizing the foreign exchange risk. For example, if someone deposit USD 100,000, then bank invest that amount somewhere else at higher rate of interest guaranteed on deposit. So, the bank doesn't face any type of exchange risk at this situation.

Secondly, to gain from the fluctuating currency rate, it studies the fluctuation in Indian currency rate with dollar because 90% of foreign exchange take place in dollar and Nepalese foreign currency market is mainly guided by Indian currency. So, if bank expects that Indian currency rate is becoming strong, then Nepalese currency will be strong and vice versa and decision to sell or stock the foreign currency will be decision of management.

The following table shows the foreign exchange gain made by NIBL and HBL over the last five years:

Table No. 4.18 Foreign Exchange Gain

NPR In millions

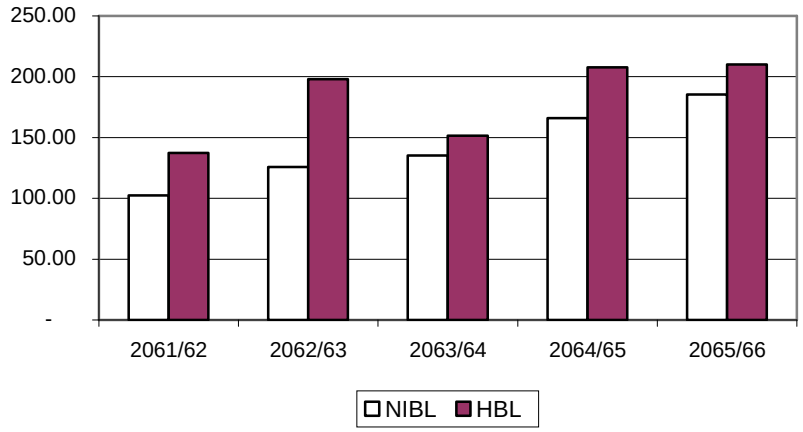
Years	NIBL	HBL
2061/62	102.52	137.30
2062/63	125.75	198.13
2063/64	135.36	151.64
2064/65	165.84	207.67
2065/66	185.33	209.98
Total	**714.79**	**904.72**

Source: Annual Report of NIBL and HBL

Foreign Exchange gain has been constantly increasing for NIBL and HBL. Foreign Exchange gain of HBL is quite substantial since HBL is the higher importer of worker's remittance from Gulf. Hence we can say that foreign exchange loss is very minimal for both banks.

The figures have been dramatically presented as below.

Figure No. 4.12 Foreign Exchange Gain



The following table shows the foreign exchange gain to total income percentage of NIBL and HBL over the last five years:

Table No. 4.19 Foreign Exchange gain to Total Income

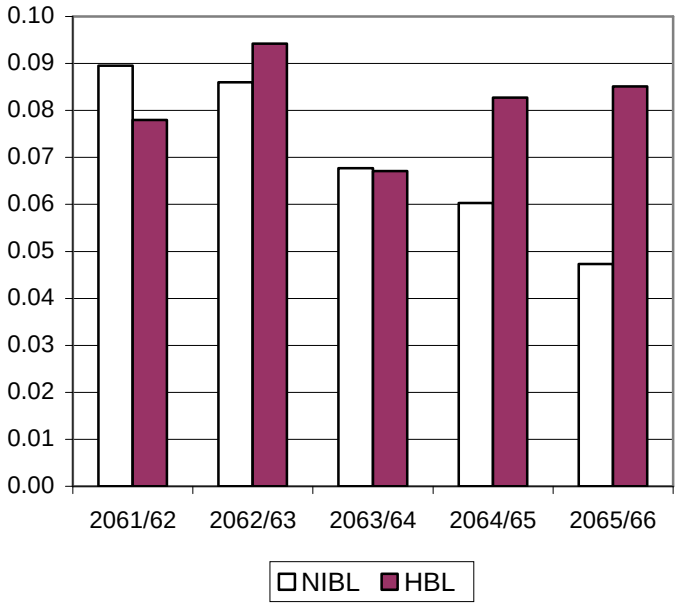
Years	NIBL	HBL
2061/62	8.95%	7.80%
2062/63	8.60%	9.42%
2063/64	6.77%	6.71%
2064/65	6.03%	8.27%
2065/66	4.73%	8.51%
Average	**7.02%**	**8.14%**

Source: Annual Report of NIBL and HBL

Above table shows, foreign exchange contribute substantial percentage to bank's total income.

