

**CAPITAL STRUCTURE MANAGEMENT OF NEPAL INVESTMENT
BANK LIMITED AND BANK OF KATHMANDU LIMITED**

by:

Rupa Kandel

Birendra Multiple Campus

TU Regd. No: 7-2-241-430-2005

Symbol No. : 190059 (2065/067)

A Thesis Submitted to:

Office of the Dean

Faculty of Management

Tribhuvan University

**In the partial fulfillment of the requirements for the degree of
Master's in Business Studies (MBS)**

Bharatpur, Chitwan

April, 2013



TRIBHUVAN UNIVERSITY
BIRENDRA MULTIPLE CAMPUS
Bharatpur, Chitwan

056 { 520253
520689
526159

Fax: 056-520253

DEPARTMENT OF MANAGEMENT

Use Only for Thesis

(Ref):

Date:

RECOMMENDATION

This is to certify that the thesis

Submitted by

Rupa Kandel

Entitled

**Capital Structure Management of Nepal Investment Bank Limited and
Bank of Kathmandu Limited**

has been prepared as approved by this department in the prescribed format
of faculty of management. This thesis is forwarded for evaluation.

.....
Govinda Prasad Dhungana
Thesis Supervisor

.....
Baikuntha Pd. Bhusal
Thesis Supervisor &
Chairperson, Research Committee

.....
Sushil Dahal
Programme Incharge

.....
Dr. Keshav Bhakta Sapkota
Campus Chief

Date:



TRIBHUVAN UNIVERSITY
BIRENDRA MULTIPLE CAMPUS
Bharatpur, Chitwan

056 { 520253
520689
526159

Fax: 056-520253

DEPARTMENT OF MANAGEMENT

Use Only for Thesis

(Ref):

Date:

VIVA-VOCE SHEET

We have conducted the Viva-Voce examination of the
Thesis presented by

Rupa Kandel

Entitled

**Capital Structure Management of Nepal Investment Bank Limited and
Bank of Kathmandu Limited**

and found the thesis to be the original work of the student and written
according to the prescribed format. We recommended the thesis to be
accepted as partial fulfillment of the requirement for
Master Degree in Business Studies (MBS)

VIVA-VOCE COMMITTEE

Chairperson, Research Committee:

Member (Thesis Advisor):

Member (External Expert):

Date:

DECLARATION

I hereby declare that the work done in this thesis entitled "Capital Structure Management of Nepal Investment Bank Limited and Bank of Kathmandu Limited" submitted to Birendra Multiple Campus, Faculty of Management, Tribhuvan University is my original work. It is done in the form of partial fulfillments of the requirement of the degree of Master of Business studies (M.B.S.) under the supervision and guidance of Baikuntha Pd. Bhusal, lecture of Birendra Multiple Campus.

Date:

Rupa Kandel

Researcher

Birendra Multiple Campus

T. U. Regd. No. 7-2-241-430-2005

ACKNOWLEDGEMENT

This thesis entitled "Capital Structure Management of Nepal Investment Bank Limited and Bank of Kathmandu Limited" has been prepared in the prescribed form as required by the central department of management for the partial fulfillment of master degree in business administration.

I would like to express my supervisor Baikuntha Pd. Bhusal (Chairperson of research committee) and Govinda Prasad Dhungana respected lecturer of Birendra Multiple Campus, for his valuable suggestion and guidance.

My thank goes to Campus Chief Dr. Keshav Bhakta Sapkota, Sushil Dahal (MBS program incharge), Sudip Wagle and Damodar Poudel, lecturer of Birendra Multiple Campus for their proper encouragement & cooperation.

I would like to express my hearty thanks to my family members for regular inspiration, encouragement and continuous contributions for completion of this dissertation.

Last but not least, I am also grateful to Mr. C. M. Adhikari for printing this dissertation.

Date:

Rupa Kandel
Birendra Multiple Campus

TABLE OF CONTENTS

RECOMMENDATION	I
VIVA-VOCE SHEET	II
DECLARATION	III
ACKNOWLEDGMENT	IV
TABLE OF CONTENTS	V-VII
LIST OF TABLES	VIII
LIST OF FIGURES	IX
LIST OF ABBREVIATIONS	X-XI
CHAPTER ONE	Page No.
INTRODUCTION	1-6
1.1 Background of the Study	1
1.2 Focus of the Study	3
1.3 Statement of the Problem	3
1.4 Objective of the Study	4
1.5 Significance of the Study	5
1.6 Limitations of the Study	5
1.7 Organization of the Study	6
CHAPTER TWO	
REVIEW OF LITERATURE	7-34
2.1 Conceptual Framework	7
2.1.1 Concept of Capital Structure	7
2.1.2 Assumptions of Theories of Capital Structure	12
2.1.3 Theories of Capital Structure	13
2.1.4 Determinants of Capital Structure Decision	25
2.2 Review of Thesis	29
2.3 Research Gap	34
CHAPTER THREE	
RESEARCH METHODOLOGY	35-47
3.1 Research Design	35
3.2 Population and Sample	36

3.2.1 Introduction of Sample Banks	36
3.3 Nature and Type of Data	38
3.4 Sources of Data	38
3.5 Data Gathering Procedure	38
3.6 Data Processing Procedure	39
3.7 Tools of Analysis	40
3.7.1 Financial Analysis	41
3.7.2 Statistical Tools	44
CHAPTER FOUR	
PRESENTATION AND ANALYSIS OF DATA	48-80
4.1 Capital Structure Analysis	48
4.1.1 Fixed Deposit Analysis	48
4.1.2 Analysis of Shareholders Equity	49
4.1.3 Fixed Deposit & Net Worth of NIBL & BOK	51
4.1.4 Fixed Deposit to Total Debt Ratio	52
4.1.5 Analysis of Financial Mix of the Banks	53
4.1.5.1 Debt to Equity Ratio (DER)	53
4.1.5.2 Debt to Total Capital Ratio (D/CR)	56
4.1.6 Analysis of Debt Capacity of the Banks	58
4.1.7 Capital Structure Position of the Banks	60
4.1.8 Overall Capitalization Rate (K_o)	61
4.1.9 Earning Power Ratio (EPR)	63
4.1.10 Return on Assets (ROA)	64
4.2 Return on Capital Employed (ROCE)	65
4.3 Return on Equity (ROE)	66
4.4 Statistical Analysis	68
4.4.1 Correlation Coefficient Analysis	68
4.4.1.1 Correlation Coefficient between EBIT & Interest Payment	68
4.4.1.2 Correlation Coefficient between Return & Debt Capital	69
4.4.1.3 Coefficient of Correlation between DER & ROE	71
4.4.1.4 Coefficient of Correlation between Overall Capitalization Rate & DER	72

4.4.2 Regression Analysis of Debt Equity and Return on Assets	73
4.4.3 Regression Analysis of ICR and EPR	74
4.4.4 Regression Analysis of DE and ROCE	75
4.5 Major Findings	76
CHAPTER FIVE	
SUMMARY, CONCLUSION AND RECOMMENDATION	81-84
5.1 Summary	81
5.2 Conclusion	82
5.3 Recommendation	83
Bibliography	85-87
Appendixes	88-100

LIST OF TABLES

Table No.	Titles	Page No.
4.1	Fixed Deposit Position & Index Table of NIBL & BOK	48
4.2	Shareholders Equity Position & Index Table of NIBL & BOK	50
4.3	Fixed Deposit & Net Worth of NIBL & BOK	51
4.4	Fixed Deposit & Total Debt of NIBL & BOK	52
4.5	Fixed Deposit & Net Worth of NIBL & BOK	53
4.6	Total Debt & Net Worth of NIBL & BOK	55
4.7	Fixed Deposit & Capital Employed of NIBL & BOK	56
4.8	Total Debt & Total Assets of NIBL & BOK	57
4.9	EBIT and Interest Charges of NIBL & BOK	59
4.10	Interest Coverage Ratio of NIBL & BOK	59
4.11	Capital Structure Mix of NIBL	60
4.12	Capital Structure Mix of BOK	61
4.13	EBIT and Value of the Firm of NIBL & BOK	62
4.14	Overall Capitalization Rate of NIBL and BOK	62
4.15	Earning Power Ratio of NIBL & BOK	63
4.16	Return on Assets of NIBL & BOK	64
4.17	Net Income and Value of the Firm of NIBL & BOK	65
4.18	Return on Capital Employed	66
4.19	Net Income and Net Worth of NIBL & BOK	67
4.20	Return on Equity	67
4.21	Correlation Coefficient between EBIT & Interest Payment	69
4.22	Correlation Coefficient between Return & Debt capital	70
4.23	Correlation Coefficient between DER & ROE	71
4.24	Correlation Coefficient between Overall Capitalization Rate & DER	72
4.25	Simple Regression Result of Debt Equity on Return on Assets	73
4.26	Simple Regression Result of ICR on EPR	74
4.27	Simple Regression Result of Debt Equity on ROCE	75

LIST OF FIGURES

Figure No.	Titles	Page No.
2.1	Leverage on Cost of Capital & Total Market Value under NI Approach	14
2.2	The effect of Leverage on Cost of Capital & Total Market Value	16
2.3	Relationship between Cost of Capital & Leverage	18
2.4	Relationship between Costs of Capital & Leverage	23
4.1	Comparative Bar Diagram of Fixed Deposits	49
4.2	Comparative Bar Diagram of Net Worth	50
4.3	Line Diagram of Fixed Deposit to Net Worth	54

ABBREVIATIONS

A.D.	:	Anno Domini/After Death
ABBS	:	Anywhere Branch Banking System
ADB	:	Agricultural Development Bank
AGM	:	Annual General Meeting
ATM	:	Automated Teller Machines
B.S.	:	Bikram Sambat
BOK	:	Bank of Kathmandu
C.V.	:	Coefficient of Variation
CAR	:	Capital Adequacy Ratio
CE	:	Capital Employed
DER	:	Debt Equity Ratio
DFL	:	Degree of Financial Leverage
DOL	:	Degree of operating Leverage
EBL	:	Everest Bank Limited
EBT	:	Earning Before Tax
EPR	:	Earning Power Ratio
EPS	:	Earning per Share
FD	:	Fixed Deposit
FY	:	Fiscal Year
HBL	:	Himalayan Bank Limited
IDC	:	Industrial Development Centre
JVBs	:	Joint Venture Banks
Ltd.	:	Limited
MBS	:	Masters of Business Studies
MOF	:	Ministry of Finance
NABIL	:	NABIL Bank Limited
NBBL	:	Nepal Bangladesh Bank Limited
NBL	:	Nepal Bank Limited
NEA	:	Nepal Electricity Authority

NEPSE	:	Nepal Stock Exchange
NGO	:	Non-Government Organization
NIBL	:	Nepal Investment Bank Limited
NIDC	:	Nepal Industrial Development Corporation
NOI	:	Net Operating Income
NPA	:	Non-Performing assets
NRB	:	Nepal Rastra Bank
NTC	:	Nepal Telecom
NW	:	Net Worth
P.E.	:	Probable Error
RBB	:	Rastriya Banijya Bank
ROA	:	Return on Assets
ROE	:	Return on Equity
S.D.	:	Standard Deviation
TD	:	Total Debt
UAE	:	United Arab Emirates
USA	:	United states of America

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Capital structure is the composition of debt & equity securities that comprise a firm's financing of its assets. The proportion of the amount of debt & equity is determined after a comparison of certain characteristics of each kind of security of internal factors related to the firm's operations, & of external factors that can affect the firm. The funds required by business enterprises can be either raised through the ownership securities i.e. equity share and preferences share or creditorship securities i.e. debentures or bonds. Any business organization has to maintain a proper mix of both those securities in such a manner that both costs as well as risk are minimum. (Koirala, 1999: 105).

Capital is very essential factors to open and run smoothly in every organization. The past trend of entering into a joint venture, with a foreign bank is gradually vanishing and most of the new banks are indigenous. Now there is no need to look up to a foreign equity holder to guide towards new technology and new product. The banks in Nepal have unique natures. From the ownership point of view, the commercial bank in Nepal can be broadly classified into two categories; public Banks and private banks. The direction and guidance provides by NRB is the major policy statement for the Nepalese commercial banks. The banks which are owned or controlled by the government are labeled as public banks while the banks that are owned controlled by the private sector and categorized as a private bank (DPBS) and joint venture banks.

A bank cannot be imagined without sufficient capital. The total sum of equity, capital and borrowed capital is called capital structure. A bank collects capital by issuing ordinary equity shares which are banks owned capital. In a banking sector, the capital collected by issuing the banks is called share capital. Banks collects capital from other sources is called borrowed capital.

Capital is the major crucial factor for the development of the nation due to least developed country. Domestic capital formation is very difficult task for Nepal. The banks are not to develop and spread industry to boost the trade and commercial activities and to generate employment. Banks are essential financial institution in our economy. They are the principal sources of credit that provides short term working capital for business and long term business loans for new plant and equipment. The commercial bank is simply a business corporation organized for the purpose of maximizing the value of shareholder's wealth invested in the bank at the accepted level of risk. Bank also generate income by providing the service for other which they charges fees and commission, meanwhile, banks have also entered into financial advisory services, foreign trading processing and investment.

Capital can be acquired through issuing debt, preferred stock, common stock and using retained earnings. The combination of such component of capital is called capital structure that differs from company to company. It should pay fixed charge for debt capital as interest from company's earning balance is available to enquiry share holders. Out of which certain individual are declared. In this way, interest on debt capital decrease earning available to equity shareholders. Equity share holder can earn total amount of profit if there is no presence of debt capital in capital structure.

Long term debt is the least cost sources of financing because interest on debit is tax deductible and credits or debenture holders .consider debit as a relatively less risky investment and require lower rectum. Debit provides flexibility in the financial structure of the corporation. The company can issue debit or repay whenever required to make financial structure flexible. Creditors and debenture holders have no interference in business operation because they have not entitled to vote. The Company can enjoy on tax saving on interest expense.

Profit is tone of the measurement at operating efficiency at organization that depends on capital structure, optimal capital structure of capital, the maximize value of the firm and minimize the overall cost of capital, capital structure that

maximize EPS, over the expected EBIT. Optimal capital structure can be defined in terms of risk and return because different sources of capital consists of different risk and return which maximize the price of stock, here a brief introduction to NIBL and BOKL are presented.

1.2 Focus of the Study

The success of every industry depends upon the proper composition of debt equity in capital structure, which helps to generate the high return and to maintain long-term solvency position. Investor invests their fund in the business organization as an ownership capital or debt capital with expectation of getting favorable profit in future. Without proper capital utilization, it fails to meet their expectation and damage the image and credit worthiness of the organization and leads to fall the market value. This thesis is focused on analysis of capital structure capital adequacy and profitability management of BOKL and NIBL, finding true facts and recommendation for corrective measures pointing out the problems.

This study is based on the secondary data provided by the particular concerned banks, which focus to evaluate the capital structure to test the impact of the capital structure on profitability. Debt to equity ratio and capital adequacy ratio that affect the profitability or not is the main concentrates issues on the thesis. This study mainly focused on the capital structure and profitability management of these two banks.

1.3 Statement of the Problem

Most of the Nepalese companies have poor practice in capital structure decision and give less emphasis on proper utilization of funds which is one of their major problems. They have adopted poor strategies regarding capital structure management. There is no model for determine capital structure in the Nepalese manufacturing and trading companies. In the initial period, company wants to use only equity capital and do not want to include debt capital because of high interest charge. (Pradhan, 2006: 257)

The study of capital structure for banking business is very essential since the business is operated with customer's fund. Under new policy of commercial banks NRB directed all the commercial bank to increase the capital to Rs. 2 billion by mid may 2002. Therefore these banks are being highly sensitive business; NRB directed all the commercial bank FY mid May 2002. Therefore, these banks are being highly sensitive business, NRB reform their policy from time to time in favours of depositors and owners of the company. So this study traced out the problem under inefficiency and weakness based on the capital structure and profitability of sampled banks in Nepal BOKL and NIBL.

1. What is the ratio of debt capital and equity capital?
2. What is the trend of paid-up capital between NIBL and BOKL in FY 2006/07 to 2010/11?
3. How far the sampled banks are able to serve the debt?
4. What is the relation between capital structure and profitability of these sampled banks?
5. How efficiently sampled banks are able to earn profit?

1.4 Objective of the Study

The main objective of the study is to examine the comparative analysis of Capital structure between well-known Nepalese competitive banks BOKL and NIBL. This study also helps to find and suggests the ways of improving their performance. The other objectives of the study are given below:

1. To analyse the ratio of paid up capital between NIBL and BOKL.
2. To analyse the debt serving capacity between NIBL and BOKL.
3. To examine the ratio of debt and equity capital.
4. To examine the relationship of capital adequacy with other related variables such as profitability.
5. To examine the ability of earning profit of NIBL and BOK.

1.5 Significance of the Study

This study has helped the researcher to identify the strength and weakness of the firm as well as to suggest for their further improvement and bringing out the corrective action. Research itself is very important because it aims to gain Knowledge and add new literature in existing field. Thus the research has its own importance. The earning nature of these organization helps to adopt appropriate mix of total debit and equality in toward profitability. Thus the out comes of the study helps to suggest the effective measures which banking sector can follow to convert the bad capital structure. It aims to help the policy making activities. It also provides the literature to the research in the same to carryout further research in the same avenues. So the financial institution holding lender and owner are more concerned with the firms long term financial strength. In this study capital structure helps to indicate and to follow the appropriate mix of debit and owners equality in the banking industry. Similarly profitability analysis would helps to indicate the condition of earnings. On account of this significance, the capital structure and profitability of the banking industry is justified as a specific subject matter. This study also helped to the researches to analyze and provided signaling information about organization. Therefore an important effort has been contributed to the comparative case study about the capital structure management in Nepal.

1.6 Limitation of the Study

The research study has been conducted within certain limitation and boundaries so that researcher may not try to go across.

- a. This study is related only within capital structure and profitability.
- b. The study is concerned with only these two banks (i.e. NIBL and BOKL)
- c. The study covers only five years period form the FY 2006/07 to 2010/11.
- d. The study is based on secondary data collected.

1.7 Organization of the Study

This study is organized into five chapters. Each chapter is denoted to some aspects of the study. The rationale behind this kind of organizations is to follow research methodology. The content of the study for chapters are mentioned below.

Chapter One

The first chapter deals with introduction which includes general background, focus of the study, statement of the problem, objective of the study, research questions, significance of the study, limitation of the study and organization of the study.

Chapter Two

Second chapter deals with the review of available literature, it includes the conceptual review and research review in related studies.

Chapter Three

Third chapter explains the research methodology used in the study, which includes research design, population and sampled nature and sources of data, data collection procedures, data processing and analysis and data analysis tools and techniques as well as limitation of methodology.

Chapter Four

Fourth chapter deals with presentation and analysis of data which includes the presentation and analysis of data and major finding of the study with the helps of various financial and statistical tools and techniques.

Chapter Five

Finally, Fifth chapter described the summary, conclusions and recommendation of the study, which are important aspect to solve the problems associated to the present analysis and offers recommendation for the further improvement in future.

At the end of this study bibliography and appendix are attached.

CHAPTER TWO

REVIEW OF LITERATURE

Review of literature means reviewing research studies or other relevant propositions in the related area of the study so that all the past studies, their conclusions and deficiencies may be known and further research can be conducted. Since completely new and original problems are rare it is necessary to show how the problem under investigation relates to previous research works done under similar topic, however a previous study not be exactly replicated. It is believed that the review of literature is literature which is helpful to show the needs of the research work and to justify the work. It tries to clear the conceptual thought and bank related terms. So this chapter has been organized through the study of different books; articles published in journals and master's level thesis as below:

2.1 Conceptual Framework

This section is devoted to discuss briefly about the theoretical concept regarding the theories of capital structure.

2.1.1 Concept of Capital Structure

Capital structure or the capitalization of the firm is the permanent financing. It includes long term debt, preferred stock and shareholders equity. Thus a firm's capital structure is only a part of its financial structure. The determination of the degree of liquidity of a firm is not a simple task. In the long run, liquidity may depend on the profitability of a firm, but whether it survives to achieve long run profitability depends to some extent on its capital structure. This term includes only long-term debt and total stockholders investment. Some companies do not plan their capital structure, and it develops as a result of the financial decision taken by the financial manager without any formal planning.

Capital structure planning is a key to the objective of profit maximization ensures minimum cost of capital and the maximum rate of return to equity

holders. The amount of capital a firm need is not its only financial consideration and equally important is the capital mix; the kind of capital that form the company's financial base. How much will be the equity money representing funds owned by the stockholders in the enterprises? How much will be borrowed? How much will be raised by other means? A financial manager determines the mix of debt and equity securities, which would maximize the value of the equity stock. To maximize the shareholders' wealth as well to minimize the opportunity cost of capital optimal capital structure is required. Debt is an important part of capital structure and determines the leverage of the firm. It is two-edged sword. It increases shareholders return when the firm has high operating income, but makes them worse than they otherwise would be when the firm has low operating income.

“The firm’s mix of different securities is known as capital structure. The choice of capital structure is fundamentally a marketing problem. The firm can issue dozen’s of various securities in countless combination but it attempts to find the combination which maximizes its overall market value” (Bearly and Mytes, 2004: 397).

