

**A STUDY ON CAPITAL STRUCTURE MANAGEMENT  
OF SELECTED COMMERCIAL BANKS IN NEPAL**

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*A Thesis Submitted to:*

Office of the Dean

Faculty of Management

Tribhuvan University

*In partial fulfillment of the requirements for the degree of*

**Master of Business Studies (M. B. S.)**

**Pokhara**

**July, 2011**

Faculty of Management

**RECOMMENDATION**

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**A STUDY ON CAPITAL STRUCTURE MANAGEMENT  
OF SELECTED COMMERCIAL BANKS IN NEPAL**

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Date: 2068/ /

## ACKNOWLEDGEMENT

I express my heartiest gratitude to my thesis Supervisor **Associate Prof. Dr. Puspa Raj Sharma** for his constant encouragement, patience guidance and valuable suggestion at every step of my work. This work would not have been materialized at the present form without his incisive observations and intellectual direction in the course of completion.

I owe a deep debt of gratitude to the staff of Pritivi Narayan Campus Library, T.U. Central Library and the staff of concerned banks.

I am very much indebted to my parents and husband Umanath Devkota who encouraged and cooperated me and also kindled the lamp of education and provided knowledge for me to go on with my studies and still being helped in every steps of success in my life and my heartfelt thanks goes to my lovely two daughters Shiksha and Shistata Devkota for their praise worthy silence during the completion of this task.

I would also like to extend my thanks to all my respected teachers and friends. Similarly, special thank goes to my brother- in-law, Krishna Devkota for his proper editing and continuous assistant.

Similarly, I would like to appreciate the efforts made by sister Sharmila Poudel, for the calculation of statistical parameters and computer typing to complete the thesis in time.

Finally, I would like to express my next thanks to Tara Prasad Chapagain, Proprietor of City Photo and Computer Service, Bagar for printing and binding this thesis.

July, 2011

Bimala Poudel

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## LIST OF ABBREVIATION AND SYMBOLS

B	:	Market Value of Debt
BOK	:	Bank of Kathmandu
D/E	:	Debt to Equity
DFL	:	Degree of Financial Leverages
EBIT	:	Earnings before Interest and Taxes
EBT	:	Earning before Tax
EBL	:	Everest Bank Ltd.
Ed	:	Edition
EPS	:	Earning Per Share
etc	:	et cetera
FY	:	Fiscal Year
GDP	:	Growth Domestic Production
HMG/N	:	His Majesty Government of Nepal
I	:	Interest
ICR	:	Interest Coverage Ratio
i.e.	:	that is
JVBs	:	Joint Venture Banks
KBL	:	Kumari Bank Ltd.
Kd	:	Cost of Debt
Km	:	Kilometer
Kp	:	Cost of Equity
Ke	:	Cost of Equity
Ko	:	Average Cost of Capital
Ltd.	:	Limited
MBL	:	Machhapchhre Bank Ltd.
MBS	:	Masters of Business Studies
MM	:	Modigliani and Miller
Ms.	:	Miss
MVPS	:	Market Value per Share
NEPSE	:	Nepal Stock Exchange
NI	:	Net Income
NOI	:	Net Operating Income

NP	:	Net Profit
NRB	:	Nepal Rastra Bank
P.E.	:	Probable Error
P/E	:	Price Earnings Ratio
PEs	:	Public Enterprises
PH.D	:	Philosophy of Doctor
"r"	:	Correlation Coefficient
ROA	:	Return on Assets
ROE	:	Return on Equity
Rs		Rupees
Sq.	:	square
TD	:	Total Debt
T.U.	:	Tribhuvan University
US	:	United States
V	:	Value of the Firm
V <sub>L</sub>	:	Value of Levered Firm
Vol.	:	Volume
V <sub>U</sub>	:	Value of Unlevered Firm

# Chapter I

## INTRODUCTION

### 1.1 Background of the Study

Due to the globalization of economy and market, present world economy has been more competitive and complicated. Every sort of changes occurring in one sector of the world affects the other. A healthy economy is dependent on efficient transfers of fund from people who are not severing to firm and individuals who need capital. Without efficient transfer, the economy simply is impossible without good system for allocating capital within the economy.

It is obvious that economic development is impossible without the development of different sectors like agriculture, industry, trade, etc. of the country. Banking sector plays significant role in the economic development of country. So there should not be any misunderstanding to the development of commercial banks. Historically, economists have focused on the banks and other related institutions. Many sectors emphasize on the critical importance of banking system in economic growth. They show that the level of financial intermediation is a good predictor of long run rates of economic growth, capital accumulation and productivity improvements (Levine and Fervos, 1998:537).

Nepal, a landlocked country is economically based on agriculture. This occupies an area of 147181 sq km and bounded by India and China. Nepal, one of the least developed countries with about 25 million people, is very rich in natural resources but the resource is unutilized. The geographical variation has been standing as a challenge for development of the country. About more than 80% people are dependent on agriculture. Moreover traditional agriculture system is still being practiced. The current situation of Nepalese economy is not satisfactory due to poor infra-structure, unutilized natural resources, miserable agriculture situation, deficit trade, illiteracy, political instability and so on.

As food is necessary for human beings, finance is for business organizations and industries. Each and every business organization should base on their decision making in financial management. Financial management is mainly concerned with the acquisition and utilization of funds. For this, financial market plays vital role in utilizing financial resources for expanding productive sectors in the country. It mobilizes unproductive and unutilized financial resources towards productive sectors and helps in expanding economic growth of the country.

Capital structure plays an important role in accelerating the economic growth of nation, which in turns is basically determined, among others by saving and investment propensities. But the capacity of saving in the country is quite low with relatively higher marginal propensity of consumption. As a result developing countries are badly trapped into the vicious circle of poverty. The basic problem for the developing countries is raising the level of saving and investment. In order to collect the enough saving and put them into productive channels, financial institution like banks is necessary. It will either be diverted abroad or used for unproductive consumption or speculative activities.