The figures have been dramatically presented as below.

Figure No. 4.13 Foreign Exchange Gain to Total Income



4.5 Capital Adequacy Framework (Basel II)

"International Convergence for Capital Measurements and Capital Standards: Revised Framework" alias Basel II under Pillar 1, provides three distinct approaches for computing capital requirements for credit risk and three other approaches for computing capital requirements for operational risk. These approaches for credit and operational risks are based on increasing risk sensitivity and allow banks to select an approach that is most appropriate to the stage of development of bank's operations. The product and services offered by the Nepalese Banks are still largely primitive and conventional, in comparison to other economies. This coupled with the various inherent limitations of our system like the absence of credit rating agencies makes the advanced approaches impractical and unfeasible. Within Basel II, there are two approaches for credit risk measurement: the standardized approach and the internal ratings based (IRB) approach. Due to various inherent constraints of the Nepalese banking system, the standardized

approach in its simplified form, Simplified Standardized Approach (SSA), has been prescribed in the initial phase.

4.5.1 Minimum Capital Requirement

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

1. A Tier 1 (core) capital of not less than 6 % of total risk weighted exposure;
2. A total capital fund of not less than 10 % of its total risk weighted exposure.

The Capital Adequacy Ratio (CAR) is calculated by dividing eligible regulatory capital by total risk weighted exposure. The total risk weighted exposure shall comprise of risk weights calculated in respect of bank's credit, operational and market risks.

4.5.1.1 Core Capital (Tier-1)

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

The BCBS has therefore concluded that capital, for supervisory purposes, should be defined in two tiers in a way, which will have the effect of requiring at least 50% of a bank's capital base to consist of a core element comprised of equity capital and published reserves from post-tax retained earnings. In order to rank as Tier 1, capital must be fully paid up, have no fixed servicing or dividend costs attached to it and be freely available to absorb losses ahead of general creditors. Capital also needs to have a very high degree of permanence

The following table shows CAR of NIBL and HBL over the last five years under Tier 1 Capital to total risk weighted exposures.

Table No. 4.20 Tier 1 Capital to total risk weighted exposures.

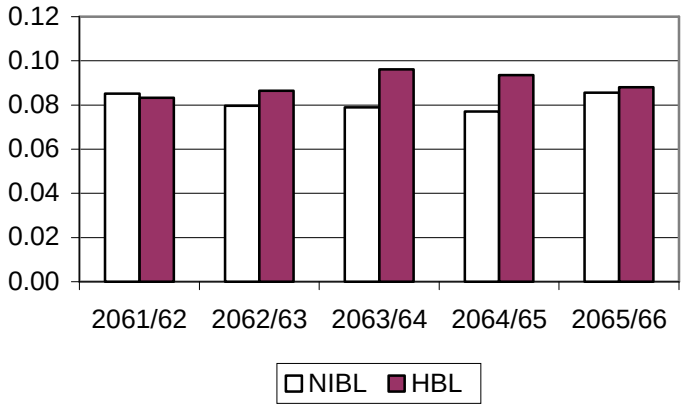
Years	NIBL	HBL
2061/62	8.52%	8.33%
2062/63	7.97%	8.65%
2063/64	7.90%	9.61%
2064/65	7.71%	9.36%
2065/66	8.56%	8.81%
Average	**8.13%**	**8.95%**

Source: Annual Report of NIBL and HBL

As per NRB directive, the core capital should not be less than 6 % of total risk weighted exposures. Here both the banks have more that 6 % of CAR under tier 1. The both banks have maintained optimum capital adequacy ratio. It also represents the financial soundness of the selected banks.