“The two principal sources of long term financing are equity and debt capital. The composition of these two long term financing is known as capital structure. Under normal economic condition, the earnings per share can be increased using higher leverage. But leverage also increases the financial risk of the share holder” (Gautam and Thapa, 2009: 223).

“Different sources of financing are used to finance current and fixed assets. The sources of financing may be short-term and long-term, but they are usually grouped into debt and equity which characterized the firm’s capital structure” (Pradhan, 2006:356).

A distinction is usually made between financial and capital structure. Financial structure refers to all sources, both short and long term that are used to finance the entire assets of a firm, Where as capital structure is taken as the capitalization part of a firms total financing which includes only the long term

sources such as long term debt and equity. Thus, the capital structure is a part of the financial structure. “The composition of capital structure could differ from company to company which is directly guided and controlled by management of the company. However a reasonable satisfactory capital structure can be determined considering relevant factors and analyzing the impact of alternative financing proposals on the earning per share” (Chandra,2007:176).

“The capital structure is the combination of long-term debt and equity. It is a part of financial structure i.e. comprised to the total combination of preferred stock, common stock, long term debt and current Liabilities. If current Liabilities are removed from it we get capital structure” (Mathur, 2008:92).

One of the financial manager’s principal goals is to maximize value of firm. For this purpose the firm should select a financial mix (Financial leverage), which will help in achieving the objective of financial management with a view to, maximize the value of share. In order to attain this business goal, firm should select an appropriate capital structure. Given the objective of the firm to maximize the value of equity share, the firm should select a financial mix which helps in achieving the objective of financial management. “If the capital structure decision affects the total value of the firm, a firm should select such a financial mix as will maximize the shareholders wealth. Such a capital structure is referred to as the optimum capital structure” (Khan and Jain, 2010: 473).

“An optimum capital structure would be obtained at the combination of debt and equity that minimizes the weighted average cost of capital” (Pandey, 2010:11).

“Optimum capital structure can be defined as that mix of debt and equity this will maximize the market value of company. If such an optimum does exist it is two fold. It maximizes the value of company and hence the wealth of its owners; it minimizes the company's cost of capital which in turn increase its ability to find new wealth creation investment opportunities” (Solman, 2008:92).

“Capital structure is the permanent financing of the firm represented primarily by long term debt, preferred stock and common stock, capital surplus and accumulated retained earnings” (Weston and Brigham, 2004:434).

“Capital structure is defined as the composition of a firm’s long term financial represented by its long-term debt, preferred stock and common stock. When current liabilities are included, the total generally is called financial structure” (Henderson, Trennepehl and Wert, 2011:434).

“Leverage and capital structure are closely related concepts linked to cost of capital and therefore capital budgeting decision. Leverage results from the use to fixed-cost assets of tend to magnify return to the firm's owners. Changes in leverage result in changes in level of return and associated risk. Generally increase in leverage result in increase in return and risk, where as decrease in leverage result in decreased return and risk. The amount of leverage in the firm’s capital structure the mix of long term debt and equity maintained by the firm, can significantly affect its value by affective return and risk. Because of its effect on value, the financial manager must understand how to measure and evaluate leverage when attempting to create the best capital structure” (Gitman, 2009:43).

“Financial leverage generally raises expected EPS, but it also increases the risking of the firm’s securities. Because the risk its stock and bonds increases as the debt/assets ratio rises, so do the interest rate in debt and the required rate of return on equity Thus, leverage produces two opposing effects: higher EPS which leads to a higher stock price, but increased risking which depresses stock price. There is, however, a debt/assets ratio that strikes an optimal balance between these opposing effects; this ratio is called optimal capital structure, and it is the one that maximizes the price of the firm' stock” (Brigham, 2004:341).

Thus the capital structure management means the appropriate mix of long-term capital and short-term capital, which gives the company sufficient profit. Optimal capital structure has certain risk and appropriate return. This is done

by a good management. In this study, one gets certain question, which is, how much debt is appropriate varies company to company as well as firm to firm. In this reference has given the following suggestion in tanning the capital structure for establishing new company.

- a. The debt-equity ratio does not exceed 2:1 for large capital-intensive projects a higher debt-equity ratio of 4:1 or even 6:1 may be allowed. (Debt for this purpose is defined as long-term debt plus preference capital, which is redeemable after 12 years)
- b. The ratio of preference capital to equity does not exceed 1:3
- c. Promoters hold at least 25% of the equity capital.

The factors listed above given information's to the financial manager should adhere in proper maximizes the value and minimizes the overall cost of capital of the firms. There are four-dimensional lists when thinking about capital structure decision.

(I) Taxes: - If a company is a tax-paying entity, the increase in leverage reduces the income tax paid by the company and increases the tax paid by the investors. If the company has a large accumulated loss; an increase in leverage cannot reduce corporate tax, but does increase personal taxes.

(II) Bankruptcy Cost: - With presence of bankruptcy cost, financial distress is costly other things equal, distress is more likely for the firms generally issue less debt.

(III) Assets Type: - The cost of distress is likely to be greater for firms whose value depends on growth opportunity or intangible assets. These firms are likely to pursue more profitable opportunities and if default occurs, their assets may erode rapidly. Hence, firms whose assets are weighted forward intangible assets should borrow significantly less on average their holding assets they can kick.

(IV) Financial Slack: - In the long run, a company's value rests more on its capital investment on operating decisions than on financing. Therefore, you

need to make sure that your firm has sufficient financial slacks, so that financing is quickly accessible when good investment opportunity arises. Financial slack is most valuable to firms that have able positive NPV growth opportunity. That is another reason why growth company usually sticks to conservation capital structure.

2.1.2. Assumptions of Theories of Capital Structure

In order to grasp, the capital structure and the value of the firm on the cost of capital controversy properly we make the following assumptions:-

- a. Firms employ only two types of capital debt and equity.
- b. The total assets of the firms are given. The degree of leverage can be changed by selling debt to repurchase shares or selling shares to retire debt.
- c. Investors have the same subjective probability distributions of expected future operating earnings for a given firm.
- d. The operating earnings of the firm are not expected to grow.
- e. The business risk is assumed to be constant and independent of capital structure.
- f. The corporate and personal income taxes do not exist. This assumption is relaxed later on.

In the theoretical analysis of capital structure one shall use the following symbols.

B = Total market value of debt

S = Total market value of stock

V = Total market value of firm ($B+S$)

K_e = Equity capitalization rate

K_d = Cost of debt/yield on debt

K_o = Overall capitalization rate

I = Total amount of capital interest

EBIT or NOI = Earning before interest & taxes or net operating income.

$$1. \text{ Cost of debt } (K_d) = \frac{\text{Interest}}{\text{Debt}} = \frac{I}{B}$$

$$2. \text{ Cost of equity } (K_e) = \frac{\text{EBIT} - I}{S} = \frac{\text{NOI} - I}{S}$$

$$3. \text{ Overall cost of capital } (K_o) = K_d \left(\frac{B}{V}\right) + K_e \left(\frac{S}{V}\right) \frac{\text{NOI}}{V}$$

$$4. \text{ Value of the firm } (V) = B + S \quad \text{or,} \quad V = \frac{\text{NOI}}{K_o}$$

2.1.3 Theories of Capital Structure

The approaches / theories to explain the relationship between capital structure, cost of capital and value of the firm are: -

1. Net income approach
2. Net operating income approach
3. Traditional approach
4. Modigliani-Miller (M-M) approach
5. Millar Model

I) Net Income (NI) Approach

In this theory, the cost of debt and cost of equity are assumed to be independent to the capital structure. The weighted average cost of capital declines and the total value of the firm rise with increased use of leverage.

Assumption of net income approach:

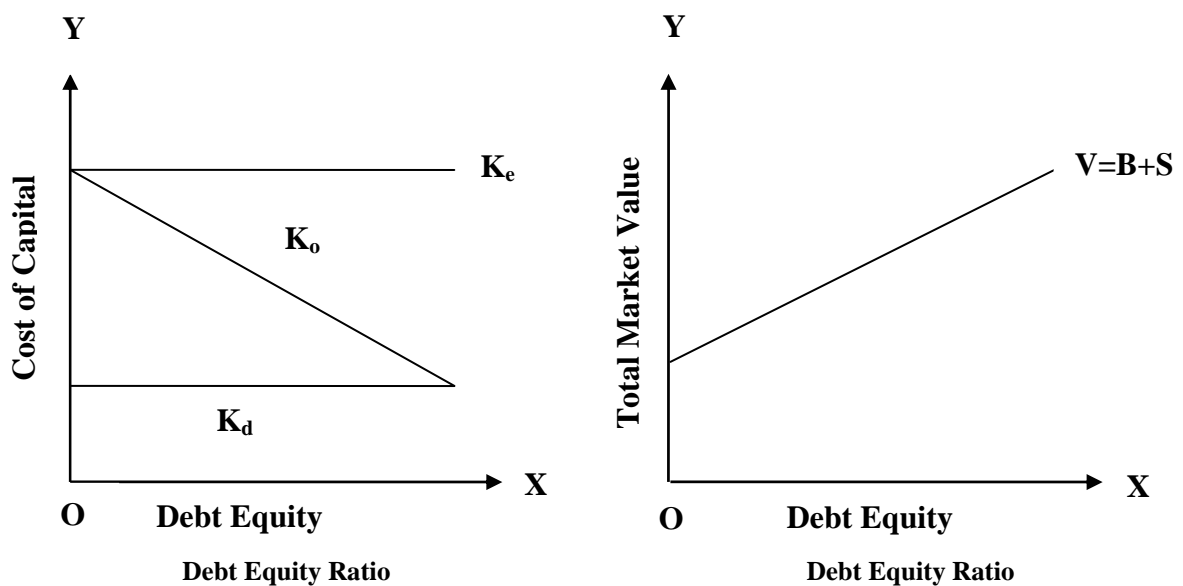
1. The use of debt does not change the risk perception of investors; as a result, the equity capitalization rate (K_e) and the debt capitalization rate (K_d) remain constant with change in leverage
2. The debt capitalization rate is less than the equity capitalization rate (i.e. $K_d < K_e$)
3. The corporate income tax do not exist

4. Overall cost of capital decreases as leverage increases. (Rabindra Bhattarai, 2006:343)

From above assumption, we know about NI, if K_e and K_d are constant, increased use of debt, by increasing the shareholders earning will result in higher value of the firm via higher value of equity. Consequently, the overall cost (K_o) will decrease.

Figure 2.1

Leverage on Cost of Capital & Total Market Value under NI Approach



(Source: Van Horne, 2005:255)

In the above figure, Y-axis called cost of capital and X-axis called degree of leverage. Under approach, K_e and K_d are assumed as constant. As the proportion of debt is increase in the capital structure, being less costly it causes weighted average cost of capital to decrease approach the cost of debt. The optimum capital structure would occur at the pointing where the value of the form is maximum and overall cost of capital is minimum.

As the whole assumption of NI, K_e and K_d are constant and K_d is less than the K_e

Therefore, K_o decreases, when B/V increase. Also $K_e=K_d$ and $S=V$

When, $\frac{B}{V} = 0$ Also, $\therefore K_o = \frac{EBIT}{V}$

or

$$\frac{NOI}{V}, \therefore K_o = K_e - (K_e - K_d) \frac{B}{V}$$

II) Net Operating Income (NOI) Approach

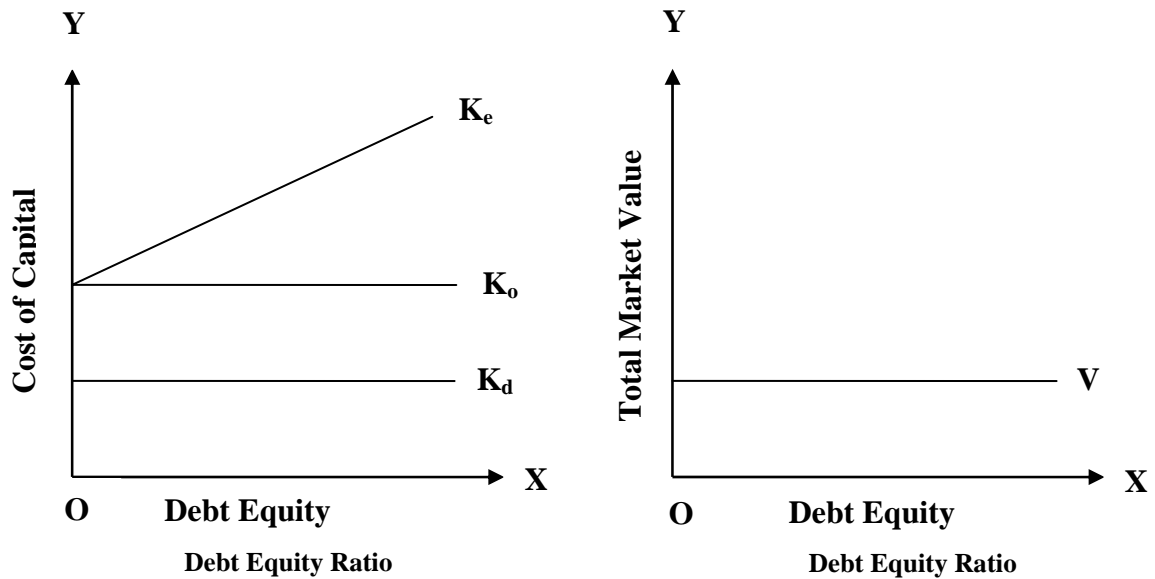
This theory was identified by David Durand. Under the net operating income (NOI) approach, the cost of equity is assumed to increase linearly with leverage. As a result, the weighted average cost of capital remains constant and the total value of the firm also remains constant as leverage is changed.

Assumption of net operating income approach:

- i. The market capitalizes the value of the firm as a whole. Thus, the split between debt and equity is not important.
- ii. The market uses an overall capitalization rate, (K_o) to capitalize the net operating income. K_o depends on the business risk and the business risk is assumed to remain unchanged. K_o is constant.
- iii. The use of less costly debt funds increase. Thus, the advantage of debt is offset exactly by the increase in the equity capitalization rate, K_e .
- iv. The debt capitalization rate. K_d is a constant.
- v. The corporate income taxes do not exist.

From above assumption we know that the leverage/capitalization structure decision of the firm is irrelevant. Any change in leverage will not lead to any change in the total value of the firm and the market price of shares, as the overall cost of capital is independent of the degree of leverage.

Figure 2.2
The effect of Leverage on Cost of Capital & Total Market Value



(Source: Van Horne, 2005:256)

In the above figure, it shows that K_0 and K_d are constant and K_e is continuously increased. As the firm increases its degree of leverage the fixed charge increases, with the result that the financial risk also increases. As long as K_d remains constant, K_e is a constant linear function of the debt to equity ratio. K_0 cannot be altered through leverage. The NOI approach implies there is no one optimum capital structure.

The cost of equity capital is found as follow.

$$\therefore K_e = K_0 + (K_0 + K_d) \frac{B}{S}$$

$$\therefore K_e = \frac{NOI - I}{V - B}$$

III) Traditional Approach

“In this theory, the value of the firm is determined by adding the market value of the firm's debt to the market value of its equity. Once market value has been determined the overall cost of capital or overall capitalization rate, can be found” (Gitman, 2009:43).

It is also known as an intermediate approach, it comprises between net income approach & operating income approach. From this view, we know that the value of firm can be judicious mix of debt and stock of the firm.

“The cost of capital decline with leverage because debt capital is cheaper than equity capital within reasonable, or acceptable, limit of debt. The statement that debt funds are cheaper than equity fund carries the clear implication that the cost of debt, plus the increased cost of equity, together on a weighted basic, will be less than the cost of equity which existed on equity before debt financing” (Alexander,2010:11).

At last we know that from traditional approach, overall cost of capital will be decreased with the use of debt financing. From traditional approach, the manners in which the overall cost of capital reacts to changes in capital structure can be divided into three stages are given below.

Stage - 1

In this stage, the cost of equity K_e remains constant or less slightly with debt. But when it increases, it does not increase fact enough to offset the advantage of low cost debt K_d , remains constant or rises negligibly. Since the market views the use of debt as a reasonable policy. As a result, the value of the firm 'V' increases or the overall cost of capital, $K_o = \frac{X}{V}$

$$\therefore K_o = K_e \left(\frac{S}{V} \right) + K_d \left(\frac{B}{V} \right), \text{ falls with increase leverage.}$$

Stage - 2

“In this stage, the firm has reached a certain degree of leverage increases in leverage have a negligible effect on the value, or the cost of capital of the firm. This is so because the increases in the cost of equity due to the added financial risk offset the advantage of low cost of debt. Within that range of at the specific pint, the value of the firm will be maximum or the overall cost of capital will be minimum” (Pandey, 2010:633).

Stage - 3

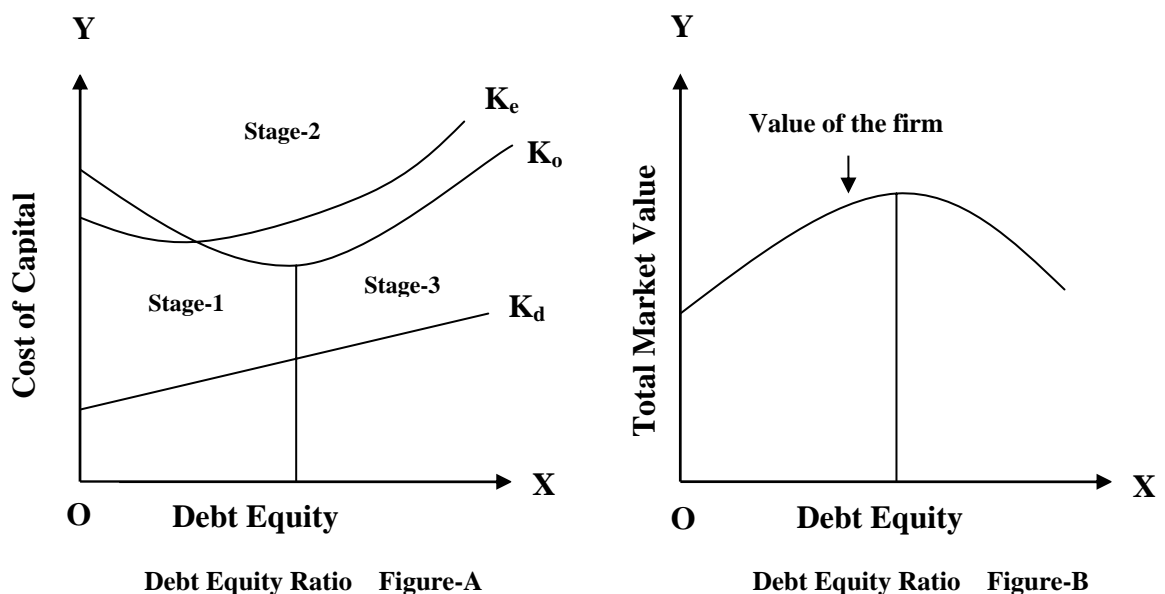
In this stage, the value of the firm decreases with leverage or the cost of the capital increases with leverage. This happens because investors perceive a high degree of financial risk and demand a higher equity capitalization rate, which offsets the advantage of low cost debt. From above stage we know,

- i. Increase valuation and decreased overall cost of capital
- ii. Optimum valuation and optimal overall cost of capital
- iii. Declined valuation and increased overall cost of capital

Thus, the overall effect of these three stages is to suggest that the cost of capital is a function of leverage. It declines with leverage and after reaching a minimum point or range starts raising. The relation between cost of capital and leverage is graphically shown as follows.

Figure 2.3

Relationship between Cost of Capital & Leverage



(Source: Van Horne, 2005:257)

In the above figure-A, the cost of equity, K_e , increases with increase in leverage, but much more rapidly than the cost of debt. The cost of debt will

remain fixed as leverage increases, until a point is reached where lenders feel that the firm is becoming financially risky. At this point, the cost of debt, K_d , will increase. The overall cost is optimal in 'O' line and then after K_o is increasing upward. In figure-B, the firm value is optimal until the line of 'O' then it gives downward value.

IV) Modigliani-Miller (M-M) Approach

The Modigliani-Miller thesis (Modigliani F. and M.H. Miller, "The cost of capital, corporate finance, and The Theory of Investments," American Economic Review, June 1958) relating to the relation is akin to net operating income approach. M-M approach, supporting the net operating income approach, argues that, in the absence of taxes, total market value and cost of capital of the firm remain invariant to the capital structure changes. They make a formidable attack on the transitional position by offering behavioral justification for having the cost of capital K_e remain constant through all degree of leverage. M-M contend that cost of capital is equal to the capitalization rate of a pure Equity stream of income and the market value is ascertained by capitalizing its expected income at the appropriate discount rate of its risk class. M-M position is based on the idea that no matter how you divide up the capital structure of a firm among debt Equity and other claims, there is a conversion of investment value. However, the following assumptions regarding the behavior of the investors and the capital market, the actions of the firms and the tax environment are crucial for the validity of the M-M hypothesis.