The capital structure refers to the proportion of debt and equity capital. This has an important place in the theory of financial management. The financing decision of a firm relates to the choices of proportion of debt and equity to the financial investment requirement of which a proper balance is necessary to ensure a tradeoff between risk and return to the shareholder. An optimal capital structure, which consists of reasonable proportion of debt and equity, can help to maximize the value and ultimately the shareholders wealth.

The capital structure decision of a firm is an essential aspect of corporate financing. Decision regarding the choice of capital components is known as capital structure decision. The components of capital may be debt or equity. It affects the shareholders return risk as a result the market value of the share may be influenced by the capital structure decision. Therefore an appropriate capital structure decision should be taken by financial managers to maximize the value of the firm and minimize the overall cost of capital. Capital structure decision involves making choices of sources of long term funds for financing the assets of firm (Brigham & Eharhardt, 2004:619-621).

A firm's capital structure is defined as the proportion of debt and equity capital employed in the business. Equity is the ownership capital and equity capital employed in the business. Equity is the ownership capital and the equity holders assume risk. Debt is financial leveraged capital and is financial leveraged capital and the equity holders assume less risk or no risk (Pradhan, 2004, P-473).

In Nepal, some companies do not plan capital structure and it develops of the financial decisions taken by the financial manager without any formal planning. Those companies may prosper in the short-run, but ultimately they will face great difficulties in raising funds to finance their activities. The unplanned capital structure of the companies will also fail to economize the use of their funds. Thus, it is being increasingly realized that a company should plan its appropriate capital structure to maximize the use of funds and be able to adapt more easily to changing conditions.

Banks are among the most important financial institutions in the economy of the country. Bank is a business establishment that safeguards people's money and uses it to make loans and investments. A bank is an organization concerned with the accumulation of the idle money of the general public for the purpose of advancing to others for expenditure or investment. A bank is the institution, which accepts deposits from the public and in turn advances loans by creating credit.

Banks are the institutions that provide the funding required starting the business to those with skills and desire to operate the business collecting from those with the money but no skill or time to operate the business. Bank is a resource of mobilizing institution, which accepts deposit from various sources, and invests such accumulated resources in the fields of agriculture, commerce, trade and industry.

In other words, banks are the institutions offering deposits subject to withdrawal on demand and making loans of a business nature. Banks offers wide range of financial services like credit, savings, payments services, etc. (Kandel, 2008:3).

### **1.1.1 History of Bank**

When, where and how the modern banking actually came in existence cannot be pointed out. But from the different historical facts it reveals that some banking activities have been carried out since the time immemorial. At that time merchants, money lenders, goldsmiths, etc performed the banking transactions. Later the transactions started increasing and they became the activities of money exchange securing the valuable goods, deposit money, lending money and so on. For all these types of activities written receipts began to be used and the modern banking started. In the historic age sources assert that goldsmiths and money lenders contributed to large extent in the growth of banking system. They used to store peoples gold charging nominal charges issued receipts to the depositors, which was good for payments. Later they started advancing money charging interest on it. So the goldsmiths and money lenders started performing the functions of modern banking i.e. accepting deposits and advancing loans. However, the modern banking originated in Italy. The word bank was derived from the Italian word “Banco” which means accumulation of money or stock. Bank as an institution was originated from Italy. The bank of Venice which was established in 1157 A.D was the first bank in the history of banking and it was established to finance the monarch in the wars. The Bank of Barcelona Spain which was established in 1404A.D. was the second bank in the World and then. The Bank of Genoa was set up in 1407 AD.

The first central bank, though was the bank of England,was established in 1844 A.D. Banking has come to the present advanced form through various stages. Some sorts of banking activities have been carried out since the time immemorial. Traditional forms of banking were traced during the civilization of Greek, Rome and Mesopotamia. With large banking firms established in Florence, Rome, Venice and other Italian cities, the banking activities spread throughout the Europe and slowly spread throughout the world (Kandel, 2008:4).

Commercial banks, the heart of the financial system, hold the deposits of many persons and government establishment deposits of business units. They make fund available through their lending and investing activities to borrowers, individuals and business firm, and service from their products to customers and the financial activities of the government. They provide a large portion of the medium of exchange and they are medical through which monetary policy is affected. These facts show that the commercial banking system of the nations is important for the functioning of economy (Rose, 2002).

### **1.1.2 Banking industry in Nepal**

The specific date of the beginning of money and banking transaction in Nepal is unknown. The banking functions were carried out in unorganized sectors. It is found that minted coins, copper coins, silver coins and gold coins were introduced by different kings.

Institutional development of modern banking in Nepal had begun from early 1990s. With the establishment of Nepal Bank Limited in 1994 B.S, the new era of banking sector had started in Nepal. As a central bank, Nepal Rastra Bank was established in 2013B.S. under the provision of Nepal Rastra Bank Act 2012, with the objectives of helping in the development of monetary and financial sector by undertaking various functions.

Another step was added when Rastriya Banijya Bank was established in 1966(2022 BS) under the Banijya Bank Act 1965(2021 BS). Likewise, Agriculture Development Bank was established in 1965(2024BS) under the Agriculture Development Bank Act, 1968 (2024 BS) with the objective of increasing the life standard of those people who are involved in agriculture.

The banks opened before the decade of 1980s were by the government. No private sector was permitted to open banks in Nepal. The process of development of banking was not so satisfactory. In the early 1980s, the government adopted liberalized economic policies to develop the financial sector. As a pre-condition to economic liberalization, the Foreign Investment and Technology Transfer Act, 1981 came into existence. The government allowed private sectors to open banks. Joint venture projects were also allowed. Many joint venture commercial banks and financial institutions were established. As a result, Nepal Arab Bank Limited was established as a first joint venture commercial bank in 1985 under the provision of Commercial Bank Act, 1974 and Company Act 1965. Then, Nepal Indosuez Bank Limited was established in 1985 and Nepal Grindlays Bank Limited in 1986. In 2001, the name of Nepal Grindlays Bank Limited has been changed into Standard Chartered Bank Nepal Limited and Nepal Indosuez Bank Limited has been changed into Nepal Investment Bank in 2002, which has not foreign share now. After the restoration of multiparty democracy, the newly formed government adopted liberalized policies aimed at accelerating economic growth and considerably reducing state interference in business. The governments encouraged foreign and private investment by offering attractive incentives and facilities including 100% foreign ownership in all but few sectors. This help to create conducive business environment for banking. As a result, additional commercial banks came into existence. When the internal violence shows green signal to manage and Nepal Rastra Bank make ease for rules and regulations, many new commercial banks are coming existence and existing development banks and financial institutions are upgrading them as commercial banks. At present, there are 31 commercial banks registered and operated in Nepal (Commercial Bank act, 2031 BS).