The figures have been dramatically presented as below.

Figure No. 4.14 Tier 1 Capital to Total Risk Weighted Exposure



4.5.1.2 Supplementary Capital (Tier-2)

The Supplementary (Tier 2) Capital includes reserves which have been passed through the profit and loss account and all other capital instruments eligible and acceptable for capital purposes. Elements of the Tier 2 capital will be considered as capital funds up to a maximum of 100 percent of Tier 1 capital arrived at, after making adjustments.

In case, where the Tier 1 capital of a bank is negative, the Tier 2 capital for regulatory purposes shall be considered as zero and hence the capital fund, in such cases, shall be equal to the core capital.

As per NRB Tier -1 Capital should not be less than 6% of total risk weighted exposure and total Capital Fund should not be less than 10 % of total risk weighted exposure. However regarding Tier-2 Capital there is no such requirements.

The following table shows CAR of NIBL and HBL over the last five years under Tier 2 Capital to total risk weighted exposures.

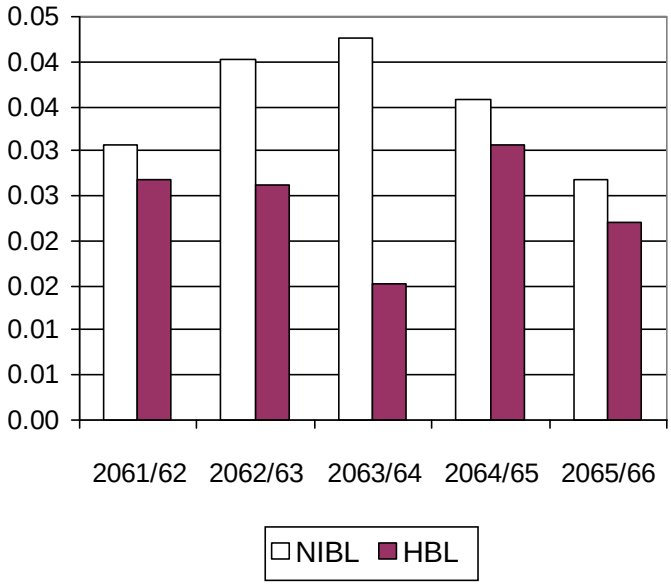
Table No. 4.21 Tier 2 Capital to total risk weighted exposures

Years	NIBL	HBL
2061/62	3.06%	2.68%
2062/63	4.01%	2.62%
2063/64	4.26%	1.51%
2064/65	3.57%	3.06%
2065/66	2.68%	2.21%
Average	**3.52%**	**2.42%**

Source: Annual Report of NIBL and HBL

The figures have been dramatically presented as below.

Figure No. 4.15 Tier 2 Capital to Total Risk Weighted Exposure



4.5.1.3 Total Capital Fund

The following table shows CAR of NIBL and HBL over the last five years under Tier 1 and Tier 2 Capital to total risk weighted exposures.

Table No. 4.22 Total Capital to Total Risk Weighted Exposures

Years	NIBL	HBL
2061/62	11.58%	10.01%
2062/63	11.97%	11.26%
2063/64	12.17%	11.13%
2064/65	11.28%	12.42%
2065/66	11.24%	11.02%
Average	**11.65%**	**11.17%**

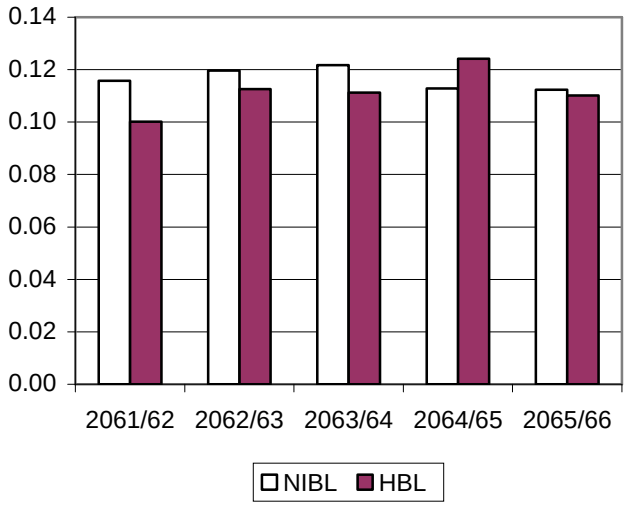
Source: Annual Report of NIBL and HBL

As per NRB, the total capital should not be less than 10 % of total risk weighted exposures. Here both the banks have more that 10 % of CAR. From the above table, it