Perfect Capital Markets: - This specifically means that (a) investors are free to buy or sell securities; (b) they can borrow without restriction at the same term as the firms do; and (c) they behave rationally. It is also implied that the transaction costs, the cost of buying and selling securities do not exist.

Homogeneous Risk Classes: - Firms can be grouped into homogeneous risk classes. Firms would be considered to belong to a homogeneous risk class if their expected earning has identical risk characteristics. It is generally implied

under the M-M hypotheses that firms within same industry constitute the homogeneous class.

Risk: - The risk of investors is defined in terms of the variability of the net operating income. The risk to investors depends on both the random fluctuations of the expected NOI and the possibility that the actual value of the variable may turn out to be different than their best estimate.

Full Payout: - Firm's distribute all net earnings to the shareholders, which mean a 100% payout.

No Taxes: - In the M-M theory hypothesis assume that no corporate income taxes exist.

Terminology and notation used in Modigliani Miller (M-M) theory are given below.

Terminology:

- i. Levered: - A firm that uses debt and equity in its capital structure is called levered firm.
- ii. Un-levered:- A firm that uses only equity in capital structure is called un-levered firm.
- iii. Risk Premium: - Risk premium is the expected additional return required by the equity holders for making a risky investment.

Notation:

K_{eu} = Equity capitalization rate of an un-levered firm.

K_{el} = Equity capitalization rate of a levered firm.

K_d = The debt capitalization rate.

K_{ou} = Overall capitalization rate of un-levered firm.

V_u = Value of an un-levered firm.

V_L = Value of a levered firm.

T = Corporate tax-rate.

BT = Present value of tax-shield benefits of debt/PV of interest tax-shield.

The MM cost of capital hypothesis can be best expressed in terms of their proposition I and II (Modigliani and Miller, 2006: 261-279).

Propositions

The theorem was originally proven under the assumption of no taxes. It is made up of two propositions which can also be extended to a situation *with* taxes.

Consider two firms which are identical except for their financial structures. The first (Firm U) is un-levered: that is, it is financed by Equity only. The other (Firm L) is levered: it is financed partly by Equity, and partly by debt. The Modigliani-Miller theorem states that the value of the two firms is the same.

Proposition (1)

In this proposition, the overall cost of capital (K_o) and the value of the firm (V) are independent of its capital structure. The K_o and 'V' are constant for all degree of leverage. The total value is given by capitalizing the expected stream of operating earnings at a discount rate appropriate for its risk class. This is their preposition-1 and can be expressed as follows.

$$\therefore V = \frac{\text{EBIT}}{K_o} \text{ or } \frac{\text{NOI}}{K_o}$$

For un-levered firm $K_o = K_e$

$$\therefore V_o = \frac{\text{NOI}}{K_{ou}} = \frac{\text{NOI}}{K_{eu}}$$

And

For levered firm

$$\therefore V = \frac{\text{NOI}}{K_{ou}}$$

From the above proposition, M-M theory conclude that the total market value of the firm is unaffected by financing mix, it follows that the cost of capital is independent of the capital structure.

This proposition states the implication of the earlier propositions for investment decision making. It emphasizes the point that investment and financing decisions are independent because the average cost of capital is not affected by the financing decision.

Proposition -II

This proposition states that the K_e is equal to the capitalization rate of a pure equity stream plus a premium for financial risk equal to the difference between the pure equity capitalization rate (K_e) and (K_d) times the ratio of debt to equity. In other words, K_e increases in a manner to offset exactly the use of a less expensive source of funds represented by debt. The cost of equity capital for levered firm (K_{el}) is equal to the cost of equity of an un-levered firm (K_{eu}) plus a risk premium equal to the difference between K_{eu} and K_d multiplied by the debt equity ratio.

$$\therefore K_{el} = K_{eu} + (K_{eu} - K_d) \frac{B}{S}$$

Since, $K_{eu} = K_{ou}$ So,

$$\therefore K_{el} = K_{ou} + (K_{ou} - K_d) \frac{B}{S}$$

This proposition shows the impact of financial leverage on the cost of equity. Due to the increase in leverage, the firm gets the benefit of cheaper debt, but the benefit is exactly offset by an increase in the cost of equity in the form of risk premium demanded by shareholders.

M-M Theory (With Taxes):- In this theory, M-M's hypothesis that the value of the firm is independent of its debt policy is based on the critical assumption that the corporate income taxes do not exist. In reality, corporate income taxes exist, and interest paid to debt holders is treated as deductible expenses. Dividends paid to shareholders on the hand, are not tax deductibles.

“Thus, unlike dividends, the return to debt holders is not subject to the taxation at the corporate level. This makes debt financing advantageous. In their 1963 article, M-M shows that the value of the firm will increase with debt due to the

deductibility of interest charges for tax computation, and the value of the levered firm will be higher than the unlevered firm” (Pandey, 2011:655).

Thus, the value of the levered firm is equal to the value of the un-levered firm plus the present value of the interest tax-shield as shown below.

∴ Value of a levered firm = Value of an un-levered firm + PV of interest tax-shield

$$V_L = V_u + DT$$

The value of an un-levered firm when corporate taxes exist is,

$$\therefore V_u = \frac{NOI(1-T)}{K_{ou}} = \frac{NI}{K_{eu}}$$

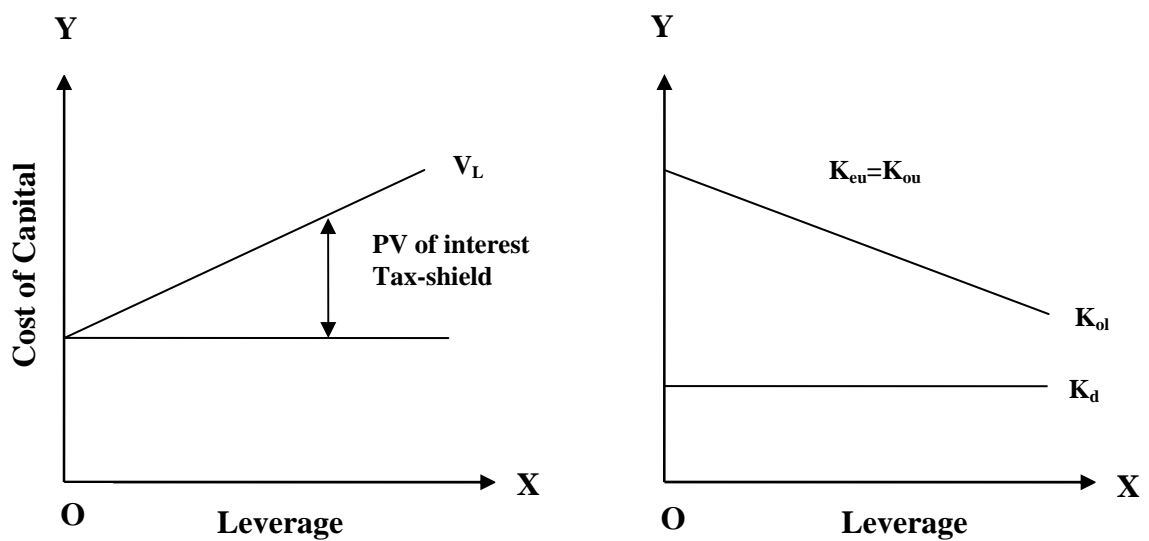
Where, NI = Net income after tax. Also, when a firm is un-levered,

$$K_{ou} = K_{eu}, \text{ thus}$$

$$\therefore V_L = \frac{NI}{K_{eu}} + DT$$

From above equation implies that when the corporate tax rate, T, is positive (T>0), the value of the levered firm will increase continuously with debt. Thus, theoretically the value of the firm will be maximized when it employs 100 percent debt. As a broad, the figures are presented below.

Figure 2.4
Relationship between Costs of Capital & Leverage



(Source: Van Horne, 2005:269)

The above figure shows that because of the tax deductibility of interest charges, a firm can increase its value or lower its cost of capital continuously with leverage. Thus the optimum capital structure is reached when the firm employs 100% debt. In practice, firms neither employ large amount of debt, nor lenders ready to lend beyond certain limits.

“Why do companies not employ extreme level of debt in practice? There could be two possibilities: First, we need to consider the impact of both corporate and personal taxes for corporate borrowing—personal income tax may offset the advantage of the interest tax shield. Second, borrowing may involve extra costs (in addition to contractual interest cost) of financial distress which may also offset the advantage of the interest shield” (Pandey, 2011:656).

V) The Miller Model

M-M introduced the theory first by assuming the absence of corporate and personal taxes in 1958. Later on 1963 they developed their theory by considering the corporate taxes. Although, M-M introduced corporate taxes in the second revision of their model. They did not extend tax model to include personal taxes. "However in his presidential address to the American Finance Association, Merton Miller introduced a model designed to show how leverage effect firm's value when both personal and corporate taxes are taken in to account" (Brigham, Gapenski and Ehrhart, 2010:632). Due to the Miller argument, changes in the capital structure have no effect on the firm total value. This position is the same as M-M's original proposition in the world of no taxes. But it contrasts sharply with their corporate adjustment article, in which they found that debt has substantial advantages.

Miller model suggests that in market equilibrium personal and corporate tax effects cancel out. He assumes that the personal tax on stock income (T_{PS}) is zero. Accordingly his model implies that at the margin, the personal tax rate on debt income (T_{PD}) must equal to corporate tax rate (T_C). When $t_{pd} = t_c$ changes in proportion of debt in the capital structure decisions by the corporation would be irrelevant (Van Horne, 2005:264)

With personal taxes included, under the same set of assumptions used in the M-M model the value of an un-levered firm is found as follows.

$$V_u = \frac{EBIT(1-T_c)(1-T_{ps})}{K_{eu}}$$

The value of levered firm under Miller Model can be found as follows:

$$V_l = V_u + \text{Present value of debt tax shield}$$

$$V_l = V_u + D \left(1 - \frac{(1-T_c)(1-T_{ps})}{(1-T_{pd})} \right)$$

Where,

T_c = Corporate tax rate

T_{pd} = Personal tax rate on income from debt

K_{eu} = Equity capitalization rate of un-levered firm

2.1.4 Determinants of Capital Structure Decision

Capital structure refers to the mix of long-term sources of fund, which maximizes value of the firm/equity holders. Concepts/definitions of capital structure give the main theme of optimal capital structure.

“Theoretically, the financial manager should plan an optimum capital structure for his company. The optimum capital structure is obtained when the market value per share is maximum. The values will be maximized when the marginal cost of each source of funds is the same. In practice, the determination of an optimum capital structure is a formidable task and one has to go beyond the theory. There are significant variations among industries and among individual companies within an industry in term of capital structure. Since a number of factors influence the capital structure decision of a company, the judgment of the person making the capital structure decision plays a crucial part. Generally, the factors listed below and briefly discussed, all have an important bearing on the firm's capital structure decision” (Weston and Brigham, 2004:619).

(1) Asset Structure: - The firm, whose assets are suitable as security for loans tend to use debt heavily, Thus real estate companies are tends to be highly levered. While manufactures with heavy investment in specialized machinery and work in progress employ less debt.

(2) Operating Leverage: - Other thing the same, a firm with less operating leverage is better able to employ financial leverage because, the Interaction of operating and financial leverage determines the overall impact of a decline in sales on operating income and net cash-flows.

(3) Sales Stability: - A firm whose sales are relatively stable can safely take on more debt and incur higher fixed charges than a company with unstable sales. Utility companies, because of their stable demand, have historically been able to use more financial leverage than industrial firms.

(4) Profitability: - One often observes that firm's with very high rate of return on investment use relatively little debt. Although there is on theoretical justification for this fact, the practical reason seems to be that very profitable firm's such as IBM and KODAK simply do not need to do much debt financing. Their high rates of return enable them to do most of their financing with retained earnings.

(5) Growth Rate: - Other things remain the same, faster growing firm must rely more heavily on external capital. Further, the flotation costs involved in selling common stock exceed those incurred in selling debt. Thus, to minimize financing costs, rapidly growing firms tend to use somewhat more debt than do slower-growth companies.

(6) Taxes: - Interest is a deductible expense, while dividends are not. Hence, the higher a firm's corporate tax rate the greater the advantage of using debt.

(7) Controls :- A management concerned about control may prefer to issue debt rather than (voting) common stock to raise funds of course, if marks condition are favorable, a firm can sell non-voting equity shares or make a pre-empty offering, allowing each share holders to maintain proportionate

ownership. Generally, only in closely held firms or firms threatened by takeover control become a major concern in the capital structure decision process.

(8) Market Condition: - Conditions in the stock and bond markets undergo both long and short-run changes, which can have an important bearing on a firm's optimal capital structure. For example, during the credit crunch in the winter of 1982, there was simply no market at any "reasonable" interest rate for new long-term bonds. Low rated companies that needed capital were forced to go to the stock market or to the short term debt market. Action such as this do not represent permanent changes in target capital structure but are of temporary departures from targets, the important point, however, is that stock and bond market conditions do influence the type of securities used for a give financing.

(9) Lenders and Rating Agency Attitude: - Regardless of manager's own analysis of the proper leverage factors for their firms there is no question that the lender's and rating agencies attitudes are frequently important determinants of financial structure. In the majority of cases, the corporation discusses its financial structure with lenders and rating agencies and gives much weight of their advice. But when management is so confident of the future that it seeks so use leverage beyond the norms for its industry, lenders may be unwilling to accept such debt increases or may do so only at a high price.

(10) Management Attitude: - In the absence of proof that one capital structure will lead to higher stock prices than another, management can exercise its own judgment about a proper choice. Some management tends to be more conservative than other and thus use lesser amount of debt than the average firm in their industry, while for other management the reverse is true.

(11) The Firm's Internal Condition: - A firm's own internal condition can also have a bearing on its target capital structure. For example, suppose a firm has just successfully completed a Research & Development program and it projects higher earning in the immediate future. However, the new earning is not yet anticipated by investors and hence is not reflected in the price of the

stock. This company would not want to issue stock, it would prefer to finance with debt until the higher earning materialize and are reflected in the stock price at which time it might want to sell an issue of common stock, retire the debt and return to its target capital structure.

(12) Cash Flow: - The key concern of the firm, when considering a new capital structure, must center on its ability to generate the necessary cash flows to meet obligation. Cash forecast reflecting ability to service debt (and preferred stock) must support any capital structure shift.

(13) Contractual Obligation: - A firm may be contractually constrained with respect to the type or form of funds it subsequently raises. For example a contract describing condition of an earlier bond issue might prohibit the firm from selling additional debt except where the claims of holders of such debt are made subordinate to the existing debt. Contractual constraints on the sale of additional stock as well as the ability to distribute dividends on stock might also exist.

(14) Timing - Timing decisions will have to be necessary based on expected development in a hard-to-predict market. If the price of the company's equity stock is currently depressed but is expected to rise in the wake of better performance and / or bullish development in the market, it may be advantageous to resort to debt finance now and equity finance later. On the other hand, if the price of company's equity stock is balanced, it may be desirable to resort to equity finance now and debt finance later.

This above consideration is must important for developing aim of financing about debt and stock. “The management of company may fix its capital structure near top of those ranges in order to make maximum use of favorable leverage for further detail, subject to other requirement as given below” (Pandey, 2011:649).

Profitability: - The capital structure of the company should be the most advantageous. Within the constraints, maximum use of leverage at a minimum cost should be made.

Solvency: - The use of excessive debt threatens the solvency of the company. To the point debt does not add significant risk it should be used, otherwise its use should be avoided.

Flexibility: - The capital structure should not be inflexible to meet the changing condition. It should be possible for a company to adopt its capital structure with a minimum cost and delay if warranted by a changed situation. It should also be possible for the company to provide funds whenever needed to finance its profitable activities.

Capacity: - The capital structure should be determined within the debt capacity of the company and its capacity should not be exceeded. The debt capacity of a company depends on its ability to generate future cash flows. It should have enough cash to pay creditor's fixed charges and principal sum.

Control: - The capital structure should involve minimum risk of loss of control of the company. The owners of closely held companies are particularly concerned about dilution of control.

The above considerations are the general features of an appropriate capital structure. The particular characteristics of a company may reflect some additional specific features. The company will have to plan its capital structure initially at the time of its promotion. Subsequently, whenever funds have to be raised to financial investment, a capital structure decision is involved.

2.2 Review of Thesis

During the study, several thesis works has been carried out by the pervious students. Among them some research are found to be relevant for this study. They are presented as follows:

Pradhan, (2007), in her thesis, “A Comparative Analysis of Capital Structure Management Between Nepal Bangladesh Bank Limited and Himalayan Bank Limited” has the following objectives:

- i. To find out comparative position in capital structure between two banks.

- ii. To analysis the source of capital and determine their cost of capital of NBBL and HBL.
- iii. To measure the structure, risk and efficiency of the bank.
- iv. To suggest measure to attain appropriate capital structure.

The research was conducted mainly on the basis of secondary data. The research findings of the study summarized as follows:

- i. All Joint Venture banks have used high percentage of total debt in raising the assets. The higher ratio constituted that the outsiders claim in total assets of the bank is higher than owners claim.
- ii. The interest coverage ratio shows that all banks are able in paying interest. In comparison Himalayan Bank Ltd is operating efficiently in terms of interest coverage ratio.
- iii. The private sector banks have been successful in increasing their deposits and credit portfolio is remarkable over the last few years. The figures also show that most of the banks have been cautious about loans and advances. The operating profit to Joint Venture bank has gone up, so have the provision for loan loss. In short, the banking sector in Nepal is somehow doing well even though it has to face a number of challenges during the past few years.

Shrestha, (2008), in her thesis, “Analysis of the Capital Structure of the Joint Venture Banks of Nepal”, has the following objectives:

- i. To analysis the relationship of the capital structure and the cost of capital of the selected Joint Venture banks.
- ii. To analyze the comparative capital structure of selected JVBs in terms of the financial and statistical tools.
- iii. To analyze the profitability position of the banks.
- iv. To provide suggestion and recommendations on the basis of analysis to impose the financial weakness of JVBs.

Her thesis analyzes and studies mainly secondary data. The research finding of this thesis summarized as follows:

- i. All JVBs has used high percentage of total debt in raising the assets. The higher ratio constitutes that the outsiders claim in total assets of the banks is higher than owners claim. The financial risk of the SBI bank average degree of financial leverage constitutes 5.04 times which indicates the higher degree of financial risk.
- ii. The NI approach implies that proportion of higher leverage consequently increase the value of the firm. This approach is well acquainted with this study as the value of the banks has increased in accordance to the increasing portion of leverage. The K_0 of five banks is positive even though the rate of return is in decreasing trend except NIBL.
- iii. The private sector banks have been successful in increasing their deposit and credit portfolio remarkably over the study period. The figures also show that most of these banks have been cautious about loans and advances. The operating profits of all the private sector commercial banks have gone up, so has the provision for loan loss. In short, the banking sector in Nepal is somehow doing well even though it has to face a number of hurdles during the past few years.

Dhakal, (2008), In his study “A study on capital structure management of selected commercial banks (with special reference to Himalayan Bank, Nepal SBI Bank, Everest Bank And Nepal Investment Bank Ltd.) analysis the capital structure of different five year period.

His main objectives were as follows:

- i. To explain competitive position and the situation of the selected banks.
- ii. To analyzes the combination of capital with long and short term debt and equity capital.

- iii. To analyze different financial and statistical tools are used to analyze and compare these banks.

He used different financial tools such as: debt equity ratio, Debt Ratio, interest coverage ratio, price earning ratio, return on assets, return on shareholders equity, and he find capitalization rate. He used different statistical tools such as: mean, standard deviation, correlation coefficient, probable of error of correlation, variance and regression analysis. He uses the different ratios and present different table and chart. His findings can be summarized as follows:

- i. From the study bank are found to be highly levered. The companies financial mix accounts a higher proportion of debt and it is increasing every year. Most of the banks cannot manage the current assets.
- ii. The interest coverage ratio during the study period was positive for all selected bank.
- iii. In case of ROA and ROE, EBL has higher ratio than any other banks. Which indicated the EBL best bank among the selected banks.
- iv. The average EPS of EBL and HBL higher than other selected banks and EPS of EBL is fund to be in increasing trend and EPS of other banks are fluctuating during the study period.
- v. The cost of banks are increasing, the main cause of cost increase may unskilled manpower, overstaffing, unsystematic arranged of material, level of unnecessary and expenses is high and misuse of the facilities and resources.
- vi. The correlation coefficient of the variable of selected bank for the statistical analysis is found positive to each other. The coefficients are all statistically significant in more than average banks. A positive correlation means both of the variables are moving toward the same direction.

Malik, (2009), in his thesis, “Capital Structure Management in Nepal”, has following objectives:

- i. To show the trend of composition of assets and capital structure
- ii. To analyze the return on equity and assets
- iii. To analyze the value of the firm
- iv. To analyze the relationship between liability and assets of the organization
- v. To analyze the profitability of the selected organization

His thesis analyzes and studies the secondary data, major findings of this study were:

- i. Comparatively, total loan liabilities to shareholders fund ratio of NIBL is highest, ratio of NABIL is in second position, NEA is in third position, HGICL is in fourth position and NTC is in fifth position.
- ii. Comparatively, total debt to total assets ratio of NIBL is highest, ratio of NABIL is higher, NEA is in third position HGICL is in fourth position and NTC is in fifth position.
- iii. Interest bearing capacity of NTC is higher than other organization and HGICL is in moderate capacity to bear the load of interest expenses and other organization are seem very weak in the concern of interest expenses bearing.