### **1.1.3 Function of Commercial Banks**

The main functions of commercial banks include:

accepting deposits in the forms of current, savings and fixed deposits,

(ii)providing short, medium and long term loans,

(iii)acting as an agency in transfer of money, make payment on commission basis for the cheque, draft, bill of exchange etc. presented by the customer,

(iv) buying and selling shares and debentures of any company and government bonds, collecting interest on debenture and government bonds, dividend on shares and funds from other banks for its customers,

making payments on insurance premium, rent, income tax, school fees, telephone bills to the concerned offices on behalf of customers

carrying out the foreign currency exchange

Helping in foreign trade.

Moreover, other functions include:

- ◆ To protect the precious jewelers.
- ◆ To provide travelers cheque.
- ◆ To facilitate in financial policy formulation by gathering and providing trading and monetary . transaction related information
- ◆ To underwrite the debentures.
- ◆ To accept the bill of exchanges.
- ◆ To provide advice to customers, entrepreneurs, and businessmen on economic matter.
- ◆ To create credit on the specific basis and expand credit.
- ◆ To issue credit card, debit card, master card, visa card etc. (Vaidya, 2001:33).

## **Introduction to Sample Banks**

### **Machhapuchhre Bank Limited**

MBL, registered in 1998 is the first commercial bank in the western part of the kingdom of Nepal having head office in Prithivichowk, Pokhara. It started its banking services from October 2000 in its own land with a well building. The bank with perception of tremendous business potentials outside Kathmandu, in a very short span of time having a total eleven number of branches, expanded branches in Parsa, Kathmandu, Kabhre, Kaski, Tanahun, Rupandehi, Mustang. MBL is a pioneer in introducing the latest technology in banking in the country. It is the first bank to introduce centralized banking software named GLOBUS BANKING SOFTWARE developed by Temenos NV Switzerland.

MBL strives to facilitate its customer needs by delivering the best services in combination with the state of the technologies and best international practices. MBL has the most sophisticated GLOBUS banking software facilities like Any where banking facilities, internet banking, sms banking, online mobile bill payment. ATM facilities, SWIFT transfer and many more. The sophisticated communication technology has interlinked all its branches to the centralized database system and has enabled the bank to provide anywhere banking facilities to its entire valued customer. MBL has an authorized capital 2000 million out of which 1479 million rupees has been paid up capital. This capital base is sufficient for conducting

commercial banking activities in Nepal under the policy of NRB. The ownership share structure is derived as promoters' shares 70.00% and general public shares 30.00% (including 5.00% of employees' shares). ([www.machhabank.com](http://www.machhabank.com))

### **Kumari Bank Limited**

Kumari Bank Limited, came into existence as the fifteenth commercial bank of Nepal by starting its banking operation from Chaitra 21 2057 B.S.(April 03,2001) with an objective of providing competitive and modern banking services in the Nepalese financial market. The bank has paid up capital of Rs. 1306 million of which 70% is contributed from promoters and remaining from public.

Kumari Bank Ltd has been providing wide- range of modern banking services through 28 points of representations located in various urban and semi urban part of the country, 19 outside and 9 inside the valley. The bank is pioneer in providing some of the latest/lucrative banking services like E –Banking and SMS Banking services in Nepal. The bank always focus on building sound technology driven internal system to cater the changing needs of the customers that enhance high comfort and value. The adoption of modern Globus Software, developed by Temenos NV, Switzerland and arrangement of centralized data base system enables customer to make highly secured transactions in any branch regardless of having account with particular branch. Similarly the bank has been providing Remittance services; online remit Services and various other banking services.

Visa Electron Debit Card, which is accessible in entire VISA linked ATMs (including 30 own ATMs) and POS (point of Sale) terminals both in Nepal and India, has also added convenience to the customers. The bank has been able to get recognition as an innovative and fast growing institution striving to enhance customer value and satisfaction by backing transparent business practice, professional management, corporate governance and total quality management as the organizational mission.

The key focus of the bank is always center on serving unfulfilled needs of all classes of customers located in various parts of the country by offering modern and competitive banking products and services in their door step. The bank always prioritizes of the valued customers. ([www.kumaribank.com](http://www.kumaribank.com))

## **Bank of Kathmandu**

Incorporated in 1993, in collaboration with SIAM Commercial Bank PCC, Thailand, Bank of Kathmandu started operation in March 1995. Out of 30% holding diluted 25% holdings to the Nepalese citizens in 1998. It is a culmination of a comprehensive vision of the promoters to take the Nepalese economy to a newer realm in the global market. Promoters own 42% of total share of the bank and general public owns the other 58%.

The bank started its operation with the authorized capital of Rs. 100 million, issued capital of Rs. 50 million, and paid up capital of Rs. 46.35 million. BOK has become a prominent name in the Nepalese banking sector. BOK has today become a landmark in the Nepalese banking sector by being among the few commercial banks, which is entirely managed by Nepalese professionals and owned by the general public. BOK 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 Kathmandu, Morang, Parsa, Makawanpur, Kaski, Rupandehi, Banke, Kailali having in total eleven numbers of branches BOK has made substantial information system by using internationally software, in order to support expansions and new services.