is found that the bank has maintained the adequate capital ratio of risk weighted assets according to directive given by NRB.

The figures have been dramatically presented as below.

Figure No. 4.16 Total Capital to Total Risk Weighted Risk Exposure



4.5.2 Simplified Standardized Approach

Under this approach commercial banks are required to assign a risk weight to their balance sheet and off-balance sheet exposures. These risk weights are based on a fixed weight that is broadly aligned with the likelihood of a counterparty default. As a general rule, the claims that have already been deducted from the core capital shall be exempt from risk weights for the measurement of credit risk.

In order to be consistent with the Basel-II framework, the credit risk for the regulatory capital purpose shall be computed by segregating the exposure in the following 11 categories set by NRB.

Table No. 4.23 Risk weighted criteria

S.N.	Particulars	Risk Weight
1	Claims on government & central bank	0% for Cental Bank and as per ECA rating for Foreign Banks
2	Claims on other official entities	0% for MDBs and 100 % for others; as per ECA rating for public sector entities
3	Claims on banks	20 % for Domestic, and for Rest 100 %; as per ECA rating for foreign banks
4	Claims on corporate & securities firms	100 % for domestic; as per ECA rating for Foreign.
5	Claims on regulatory retail portfolio	75%
6	Claims secured by residential properties	60 % to 150 %
7	Claims secured by commercial real state	100%
8	Past due claims	150%
9	High risk claims	150%
10	Other assets	20 % to 100 %
11	Off balance sheet items	20 % to 100 %

Source: NRB Directive

Claims on foreign government, their central banks as well as foreign corporate shall be generally risk-weighed on the basis of the consensus country risk scores of Export Credit Agencies (ECA). Wherever there are claims relating to unrated countries, they shall generally be risk weighed at 100 percent. However, these claims shall be subject to supervisory review and higher risk weight shall be assigned where the review process deems appropriate.

All kinds of claims including loans and advances as well as investments shall be risk weighed net of specific provisions. Generally provision related to any receivable or investment is not defined as general or specific. In such situation, the total provision against any claim/exposure (other than the loans and advances) shall be considered as specific provision. However, provisions eligible for the supplementary capital shall not be allowed for netting while calculating risk weighted exposures.

In case of loans, advances and bills purchased the provisions created in lieu of Pass loans only are classified as General loan loss provision. All other provisions are components of specific loan loss provision. Hence, general loan loss provision doesn't comprise provisions created in respect of rescheduled/restructured and non performing loans. It also doesn't include additional provisions created for personal guarantee loans or lending in excess of Single Obligor Limits. However, provisions created in excess of the regulatory requirements and not attributable to identifiable losses in any specific loans shall be allowed to be included in the General Loan Loss Provision.

4.5.3 Risk Weighted Exposures for Credit Risk

The following table shows the data related to risk weighted exposures for Credit Risk of NIBL and HBL for the last fives years.

Table No. 4.24 Risk Weighted exposures for Credit risk

NPR In Millions

Years	NIBL	HBL
2061/62	13,632.91	15,329.22
2062/63	17,491.79	17,550.27
2063/64	23,435.63	19,616.60
2064/65	36,518.50	26,006.89
2065/66	42,975.19	32,628.85
Total	**134,054.02**	**111,131.83**