Sapkota (2011) has conducted a research entitled “Capital Structure of Nabil Bank Limited.” The major objectives of the study were to examine and analyze the capital structure of Nabil Bank Limited. Following were the specific objectives of the study:

- i. To examine the existing financial position regarding capital structure.
- ii. To analyze the composition of Nabil Bank Limited of the mixture of debt and equity.
- iii. To evaluate the relationship between deposit and capitalization of Nabil Bank Limited.
- iv. To examine the different profitability ratios of Nabil Bank Limited.

This study was based on secondary data provided by Nabil Bank Limited. Data and information are collected from balance sheet of Nabil Bank Limited. There relevant data and information were collected from different sources, mentioned in bibliography. From the analysis he has found some findings, which are as follows:

- i. Share capital : Liabilities are increasing more than share capital.
- ii. Reserve & surplus: Reserve & surplus trend is not consistently.
- iii. Shareholders Equity : Reserve and surplus is more than paid up capital.
- iv. Debt To Equity : Debt to equity ratio in average more than 2. It means the claim of creditors and share holders against the property of the firm.
- v. Debt to Capacity : The ratio must be greater than 1. In overall the interest coverage of the Nabil bank is too small to cover the debt cost.
- vi. Capital structure position : The mix of debt and equity is in the average ratio.
- vii. Return on total Deposit : In simply ROD is satisfactory because ratio of ROD is greater than 1.75 and the more ratio shows the more earning.

2.3 Research Gap

As the above research works are concerned with capital structure. They are mostly done by taking single or multiple firms and their analysis is in absolute nature. The studies also observed same defects in capital structure. The tools used for analysis have been limited to ratio analysis. So this study tries to explore the capital structure patterns in banking industry. Moreover this research is comparative study of two banks which will provide information to the concern party for comparative analysis. Furthermore this study will be helpful to the interested groups. At least this study will be different from the above in-terms of sample commercial banks, data presentation as well as statistical used for interpretation and analysis of data with using latest data from FY 2006/07 to 2010/11.

CHAPTER THREE

RESEARCH METHODOLOGY

A systematic methodology is required to pick out an actual result for any special study. Research in common parlance refers to a search for knowledge. Research as a careful critical inquiry or examination in seeking facts and principles: diligent investigation in order to ascertain something. Thus, the chapter is to stress on the different methods and conditions, which are used while conducting this study.

“Research Methodology refers to the four various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view” (*Kothari, 2004:19*).

In this chapter, the topics, “Capital structure management” of two banks has been analyzed. It gives to know about the capital structure management of these two banks. The major objectives of this study include measuring the relationship between debt and equity capital to analyze the comparative trend of various variables, to analyze the financial decision through correlation analysis. So this chapter is divided into different subheadings like: research design, population and sample, source of data, data collection techniques, data analysis tools, limitations of the methodology and review of related studies.

3.1 Research Design

Since this study seeks to analyze the capital structure management in terms of risks and returns of Nepal Investment Bank Ltd. and Bank of Kathmandu Ltd. to establish the nature of relationship between the returns of the selected banks and the market return as well as between the selected banks themselves, the research design of the study is analytical and correlation type. Since this study is based on the process of collecting, verifying and synthesizing past evidences systematically and objectively to reach a conclusion, this is also a historical research. Moreover, as the study is concentrated on the comparative study of

the capital structure management of the two selected banks, it can be also considered as a descriptive research as well as a comparative research.

The study first of all analyses the risk and return of NIBL and BOK on the basis of income from investing activities. For this purpose the study determines the average, standard deviation and coefficient of variation of the return of NIBL and BOK. The study also analyses the risks of the respective banks in terms of coefficient of variance and correlation coefficient. Besides, the study also focuses on analyzing the different variables related to the capital structure management of both banks. Secondly, the study analyses the risks and return of NIBL and BOK on the basis of net return. Thirdly, the study concentrates on the correlation coefficient and the significance of computed average returns.

3.2 Population and Sample

Population is the universe about which the study has aimed to enquire and the sample is the representative of the population. Since the study is concerned with the capital structure management of the selected two commercial banks, the population for the study has, therefore been all the 32 commercial banks which are currently in operation in our country.

There are 32 commercial banks in Nepal but in this research only two commercial banks are taken for sample i.e. NIBL and BOK. The census of the population is neither feasible nor desirable for the study of this nature, a sample from the population has, therefore been selected for the purpose of study. For the selection of the sample from the population, judgmental sampling method has been followed. As the study comparatively analyses the capital structure performances of the two comparable commercial banks has been selected for the study. (*www.nrb.org.np*)

3.2.1 Introduction of Sample Banks

i) Nepal Investment Bank Limited (NIBL)

Nepal Investment Bank Ltd. (NIBL), previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French

partners. The French partner (holding 50% of the capital) was Credit Agricole Indosuez, a subsidiary of one the largest banking groups in the world. With the decision of Credit Agricole Indosuez to divest, a group of companies comprising of bankers, professionals, industrialists and businessmen, in April 2002, acquired 50% of the holdings of Credit Agricole Indosuez in Nepal Indosuez Bank. The name of the bank was changed to Nepal Investment Bank ltd. upon approval of the Bank's Annual General Meeting, Nepal Rastra Bank and Company Registrar's office.

The Shareholding Structure Comprises of:

A Group of Companies	50%
Rastriya Banijya Bank	15%
Rastriya Beema Sansthan	15%
The General Public	20%

ii) Bank of Kathmandu Limited (BOKL)

Bank of Kathmandu Limited (BOKL) has become a permanent name in the Nepalese banking sector BOKL has today become a land mark in the Nepalese banking sector, by being a few commercial banks which is entirely managed by Nepalese professionals and owned by the general public. BOKL started its operation in march 1995 with the objective to stimulate the Nepalese economy and take it to newer heights to facilitate the nation's economy and to become more competitive globally having head office in Kamaladi, Kathmandu. The bank expanded its branches in Kamal Pokhari, Thamel, New Road Kathmandu, Butwal, Hetauda, Nepalgunj, Dhangadi, Pokhara, Biratnagar, Birgunj, Amlekhgunj, Ithari, Janakpur, Kohalpur, Gongabu, Tatopani, Jawalakhel, Surkhet, Khairanitar, Panauti, Balkhu, Narayangarh, Ghorai, Balaju, Atariya, New Baneshwor, Gyaneshwor, Tripureshwor, Chabahil, Bhaktapur, Tikapur, Guleriya, Dadekdhura, Urlabari, Sankhuwasaba. BOKL has made substantial progress in development of a management information system by using internationally acclaimed software, Financial in order to

support expansions and new services. Entire branches and outlets are connected online with a central database, which has facilitated better organization, risk minimization and flexibility in operation.

BOKL has the most sophisticated banking software enabling in to provide modern banking, point of sale, services, SMS banking, ATM facilities, LC services and many more. BOKL has an authorized capital 2 billion rupees out of which 1,182,157,100 million rupees have been paid up capital. The ownership share structure is derived as promoter's shares 42% and general public share 58%.

3.3 Nature and Type of Data

Since the study is basically analytical and historical on nature, most of the data are based on the past performance of the sampled commercial banks. For the purpose of the study, all the data used are second-hand published data of the respective banks under study. Such data have been derived from the financial statements of the companies concerned.

3.4 Sources of Data

All the data used in this study are obtained from the secondary sources. The main sources of the data are the financial statements of the selected commercial banks under study and of other banks also. The required financial statements have been obtained from the website of Nepal Stock Exchange Limited. Annual Reports of the selected commercial banks and Banking and Financial Statistics published by NRB. Moreover, some of the data required for this study has also been obtained from the Economic Survey 2011, a publication of Nepal Government, ministry of finance and Economic Review, a NRB publication.

3.5 Data Gathering Procedure

After identification of the sources of data, the required data for the study have been gathered through the following procedures:

- i. To obtain the data from Nepal Stock Exchange Limited, first of all, the financial statements of sample commercial banks were download.

Secondly, all the downloaded financial statements were transcribed into computer printouts and the data required for the study were taken there from.

- ii. To get the separate annual reports of the selected commercial banks, the authorized staffs of the respective banks were approached and required data were used selectively for the study & respective website of the banks were accessed for the same.
- iii. To have the data from NRB publications (Economic Review and Banking and financial Statistics), website of NRB (www.nrb.org.np) was accessed.
- iv. The required data of the government publications were also gathered from the website of Ministry of Finance, Nepal.
- v. Other books and journals had also been consulted.

3.6 Data Processing Procedure

Data thus gathered through different procedures have been further processed according the requirements of the study. First of all the collected data were thoroughly studied to identify the required data for the study for the analytical purpose. Secondly, all the required data were extracted from those sources as per need of the study. Then after, these data have been applied for the analysis of the risk and return of NIBL and BOK on the basis of income from investing activities. For this purpose the data have been used to determine the average return, standard deviation and coefficient of variation of NIBL and BOK. The data have been also processed for the analyses the risks of the respective banks in terms of coefficient of variance and correlation coefficient. Besides, they have been used for capital structure performance measure of the selected banks. The data have also been applied for the analysis of the risks and return of NIBL and BOK on the basis of net return. The data have also been used for the purpose of hypothesis testing (i.e. testing the significance of the observed correlation coefficients and significance of the computed mean values). Further

more the collected data have been processed for the comparative analysis of the selected banks on the basis of capital adequacy risks, liquidity risks and credit risks.

3.7 Tools of Analysis

Although the separate sections of the techniques of analysis have not been presented in the study, the descriptive, correlation and inferential techniques of analysis have been applied through out the study. For the purpose of descriptive analysis, risk and return of the banks under study have been analyzed on the basis of interest income and net income of the respective banks. During this course of analysis, return of the selected commercial banks along with their averages, standard deviation and coefficient of variation have been computed and arranged in the tabular form for their descriptive analysis to observe the variability of the return over the period of the study. The risks of the selected banks have also been analyzed descriptively with respect to covariance with correlation coefficient. Descriptive analysis has also been used to analyze the risk return tradeoff to the selected banks on the basis of net return on total investments and the capital adequacy risks, liquidity risks and credit risks of the banks under study.

The technique of correlation analysis has also been applied for the study while calculating correlation coefficient of the returns of the selected banks.

For inferential analysis, null and alternative hypothesis have been formulated and tested with the help of Students test. By applying the inferential technique of analysis, the significance of the observed correlation coefficients and the significance of the computed mean returns have been analyzed. If the calculated t-values are less than the tabulated values at 5% level of significance for the given degree of freedom, the null hypothesis is accepted and alternative hypothesis is rejected and vice versa.

3.7.1 Financial Analysis

To make rational interpretations, keeping with the objectives of the study, various analytical financial tools have been used in the study, which has mentioned below:

a. Total Debt to Equity Ratio

The debt to equity ratio indicates the relationship between debt and equity capital. It is used to appraise the capital structure of a bank. It measures the relative claim or contribution of creditors and owners against the bank's assets or financing debt to equity ratio can be determined in different ways. For the purpose of this following model is used:

$$\text{D/E Ratio} = \frac{\text{Total Debt}}{\text{Total Equity Capital}} \times 100$$

Where,

$$\text{D/E Ratio} = \text{Debt to Equity Ratio}$$

$$\text{Total Debt} = \text{Long Term Debts} + \text{Current Liabilities}$$

$$\text{Total Capital} = (\text{Share Capital} + \text{Share Premium} + \text{General Reserve} + \text{Accumulated Profit} + \text{Other Fee Reserves})$$

b. Interest Coverage Ratio (ICR)

Interest wherever ratio is another tool to appraise the capital structure of levered bank, which is determined by dividing EBIT to interest charges. It reflects the debt servicing capacity of a firm. Thus the ratio is used to analyze the debt servicing capacity of the banks. Following is the expressing of interested leverage ratio:

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Charges}}$$

Where,

$$\text{ICR} = \text{Interest coverage ratio}$$

$$\text{EBIT} = \text{Earning before interest and taxes}$$

c. Return on Equity (ROE)

The return on equity indicates the relationship between net profits after taxes to total equity capital. It is a measure of the rate of return to the firm's share holder's investment. It approximates the net benefit that the shareholders have received from investing their capital in the financial firm (i.e. placing their funds at risk in the hope of earning a suitable profit) Higher ratio is the more favorable for the shareholder's which represents the sound management and efficient mobilization of the owner's equity.

For the purpose of the study following model is used to determine the return on equity ratio:

$$\text{Return on Equity} = \frac{\text{Net Profit After Taxes}}{\text{Total Equity Capital}} \times 100$$

Where,

$$\text{Total Equity Capital} = \text{Paid-up Capital} + \text{Reserves Funds and Surplus.}$$

d. Return on Assets (ROA)

Return on Assets express the relationship between net incomes end total assets. It measures the return on all the firm's assets after interest and taxes it is primarily an indicator of managerial efficiency it indicator of management of the firm capable for converting the institution's assets in to net earnings and increasing ratio is favorable . it is calculated by using the following models:

$$\text{Return on Assets} = \frac{\text{Net Profit After Taxes} + \text{Interest}}{\text{Total Assets}} \times 100$$

e. Fixed Deposit to Capital Employed

Capital employed includes shareholders equity and fixed deposits

$$\text{Fixed Deposit to Capital Employed} = \frac{\text{Fixed Deposit}}{\text{Capital Employed}}$$

Where, Capital Employed = Fixed Deposit + Net Worth

f. Analysis of Debt Capacity of the Banks

To analyze debt capacity of the banks or to indicate the firm's ability to meet interest obligation; interest coverage ratio is calculated. Interest coverage ratio is one of the most conventional coverage ratios which measure the relationship between what is normally available from operation of the firm and the claims of outsiders. It is used to taste firm's debt servicing capacity. It is determined by dividing operating profit by the fixed interest charges on debt.

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

g. Overall Capitalization Rate (K_o)

The overall capitalization rate is calculated under net income approach, which measures the degree of leverage of firm. This approach assumes that cost of debt is less than cost of equity. So, if the degree of financial leverage is increased weighted average cost of capital will decline. As a result value of firm will increase. Higher the use of cheaper debt lowers the cost and consequently increases the value. Overall capitalization rate is calculated as:

$$K_o = \frac{\text{EBIT}}{\text{Value of firm}}$$

h. Earning Power Ratio (EPR)

The profitability of firm can be measured either in relation to investment or operating efficiency. The overall profitability can be measured on the basis of combination of these two ratios. Which is known as earning power ratio.

$$\text{Earning Power Ratio} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$$

i. Return on Capital Employed (ROCE)

Return on capital employed ratio is another ratio related to the profitability of long term funds. The ratio provides us a test of profitability related to the sources of long term funds and sufficient insights into how efficiently long term funds of owners and creditors are being used. It explains net income for each unit of long term funds. The higher the ratio, more efficient is the use of

capital employed. From the point of view of judging operational efficiency return on capital employed is also more useful measure. The ratio is formulated as:

$$\text{Return on Capital Employed} = \frac{\text{Net Income}}{\text{Fixed Deposit} + \text{Equity Share}}$$

Total Value of Firm = Fixed Deposits + Equity Share

$$V = B + S$$

Where, B = Fixed Deposits S = Equity Share

3.7.2 Statistical Tools

The statistical tools applied in this study are Expected rate of return, Standard Deviation, Coefficient of Variation, Karl Pearson's Coefficient of Correlation and Students t-test. As this research is related to financial subject matter so, statistical tools and formula are expressed in financial terms except correlation coefficient, coefficient of (multiple) determination (r^2). Due to the most use of average and standard deviation in financial sector also the researcher has used the financial notation for these statistical tools.

A. Arithmetic Mean (Average):

Average is statistical constants which enables us to comprehend in a single effort the significance of the whole. It represents the entire data by a single value. It provides the gist and gives the bird's eye view of the huge mass of unwieldy numerical data. It is calculated as:

$$\bar{X} = \frac{\sum X}{N}$$

Where,

\bar{X} = Arithmetic Mean

N = Number of observations

$\sum X$ = Sum of Observations

B. Standard Deviation (S.D.):

“The standard deviation is the square root of mean squared deviations from the arithmetic mean and is denoted by S.D. or σ (Shrestha, K. N. 2005). It is used as absolute measure of dispersion or variability. It is calculated:

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

Where,

σ = Standard Deviation

C. Coefficient of Variation (C. V.):

The coefficient of variation (C.V.) is the relative measure based on the standard deviation and is defined as the ratio of the standard deviation to the mean expressed in percent. It is independent of units. Hence it is a suitable measure for comparing variability of two series with same or different units. A series with smaller C.V. is said to be less variable or more consistent or more homogeneous or more uniform or more stable than the others and vice versa. It is calculated as:

$$C.V. = \frac{\sigma}{\bar{X}} \times 100$$

Where, \bar{X} = Arithmetic Mean

σ = Standard Deviation

C. V. = Coefficient of Variation

D. Correlation Coefficient (r):

Correlation may be defined as the degree of linear relationship existing between two or more variables. These variables are said to be correlated when the change in the value of one results change in another variable. Correlation is If three types. They are Simple, Partial and Multiple correlations. Correlation may be positive, negative or zero. Correlation can be classified as linear on non-linear. Here we study simple correlation only. “In simple correlation the effect of others is not excluded rather these are taken as constant considering

them to have no serious effect on the dependent variable” (Shrestha, K.N., 2005). It is calculated as:

$$r_{x_1x_2} = \frac{n\sum X_1X_2 - \sum X_1\sum X_2}{\sqrt{[n\sum X_1^2 - (\sum X_1)^2]} \sqrt{[n\sum X_2^2 - (\sum X_2)^2]}}$$

E) Probable Error (PE)

The probable error of the coefficient of correlation helps in interpreting its value. With the help of probable error, it is possible to determine the reliability of the value of the coefficient in so far as it depends on the conditions of random sampling. The probable error of the coefficient of correlation is obtained as follows:

$$PE = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

Where,

r = correlation coefficient

n = number of pairs of observation

It is used in interpretation whether calculated value of r is significant or not.

If $r < PE$, it is insignificant. So, perhaps there is no evidence of correlation.

If $r > 6PE$, it is significant.

In other cases nothing can be concluded.

F. Coefficient of (Multiple) Determination (r^2)

The coefficient of (multiple) determination is a measure of the degree of linear association or correlation between two variables one of which happens to be independent and other being depended variables. It measures the percentage total variation in dependent variables explained by independent variables. The value of the coefficient of (multiple) determination can range from zero to one (i.e. $0 < r^2 < 1$). If r^2 is equal to 0.75, it indicates that independent variables used in

regression model explain 75 percentage of the total variation in the dependent variable. It is calculated as,

$$r^2 = \frac{\text{Explained Variables}}{\text{Total Variation}}$$

G. Simple Regression Analysis

The regression analysis confined to the study of only two variables at a time is called simple regression analysis. The regression equation having only one independent variable is known as simple regression equation and it is defined as:

$$Y = a + bx$$

Where, Y= Dependent variable

- a = Constant
- b = Coefficient of regression of Y on X.
- X = Independent variable

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter deals with the presentation and analysis of data. Which collect from different source, annual reports of sample banks and complied data from NRB. As stated in the basic objectives of this case study has been already highlighted in the first chapter analytical and evaluated research methodology has been implemented and an effort been contributed to analyze the comparative case study on capital structure, capital adequacy and profitability management of sampled DPBs. The major findings thereby have emanated as derived from analysis of data.

4.1 Capital Structure Analysis

Capital structure of the bank is analyzed incorporating the analysis of relationship between fixed deposits and shareholders equity, its composition and index, financial mix ratios analysis and capitalization rate analysis.

4.1.1 Fixed Deposit Analysis

Fixed deposit of bank is considered as long term debt collected from the depositors. Fixed deposit is only one long term source of debt capital for these two banks, NIBL and BOK so far. The following table shows the position of fixed deposits in the bank over the past five years (i.e. 2006/07 to 2010/11).