BOK has the most sophisticated banking software enabling it to provide modern banking facilities like Tele Banking, Internet Banking, Point of sale services, SMS Banking, ATM facilities, L.C service and many more. BOK has an authorized capital of 2000 million rupees out of which 1182 million rupees have been issued capital and paid up capital. ([www.bok.com](http://www.bok.com))

## **Everest Bank Limited**

Everest Bank Limited (A joint venture with Punjab National Bank India) has been established with the objective of expending professional banking services to various sections of society in the kingdom of Nepal and thereby contributes in the economic development of the country. The bank has come into formal operations from 18<sup>th</sup> October 1994 (Kartik 2051 B.S). EBL is a joint venture with Panjab National Bank (PNB) one of the largest commercial banks in India having over 3700 branches and more than 300 foreign correspondents around the globe. PNB has a century old tradition of successful banking and is known for its financial strength and will lay down modern banking system and procedures. PNB is providing the top management service to EBL under a technical services agreement signed between the two institutions. EBL has advantage of the banking expertise and financial strength of its partner currently with 10 branches in various parts of the kingdom of Nepal. EBL

operated with the objectives of providing the full range of quality banking service to both the business community and the common man.

Present capital structure of Everest Bank.

Share capital and Reserves	NP Rs. in Million
Authorized capital	1250
Issued and paid up capital	850

Shareholding Pattern:

	Percent
Nepalese promoters	50%
Punjab National Bank (Joint neuter partners )	20%
General public	30%

The following activities and service are provides by EBL including normal functions.

SWIFT transfer

T.T transfer

L.C facilities

Deposit locker

Drawing arrangement

International trade and bond guarantee.([www.everestbank.com](http://www.everestbank.com))

### 1.1.5 Capital Structure of Commercial Banks

Every business firm or Bank requires the initial funds for its sound operation. Capital is the blood of the business. A business firm or enterprises cannot run their business without capital. Enterprises whether they are government owned or privately owned have to make pertinent capital structure decision in identifying exactly how much capital is needed to run their operation smoothly.

The funds required are generated usually by two means: equity and debt, equity provides the ownership of the firm to the shareholders. On the other hand, debt is a fund borrowed with fixed charges to be paid periodically to the debtor, the term capital structure refers to the proportion of debt and equity capital or the composition of long term sources of finance, such as preference capital debentures, long term debt and equity capital including services and surpluses (i.e. retained earnings and excluding short term debts.).

The term capital structure refers to the mix of different types of funds a company uses to finance its activities. Capital structure varies greatly from one company to another. For example, some companies are financed mainly by shareholders funds whereas others make much greater use of borrowings (Weston and Brigham, 1978:668).

Firstly, we must decide what we mean by a good capital structure. This would be a capital structure, which results in a low overall cost of capital for the company, that is, a low overall rate of return that needs to be paid on funds provided. If the cost of capital is low, then the discounted value of future cash flows generated by the company is high resulting in a high overall company value. The objective is therefore to find the capital structure that gives the lowest overall cost of capital and consequently, the highest company value.

The capital structure decision affects the total value of the firm. The proper balance between debt and equity is necessary to ensure a tradeoff between risk and return to the shareholders. The capital structure of the bank should be such that leads to the value maximization. The optimal capital structure, i.e. the capital structure with reasonable proportion of debt and equity minimizes the opportunity cost of capital and maximizes the shareholders' wealth.

## **1.2 Statement of the Problem**

Banks play a significant role in the economic development of the country by extending credit to the people. Although banking industry in Nepal is making remarkable progress and growth. It's not without the problems. At the present context, the main problem faced by the business sector as well as bank is the unstable political and economic condition of the country.

Generally every company has its own policy in determining capital structure for operating business activities. Some of the business use only equity capital some use only debt capital and some business use both debt and equity capital. Therefore determination of capital structure largely depends upon the company policy and cost of capital. Most of the banks make low cost of capital structure. Unfortunately there is no model for determining capital structure in the Nepalese business organization. In the initial period of any company they want to use only equity capital and do not want to include debt in their capital due to high interest. The main key factors risk and return can be used of decision. Following are the major problems that have been identified for the purpose of this study.

What is the financial position of the banks?

How far commercial banks have been able to use their resource?

What is profitability position of commercial banks?

What is the relation of capital structure and cost of capital?

### **1.3 Focus of the Study**

The main purpose of this study is to evaluate the capital structure of the private banks. The capital structure decision is a major decision, which affects the overall cost of capital, total value of the firm and earnings per share.

Hence the focus of this study mainly deals with the effects of the capital structure on the growth of the firm , profitability and cost of capital of the commercial banks.

### **1.4 Objectives of the Study**

The main objective of the study is to analyze the behavior of the capital structure of the selected commercial banks. The study involves 5 yrs financial data of four commercial banks to evaluate, their capital structure. The main objectives of selected commercial banks are given below:

- (i) To examine the current capital structure of sample commercial banks.
- (ii) To analyze the profitability position of sample commercial banks.
- (iii) To analyze relationship between capital structure and cost of capital.

### **1.5 Significance of the Study**

First of all, it is the fact that this study is undertaken to apply the theoretical concept and knowledge of Financial Management to the practical aspect as a partial fulfillment of the requirement of Master of Business Study (MBS) under faculty of Management, Tribhuvan University. This study would contribute an overall look at the coming up new capital policies to be taken by the bank and the factors that should be taken in consideration while preparing the next year's policy. The bank which would be included in as sample would likely see the point of their weakness and significance of this study on their future plan.

This study is also important for owners, creditors and potential investors to make their attitude on investment. The study will also have significance for management, policy maker, stakeholder of the banks and others those having investment on capital structure decision.

### **1.6 Limitation of the Study**

Each study is conducted under some constraints and limitations. Likewise this study is also limited by some common constraints. This study is prepared for partial fulfillment of MBS degree which has to be finished within a short span of time and under different strains. Some of the basic limitations are as follows:

This study is based on secondary data.

It covers data of only five fiscal years.

Only factors considering capital structure is taken into consideration.

Only four banks are taken as the sample.

The conclusion drawn about the commercial banks may not fully represent the reality.

## **1.7 Organization of the study**

This study has been organized into five chapters. Each is developed to some aspect of the study to effect of capital structure.

The chapters are as follows:

1. Introduction
2. Review of literature
3. Research methodology
4. Presentation and analysis of data
5. Summary, conclusion and recommendation

The first chapter contains the introduction part of the study. It gives some earlier history of concern title and some related term as well. It present systematically of objective of the research, problem of the study, significant of the study and limitation of the study.