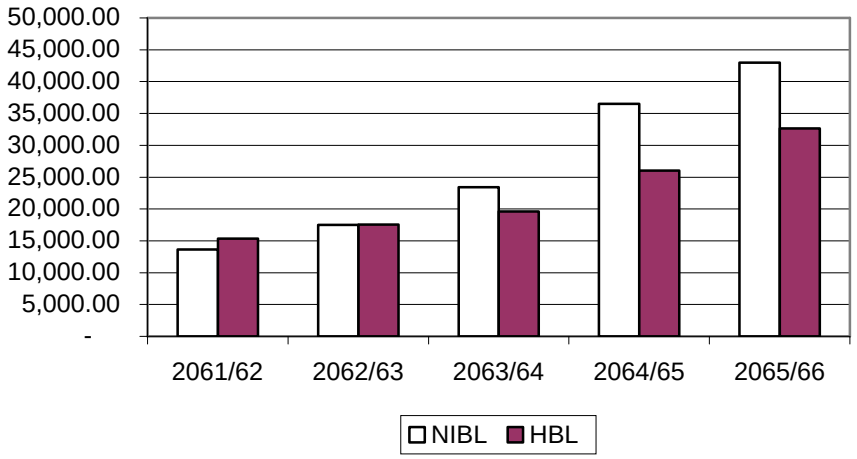
Source: Annual Report of NIBL and HBL

NIBL has total of NPR 134,054.02 millions of claim to recover. Similarly the HBL has total of NPR 111,131.83 millions claim of receivable. Above table shows NIBL is exposed to more risky investment than HBL. This data is calculated on the basis of the criteria set by NRB. The table shows the credit risk exposure has been increasing for both banks. In order to manage credit risk, NRB has suggested collateralizing or may be guaranteed by the third party. The banks are allowed to reduce their credit exposure to

counterparty when calculation capital requirements to take account of the risk mitigation effect of collateral.

The figures have been dramatically presented as below.

Figure No. 4.16 Risk Weighted Exposure to Credit Risk



4.5.4 Credit Risk Mitigation

As per Capital Adequacy Framework (2007) issued by NRB, Banks may use a number of techniques to mitigate the risks to which they are exposed. The prime objective of this provision is to encourage the banks to manage credit risk in a sensible and effective manner. As such, credit risks exposures may be collateralized in whole or in part with cash or securities, or a loan exposure may be guaranteed by a third party. Where these various techniques meet the minimum conditions, banks which take eligible financial collateral are allowed to reduce their credit exposure to counterparty when calculating their capital requirements to take account of the risk mitigating effect of the collateral. However, credit risk mitigation is allowed only on an account by account basis, even within regulatory retail portfolio.

As a general rule, no secured claim should receive a higher capital requirement than an otherwise identical claim on which there is no collateral. Similarly, the effects of the CRM shall not be double counted and capital requirement will be applied to banks on either side of the collateralized transaction.

Where the same security has been pledged for both the funded and non funded facilities, banks should clearly demarcate the value of security held for funded and non funded facility. In cases where the bank has obtained same security for various forms of facilities; banks are eligible to claim the CRM benefit across all such exposures up to the eligible value of CRM.

Methodology for using CRM

Step 1: Identify the accounts eligible for capital relief under credit risk mitigation.

Step 2: Assess the value of the exposure and the eligible collateral. The value of the eligible collateral is the lower of the face value of the instrument or the outstanding amount of exposure

Step 3: Adjust the value of the eligible collateral in respect of the supervisory haircut in terms of currency mismatch and other eligibility requirements.

Step 4: Compare the adjusted value of the collateral with the outstanding exposure.

Step 5: The value of the eligible CRM is the lower of the adjusted value of the collateral and the outstanding exposure.

Step 6: Plot the eligible CRM in the appropriate category of credit risk.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary, Conclusion and Recommendation

This chapter is a summary of the study and it released some suggestive package. It contains summary, conclusion and recommendations. Summary is a brief introduction of whole study. Conclusions are made on the basis of the analysis of relevant data by using various financial and statistical tools. It also appears the strength, weakness, opportunities and threats of the joint venture banks. Recommendations are presented in term of suggestions, which are prepared on the basis of findings and conclusion.