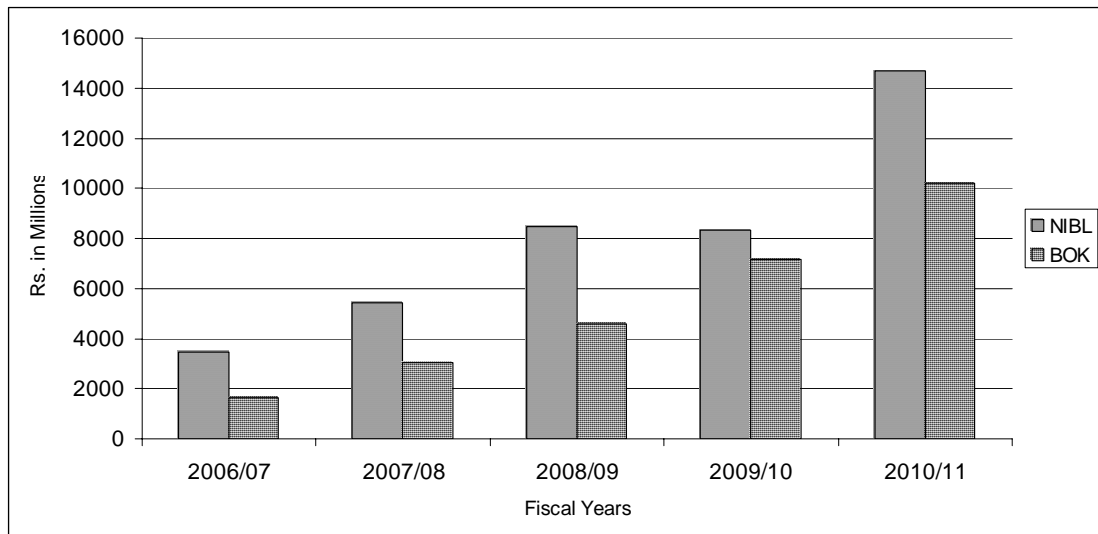
Table 4.1

Fixed Deposit Position & Index Table of NIBL & BOK (Rs. in Million)

FY	NIBL			BOK		
	Fixed Deposit	Index	% Change	Fixed Deposit	Index	%Change
2006/07	3449.09	100.00	-	1632.09	100.00	-
2007/08	5435.99	157.61	57.61	3022.56	185.20	85.20
2008/09	8464.09	245.41	55.71	4562.72	279.57	50.96
2009/10	8310.71	240.96	-1.81	7158.20	438.60	56.88
2010/11	14711.16	426.53	77.01	10195.73	624.72	42.44
Average			47.13	Average		58.87

Source: Annual Report of NIBL and BOK & Appendix I

Figure 4.1
Comparative Bar Diagram of Fixed Deposits



Source: Table No. 4.1

Fixed Deposits of NIBL is increased during study period except in fiscal year 2009/10. The fixed deposit of the bank is increased by 77.01 percent in fiscal year 2010/11, which is the highest increment during the study period.

Similarly fixed deposit of BOK is also increased every year. Banks fixed deposit is increased by 85.20 percent in FY 2007/08. It was just five year of banks operation so fixed deposit increase rate is very high then average increased rate.

On average fixed deposit increasing rate is higher for BOK than NIBL and in volume NIBL has more fixed deposit than that of BOK for final fiscal year of our study period (i.e. 2010/11). Both the banks were found increasing fixed deposits in their financial mix.

4.1.2 Analysis of Shareholders Equity

The shareholders equity of the banks include paid-up capital, general reserve, capital reserve, proposed dividend, other reserve, retained earning and exchange equalization fund.

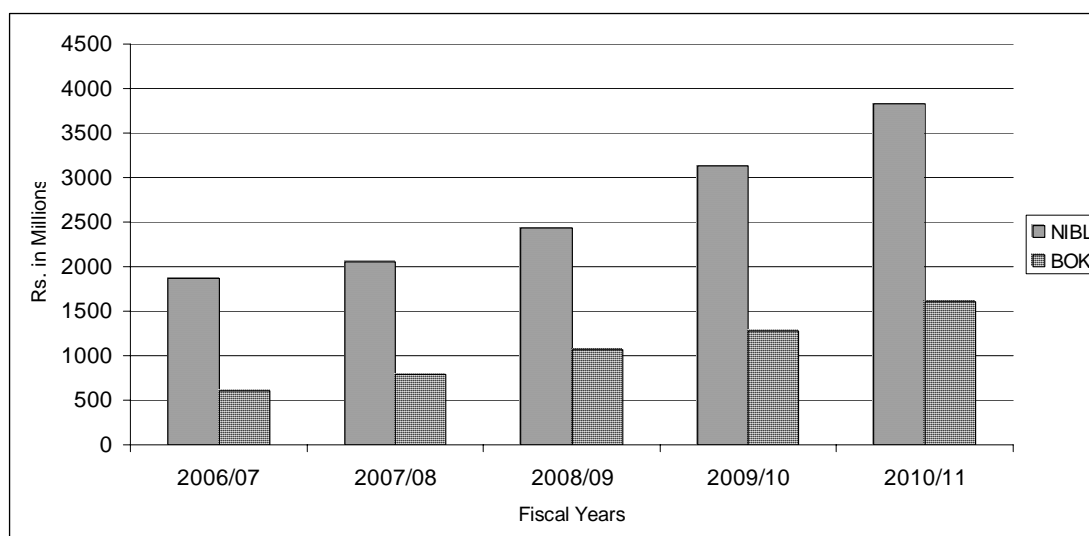
Table 4.2
Shareholders Equity Position & Index Table of NIBL & BOK

(Rs. in Million)

FY	NIBL			BOK		
	Net Worth	Index	% Change	Net Worth	Index	% Change
2006/07	1875.00	100.00	-	603.14	100.00	-
2007/08	2057.00	109.71	9.71	793.71	131.60	31.60
2008/09	2437.20	129.99	18.49	1068.35	177.14	34.60
2009/10	3130.24	166.95	28.43	1278.74	212.02	19.69
2010/11	3834.23	204.50	22.49	1603.54	265.87	25.40
Average			19.78	Average		27.82

Source: Annual Report of NIBL and BOK & Appendix I

Figure 4.2
Comparative Bar Diagram of Net Worth



Source: Table No. 4.2

As shown in table 4.2 the shareholders equity position of both banks showed a fluctuating trend but not negative trend. The net worth of NIBL is increased by 28.43 percent in fiscal year 2009/10, which is the highest increment during the study period.

In case of BOK, the annual rate of percent change in the fiscal year 2007/08 was 31.60 percent and by the end of fiscal year 2010/11 it reached 25.40

percent and the highest increment in percent change is 34.60 percent in fiscal year 2008/09.

On average net worth increasing rate is higher for BOK than NIBL but not in volume of BOK has more net worth than NIBL during the study period (i.e. 2006/07 to 2010/11). Both the banks were found increasing net worth in their financial mix.

4.1.3 Fixed Deposit & Net Worth of NIBL & BOK

Table 4.3
Fixed Deposit & Net Worth of NIBL & BOK (Rs. in Million)

Fiscal Year	NIBL		BOK	
	Fixed Deposit	Net Worth	Fixed Deposit	Net Worth
2006/07	3449.09	1875.00	1632.09	603.14
2007/08	5435.99	2057.00	3022.56	793.71
2008/09	8464.09	2437.20	4562.72	1068.35
2009/10	8310.71	3130.24	7158.20	1278.74
2010/11	14711.16	3834.23	10195.73	1603.54

Source: Annual Report of NIBL and BOK & Appendix I

As shown in table 4.3, fixed deposits and net worth of NIBL is higher than BOK, the highest amount of fixed deposit and net worth of NIBL is in fiscal year 2010/11 which is Rs. 14711.16 million and Rs.3834.23 million respectively. And the highest amount of fixed deposit and net worth of BOK is in fiscal year 2010/11 which is Rs.10195.73 million and Rs.1603.54 million respectively.

4.1.4 Fixed Deposit to Total Debt Ratio

Table 4.4
Fixed Deposit to Total Debt Ratio of NIBL & BOK

Rs. in Million

Fiscal Year	NIBL			BOK		
	Fixed Deposit	Total Debt	Ratio %	Fixed Deposit	Total Debt	Ratio %
2006/07	3449.09	20454.98	16.86	1632.09	4152.90	39.30
2007/08	5435.99	25196.34	21.57	3022.56	7150.60	42.27
2008/09	8464.09	34695.61	24.40	4562.72	10581.45	43.12
2009/10	8310.71	40737.16	20.40	7158.20	16603.01	43.11
2010/11	14711.16	48245.50	30.49	10195.73	21198.89	48.10
Average			22.74			43.18
SD			5.10			8.67
CV			22.43			20.08

Source: Annual Report of NIBL and BOK & Appendix I

Total debt includes borrowing from banks, deposits, bills payable, bills for collection and other liabilities. The portion of fixed deposit of NIBL in total debt is in average of 22.74 percent. It is highest of 30.49 percent in fiscal year 2010/11 and the lowest of 16.86 percent in fiscal year 2006/07.

In case of BOK, portion of fixed deposit to total debt is the highest of 48.10 percent in fiscal year 2010/11 and the lowest of 39.30 percent in fiscal year 2006/07 throughout the study period. And on average percentage of fixed deposit to total debt is 43.18 percent for BOK.

The volume of fixed deposit to total debt fluctuated more in NIBL than in BOK (i.e. $CV=22.43 > 20.08$). The ratio of fixed deposit to total debt of NIBL is found below the combined average of 32.96 percent throughout the study period but average ratio of BOK is above the combined average. Above figures show that BOK has higher portion of fixed deposits in total debt than that of NIBL.

4.1.5 Analysis of Financial Mix of the Banks

This research has analyzed financial mix of the banks using ratio analysis as financial tool for the data available from the concerned banks annual reports.

4.1.5.1 Debt to Equity Ratio (DER)

It shows the relationship between borrowed funds and owners capital. This ratio reflects the relative claims of creditors and shareholders against the assets of the firm. This ratio is widely popular measure of the long term financial viability of a firm and it is important to appraise the financial structure of a firm. Therefore, there is a large claim against the assets of the firm which is a dangerous signal for the creditors. It would be riskier to the creditors. A high proportion of debt in the financial structure would lead to inflexibility in the operation of the firm because firm is largely liable to pay the interest even if the firm is suffering from the losses, where a smaller ratio shows smaller claim of creditors. To the creditors relatively high stake of the owners implies sufficient safety margin and substantial protection against shrinkage in assets. Debt equity can be calculated in the following ways.

i. Fixed Deposit to Net Worth Ratio

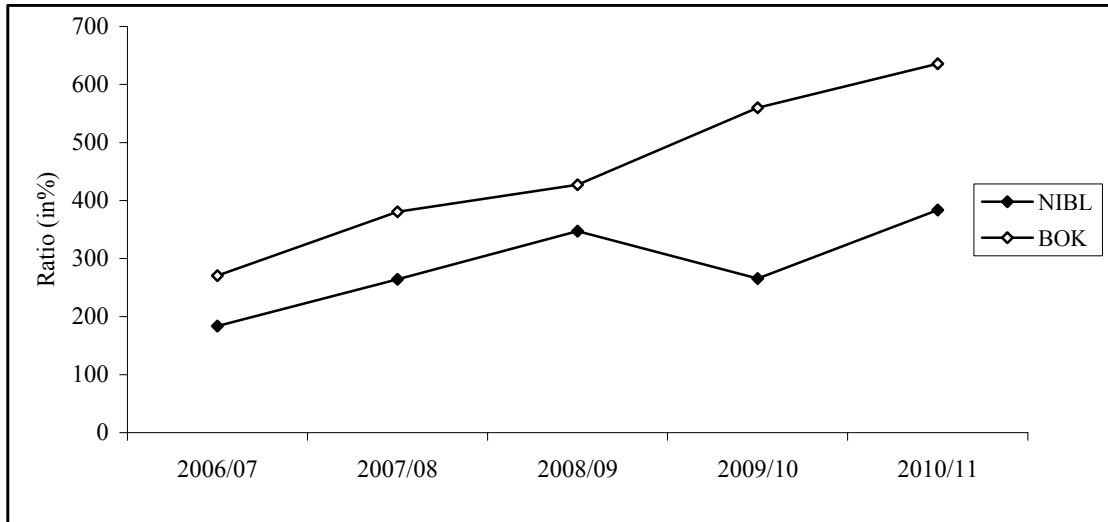
Table 4.5
Fixed Deposit to Net Worth Ratio of NIBL & BOK

Rs. in Million

Fiscal Year	NIBL			BOK		
	Fixed Deposit	Net Worth	Ratio %	Fixed Deposit	Net Worth	Ratio %
2006/07	3449.09	1875.00	183.95	1632.09	603.14	270.60
2007/08	5435.99	2057.00	264.27	3022.56	793.71	380.81
2008/09	8464.09	2437.20	347.29	4562.72	1068.35	427.08
2009/10	8310.71	3130.24	265.50	7158.20	1278.74	559.79
2010/11	14711.16	3834.23	383.68	10195.73	1603.54	635.83
Average			288.94			454.82
SD			78.36			144.89
CV			27.12			31.86

Source: Annual Report of NIBL and BOK & Appendix I

Figure 4.3
Line Diagram of Fixed Deposit to Net Worth



Source: Table No. 4.5

The above table shows the debt equity ratio in terms of fixed deposits (FD) to shareholders equity (NW) of the banks (NIBL and BOK). The ratio is more significant to determine whether fixed deposits financing is strength of the profitability of the bank. Both the banks have more DER i.e. greater claims of the creditors than that of owners.

DER of NIBL is 383.68 percent in Fiscal year 2010/11 which is the highest ratio during the study period. It is minimal of 183.95 percent in fiscal year 2006/07 and average DER of NIBL is 288.94 percent. Similarly for BOK, DER is highest in fiscal year 2010/11 i.e. 635.83 percent and minimum of 270.60 percent in fiscal year 2006/07. Average DER ratio for BOK is 454.82 percent.

On average this ratio is higher for BOK than that of NIBL. But on the basis of coefficient of variation (C.V), the C.V of BOK is found higher than the CV of NIBL i.e. $31.86 > 27.12$. This shows that the variability of fixed deposits to net-worth ratio is higher in BOK than in NIBL.

If we consider the average ratio of fixed deposit to net-worth, it is higher for BOK than that of NIBL. This explains that BOK has more claims of creditors than that of owners. Further it depicts that BOK has higher portion of fixed deposits than shareholders equity in its capital structure in comparison to

NIBL, but the figures are highly varied during the study period so we can not interpret the results on the basis of average.

ii. Total Debt to Net Worth Ratio

Table 4.6
Total Debt to Net Worth Ratio of NIBL & BOK

Rs. in Million

Fiscal Year	NIBL			BOK		
	Total Debt	Net Worth	Ratio %	Total Debt	Net Worth	Ratio %
2006/07	20454.98	1875.00	1090.93	4152.90	603.14	688.55
2007/08	25196.34	2057.00	1224.91	7150.60	793.71	900.91
2008/09	34695.61	2437.20	1423.58	10581.45	1068.35	990.45
2009/10	40737.16	3130.24	1301.41	16603.01	1278.74	1298.39
2010/11	48245.50	3834.23	1258.28	21198.89	1603.54	1322.01
Average			1259.82			1040.06
SD			120.72			270.01
CV			9.58			25.96

Source: Annual Report of NIBL and BOK & Appendix I

The above calculation shows the portion of total debt in shareholders equity. In Fiscal year 2006/07, NIBL has 1090.93 percent of debt to net-worth which is the lowest return throughout the study period. NIBL has highest ratio of 1423.58 percent in fiscal year 2008/09 having average debt to net worth of 1259.82 percent.

Similarly, BOK has 688.55 percent of debt capital in every 100 percent net worth in fiscal year 2006/07 which is the lowest ratio throughout the study period. BOK has highest ratio of 1322.01 percent in fiscal year 2010/11 having an average total debt to net worth of 1040.06 percent.

The average ratio of NIBL is found above the combined average of 1149.94 percent throughout the study period where the average ratio of BOK is below the combined average. This depict that NIBL has employed high total debt capital or outside funds as compared to equity fund, since the bank is extremely

levered than BOK. A normal fluctuation on the ratio has been noticed in both the banks however the CV is lower in NIBL than in BOK, which shows that the ratio of NIBL is more consistent than that of BOK.

From the above table, we can say that both banks are extremely levered. Both the banks are facing heavy burden of interest payment due to the employment of more debts. Both the banks financial structure shows the dangerous signals to the creditors. In future the banks may lead to inflexibility in the operation. But by nature banks capital structure heavily depends on that capital.

4.1.5.2 Debt to Total Capital Ratio

The relationship between creditors fund and owners capital can also be shown by debt to capital ratio. This type of capital structure ratio is deviated from the debt equity ratio. Here, it states that the outsider's liabilities are related to the total capitalization to the firm and not only to the shareholders equity. There are various related ratios i.e.

i. Fixed Deposit to Capital Employed

Capital employed includes shareholders equity and fixed deposits

Table 4.7

Fixed Deposit to Capital Employed Ratio of NIBL & BOK (Rs. in Millions)

Fiscal Year	NIBL				BOK			
	Fixed Deposit	Net Worth	Capital Employed	Ratio %	Fixed Deposit	Net Worth	Capital Employed	Ratio %
2006/07	3449.09	1875.00	5324.09	64.78	1632.09	603.14	2235.23	73.02
2007/08	5435.99	2057.00	7492.99	72.55	3022.56	793.71	3816.27	79.20
2008/09	8464.09	2437.20	10901.29	77.64	4562.72	1068.35	5631.07	81.03
2009/10	8310.71	3130.24	11440.95	72.64	7158.20	1278.74	8436.94	84.84
2010/11	14711.16	3834.23	18545.39	79.33	10195.73	1603.54	11799.27	86.41
Average				73.39				80.90
SD				5.67				5.26
CV				7.73				6.50

Source: Annual Report of NIBL and BOK & Appendix I

The ratio of fixed deposit to capital employed has been fluctuated for both banks over the study period. NIBL has recorded the ratio 79.33 percent in fiscal year 2010/11 which is the highest ratio during the study period. NIBL has lowest ratio of 64.78 percent in fiscal year 2006/07 having average ratio of 73.39 percent.

Similarly, DER in-terms of fixed deposit to capital employed of BOK is 73.02 percent which is the lowest ratio during the study period. BOK has the highest ratio of 86.41 percent in fiscal year 2010/11 having average ratio of 80.90 percent.

The CV of BOK is found less than that of NIBL i.e. $6.50 < 7.73$, this shows that the variability of ratio is extremely more in BOK.

Table 4.8
Total Debt to Total Assets Ratio of NIBL & BOK

(Rs. in Million)

Fiscal Year	NIBL			BOK		
	Total Debt	Total Assets	Ratio %	Total Debt	Total Assets	Ratio %
2006/07	20454.98	22329.97	91.60	4152.90	4755.96	87.32
2007/08	25196.34	27329.39	92.20	7150.60	7948.64	89.96
2008/09	34695.61	37132.76	93.44	10581.45	11654.86	90.79
2009/10	40737.16	43867.40	92.86	16603.01	17881.75	92.85
2010/11	48245.50	52079.73	92.64	21198.89	22802.43	92.97
Average			92.55			90.78
SD			0.69			2.33
CV			0.75			2.57

Source: Annual Report of NIBL and BOK & Appendix I

The above computation of D/CR in-terms of total debt to total assets shows that the share of total assets is financed by the outsider's fund. The ratio shows that the assets of the banks, the banks have been financed more by funds collected from creditors.

The ratio of total debt to total assets of NIBL is 91.60 percent in fiscal year 2006/07 which is the lowest ratio during the study period but for 2008/09 it is increased to 93.44 percent recording the highest ratio during the study period. NIBL has an average D/CR ratio of 92.55 percent in terms of total debt to total assets.

Where as the same ratio of BOK is 87.32 percent for fiscal year 2006/07, which is the lowest ratio for the study period. BOK recorded highest D/CR in fiscal year 2010/11 having average ratio of 90.78 percent. The ratio is highly fluctuated in BOK than in NIBL i.e. $2.57 > 0.75$ percent.

The ratio of total debt to total assets is recorded over 80 percent in both banks that show that both banks are found using higher debt capital to finance their assets. In both banks, creditor's margin of safety is very low. It is found around 10 percent to 12 percent of average which indicates higher risk. However, the ratio is found much higher in BOK than that of NIBL.

4.1.6 Analysis of Debt Capacity of the Banks

To analyze debt capacity of the banks or to indicate the firm's ability to meet interest obligation; interest coverage ratio is calculated. Interest coverage ratio is one of the most conventional coverage ratios which measure the relationship between what is normally available from operation of the firm and the claims of outsiders. It is used to taste firm's debt servicing capacity. It is determined by dividing operating profit by the fixed interest charges on debt.

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

From the view point of the creditors, the larger the coverage ratio greater the ability of firm to handle fixed charges and assurance of payment of interest to creditors. However, too high or low ratio as well is unfavorable to the firms, high ratio implies that firms is very conservative in using debt and low ratio implies that firm is using excess debt and doesn't have the ability to offer assured payment of interest to creditors.

Table 4.9
EBIT and Interest Charges of NIBL & BOK (Rs. in Million)

FY	NIBL		BOK	
	EBIT	Interest	EBIT	Interest
2006/07	1254.99	351.16	254.41	153.71
2007/08	1544.20	555.71	424.76	271.71
2008/09	1847.43	758.44	646.87	401.89
2009/10	2631.95	1153.28	1136.34	813.62
2010/11	3585.29	1960.11	1755.17	1406.49

Source: Annual Report of NIBL and BOK & Appendix I

Table 4.10
Interest Coverage Ratio of NIBL & BOK (In Times)

Bank	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	3.57	2.78	2.44	2.28	1.83	2.58	0.65	25.19
Change	-	-0.79	-0.34	-0.16	-0.45			
BOK	1.66	1.56	1.61	1.40	1.25	1.49	0.17	11.41
Change	-	-0.10	0.05	-0.21	-0.15			
Combined Average						2.04		

Source: Annual Report of NIBL and BOK

The interest coverage ratio of NIBL was 1.83 times, which is the lowest ratio during our study period recording the highest ratio of 3.57 times in fiscal year 2006/07. NIBL maintained average interest coverage ratio of 2.58 times. Throughout the study period interest coverage ratio of NIBL is above the normal standard of two times except in fiscal year 2010/11.