The second chapter is review of literature which presents some principles, theoretical aspects, journals and some relevant studies on the topics of this thesis.

Similarly, the third chapter explains the research methodology including research design, population and samples, nature and sources of data, analysis and interpretation of data and tools for analysis.

The fourth chapter presents analysis and interpretation data. It particularly concentrated to trace out the fact by the given data through the secondary source.

The fifth chapter concerns summary, findings and suggestion for future improvement of banks.

# Chapter II

## REVIEW OF LITERATURE

### Literature Review

The purpose of literature review to find out what research studies have been conducted in ones field of study, and what remains to be done. Review of literature provides foundation to the study. The literatur also minimizes the risk of pursuing the dead end in research. Literature review is basically a 'stock tak ks of available literature. To make the research more realistic review of literature is required. It provides significant knowledge in the field of research. Thus the review of various books, research studies and articles have been used to make clear about the concept of capital structure as well as to recall the previous studies made by various researches.

To make meaningful research study conceptual review has been done through the study of various books, journals and articles and researches conducted by the previous researches in the field of capital structure i.e. research work, thesis and dissertation etc. so, this chapter 'literature review' has been divided into the following sections.

### 2.1 Conceptual /Theoretical Reviewed

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

#### 2.1.1 Concept of the Capital Structure

Capital structure of a company consists of debts and equity securities which provide funds for a firm. A simple capital structure consists of equity share and preference share. But a complex capital structure consists of multi securities as equity share, Preference shares, debentures, bond etc.

"Financial structure refers to the way the firm's assets are financed; it is the entire right hand side of the balance sheet. Capital structure is the permanent financing of the firm, represented primarily by long term debt, preference stock and common stock but excluding all short term credit. Thus a firm's capital structure is only a part of its financial structure" (Weston and Brigham, 1978:663).

"A part from short term finance from creditors and banks, companies are usually financed either by long term loans (debentures) carrying a fixed rate of interest on capital or by ordinary shares carrying membership of the company and dividends at rates which depend upon profits" (Francis; 1980).

"Capital structure is made up of debt and equity securities which comprise a firm's finance of its assets. It is the permanent financing of a firm represented by long term debt plus preferred stock plus net worth" (Kulkarni, 1983:363).

"Capital structure refers to the mix of long-term sources of fund, such as debenture, long term debt, preference share capital and equity share capital including reserves and surpluses i.e. retained earnings" (Pandey; 1999: 718).

Capital structure is the mix (or proportion) of a firm's permanent long term financing represented by debt, preferred stock and common stock equity (Van Horne, 2000:240).

## **2.1.2 Theories of Capital Structure**

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 shareholders. As a result, it cannot be said whether or not the value of the firm will increase with leverage. In other words, a great deal of controversy has been developed on whether the capital structure affects value of the firm or not. Traditionalists agree that capital structure is relevant factor for valuation of the firm. Further they say value of the firm can be maximized by adopting optimal capital structure. On the other hand, Modigliani and Miller argue that in perfect capital market, it does not affect value of the firm" (Pandey, 1999: 675).

### **2.1.2.1 Net Income Approach**

This net income approach is suggested by David Durand. According to this approach the capital structure decision is relevant to the valuation of the firm, in other words, a change in the capital structure or financial leverage will lead to a corresponding change in the overall cost of capital as well as the total value of the firm. In other words, a change in the capital structure or financial leverage will lead to a corresponding change in the overall cost of capital as well as the total value of the firm. The degree of financial leverage is measured by the ratio of debt to equity. The weighted average cost of capital will decline, while the value of firm as well as the market price of ordinary shares will increase with the increase in leverage conversely, a decrease in leverage will cause an increase in the overall cost of capital and a decline both in value of the firm as well as market price of the equity shares.

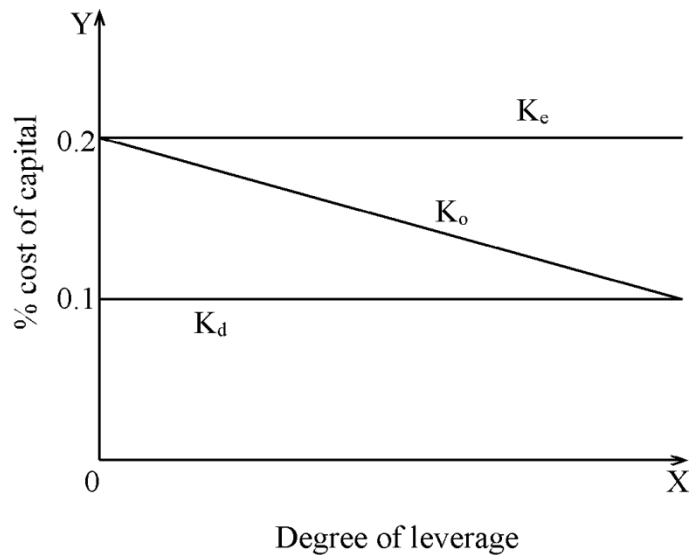
The NI approach to valuation is based on the following three assumptions:

There are no taxes.

That the cost of debt is less than the equity capitalization rate/cost of equity.

That the use of debt doesn't change with the introduction of debt or change is either the cost of debt or cost of equity.

The financial leverage according to NI approach is an important variable in the capital structure decision of a firm with a judicious mixture of debt and equity a firm can involve an optimum capital structure, which will be the one at which value the firm uses no debt or if the financial leverage is zero the overall cost of capital will be equal to the equity capitalization rate, the weighted average cost of capital will decline and will approach the cost of debt as the degree of leverage reaches one (Khan and Jain, 1992:476-477).



**Figure 2.1: Net Income Approach**

In figure 2.1 the degree of financial leverage is plotted along the horizontal axis and the cost of capital figures on the vertical axis. Under NI approach,  $k_e$  and  $K_d$  are assumed not to change with leverage. As the proportion of debt is increase in the capital structure, beings less costly, it causes weighted average cost of capital to decrease and approach the cost of debt. The capital structure would occur at the point where the value of the firm is maximum and overall cost of capital is minimum. Under the NI approach, the firm will have the maximum value and the lowest cost of capital when it is almost debt financed (Thapa, 2008: 297-299).