5.2 Summary

The development of country largely depends on the level of economic development. The economy of nation depends on the uses of available resources in efficient way. The proper utilization of capital appreciates in wealth position of country. Banks and other financial institutions play important role in successful formulation and effective implementation of capital. Hence, the proper mobilization and utilization of available resources are important factors for economic development.

Commercial banks and financial institutions are the backbone of the Nepalese economy at present. It plays vital role in capital formulation, proper utilization of collected fund, providing various type of banking services. Commercial banks collect money from public by providing attractive interest and can earn profit by lending it on mainly in business organization, industrial, agricultural sectors etc. So, we can say the main task of commercial bank is to mobilize idle resources in productive areas by collecting it from scattered sources and generating profit. Banks role as intermediaries channeling between saving and investment and fulfill the credit needs of customer as well as investment requirement of savers. It is clear that efficient and stable banking systems are crucial for an orderly economic growth.

We have witnessed that for last few years, many commercial activities have been significantly growing up especially in the financial sector in Nepal. Basically, in the banking world, Nepal is still in its infant stage although the numbers of financial institution have been increasing. Furthermore, many financial institutions like commercial banks, development banks, insurance companies, co-operative societies and others have been set up with in the short period. However in Nepal the investment are concentrated on selected sectors only. This has limited the opportunity of investing for commercials banks. Hence in such a situation, investing in safe projects by analyzing the risk associated with give constant return to the banks. Similarly banks have to maintain adequate capital in order to minimize risk and protect depositor's money.

From the above analysis, we found that performing loan have been increasing against non-performing loan which are in decreasing trend. Both banks have maintained sufficient provision for non-performing loan. Similarly interest income from loan and advances is increasing for both the banks; however growth in interest to income ratio is not substantial. The average return on loan and advances for NIBL is 7.366 % and HBL is 9.998 %, as per the calculation on the basis of past five year's data. As a result average return on Net Profit to Loan and advance is also constant for last five year for both banks.

Standard Deviation of interest spread for NIBL is 0.02 and HBL is 0.0426. It implies that banks faces nominal risk regarding interest rate risk. Credit to Deposit ratio of NIBL is higher than HBL. Correlation analysis of Credit and Deposit shows that, correlation between credit and deposit for both banks is insignificant. Both banks have maintained Cash Reserve ratio as per NRB regulation. Foreign Exchange Risk is also nominal for both banks, since foreign exchange gain has been increasing for both banks.

Both banks have maintained CAR as per NRB Directives. CAR of NIBL is 11.65% and HBL is 11.17 %. It implies that both banks have enough capital to minimize risk relating to credit, operation and market.

5.3 Conclusion

As per analysis and interpretation of data in the previous chapter, the following conclusions have been derived.

- It has been seen that the selected banks are sensitive towards the inherent risk of banking operations. Proper policies, procedures, guidelines and tools have been developed with appropriate triggers. That forms the guiding pillars for its operations.
- During the course of study it is observed that actions were taken for the protection of the interest of depositors and investors, the capital fund and risk bearing fund were adequate, the business of the bank was conducted satisfactorily and the banks transaction were found to be within the scope of its authority.

5.4 Recommendation

The findings of the study may provide important information for those who are concerned directly or indirectly with the risk management commercial banks. On the bans of analysis and findings of the study following suggestion and recommendations can be outlined.

1. In spite of loan loss provisions and decreasing non-performing loans in recent past, the banks should adopt sound credit collection policy. It helps them to decrease loan loss provision and non-performing loan. The policy should cover rapid identification of bad loans, immediate contact with borrower and continual follow-up until a loan is recover. The recovery of loan is most challenging job in the bank. Therefore the bank must be very careful in strengthen credit collection policy.