Similarly, interest coverage ratio of BOK is 1.66 times in fiscal year 2006/07 which is the highest ratio during our study period recording the lowest ratio of 1.25 times in fiscal year 2010/11. BOK maintained its average interest coverage ratio of 1.49 times. Throughout the study period interest coverage ratio of BOK is below the normal standard of two times.

Higher the ratio indicates higher capacity to bear the high volume of interest charge and vice versa. NIBL have interest coverage ratio above the normal ratio i.e. 2 times and BOK have below the normal ratio, which could be considered as tight debt service capacity. So far NIBL is observed in better condition than BOK in their debt service capacity.

The variation of the ratio of BOK is observed less in comparison to NIBL i.e. CV of BOK is 11.41 whereas 25.19 is recorded in NIBL, which indicates that interest coverage ratio of BOK is consistent than that of NIBL.

4.1.7 Capital Structure Position of the Banks

When debt and equity are properly mixed, it minimizes the cost of capital and maximizes the value of firm. In-order to analyze the value of banks, fixed deposits and equity share capitals are taken into consideration. Net income approach is considered to fix out the overall capitalization rate of banks. Here, net worth is equal to equity share. In order to analyze the capital structure management of banks value of the firm is calculated as below. The value of firm is determined by adding debt and equity. The structure of banks is of fixed deposits and equity share capital only.

Table 4.11
Capital Structure Mix of NIBL (Rs. in Million)

FY	Fixed Deposit	Equity Share	Total Value of Firm	Proportion
2006/07	3449.09	1875.00	5324.09	0.65 : 0.35
2007/08	5435.99	2057.00	7492.99	0.73 : 0.27
2008/09	8464.09	2437.20	10901.29	0.78 : 0.22
2009/10	8310.71	3130.24	11440.95	0.73 : 0.27
2010/11	14711.16	3834.23	18545.39	0.79 : 0.21

Source: Annual Report of NIBL & Appendix I

The proportion of debt capital to equity of NIBL is above 70 percent in all fiscal year except in fiscal year 2006/07 during our study period. The proportion was 0.65:0.35 in fiscal year 2006/07 which is the lowest proportion

of debt to equity over the study period. NIBL recorded the highest proportion of 0.79:0.21 in fiscal year 2010/11.

Table 4.12

Capital Structure Mix of BOK (Rs. in Million)

FY	Fixed Deposit	Equity Share	Value of Firm	Proportion
2006/07	1632.09	603.14	2235.23	0.73 : 0.27
2007/08	3022.56	793.71	3816.27	0.79 : 0.21
2008/09	4562.72	1068.35	5631.07	0.81 : 0.19
2009/10	7158.20	1278.74	8436.94	0.85 : 0.15
2010/11	10195.73	1603.54	11799.27	0.86 : 0.14

Source: Annual Report of BOK & Appendix I

The proportion of debt capital to equity of BOK is above 70 percent in all fiscal year during our study period. The proportion is 0.73:0.27 in fiscal year 2006/07 which is the lowest proportion of debt to equity over the study period. BOK recorded highest proportion of debt to equity of 0.86:0.14 in fiscal year 2010/11.

4.1.8 Overall Capitalization Rate (K_o)

The overall capitalization rate is calculated under net income approach, which measures the degree of leverage of firm. This approach assumes that cost of debt is less than cost of equity. So, if the degree of financial leverage is increased weighted average cost of capital will decline. As a result value of firm will increase. Higher the use of cheaper debt lowers the cost and consequently increases the value. Overall capitalization rate is calculated as:

$$K_o = \frac{\text{EBIT}}{\text{Value of firm}}$$

(Value of firm is sum of fixed deposits and equity share which is shown in appendix)

Table 4.13**EBIT and Value of the Firm of NIBL & BOK (Rs. in Million)**

Fiscal Year	NIBL		BOK	
	EBIT	Value of Firm	EBIT	Value of Firm
2006/07	1254.99	5324.09	254.41	2235.23
2007/08	1544.20	7492.99	424.76	3816.27
2008/09	1847.43	10901.29	646.87	5631.07
2009/10	2631.95	11440.95	1136.34	8436.94
2010/11	3585.29	18545.39	1755.17	11799.27

Source: Appendix I

Table 4.14**Overall Capitalization Rate of NIBL and BOK (in%)**

Fiscal Year	NIBL		BOK	
	K_o	Change	K_o	Change
2006/07	23.57	-	11.38	-
2007/08	20.61	-2.96	11.13	-0.25
2008/09	16.95	-3.66	11.49	0.36
2009/10	23.00	6.05	13.47	1.98
2010/11	19.33	-3.67	14.88	1.41
Average	20.69		12.47	

Source: Annual Report of NIBL and BOK

Average overall capitalization rate (K_o) is 20.69 percent of NIBL. The maximum overall capitalization rate of NIBL is 23.57 percent in fiscal year 2006/07 due to increase in EBIT in comparison to its value, whereas the capitalization rate is recorded minimum of 16.95 percent in fiscal year 2008/09 because of its decrease in EBIT.

Similarly the average overall capitalization rate of BOK is 12.47 percent which is less than of NIBL. In addition the K_o of BOK in all period is lower than that of NIBL. The highest K_o of BOK is 14.88 percent found in 2010/11 and the lowest is 11.13 percent in fiscal year 2007/08.

From the above it is found that increase in financial leverage there is decrease in K_0 . This shows that cost of debt is lower than cost of equity.

4.1.9 Earning Power Ratio (EPR)

The profitability of firm can be measured either in relation to investment or operating efficiency. The overall profitability can be measured on the basis of combination of these two ratios. Which is known as earning power ratio.

$$\text{Earning Power Ratio} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$$

Table 4.15
Earning Power Ratio of NIBL & BOK

(In Percent)

Bank	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	3.23	2.72	2.01	2.35	2.19	2.5	0.49	19.6
Change	-	-0.51	-0.71	0.34	-0.16			
BOK	1.36	1.2	1.22	1.22	1.05	1.21	0.11	8.96
Change	-	-0.16	0.02	0.002	0.17			
Combined Average						1.86		

Source: Annual Report of NIBL and BOK

The earning power ratio of NIBL was 2.19 percent. Which is nearly average percentage during our study period recording the highest ratio 3.23% in FY 2006/07 and lowest ratio is 2.01% in FY 2008/09. NIBL maintain average earning power ratio 2.5 percent.

Similarly, earning power ratio of BOK was 1.05 percent. Which is nearly average percentage during our study period recording the highest ratio 1.36 percent in FY 2006/07 and lowest ratio is 1.05 percent in FY 2010/01. BOK maintain average earning power ratio 1.21 percent. Overall the combine ratio is 1.86 percent. Through out the study period earning power ratio of BOK is below the normal standard.

The variation of the ratio of BOK is observed less in comparison to NIBL i.e. CV of BOK is 8.96 percent where 19.6 percent in NIBL which indicates that earning power ratio BOK is consistent then that of NIBL.

4.1.10 Return on Assets (ROA)

Return measures the profitability of banks that explains the return on all financial resources invested in the banks assets are satisfactory or not. ROA is a useful measure of how well a manager is doing the job because it indicates how well banks assets are being used to generate profit. The ratio explains net income for each unit of assets, indicates overall effectiveness of management in generating profits with its available assets. From the view of judging operational efficiency, the rate of return on total assets is more useful measure.

The higher ratio indicates the higher efficiency in utilizing its overall resources and vice-versa. The bank has to earn satisfactory return on assets for its survival. Below table exhibits the ROA of NIBL and BOK for the period between FY 2006/07 to 2010/11.

$$\text{Return on Assets} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$$

Table 4.16
Return on Assets of NIBL & BOK

(In Percent)

Bank	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	4.8	4.75	4.05	4.97	5.95	4.9	0.68	13.9
Change	-	-0.05	-0.7	0.92	0.98			
BOK	4.6	4.61	4.67	5.77	7.22	5.37	1.45	21.3
Change	-	0.01	0.06	-1.1	1.45			
Combined Average						5.14		

Source: Annual Report of NIBL and BOK

Above table shows the ROA of NIBL has fluctuating trend in FY 2006/07 to 2010/11 with average return of 5.14 percent, absolute measure on SD of 0.68 and relative measure on CV of 13.9 indicates more efficiency and consistency

on the ratio of NIBL. Similarly, the ratio of BOK has also fluctuating trend. The minimum ratio is 4.6 percent in FY 2006/07 and maximum ratio is 7.22 percent in FY 2010/11. Moreover, an average return ratio of 5.37 percent absolute measure on SD of 1.45 and relative measure on CV of 21.3 percent, which is moderate, it indicates less consistency on the ratio with comparing to NIBL.

4.2 Return on Capital Employed (ROCE)

Return on capital employed ratio is another ratio related to the profitability of long term funds. The ratio provides us a test of profitability related to the sources of long term funds and sufficient insights into how efficiently long term funds of owners and creditors are being used. It explains net income for each unit of long term funds. The higher the ratio, more efficient is the use of capital employed. From the point of view of judging operational efficiency return on capital employed is also more useful measure. The ratio is formulated as:

$$\text{Return on Capital Employed} = \frac{\text{Net Income}}{(\text{Fixed Deposits} + \text{Net Worth})}$$

Where,

Total Value of Firm = Fixed Deposits + Net Worth

Table 4.17
Net Income and Value of the Firm of NIBL & BOK (Rs. in Million)

Fiscal Year	NIBL		BOK	
	Net Income	Value of Firm	Net Income	Value of Firm
2006/07	720.73	5324.09	64.91	2235.23
2007/08	742.72	7492.99	94.83	3816.27
2008/09	746.47	10901.29	142.79	5631.07
2009/10	1031.05	11440.95	217.92	8436.94
2010/11	1138.57	18545.39	240.85	11799.27

Source: Annual Report of NIBL and BOK

Table 4.18
Return on Capital Employed (in %)

FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	13.54	9.91	6.85	9.01	6.14	9.09	2.92	32.12
Change	-	-3.63	-3.06	2.16	-2.87			
BOK	2.90	2.48	2.54	2.58	2.04	2.51	0.30	11.95
Change	-	-0.42	0.06	0.04	-0.54			
Combined Average						5.80		

Source: Annual Report of NIBL and BOK

Return on capital employed of NIBL is 6.14 percent in fiscal year 2010/11 which is the lowest ratio during the study period. However NIBL recorded its highest return on capital employed of 13.54 percent in fiscal year 2006/07 having average return on capital employed of 9.09 percent.

On the other hand the lowest return on capital employed of BOK is 2.04 percent in fiscal year 2010/11 but the height figure of 2.90 percent in fiscal year 2006/07 having average return on capital employed of 2.51 percent.

On the ground of combined average of 5.80 percent, the ratio of BOK is found below than combined average in all periods, at the same time coefficient of variation of NIBL is more than that of BOK. This shows that ratio of NIBL is highly fluctuated throughout the period i.e. $CV = 32.12 > C.V = 11.95$. This further explains that NIBL is not able in handling long term funds properly.

4.3 Return on Equity (ROE)

This ratio carries the relationship of return to the source of funds. This ratio shows whether the banks have earned a satisfactory return from its internal sources or not. Return on capital employed has expressed previously, the profitability of the banks in relation to the funds supplied by the creditors and owners together. But this ratio is used to measure exclusively return on owner's fund.

Hence, this ratio reveals how profitably the owners fund has been utilized by the banks and indicates whether a bank can compete for private source of capital in the company. Higher the ratio, higher will be the investment, which the shareholders will undertake. Return of equity ratio can be formulated as:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Net Worth}}$$

Table 4.19
Net Income and Net Worth of NIBL & BOK

(Rs. in Million)

Fiscal Year	NIBL		BOK	
	Net Income	Net Worth	Net Income	Net Worth
2006/07	720.73	1875.00	64.91	603.14
2007/08	742.72	2057.00	94.83	793.71
2008/09	746.47	2437.20	142.79	1068.35
2009/10	1031.05	3130.24	217.92	1278.74
2010/11	1138.57	3834.23	240.85	1603.54

Source: Annual Report of NIBL and BOK

Table 4.20
Return on Equity (in %)

FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	38.44	36.11	30.63	32.94	29.69	33.56	3.68	10.97
Change	-	-2.33	-5.48	2.31	-3.25			
BOK	10.76	11.95	13.37	17.04	15.02	13.63	2.48	18.20
Change	-	1.19	1.42	3.67	-2.02			

Source: Annual Report of NIBL and BOK

The return on equity of NIBL is lowest of 29.69 percent and that is the highest of 38.44 percent in fiscal year 2006/07 and decreased to 36.11 percent in fiscal year 2007/08. Average return on equity of NIBL is 33.56 percent.

The return on equity of BOK is found fluctuating in nature. The ratio is lowest of 10.76 percent in fiscal year 2006/07 and reached to the highest of 17.04

percent in fiscal year 2009/10 and again it decreased to 15.02 percent in fiscal year 2010/11. Then after having an average return on equity of 13.63 percent. Coefficient of variation shows that return on equity ratio of BOK is highly fluctuated than the ratio of NIBL i.e. $CV=18.20 > CV=10.97$. NIBL seems more consistent in respect of return on equity than that of BOK. Both the banks have satisfactory return of equity of above 10 percent in all fiscal years, which shows that both banks have utilized their shareholders equity in satisfactory manner.

4.4 Statistical Analysis

This Chapter incorporates some statistical tools, which are used to analyze the data to achieve the objective of the study. Such statistical tools are Karl Pearson's Correlation Coefficient & multiple regression analysis.

4.4.1 Correlation Coefficient Analysis

Correlation analysis deals with the statistical technique which measures the degree of relationship (or association) between the variables. In other words, it helps us in analyzing the co-variation of two or more variables. If two quantities vary such that movement in one variable accompanied by movement in other, then they are said to be correlated.

4.4.1.1 Correlation Coefficient between EBIT & Interest Payment

The relationship between EBIT & Interest payment is evaluated in order to measure debt serving capacity of the banks. It is assumed that there is significant relationship between EBIT & Interest payment. Here interest payment (X) is dependent variable and EBIT (Y) is independent variable. The following result obtained for NIBL & BOK.

Table 4.21
Correlation Coefficient between EBIT & Interest Payment

Fiscal Year	NIBL		BOK	
	Interest(X)	EBIT(Y)	Interest(X)	EBIT(Y)
2006/07	351.16	1254.99	153.71	254.41
2007/08	555.71	1544.20	271.71	424.76
2008/09	758.44	1847.43	401.89	646.87
2009/10	1153.28	2631.95	813.62	1136.34
2010/11	1960.11	3585.29	1406.49	1755.17
r	0.9853		0.9966	
r ²	0.9425		0.9931	
P.E.	0.0173		0.0021	
6P.E.	0.1041		0.0125	
Relation	Positive		Positive	
Sign/Insig	Significant		Significant	

Source: Annual Report of NIBL and BOK & Appendix-II

The correlation between EBIT & Interest payment of NIBL is 0.9853 and it is 0.9966 in BOK, which shows higher positive relationship in both the banks.

Coefficient of determination (r^2) of NIBL indicated that 94.25 percent variation in interest payment is explained by the independent variable EBIT, where as in the case of BOK 99.31 percent of the variation in the interest payment is explained by EBIT.

Considering the probable error (P.E.), the value of 'r' of both the banks are greater than six times of the P.E. Therefore, we can say that the value of 'r' is significant i.e., there is significant relationship between EBIT & Interest payment. This depicts us that the banks are significantly able to service their debt.

4.4.1.2 Correlation Coefficient between Return & Debt Capital

The relationship between return and debt capital of both the banks is analyzed in order to examine whether debt capital is significant in generating more

return. It is assumed that there is significant relationship between return and debt capital.

Here, Return(X) is dependent variable and Debt Capital (Y) is independent variable. The following result is obtained for NIBL & BOK.

Table 4.22
Correlation Coefficient between Return & Debt capital

Fiscal Year	NIBL		BOK	
	EBIT(X)	Debt Capital(Y)	EBIT(X)	Debt Capital(Y)
2006/07	1254.99	20454.98	254.41	4152.90
2007/08	1544.20	25196.34	424.76	7150.60
2008/09	1847.43	34695.61	646.87	10581.45
2009/10	2631.95	40737.16	1136.34	16603.01
2010/11	3585.29	48245.50	1755.17	21198.89
r	0.9930		0.9925	
r ²	0.9860		0.9850	
P.E.	0.0042		0.0045	
6P.E.	0.0253		0.0271	
Relation	Positive		Positive	
Sign/Insig	Significant		Significant	

Source: Annual Report of NIBL and BOK & Appendix-II

From the above correlation between return and total debt capital in case of NIBL was 0.9930 which shows high positive relationship. This refers that increase in total capital increases return. Coefficient of determination (r^2) of the bank is 98.60 percent, indicated that 98.60 percent of the variation in the return is explained by the debt capital. The probable error (6 P.E.) of the bank is 0.0253 less than value of 'r'. This indicated that there is significant relationship between the variables. This depicts that debt capital of the bank is significant in generating more returns.

Similarly, correlation between return and total debt capital of BOK is 0.9925 which showed that the variables are highly positively correlated. This refers

that increase in debt capital increases return. Coefficient of determination (r^2) of the bank indicated that 98.50 percent of the variable in dependent variable (return) is explained by independent variable (total debt capital). Considering the probable error (P.E.), the value of 'r' of the bank is greater than six times of the P.E. This depicts that debt capital of BOK is significant in generating more returns.

4.4.1.3 Coefficient of Correlation between Debt Equity Ratio & Return on Equity

The correlation between DER(X) and ROE(Y) of both the banks is analyzed in order to know whether increase in debt capital portion in the capital structure increase return on equity. The following result is obtained for NIBL & BOK.

Table 4.23

Correlation Coefficient between Debt equity Ratio & Return on Equity

Fiscal Year	NIBL		BOK	
	DER(X)	ROE(Y)	DER(X)	ROE(Y)
2006/07	1090.93	38.44	688.55	10.76
2007/08	1224.91	36.11	900.91	11.95
2008/09	1423.58	30.63	990.45	13.37
2009/10	1301.41	32.94	1298.39	17.04
2010/11	1258.28	29.69	1322.01	15.02
r	0.9850		0.9957	
r^2	0.9702		0.9914	
P.E.	0.0090		0.0026	
6P.E.	0.0539		0.0156	
Relation	Positive		Positive	
Signi/Insig	Significant		Significant	

Source: Annual Report of NIBL and BOK & Appendix-II

From the above table, correlation between ROE and DER, ROE being dependent on DER, it is found positive relationship in both banks i.e., increase in leverage, increases ROE (Which is the objective of financial leverage).

Coefficient of determination (r^2) indicated that 97.02 percent of the variation in ROE is explained by DER of NIBL where as in case of BOK 99.14 percent of the variable in ROE is explained by DER

Considering probable error (P.E.), it is found that the value of 'r' is greater than six times P.E. of NIBL. So, it can be concluded that the value of 'r' is significant. The value of 'r' is found more than six times P.E. of BOK. So it can be concluded that value of 'r' is significant. This means that debt equity ratio of NIBL is significant in generating more returns on equity. Thus there is proper relationship between ROE & DER.

4.4.1.4 Coefficient of Correlation between Overall Capitalization Rate (K_o) & Debt Equity Ratio (DER)

The correlation coefficient between overall capitalization rate(X) and debt equity ratio (Y) in terms of total debt to net worth is calculated in order to measure whether increase in the debt equity ratio decrease overall capitalization rate of the banks. Applying Karl Pearson's correlation coefficient, the following result is obtained for NIBL & BOK.

Table 4.24

Correlation Coefficient between Overall Capitalization Rate & Debt Equity Ratio

Fiscal Year	NIBL		BOK	
	$K_o(X)$	DER(Y)	$K_o(X)$	DER(X)
2006/07	23.57	1090.93	11.38	688.55
2007/08	20.61	1224.91	11.13	900.91
2008/09	16.95	1423.58	11.49	990.45
2009/10	23.00	1301.41	13.47	1298.39
2010/11	19.33	1258.28	14.88	1322.01
r	0.9820		0.9906	
r^2	0.9643		0.9813	
P.E.	0.0108		0.0056	
6P.E.	0.0646		0.0338	
Relation	Positive		Positive	
Sign/Insig	Significant		Significant	

Source: Annual Report of NIBL and BOK & Appendix-II

From the above result, correlation between overall capitalization rate and debt equity ratio of BOK is found highly positive relationship of 0.9906, which indicated that increase in debt capital portion in capital structure increases overall capitalization rate.

Similar type of relationship is found in case of NIBL. Coefficient of determination(r^2) indicated that 96.43 percent and 98.13 percent of NIBL & BOK respectively of the variation in overall capitalization rate is explained by DER. Considering the probable error (P.E.), the value of 'r' of both the banks is found greater than six times their P.E., which indicate that there is significant relationship between DER and overall capitalization rate.