### Net Operating Income Approach

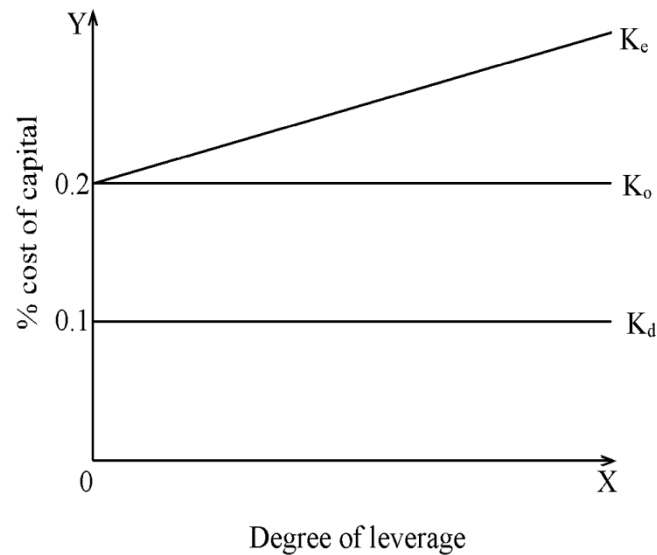
One approach to the valuation of the earning of a company is known as the net operating income approach. According to this approach, the market value of the firm is not affected by the capital structure changes. The cost of equity is assumed to increase linearly with leverage. As a result, the weighted average cost of capital remains constant and the total value of the firm also remains constant as leverage is change. The critical assumptions of the NOI approach are:

The market capitalizes the values of the firm as a whole. Thus the split between debt and equity is not important.

The market uses an overall capitalization rate,  $K_o$  to capitalize the net operating income.  $K_o$  depends on the business risk. If the business risk is assumed to remain unchanged.  $K_o$  is a constant.

The use of less costly debt funds increases the risk of share holders. This causes the equity capitalization rate to increase.

The debt capitalization rate ( $K_d$ ) is a constant and the corporate income taxes do not exist.

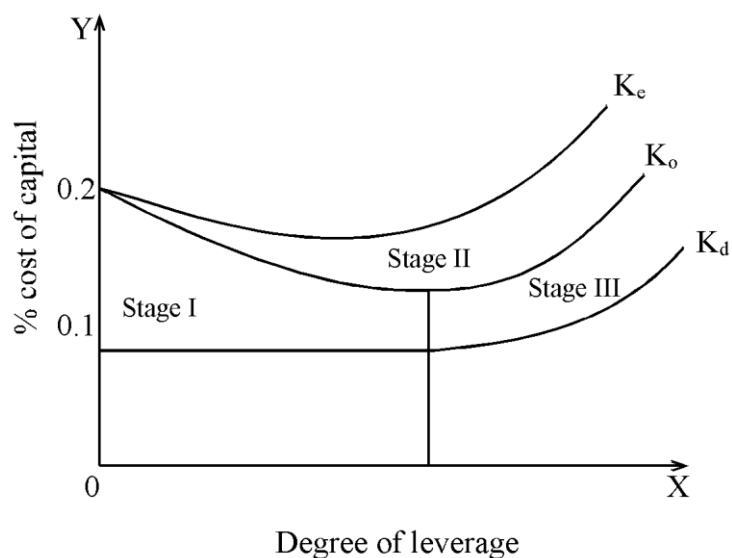


**Figure 2.2: Net Operating Approach**

In above figure 2.2 "Degree of leverage is plotted along the horizontal axis and the cost of capital figures on the vertical axis. It shows that  $K_o$  and  $K_d$  are constant and  $K_e$  increase with leverage continuously. As the average cost of capital is constant, this approach implies that there is not any unique optimal capital structure" (Pandey, 1999: 678).

### **Traditional Approach**

"The traditional capital structure theories, which is taken as middle ground position is known as intermediate approach. It is a compromise between the net income approach and the net operating approach. According to this view, the value of the firm can be increased or the cost of capital can be reduced by a judicious mix of debt and equity capital. This approach very clearly implies that the cost of capital decreases within the reasonable limit of debt and then increases with leverage. Thus, an optimal capital structure exists, and it occurs when the cost of capital is minimum of the value of the firm is maximum. The cost of capital declines with leverage because debt capital is cheaper than equity capital within reasonable, or acceptable, limited of debt. According to the traditional approach, the manner in which the overall cost of capital reacts to change in capital structure can be divided in to three stages" (Salomon; 1963: 92-94).



**Figure 2.3: Traditional Approach**

In the above figure, it is assumed that  $K_e$  rises at an increasing rate with leverage, whereas  $K_d$  is assumed to rise only after significant leverage has occurred. At first, the weighted cost of capital,  $K_o$  declines with leverage because the rise in  $K_e$  does not entirely offset the use of cheaper debt funds. As a result,  $K_o$  declines with moderate use of leverage. After a point, however the increase in  $K_e$  more than offset the use of cheaper debt funds in the capital structure, and  $K_o$  begins to rise. The rise in  $K_o$  is supported further once  $K_d$  begins to rise. The optimal capital structure stage II; thus the traditional position implies that the cost of capital is not independent of capital structure of the firm and that there is an optimal capital structure (Bhattacharai, 2009:347).

### **Modigliani and Miller Approach's (M-M Approach)**

"The approach concludes that the total market value of a firm and the cost of capital are independent (exclusive of tax considerations) of the capital structure. Its model is identical with the net operating income approach" (Jain, 1997: 53).

Modigliani & Miller (MM) in their original position advocates that the relationship between leverage and the cost of capital is explained by net operating income approach. They make a formidable attack on the traditional position by offering behavioral justification for having the cost of capital,  $K_o$  remain constant throughout all degree of leverage (Van Horne, 2000:255).