2. The banks have to strictly follow NRB directives. It will help to reduce credit risk arising from borrower's defaulter leak of proper credit appraisal, defaulter by black listed borrowers and professional defaulter. Government has established credit inebriation Bureau, which will guide commercial bank, so the bank is suggested to follow project oriented approach and avoid more risky area of lending.
3. The marketing strategies should be innovative that would attract and retain the customers. The bank is recommended to develop an innovative approach to bank marketing for its well being and sustainability in the market.
4. It is also recommended to all commercial banks, they need to identify the new investment sectors and make efficient investment in the various sectors. So the existing return to shareholders will be increase.
5. Commercial banks are recommended to invest in micro finance directly or indirectly. It will serve nation interest.
6. NIBL have recently carried out NIBL Heritage Marathon. It is strongly recommended for commercial banks to conduct such activities in future in order to preserver our heritage. They have to fulfill social obligations as well.

NRB and Nepal Government have encouraged the commercial banks to expand the banking services in rural areas without making unfavorable impacts in their profit. Commercial banks are recommended to expand its branches and provide banking services and facilities to the rural and communities to accelerate rural areas economic development through opening new branches in particular areas.

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ANNEXURE

Annex- 'A'

Calculation of Return on Loan and Advances for NIBL

The following table shows the calculation of risk and return on loan and advances.

NIBL			
Fiscal Years	**Ratio (R_1)**	$R_1 - \overline{R_1}$	$(R_1 - \overline{R_1})^2$
2061/62	7.36	0.00	0.0000
2062/63	7.32	-0.04	0.0016
2063/64	7.33	-0.03	0.0009
2064/65	6.93	-0.43	0.1849
2065/66	7.89	0.53	0.2809
Total	36.83	0.0300	0.4683

$R_1 = 36.83$

$n = 5$

$\overline{R_1} = \frac{R_1}{n} = \frac{36.83}{5} = 7.366$

$S.D(\sigma_1) = \sqrt{\frac{\sum (R_1 - \overline{R_1})^2}{n}} = \sqrt{\frac{0.4683}{5}} = 0.30603$

$Coefficient of Variation (CV_1) = \frac{\sigma_1}{\overline{R_1}} = \frac{0.30603}{7.366} = 0.0415$

Annex- 'B'

Calculation of Return on Loan and Advances for HBL

The following table shows the calculation of risk and return on loan and advances.

HBL			
Fiscal Years	**Ratio (R_1)**	$R_1 - \overline{R_1}$	$(R_1 - \overline{R_1})^2$
2061/62	10.75	0.7520	0.5655
2062/63	10.32	0.3220	0.1037
2063/64	9.98	-0.0180	0.0003
2064/65	9.76	-0.2380	0.0566
2065/66	9.18	-0.8180	0.6691
Total	49.99	0.0000	1.3953

$$R_1 = 49.99$$

$$n = 5$$

$$\overline{R_1} = \frac{R_1}{n} = \frac{49.99}{5} = 9.998$$

$$S.D(\sigma_1) = \sqrt{\frac{\sum (R_1 - \overline{R_1})^2}{n}} = \sqrt{\frac{1.3953}{5}} = 0.27906$$

$$Coefficient of Variation (CV_1) = \frac{\sigma_1}{\overline{R_1}} = \frac{0.27906}{9.998} = 0.02791$$

Annex- 'C'

Calculation of Standard Deviation of Spread of NIBL

Years	X	$(X - \bar{X})$	$(X - \bar{X})^2$
2061/62	4.30	0.27	0.073
2062/63	3.90	(0.13)	0.017
2063/64	3.99	(0.04)	0.002
2064/65	4.00	(0.03)	0.001
2065/66	3.94	(0.09)	0.008
	20.13	(0.02)	0.100

$$\bar{x} = \frac{x}{N} = \frac{20.13}{5} = 4.03$$

$$\pm \sqrt{\frac{(x - \bar{x})^2}{N}} = \sqrt{\frac{0.1}{5}} = 0.02$$

Calculation of Standard Deviation of Spread of NIBL

Years	X	$(X - \bar{X})$	$(X - \bar{X})^2$
2061/62	3.19	(0.39)	0.152
2062/63	3.80	0.22	0.048
2063/64	3.57	(0.01)	0.000
2064/65	3.66	0.08	0.006
2065/66	3.66	0.08	0.006
	17.88	(0.02)	0.213

$$\bar{x} = \frac{x}{N} = \frac{17.88}{5} = 3.58$$

$$\pm \sqrt{\frac{(x - \bar{x})^2}{N}} = \sqrt{\frac{0.213}{5}} = 0.0426$$

Annex- 'D'