4.4.2 Regression Analysis of Debt Equity and Return on Assets

A regression equation also can be fitted to show the degree of relationship between capital structure of the company and its profitability. For this purpose, debt equity ratio is taken as dependent variable and return on assets as independent variable. The regression equation of debt equity ratio (y) on return on assets (x) is given below:

$$Y = a + bx$$

Table 4. 25

Simple Regression Result of Debt Equity on Return on Assets

Banks	Regression Equation	Regression Equation	Value of Constant 'a'	Regression Coefficient 'b'
NIBL	DE (Y) on ROA (X)	$Y = 93.87 - 0.27X$	93.87	-0.27
BOK	DE (Y) on ROA (X)	$Y = 82.43 + 1.55X$	82.43	1.55

Source: Appendix-III

Above table shows NIBL the Y intercept $a = 93.87$ tell us that when the amount of return on assets is zero, the expected change in the debt equity is 93.87 millions during the year. The slope b is -0.27 represent that each increase in

return on assets of 1 million, we predict that the expected change in the debt equity ratio is -0.27 i.e. the debt equity is predicted to decrease by -0.27 million for each 1 million decrease in return on assets.

Above table shows BOK the Y intercept $a = 82.43$ tell us that when the amount of return on assets is zero, the expected change in the debt equity is 82.43 millions during the year. The slope b is 1.55 represent that each increase in debt equity of 1 million, we predict that the expected change in the debt equity ratio is 1.55 i.e. the debt equity is predicted to increase by 1.55 million for each 1 million increase in return on assets.

4.4.3 Regression Analysis of Interest Coverage Ratio and Earning Power Ratio

A regression equation also can be fitted to show the degree of relationship between capital structure of the company and its profitability. For this purpose, interest coverage ratio is taken as dependent variable and earning power ratio as independent variable. The regression equation of interest coverage ratio (y) on earning power ratio (x) is given below:

$$Y = a + bx$$

Table 4.26

Simple Regression Result of Interest Coverage Ratio on Earning Power Ratio

Banks	Regression Equation	Regression Equation	Value of Constant 'a'	Regression Coefficient 'b'
NIBL	ICR (Y) on EPR (X)	$Y = -0.45 + 1.18X$	-0.45	1.18
BOK	ICR (Y) on EPR (X)	$Y = 0.07 + 1.18X$	0.07	1.18

Source: Appendix-III

Above table shows NIBL the Y intercept $a = -0.45$ tell us that when the amount of earning power is zero, the expected change in the interest coverage is -0.45 millions during the year. The slope b is 1.18 represent that each increase in

earning power ratio of 1 million, we predict that the expected change in the interest coverage ratio is -0.45 i.e. the interest coverage is predicted to decrease by -0.45 million for each 1 million decrease in earning power ratio.

Above table shows BOK the Y intercept $a = 0.07$ tell us that when the amount of earning power is zero, the expected change in the interest coverage is 0.07 millions during the year. The slope b is 1.18 represent that each increase in earning power ratio of 1 million, we predict that the expected change in the interest coverage ratio is 0.07 i.e. the interest coverage is predicted to increase by 0.07 million for each 1 million increase in earning power ratio.

4.4.4 Regression Analysis of Debt Equity and Return on Capital Employed

A regression equation also can be fitted to show the degree of relationship between capital structure of the company and its profitability. For this purpose, debt equity ratio is taken as dependent variable and ROCE as independent variable. The regression equation of debt equity ratio (y) on ROCE (x) is given below:

$$Y = a + bx$$

Table 4.27

Simple Regression Result of Debt Equity on Return on Capital Employed

Banks	Regression Equation	Regression Equation	Value of Constant 'a'	Regression Coefficient 'b'
NIBL	DE (Y) on ROCE (X)	$Y = 94.41 - 0.20X$	94.41	-0.20
BOK	DE (Y) on ROCE (X)	$Y = 117.18 + 9.73X$	117.18	-9.73

Source: Appendix-III

Above table shows NIBL the Y intercept $a = 94.41$ tell us that when the amount of ROCE is zero, the expected change in the debt equity is 94.41 millions during the year. The slope b is -0.20 represent that each decrease in debt equity of 1 million, we predict that the expected change in the debt equity ratio is -

0.20 i.e. the debt equity is predicted to decrease by -0.20 million for each 1 million decrease in ROCE.

Above table shows NIBL the Y intercept $a = 117.18$ tell us that when the amount of ROCE is zero, the expected change in the debt equity is 117.18 millions during the year. The slope b is -9.73 represent that each decrease in debt equity of 1 million, we predict that the expected change in the debt equity ratio is -9.73 i.e. the debt equity is predicted to decrease by -9.73 million for each 1 million increase in ROCE.

4.5 Major Findings

1. Total fixed deposit of NIBL is in continuous increasing trend during the study period except in fiscal year 2009/10. Fixed deposit of NIBL is higher than that of BOK in all the years of our study period. On the other hand total fixed deposit of BOK is in continuous increasing trend during the entire study period. On average fixed deposit increasing rate is higher for BOK than NIBL.
2. Total shareholders equity (net worth) of NIBL is also continuous increasing trend during the study period. Shareholders equity of NIBL is higher than BOK in all the years during our study period. Similarly total shareholders equity of BOK is in continuous increasing trend during the entire study period. On average shareholders equity increasing rate is higher for BOK than NIBL.
3. The percentage of fixed deposit to total debt of BOK is higher than NIBL in all the five fiscal year. The ratio of the NIBL is in increasing trend however it is decreased in fiscal year 2009/10 but it has further increased in fiscal year 2010/11. Similarly the ratio of BOK is also in increasing trend except in fiscal year 2009/10 but it has also further increased in fiscal year 2010/11. The lower C.V. of BOK than NIBL shows that less volatile of the ratio in BOK.

4. Fixed deposit to net worth ratio of NIBL has increased in first three fiscal years then it has decreased in fiscal year 2009/10 but it has further increased in fiscal year 2010/11. Likewise the fixed deposit to net worth ratio of BOK has increased in every year during our study period. The higher C.V. of BOK shows that variability of the ratio is higher in BOK than in NIBL.
5. Total debt to net worth of NIBL is fluctuating and BOK has increasing trend during our study period. On average total debt to net worth ratio of NIBL is higher than that of BOK. The C.V. is lower in NIBL than in BOK, which shows that the ratio of NIBL is more consistent than that of BOK.
6. The ratio of fixed deposit to capital employed of NIBL is fluctuating during the entire study period and BOK has the increasing trend. The ratio of NIBL is increasing in year 2006/07, 2007/08 & 2008/09 after that it is decreased in 2009/10 then it further increases in year 2010/11. Likewise the ratio of BOK has increased in every year. The C.V. analysis shows that variability of the ratio is extremely more in BOK compare to NIBL.
7. The ratio of total debt to total assets is recorded over 80% in both banks that show that both banks are founded using higher capital to finance their assets. In both banks, creditor's margin of safety is very low. The fluctuation of ratio is higher in BOK than in NIBL.
8. Both banks are able to meet the interest obligation. Interest coverage ratio of NIBL is higher in every year than BOK during our study period. This shows that NIBL has the greater ability to handle the fixed charges and to make the payment of interest to the creditors. But the interest coverage ratio of BOK is consistent than that of NIBL.
9. The proportion of debt capital to equity capital of BOK is more consistent than that of NIBL ranging from 73% to 86%. But the same

ratio of NIBL is quite highly fluctuated ranged from 65% to maximum of 79%.

10. Higher overall capitalization rate of NIBL is more capable to utilize the value of the firm compare to BOK. It is found that increase in financial leverage there is decrease in K_o . This shows that cost of debt is lower than cost of equity.
11. Earning power ratio of NIBL & BOK was 2.19% & 1.05% respectively. NIBL maintain average earning power ratio 2.5% & BOK maintain 1.21%. Overall the combine ratio is 1.86%. Through out the study period earning power ratio of BOK is below the normal standard.
12. The return on assets of NIBL & BOK has fluctuating trend in FY 2006/07 to 2010/11 with average return of 5.14% & 5.37% respectively absolute measure on SD of 0.68 and relative measure on CV of 13.9% indicates more efficiency and consistency on the ratio of NIBL & measure on SD of 1.45 and relative measure on CV of 21.3% of BOK. Which is moderate, it indicates less consistency on the ratio with comparing to NIBL.
13. Return on capital employed of NIBL is higher for every year during our study period. Fluctuation of the ratio is more in NIBL and the average ratio is higher in NIBL than that of BOK. This result indicates that BOK is more capable to utilize its long-term capital.
14. Both the banks have satisfactory return on equity of above 10% in all fiscal years, which shows that both banks had utilized their shareholders equity in satisfactory manner. On average return on equity is higher for NIBL than that of BOK. Approximately two times more C.V. of BOK than NIBL indicates that the ratio is massively fluctuating in BOK. This ratio is very bad sign for the bank.
15. Correlation coefficient between EBIT & Interest payment of both banks is highly positive, which shows higher positive relationship. 94.25% of

variation in interest payment is explained by the independent variable EBIT of NIBL and the same for BOK is 99.31%. The relationship between EBIT and Interest payment of both banks is significant and they are significantly able to serve their debt.

16. Correlation coefficient between EBIT and debt capital of both banks is showing high positive relationship. This refers that increase in total debt capital increases return. 98.60% of coefficient of determination of NIBL shows that 98.60% of the variation in the return is explained by the debt capital. In the case of BOK 98.50% of the variation in dependent variable (return) is explained by independent variable (total debt capital). The debt capital of banks is significant in generating the more return.
17. High positive correlation coefficient of both banks between ROE and DER indicates that increase in leverage increases ROE (objective of financial leverage). Analysis shows that 97.02% of variation of NIBL and 99.14% variation of BOK in ROE is explained by DER. And debt equity ratio of both banks is significant in generating more return on equity.
18. Correlation between overall capitalization rate and debt equity ratio of both the banks is found highly positive relationship, which indicates that increase in debt capital portion in capital structure increase overall capitalization rate. Coefficient of determination (r^2) indicates that 96.43% and 98.13% (NIBL & BOK respectively) of the variation in overall capitalization rate is explained by DER.
19. The regression equation debt equity and return on assets of NIBL shows if debt equity is zero the return on assets is negative in other hands if increase in debt equity, the return on assets must be decrease by -0.27 millions. Similarly, BOK shows if debt equity is zero the return on assets is positive in other hands if increase in debt equity, the return on assets must be increase by 1.55 millions.

20. The regression equation interest coverage and earning power of NIBL shows if debt equity is zero the earning power is positive in other hands if increase in interest coverage, the earning power must be increase by 1.18 millions. Similarly, BOK shows if debt equity is zero the earning power is positive in other hands if increase in interest coverage, the earning power must be increase by 1.18 millions.
21. The regression equation debt equity and return on capital employed of NIBL shows if debt equity is zero the return on capital employed is negative in other hands if increase in debt equity, the return on assets must be decrease by -0.20 millions. Similarly, BOK shows if debt equity is zero the return on capital employed is negative in other hands if decrease in debt equity, the return on capital employed must be decrease by -9.73 millions.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This study has tried to cover the various aspects of capital structure of the banks under study covering the time period of five years, from FY 2006/07 to 2010/11. In the first introductory chapter, this study report has tried to give brief history and introduction of banking and its relation to the economy, status of commercial banks resources and their uses, brief profile of the concerned bank, general concepts to capital structure, the problem statement, objective of the study and its limitations and significance. In this study following objectives for the research: to find out the comparative analysis of two sample banks i.e. NIBL & BOK, to analyze the relationship between profit and interest expenses to measure the debt service capacity of sample banks and examine capital structure and cost of capital.

During the research works, an extensive review of various literatures, books, past thesis, journals have been made and Internet materials from relevant web site were also consulted. The works were compiled into the chapter two titled as “Review of Literature” of this study report.

Study gathered data from annual reports of the banks under study publications of NRB and web site of Nepal Stock Exchange is also used. (1) Financial tools to calculate expected rate of return. (2) Statistical tools such as mean, standard deviation, coefficient of variance, correlation coefficient & coefficient of determination (3) other banking tools along with details of research methodologies followed for this research works are mentioned in the Chapter three titled as “Research Methodology.”

Data relating to various activities of the Bank has been collected presented in tabular and various lines diagrams, figures and bars diagrams form and are tried to be interpreted in the study report in logical ways. Data are then

analyzed applying various accounting financial, mathematical and statistical tools and findings of the study have been listed in a systematic manner.

5.2 Conclusions

While analyzing the capital structure of Nepal Investment Bank Ltd. and Bank of Kathmandu Ltd. the data are analyzed from the fiscal year 2006/07 to 2010/11. Based on the major findings of the study conclusions are drawn.

Both the banks have used high degree of leverage in its financial structure (i.e. fixed deposits to net worth and total debt to net worth are very high). Both the banks have highly geared up capital structure. Annual growth rate in shareholders equity of BOK is higher than NIBL but not in volume. Similarly the annual growth rate of fixed deposits of BOK is higher than NIBL and in volume NIBL has more fixed deposits than that of BOK. Both the banks were found increasing fixed deposits in their financial mix. Both the banks are able to maintain capital adequacy ratio. NIBL has significant strength of share in the market.

Return ratios of BOK are poor, at the same time return ratios of NIBL are not satisfactory. Therefore being geared up capital structure and insufficient returns represent the weak aspects of these two banks. BOK is weak in using long term funds and total debt and NIBL performing in using long term funds and total debt in not satisfactory. Operating expenses of NIBL is higher than BOK.

Both the banks are able to serve their debt capital adequately. However, interest coverage ratio of NIBL is higher than BOK during our study period. In case of interest coverage ratio, standard deviation and C.V. of NIBL is higher than BOK. Less C.V. is preferable so on the basis of interest coverage ratio BOK is less risky than NIBL. Debt equity ratio tends to increase return on shareholders equity significantly in case of both the bank.

In comparison, it is found that NIBL seems to be better in terms of capital structure as well as profitability than BOK. Thus it can be remarked from the analysis that NIBL promises a better future. Increase in value of the firm is the

result of increasing market price of share not only leverage and it shows that only leverage cannot determine the overall capitalization rate.

5.3 Recommendations

There are many recommendations for the management of both banks. But due to the time constraints and limitations of the thesis only major recommendations are mentioned as below.

1. Interest coverage ratio of BOK bank is very poor however NIBL is in better position as compared to BOK in its debt servicing capacity. So management should increase the EBIT more as compare to interest expenses to increase its capacity to handle the fixed charge and its capacity to handle the fixed charge and to make the payment of interest to the creditors easily which will make the management capable to achieve the money in future. To increase the EBIT it is recommended to increase the commission base business of the banks & decrease unnecessary cost.
2. BOK should give more attention towards its overall capitalization rate because it is less capable to utilize the value of the firm as compare to NIBL.
3. The value of the firm can be maximized by minimizing the overall cost of capital. The organizations should focus more on optimal capital structure rather than increasing debt portion or equity.
4. Commercial banks are recommended to go through its cost of capital while changing capital structure position. If the cost of capital is lower than its return, they are recommended to use more debt capital. If the cost of capital is higher than its return they are recommended to use only equity capital. But the banks can not run without debt because the major functions of the banks are to collect debt. So they are recommended to use its debt in profitable sector only.

5. It is recommended that cost and benefit should be analyzed before raising fund from different source of capital. Although debt creates tax benefit and increase ROE.
6. Banks are recommended to distribute more profit as dividend to their shareholders, so that they can increase their goodwill and can raise more share capital when their shares are issued in the market.
7. The capital structure decisions are not found to be considered properly by the banks. It affects the value of the firm and overall cost of capital so every investment and financing decision of the company should be taken by considering the capital structure of the firm.
8. Both the banks vary incase of total assets, number of staff, number of branches, and their volume in transactions. Both the banks are well established, however office operating expenses of NIBL is higher than that of BOK. Similarly provision for staff bonus of NIBL is higher than that of BOK. So NIBL is suggested to minimize the cost. Operating cost of both banks seems high so operating cost also should minimize.
9. The capital structure of both the banks is highly levered. The proportion of debt and equity capital should be decided keeping in mind the efforts of tax advantage and financial distress. The banks, when it is difficult to pay interest and principal, ultimately lead to liquidation bankruptcy. For such, the banks should reduce the high use of debt capital.
10. The banks should give continuity in providing both conceptual and practical training to the staff to enhance their knowledge, skill and competency level, they should remain consistency vigilant in enhancing their moral and motivation. The banks have to enhance effectiveness, efficiency and proper coordination of its department tasks by continuously reviewing its structural design in accordance with the need of the changing time and situation.

BIBLIOGRAPHY

A) Books & Journal

- Bajracharya, B. C. (2000). *Business Statistics and Mathematics*. Kathmandu: M. K. Publishers & Distributors.
- Bajracharya, S. M. & Bhattarai, R. (2008). *Corporate Financial Management*. Kathmandu: Buddha Academic Publishers and Distributors Pvt. Ltd.
- Bhattarai, R. (2006). *Capital Structure Management: Theory & Practice*. Kathmandu: Dhaulagiri Books and Stationery.
- Brealey, R. A. and Myers, S. C. (2004). *Principal of Corporate Finance*. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
- Brigham, E. F. (2004). *Fundamentals of Financial Management*. Chicago: The Dryden Press.
- Brigham, E. F. and Houston, J. F. (2004). *Fundamentals of Financial Management*. Singapore: Thompson Asia Pvt. Ltd.
- Gautam, R. R. and Thapa, K. (2009). *Capital Structure Management*. Kathmandu: Asmita Books Publishers & Distributors.
- Gitman, L. J. (2009). *Principles of Managerial Finance*. New Delhi: Pearson Education Inc.
- Gupta, S. C. (2005). *Fundamental of Statistics*. New Delhi: Himalayan Publishing House.
- Hampton, J. J. (2010). *Financial Decision-Making: Concepts, Problems and Cases*. New Delhi: Prentice-Hall of India Pvt. Ltd.
- Keown, M. and Petty, S. (2002). *Financial Management: Principles and Application*. New Delhi: Prentice Hall of India Pvt. Ltd.
- Khan, M. Y. and Jain, P. K. (2010). *Financial Management: Text and Problems*. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
- Kothari, C. R. (2005). *Quantitative Techniques*. New Delhi: Vikash Publishing House Pvt. Ltd.

- Mathur, I. (2008). *Introduction of Financial Management*. New York: Mac Millan Publishing Co. Inc.
- Pandey, I. M. (2010). *Financial Management*. New Delhi: Vikas Publishing House Pvt. Ltd.
- Pradhan, R. S. (2006). *Financial Management*. Kathmandu: Buddha Academic Publishers & Distributors Pvt. Ltd.
- Prasana, C. (2007). *Fundamental of Financial Management*. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
- Ross, S. A., Westerfield, R. W. and Jordan, B. D. (2003). *Fundamentals of Corporate Finance*. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
- Shrestha, M. K. (2005). *Capital Structure & Cost of Capital*. New Delhi: Vikas Publishing House Pvt. Ltd.
- Solman, E. (2008). *The Theory of Financial Management*. New York: Columbia University Press.
- Srivastava, R. M. (2002). *Financial Management*. Kathmandu: Pragati Prakashan.
- Van Horne, J. C. (2005). *Financial Management & Policy*. New Delhi: Prentice Hall of India Private Limited.
- Weston, J. F., Besley, S. and Brigham, E. F. (2006). *Essentials of Managerial Finance*. Fort Worth: New York: The Dryden Press.
- Wolf, H. K. and Pant P. R. (2005). *Social Science Research and Thesis Writing*. Kathmandu: Buddha Academic Publishers and Distributors Pvt. Ltd.

B) Unpublished Thesis

- Dhakal, R. (2008). *A study on capital structure management of selected commercial banks (with special reference to Himalayan Bank, Nepal SBI Bank, Everest Bank And Nepal Investment Bank Ltd.)* An unpublished Master Degree Thesis, Kathmandu: Central Department, Faculty of Management; T.U.

- Malik, A. (2009). *Capital Structure Management in Nepal*. An unpublished Master Degree Thesis, Kathmandu: Shanker Dev Campus, Faculty of Management; T.U.
- Pradhan, R. (2007). *A Comparative Analysis of Capital Structure Management between Nepal Bangladesh Bank Ltd. and Himalayan Bank Ltd.* An unpublished Master Degree Thesis, Kathmandu: Shanker Dev Campus, Faculty of Management; T.U.
- Sapkota, S. (2011). *Capital Structure of Nabil Bank Limited*. An unpublished Master Degree Thesis, Kathmandu: Shanker Dev Campus, Faculty of Management; T.U.
- Shrestha, N. (2008). *A Study on Analysis of the Capital Structure of the Joint Venture Banks of Nepal*. An unpublished Master Degree Thesis, Kathmandu: Shanker Dev Campus, Faculty of Management; T.U.

Others:

Nepal Investment Bank Limited, 2006/07 to 2010/11, Annual Report.

Bank of Kathmandu Limited, 2006/07 to 2010/11, Annual Report.