#### **(i) M-M without Taxes**

Modigliani and Miller (M-M) support the relationship between leverage and cost of capital that explained by NOI approach. They argue that in the absence of taxes, total market value and cost of capital of the firm remain invariant to the cost of capital structure change. "They make formidable attack on the traditional position by offering behavioral justification for having the cost of capital remains constant throughout all degree of leverage" (Solomon, 1996:92).

There are some assumptions are as follows:

## 1. Perfect Capital Market

Investors are free to buy or sell securities

They can borrow without restriction at the same terms as the firm do and

They have rationally

## 2. Homogeneous Risk Classes

Firm can be grouped homogeneous risk classes. Firm would be considered to belong to a homogeneous risk classes if their expected earnings have identical risk characteristics.

## 3. Risk

The risk of investors is defined in terms of the variability of the net operating income. The risk of 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.

## 4. No taxes

In the original formulation of their hypothesis, M-M assume that no corporate income taxes exist.

## 5. Full Payout

"Firms distribute all net earnings to the shareholder". ( Pandey 1999:686)

The M-M- hypothesis can be best explained in terms of their propositions I and II.

### Proposition – I

Given the above assumption, MM argues that for the same risk class, the total market value is independent of the debt-equity mix and is given by capitalizing the expected net operating income by the rate appropriate to the risk class. This is their proposition I. In equation this can be expressed as follows:

$$\begin{aligned} \text{Value of the Firm} &= \text{Market Value of Debt (B)} + \text{Market Value of Equity (S)} \\ &= \frac{\text{Expected Net Operating Income}}{\text{Expected Overall Capitalization Rate}} = \frac{EBIT}{EBT} \end{aligned}$$

For an unlevered firm,

$$V_u = \frac{EBIT}{K_e}$$

Where  $K=K_e$  in case of unlevered firm.

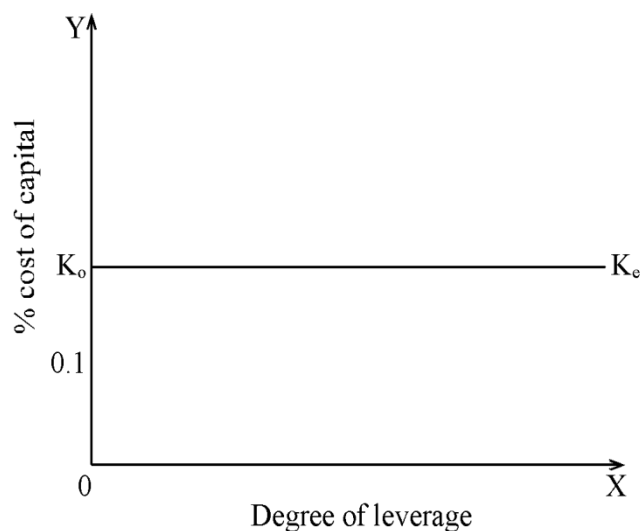
Proposition I can be expressed in terms of the firm's overall capitalization rate,  $K$ , which is the ratio of Net operating income to the market value of all its securities. That is:

$$K = \frac{NOI}{S + B} = \frac{NOI}{V}$$

$K$  can also be expressed as

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

It means  $K$  is the weighted average of the expected rate of return of equity and debt capital of the firm since the cost of capital is defined as the expected net operating income divided by the total market value of the firm and since MM conclude that the total market value of the firm is unaffected by the financing mix, it follows that the cost of capital is independent of the capital structure and is equal to the capitalization rate of a pure equity stream of its class.



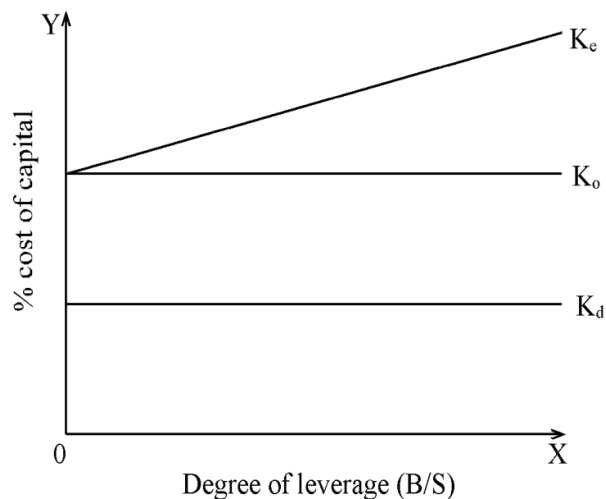
**Figure: 2.4: MM Approach, Proposition – I**

The cost of capital on proposition is shows in the figure which clear that cost of capital is constant and is not attached by leverage (Pandey, 1981:37).

## Proposition – II

M-M's proposition II, which defines the cost of equity. "The cost of equity to a levered firm is equal to: the cost of equity to an unleveled firm in the same risk class plus risk premium who's both size depend with both differential between an unleveled firm's cost of debt and equity and the amount of debt leverage used."

$$K_e (L) = K_e (U) + \text{Risk Premium}$$



**Figure 2.5: MM Approach, Proposition – II**

"The above figure indicates that higher the leverage ratio higher the cost of equity ratio. It means the cost of equity ( $K_e$ ) is linear function of leverage, measured by the market value of debt to equity. Thus leverage will result not only in more earnings per share to shareholders but also increase cost of equity. The benefit of leverage is exactly taken off by the increased cost of equity and consequently, the firm's market value will remain unaffected." (Pandey, 1999)

### Arbitrage Process:

MM Model of irrelevant theory of capital structure is based on the assumption of an arbitrage mechanism. In a perfect capital market the capital structure of two firms, like every other aspect. Must have the same total value will cause the two firms to sell in the market at the same total value.

Arbitrage is the process of simultaneously buying and selling the same or equivalent securities in different markets to take advantage of price difference and make a profit. Arbitrage transactions are risk free.