Correlation Analysis between Total Deposit and Total Loan and Advances of NIBL

NIBL					
Fiscal Years	Total Deposit (X)	Total Loan and Advances (Y)	*XY*	X^2	Y^2
2061/62	14,255.00	10,453.00	149,007,515.00	203,205,025.00	109,265,209.00
2062/63	18,927.00	13,178.00	249,420,006.00	358,231,329.00	173,659,684.00
2063/64	24,489.00	17,769.00	435,145,041.00	599,711,121.00	315,737,361.00
2064/65	34,451.00	26,966.00	929,005,666.00	1,186,871,401.00	727,165,156.00
2065/66	46,698.00	36,827.00	1,719,747,246.00	2,180,703,204.00	1,356,227,929.00
Total	138,820.00	105,193.00	3,482,325,474.00	4,528,722,080.00	2,682,055,339.00

x X138,820.00

x X105,193.00

xy X3,482,325,474

x^2 X4,528,722,080

y^2 X2,682,055,339.00

Now,

$$r \text{ X} \frac{n \mid xy \text{ Z } x \mid y}{\sqrt{n \mid x^2 \text{ Z } x}\sqrt{n \mid y^2 \text{ Z} f \; y\text{Å}^2}}$$

$$r \text{ X} \frac{5 \mid 3{,}482{,}325{,}474 \text{ Z}138{,}820 \mid 105{,}193}{\sqrt{5 \mid 4{,}528{,}722{,}080 \text{ Z}138{,}820}\sqrt{5 \mid 2{,}682{,}055{,}339 \text{ Z} f 105{,}193\text{Å}^2}}$$

r X0.39

Again,

$$PE(r) \text{ X} 0.6745 \mid \frac{[1 \text{ Z} (0.39)^2]}{\sqrt{5}}$$

$PE(r)$ X0.26

Annex- 'E'

Correlation Analysis between Total Deposit and Total Loan and Advances of HBL

HBL					
Fiscal Years	Total Deposit (X)	Total Loan and Advances (Y)	*XY*	X^2	Y^2
2061/62	24,814.01	13,451.17	333,777,443.95	615,735,190.74	180,933,920.56
2062/63	26,490.85	15,761.98	417,548,194.26	701,765,220.61	248,439,918.95
2063/64	30,048.42	17,793.72	534,673,252.19	902,907,409.64	316,616,613.79
2064/65	31,842.79	20,180.00	642,587,329.99	1,013,963,233.97	407,232,198.20
2065/66	34,681.35	25,519.52	885,051,247.24	1,202,795,703.42	651,245,849.99
Total	147,877.42	92,706.38	2,813,637,467.63	4,437,166,758.39	1,804,468,501.49

Here,

x X147,877.42

y X92,706.38

xy X2,813,637,467.63

x^2 X4,437,166,758.39

y^2 X1,804,468,501.49

Now,

$$r \text{ X} \frac{n \mid xy \text{ Z } x \mid y}{\sqrt{n \mid x^2 \text{ Z } x}\sqrt{n \mid y^2 \text{ Z} f \; y Å^2}}$$

$$r \text{ X} \frac{5 \mid 2{,}813{,}637{,}467.63 \text{ Z} 147{,}877.42 \mid 92{,}706.38}{\sqrt{5 \mid 4{,}437{,}166{,}758.39 \text{ Z} 147{,}877.42}\sqrt{5 \mid 1{,}804{,}468{,}501.49 \text{ Z} f 92{,}706.38 Å^2}}$$

r X0.12

Again,

$$PE(r) \text{ X} 0.6745 \mid \frac{[1 \text{ Z} (0.12)^2]}{\sqrt{5}}$$

$PE(r)$ X0.30