Website:

www.nibl.com

www.bok.com

www.nrb.org.np

www.nepalstock.com

APPENDIX-I

Fixed Deposit Position & Index Table of NIBL & BOK

Bank FY	NIBL			BOK		
	Fixed Deposit (Rs. in Million)	Index	% Change	Fixed Deposit (Rs. in Million)	Index	%Change
2006/07	3449.09	100.00	-	1632.09	100.00	-
2007/08	5435.99	157.61	57.61	3022.56	185.20	85.20
2008/09	8464.09	245.41	55.71	4562.72	279.57	50.96
2009/10	8310.71	240.96	-1.81	7158.20	438.60	56.88
2010/11	14711.16	426.53	77.01	10195.73	624.72	42.44
Average			47.13	Average		58.87

Shareholders Equity Position & Index Table of NIBL & BOK

Bank FY	NIBL			BOK		
	Net Worth (Rs. in Million)	Index	% Change	Net Worth (Rs. in Million)	Index	%Change
2006/07	1875.00	100.00	-	603.14	100.00	-
2007/08	2057.00	109.71	9.71	793.71	131.60	31.60
2008/09	2437.20	129.99	18.49	1068.35	177.14	34.60
2009/10	3130.24	166.95	28.43	1278.74	212.02	19.69
2010/11	3834.23	204.50	22.49	1603.54	265.87	25.40
Average			19.78	Average		27.82

Fixed Deposit and Total Debt of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	Fixed Deposit	Total Debt	Fixed Deposit	Total Debt
2006/07	3449.09	20454.98	1632.09	4152.90
2007/08	5435.99	25196.34	3022.56	7150.60
2008/09	8464.09	34695.61	4562.72	10581.45
2009/10	8310.71	40737.16	7158.20	16603.01
2010/11	14711.16	48245.50	10195.73	21198.89

Fixed Deposit to Total Debt of NIBL & BOK

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	16.86	21.57	24.40	20.40	30.49	22.74	5.10	22.43
%Change	-	4.71	2.83	-4.00	10.09			
BOK	39.30	42.27	43.12	43.11	48.10	43.18	8.67	20.08
%Change	-	2.97	0.85	-0.01	4.99			
Combined Average						32.96		

Fixed Deposit and Net Worth of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	Fixed Deposit	Net Worth	Fixed Deposit	Net Worth
2006/07	3449.09	1875.00	1632.09	603.14
2007/08	5435.99	2057.00	3022.56	793.71
2008/09	8464.09	2437.20	4562.72	1068.35
2009/10	8310.71	3130.24	7158.20	1278.74
2010/11	14711.16	3834.23	10195.73	1603.54

Fixed Deposit to Net Worth Ratio of NIBL & BOK (in %)

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	183.95	264.27	347.29	265.50	383.68	288.94	78.36	27.12
Change	-	80.32	83.03	-81.79	118.18			
BOK	270.60	380.81	427.08	559.79	635.83	454.82	144.89	31.86
Change	-	110.21	46.27	132.71	76.04			
Combined Average						371.88		

Total Debt and Net Worth of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	Total Debt	Net Worth	Total Debt	Net Worth
2006/07	20454.98	1875.00	4152.90	603.14
2007/08	25196.34	2057.00	7150.60	793.71
2008/09	34695.61	2437.20	10581.45	1068.35
2009/10	40737.16	3130.24	16603.01	1278.74
2010/11	48245.50	3834.23	21198.89	1603.54

Total Debt to Net Worth Ratio of NIBL & BOK (in %)

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	1090.93	1224.91	1423.58	1301.41	1258.28	1259.82	120.72	9.58
Change	-	133.98	198.67	-122.17	-43.13			
BOK	688.55	900.91	990.45	1298.39	1322.01	1040.06	270.01	25.96
Change	-	212.36	89.54	307.94	23.62			
Combined Average						1149.94		

Value of the Firms of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL			BOK		
	Fixed Deposit	Equity Share	Value of the Firms	Fixed Deposit	Equity Share	Value of the Firms
2006/07	3449.09	1875.00	5324.09	1632.09	603.14	2235.23
2007/08	5435.99	2057.00	7492.99	3022.56	793.71	3816.27
2008/09	8464.09	2437.20	10901.29	4562.72	1068.35	5631.07
2009/10	8310.71	3130.24	11440.95	7158.20	1278.74	8436.94
2010/11	14711.16	3834.23	18545.39	10195.73	1603.54	11799.27

Fixed Deposit to Capital Employed of NIBL & BOK (in %)

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	64.78	72.55	77.64	72.64	79.33	73.39	5.67	7.73
Change	-	7.77	5.09	-5.00	6.69			
BOK	73.02	79.20	81.03	84.84	86.41	80.90	5.26	6.50
Change	-	6.18	1.83	3.81	1.57			
Combined Average						77.15		

Total Debt and Total Assets of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	Total Debt	Total Assets	Total Debt	Total Assets
2006/07	20454.98	22329.97	4152.90	4755.96
2007/08	25196.34	27329.39	7150.60	7948.64
2008/09	34695.61	37132.76	10581.45	11654.86
2009/10	40737.16	43867.40	16603.01	17881.75
2010/11	48245.50	52079.73	21198.89	22802.43

Total Debt to Total Assets of NIBL & BOK (in %)

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	91.60	92.20	93.44	92.86	92.64	92.55	0.69	0.75
Change	-	0.60	1.01	-0.58	-0.22			
BOK	87.32	89.96	90.79	92.85	92.97	90.78	2.33	2.57
Change	-	2.64	0.83	2.06	0.12			
Combined Average						91.67		

Capital Adequacy Ratio (in %) Core Capital

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	10.78	10.40	8.75	8.74	8.77	9.49	1.01	10.64
Change	-	-0.38	-1.65	-0.01	0.03			
BOK	13.29	10.78	10.27	8.26	8.00	10.12	2.15	21.25
Change	-	-2.51	-0.51	-2.01	-0.26			
Combined Average						9.81		

Capital Adequacy Ratio (in %) Supplementary Capital

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	1.52	1.64	2.35	1.96	1.73	1.84	0.32	17.39
Change	-	0.12	0.71	-0.39	-0.23			
BOK	0.87	1.05	0.97	2.42	2.04	1.47	0.71	48.30
Change	-	0.18	-0.08	1.45	-0.38			
Combined Average						1.66		

EBIT and Interest Charges of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	EBIT	Interest	EBIT	Interest
2006/07	1254.99	351.16	254.41	153.71
2007/08	1544.20	555.71	424.76	271.71
2008/09	1847.43	758.44	646.87	401.89
2009/10	2631.95	1153.28	1136.34	813.62
2010/11	3585.29	1960.11	1755.17	1406.49

Interest Coverage Ratio of NIBL & BOK (in times)

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	3.57	2.78	2.44	2.28	1.83	2.58	0.65	25.19
Change	-	-0.79	-0.34	-0.16	-0.45			
BOK	1.66	1.56	1.61	1.40	1.25	1.49	0.17	11.41
Change	-	-0.10	0.05	-0.21	-0.15			
Combined Average						2.04		

Capital Structure Mix of NIBL (Rs. in million)

FY	Fixed Deposit	Equity Share	Total Value of Firm	Proportion
2006/07	3449.09	1875.00	5324.09	0.65 : 0.35
2007/08	5435.99	2057.00	7492.99	0.73 : 0.27
2008/09	8464.09	2437.20	10901.29	0.78 : 0.22
2009/10	8310.71	3130.24	11440.95	0.73 : 0.27
2010/11	14711.16	3834.23	18545.39	0.79 : 0.21

Capital Structure Mix of BOK (Rs. in million)

FY	Fixed Deposit	Equity Share	Total Value of Firm	Proportion
2006/07	1632.09	603.14	2235.23	0.73 : 0.27
2007/08	3022.56	793.71	3816.27	0.79 : 0.21
2008/09	4562.72	1068.35	5631.07	0.81 : 0.19
2009/10	7158.20	1278.74	8436.94	0.85 : 0.15
2010/11	10195.73	1603.54	11799.27	0.86 : 0.14

EBIT and Value of the Firm of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	EBIT	Value of Firm	EBIT	Value of Firm
2006/07	1254.99	5324.09	254.41	2235.23
2007/08	1544.20	7492.99	424.76	3816.27
2008/09	1847.43	10901.29	646.87	5631.07
2009/10	2631.95	11440.95	1136.34	8436.94
2010/11	3585.29	18545.39	1755.17	11799.27

Overall Capitalization Rate of NIBL and BOK (in %)

Fiscal Year	NIBL		BOK	
	K _o	Change	K _o	Change
2006/07	23.57	-	11.38	-
2007/08	20.61	-2.96	11.13	-0.25
2008/09	16.95	-3.66	11.49	0.36
2009/10	23.00	6.05	13.47	1.98
2010/11	19.33	-3.67	14.88	1.41
Average	20.69		12.47	

Net Income and Value of the Firm of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	Net Income	Value of Firm	Net Income	Value of Firm
2006/07	720.73	5324.09	64.91	2235.23
2007/08	742.72	7492.99	94.83	3816.27
2008/09	746.47	10901.29	142.79	5631.07
2009/10	1031.05	11440.95	217.92	8436.94
2010/11	1138.57	18545.39	240.85	11799.27

Return on Capital Employed (in %)

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	13.54	9.91	6.85	9.01	6.14	9.09	2.92	32.12
Change	-	-3.63	-3.06	2.16	-2.87			
BOK	2.90	2.48	2.54	2.58	2.04	2.51	0.30	11.95
Change	-	-0.42	0.06	0.04	-0.54			
Combined Average						5.80		

Net Income and Net Worth of NIBL & BOK (Rs. in million)

Fiscal Year	NIBL		BOK	
	Net Income	Net Worth	Net Income	Net Worth
2006/07	720.73	1875.00	64.91	603.14
2007/08	742.72	2057.00	94.83	793.71
2008/09	746.47	2437.20	142.79	1068.35
2009/10	1031.05	3130.24	217.92	1278.74
2010/11	1138.57	3834.23	240.85	1603.54

Return on Equity (in %)

Bank/FY	2006/07	2007/08	2008/09	2009/10	2010/11	Average	S.D	C.V
NIBL	38.44	36.11	30.63	32.94	29.69	33.56	3.68	10.97
Change	-	-2.33	-5.48	2.31	-3.25			
BOK	10.76	11.95	13.37	17.04	15.02	13.63	2.48	18.20
Change	-	1.19	1.42	3.67	-2.02			

APPENDIX-II

Correlation Coefficient between EBIT & Interest Payment

Year	NIBL		BOK	
	Interest(X)	EBIT(Y)	Interest(X)	EBIT(Y)
2006/07	351.16	1254.99	153.71	254.41
2007/08	555.71	1544.20	271.71	424.76
2008/09	758.44	1847.43	401.89	646.87
2009/10	1153.28	2631.95	813.62	1136.34
2010/11	1960.11	3585.29	1406.49	1755.17
r	0.9853		0.9966	
r ²	0.9425		0.9931	
P.E.	0.0173		0.0021	
6P.E.	0.1041		0.0125	
Relation	Positive		Positive	
Significant/ Insignificant	Significant		Significant	

$$r = \frac{\sum XY}{\sqrt{\sum X^2} \sqrt{\sum Y^2}} \quad \text{P.E.} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

Correlation Coefficient between Return & Debt capital

Year	NIBL		BOK	
	EBIT(X)	Debt Capital(Y)	EBIT(X)	Debt Capital(Y)
2006/07	1254.99	20454.98	254.41	4152.90
2007/08	1544.20	25196.34	424.76	7150.60
2008/09	1847.43	34695.61	646.87	10581.45
2009/10	2631.95	40737.16	1136.34	16603.01
2010/11	3585.29	48245.50	1755.17	21198.89
r	0.9930		0.9925	
r ²	0.9860		0.9850	
P.E.	0.0042		0.0045	
6P.E.	0.0253		0.0271	
Relation	Positive		Positive	
Significant/ Insignificant	Significant		Significant	

$$r = \frac{\sum XY}{\sqrt{\sum X^2} \sqrt{\sum Y^2}} \quad \text{P.E.} = 0.6745 \times \frac{1-r^2}{\sqrt{n}}$$

Correlation Coefficient between Debt equity Ratio & Return on Equity

Year	NIBL		BOK	
	DER(X)	ROE(Y)	DER(X)	ROE(Y)
2006/07	1090.93	38.44	688.55	10.76
2007/08	1224.91	36.11	900.91	11.95
2008/09	1423.58	30.63	990.45	13.37
2009/10	1301.41	32.94	1298.39	17.04
2010/11	1258.28	29.69	1322.01	15.02
r	0.9850		0.9957	
r ²	0.9702		0.9914	
P.E.	0.0090		0.0026	
6P.E.	0.0539		0.0156	
Relation	Positive		Positive	
Significant/ Insignificant	Significant		Significant	

$$r = \frac{\sum XY}{\sqrt{\sum X^2} \sqrt{\sum Y^2}}$$

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

Correlation Coefficient between Overall Capitalization Rate (K_o) & Debt Equity Ratio

Year	NIBL		BOK	
	K _o (X)	DER(Y)	K _o (X)	DER(X)
2006/07	23.57	1090.93	11.38	688.55
2007/08	20.61	1224.91	11.13	900.91
2008/09	16.95	1423.58	11.49	990.45
2009/10	23.00	1301.41	13.47	1298.39
2010/11	19.33	1258.28	14.88	1322.01
r	0.9820		0.9906	
r ²	0.9643		0.9813	
P.E.	0.0108		0.0056	
6P.E.	0.0646		0.0338	
Relation	Positive		Positive	
Significant/ Insignificant	Significant		Significant	

$$r = \frac{\sum XY}{\sqrt{\sum X^2} \sqrt{\sum Y^2}}$$

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

APPENDIX-III

Regression of NIBL

Debt Equity(Y) and Return on Assets (X)

Computation of Regression Equations

X	Y	XY	X ²
4.8	91.6	439.68	23.04
4.75	92.2	437.95	22.56
4.05	93.44	378.43	16.4
4.97	92.86	461.51	24.7
5.95	92.64	551.2	35.4
$\Sigma X = 24.52$	$\Sigma Y = 462.74$	$\Sigma XY = 2268.77$	$\Sigma X^2 = 122.1$

Let the regression equation Debt Equity(Y) on ROA(X) be

$$Y = a + bx \text{----- (i)}$$

To find the values of a and b we have the following two normal equations.

$$\Sigma Y = na + b \Sigma X \text{----- (ii)}$$

$$\Sigma XY = a \Sigma X + b \Sigma X^2 \text{----- (iii)}$$

Substituting the values of n, ΣX , ΣY , ΣXY , ΣX^2 in equation (ii) & (iii) we have,

$$462.74 = 5a + 24.52b \text{----- (ii)}$$

$$2268.77 = 24.52a + 122.1b \text{----- (iii)}$$

Solving (ii) & (iii) $a = 93.87$, $b = -0.27$

Substituting the values of a & b in equation (i), the regression equation DE (Y) on ROA (X) is $Y = 93.87 - 0.27 X$

Regression of BOK
Debt Equity(Y) and Return on Assets (X)
Computation of Regression Equations

X	Y	XY	X²
4.6	87.32	401.67	21.16
4.61	89.96	414.71	21.25
4.67	90.79	423.98	21.8
5.77	92.85	535.74	33.29
7.22	92.97	671.24	52.12
$\sum X = 26.87$	$\sum Y = 453.89$	$\sum XY = 2447.34$	$\sum X^2 = 149.64$

Let the regression equation Debt Equity(Y) on ROA(X) be

$$Y = a + bx \text{----- (i)}$$

To find the values of a and b we have the following two normal equations.

$$\sum Y = na + b \sum X \text{----- (ii)}$$

$$\sum XY = a \sum X + b \sum X^2 \text{----- (iii)}$$

Substituting the values of n, $\sum X$, $\sum Y$, $\sum XY$, $\sum X^2$ in equation (ii) & (iii) we have,

$$453.89 = 5a + 26.87b \text{----- (ii)}$$

$$2447.34 = 26.87a + 149.64b \text{----- (iii)}$$

Solving (ii) & (iii) $a = 82.43$, $b = 1.55$

Substituting the values of a & b in equation (i), the regression equation DE (Y) on ROA (X) is $Y = 82.43 + 1.55X$

Regression of NIBL
Interest Coverage (Y) and Earning Power (X)
Computation of Regression Equations

X	Y	XY	X²
3.23	3.57	11.53	10.43
2.72	2.78	7.56	7.4
2.01	2.44	4.9	4.04
2.35	2.28	5.36	5.52
2.19	1.83	4.01	4.8
$\sum X = 12.5$	$\sum Y = 12.9$	$\sum XY = 33.36$	$\sum X^2 = 32.19$

Let the regression equation Interest Coverage (Y) on Earning Power (X) be

$$Y = a + bx \text{----- (i)}$$

To find the values of a and b we have the following two normal equations.

$$\sum Y = na + b \sum X \text{----- (ii)}$$

$$\sum XY = a \sum X + b \sum X^2 \text{----- (iii)}$$

Substituting the values of n, $\sum X$, $\sum Y$, $\sum XY$, $\sum X^2$ in equation (ii) & (iii) we have,

$$12.9 = 5a + 12.5b \text{----- (ii)}$$

$$33.36 = 12.5a + 32.19b \text{----- (iii)}$$

Solving (ii) & (iii) $a = -0.45$, $b = 1.18$

Substituting the values of a & b in equation (i), the regression equation Interest Coverage (Y) on Earning Power (X) is $Y = -0.45 + 1.18X$

Regression of BOK
Interest Coverage (Y) and Earning Power (X)
Computation of Regression Equations

X	Y	XY	X²
1.36	1.66	2.26	1.85
1.2	1.56	1.87	1.44
1.22	1.61	1.96	1.49
1.22	1.4	1.71	1.48
1.05	1.25	1.32	1.12
$\sum X = 6.05$	$\sum Y = 7.48$	$\sum XY = 9.12$	$\sum X^2 = 7.38$

Let the regression equation Interest Coverage (Y) on Earning Power (X) be

$$Y = a + bx \text{----- (i)}$$

To find the values of a and b we have the following two normal equations.

$$\sum Y = na + b \sum X \text{----- (ii)}$$

$$\sum XY = a \sum X + b \sum X^2 \text{----- (iii)}$$

Substituting the values of n, $\sum X$, $\sum Y$, $\sum XY$, $\sum X^2$ in equation (ii) & (iii) we have,

$$7.48 = 5a + 6.05b \text{----- (ii)}$$

$$9.12 = 6.05a + 7.38b \text{----- (iii)}$$

Solving (ii) & (iii) $a = 0.07$, $b = 1.18$

Substituting the values of a & b in equation (i), the regression equation Interest Coverage (Y) on Earning Power (X) is $Y = 0.07 + 1.18X$

Regression of NIBL
Debt Equity(Y) and Return on Capital Employed(X)
Computation of Regression Equations

X	Y	XY	X ²
13.54	91.6	1240.26	183.33
9.91	92.2	913.7	98.21
6.85	93.44	640.06	46.92
9.01	92.86	836.47	81.18
6.14	92.64	568.81	37.7
$\sum X = 45.45$	$\sum Y = 462.74$	$\sum XY = 4199.3$	$\sum X^2 = 447.34$

Let the regression equation Debt Equity(Y) on ROCE(X) be

$$Y = a + bx \text{----- (i)}$$

To find the values of a and b we have the following two normal equations.

$$\sum Y = na + b \sum X \text{----- (ii)}$$

$$\sum XY = a \sum X + b \sum X^2 \text{----- (iii)}$$

Substituting the values of n, $\sum X$, $\sum Y$, $\sum XY$, $\sum X^2$ in equation (ii) & (iii) we have,

$$462.74 = 5a + 45.45b \text{----- (ii)}$$

$$4199.3 = 45.45a + 447.34b \text{----- (iii)}$$

Solving (ii) & (iii) $a = 94.41$, $b = -0.20$

Substituting the values of a & b in equation (i), the regression equation DE (Y) on ROCE(X) is $Y = 94.41 - 0.20X$

Regression of BOK
Debt Equity(Y) and Return on Capital Employed(X)
Computation of Regression Equations

X	Y	XY	X²
2.9	87.32	253.23	8.41
2.48	89.96	221.61	6.15
2.54	90.79	230.61	6.45
2.58	92.85	239.55	6.66
2.04	92.97	189.56	4.16
$\sum X = 12.54$	$\sum Y = 453.89$	$\sum XY = 1134.66$	$\sum X^2 = 31.83$

Let the regression equation Debt Equity(Y) on ROCE(X) be

$$Y = a + bx \text{----- (i)}$$

To find the values of a and b we have the following two normal equations.

$$\sum Y = na + b \sum X \text{----- (ii)}$$

$$\sum XY = a \sum X + b \sum X^2 \text{----- (iii)}$$

Substituting the values of n, $\sum X$, $\sum Y$, $\sum XY$, $\sum X^2$ in equation (ii) & (iii) we have,

$$453.89 = 5a + 12.54b \text{----- (ii)}$$

$$1134.66 = 12.54a + 31.83b \text{----- (iii)}$$

Solving (ii) & (iii) $a = 117.18$, $b = -9.73$

Substituting the values of a & b in equation (i), the regression equation DE (Y) on ROCE(X) is $Y = 117.18 - 9.73X$