Consider two firms identical in every respect except that company A is not levered, while company B has \$ 30,000 of 12% bonds outstanding. According to the traditional position, company B may have a higher total

value and lower average cost of capital than company A. The valuation of the two firms is assumed to be the following:

	Company A	Company B
O	Net operating income 10,000	10,000
I	Interest on debt -	3600
E	Earnings available to common shareholders 10,000	6400
Ke	Required equity return 0.15	0.16
S	Market value of stock 66667	40,000
B	Total value of debt -	30,000
V	Total value of firm 66667	70,000
Ko	implied overall capitalization Rate 15%	14.3%
B/S	Debt equity ratio 0	75%

MM maintain that this situation cannot continue, for arbitrage will drive the total values of the two firms together. Company B cannot command a higher total value simply because it has a financing mix different from company A's. MM argue that by investing in company A, investors in company B are able to obtain the same dollar return with no increase in financial risk. Moreover, they are able to do so with a smaller investment outlay. Because investors would be better off with the investment requiring the lesser outlay, they would sell their shares in company B and buy shares in company A. These arbitrage transactions would continue until company B's shares declined in price and company A's shares increased in price enough to make the total value of the firms identical.

Arbitrage steps: If you are a rational investors who owns 1 percent of the stock of company B, the levered firm, worth \$ 400 (market value) your should

Sell the stock in company B for \$ 400.

Borrow \$ 300 at 12 percent interest. This personal debt is equal to 1 percent of the debt of company B, your previous proportional ownership of the company.

Buy 1 percent of the shares of company A, the unlevered firm, for \$ 666.67.

Prior to this series of transactions, your expected return on investment in company B's stock was 16 percent on a \$ 400 investment, or \$ 64. Your expected return on investment in company A is 15% on a \$ 666.67 investment, or \$ 100.

Return on investment in Company A	\$100
Less: investment ( $\$300 \times 0.12$ )	-\$36
<b>Net return</b>	<b>\$64</b>

Your net dollar return \$64 is the same as it was for your investment in company B, however, your cash outlay of \$366.67 (\$666.67 less personal borrowings of \$300) is less than the \$400 investment in lower investment, you would prefer to invest in company A under the conditions described. In essence, you “lever” the stock of the unlevered firm by taking on personal debt.

The action of a number of investors understanding similar arbitrage transactions will tend to drive up the price of company A shares, lower its  $K_e$ , drive down the price of company B, and increase its  $K_e$ . This arbitrage process will continue until there is no further opportunity for reducing one's investment outlay and achieving the same dollar return. At this equilibrium, the total value of the two firms must be the total value of the two firms must be the same. The principle involved is simply that investors are able to replicate any capital structure the firm might undertake through personal leverage. Unless a company is able to do something for investors that they cannot do for themselves, value is not created (Van Horne, 2005).

## 2.2 Review of Journals and Articles

Adhikari (1992) conducted a study on “capital Structure effect on average cost of capital”. The major objective of the study was to analyze the effect of the capital structure on the cost of capital in context of Nepal. Specifically, the aim of the study was to test the relationship between capital structure and average cost of capital. The study was based on the pooled data of selected five financial enterprises listed in the security exchange center. The study period was bounded from 1976 to 1978. Simple and multiple regression approaches were used to test the relationship. In the simple regression models, the average cost of capital was regressed with each explanatory variables such as leverage, size, growth, dividend payout ratio, earning variability and liquidity. Similarly in multiple regression models the average cost of capital was regressed on the leverage together with other explanatory variables. He found negative sign of beta coefficients of leverage under both analyses on the basis of these findings. The researcher concluded that the increasing use of debt (increasing leverage) decreases the overall cost of capital. In this way, this study indicates that the use of debt in capital structure increases the value and decreases the overall cost of capital.

Shrestha (1993) conducted a study on the topic "Focus on Capital Structure of selected and listed public companies". The study used data from 19 companies, which covered different sectors such as manufacturing, finance, utility service and other allied areas. It was found that most of these companies have debt capital relatively very higher than equity capital. Consequently most of them are operating at losses to the extent that

payment of interest on loan has been serious issues. Most of the losses are after charging interest on loan. It has suggested that the government has to consider the public enterprises in evaluation the relationship between use of debt and its impact on overall earning of public enterprises. So government should be sure in knowing how using debt capital will maximize return. It should develop a suitable capital structure guideline to make public enterprise aware of its responsibility to repay the debt schedules. Government has to analyze cost and risk rerun trade off. Thus, capital structure needs to be made more determinate by realistic analysis of cost. Lastly, she concluded that policy makers have to be careful in developing the suitable capital structure guidelines in making public enterprises as well as listed companies to be aware of financial accountability.

Davis and Lee (1997) concluded a study on “A Practical Approach to capital Structure for Banks”. In this article, American’s attention to capital structure is reflected in their high level of stock repurchases in recent years. The most important difference comes from regulation, since the implementation by FDICIA of risk based capital guidelines in the early 1990s, the capital ratio of U.S. banks have increased substantially. In fact, most U.S. banks today carry considerably more capital than is required by the regulations. This tendency to exceed regulatory capital levels is especially pronounced for smaller institutions, which can in turn be explained by the riskier profile of smaller banks they also have a much greater degrees of covariance among their riskier assets. This article recommends using a quantitative economic approach to generate a lower bound on the amount of necessary capital. This estimate can then be translated into a target capital structure by taking account of a variety of practical, qualitative considerations, including bank’s performance to maintain capital levels that provides a comfortable margin above bank regulator’s well capitalized levels. Although such considerations will vary in importance from one bank to another, they will generally include management’s risk tolerance, regulatory constraints, market pressures, the bank’s prospects and investment plants and for larger banks, rating agency requirement

Pradhan (2003) has conducted the study on “Role of Saving & Investment and Capital Formation in Economic Development: A case study of Nepal”. The purpose of this paper has been to investigate the role and impact of saving, investment and capital formation on economic development. The macro economic variables are introduced vide an extension of the econometric model various regression models. This paper has been based on secondary data only. The necessary data on saving, investment, capital formation and gross domestic product has been collected for the period of 1974/75 to 2000/01 at current price and in real terms with the entire study period divided into different sub periods. The result presented in this paper suggest that all cases, GDP is significantly associated with saving, investment and capital formation both at current prices and in real terms. The results of the empirical analysis led to three important conclusions; saving, investment and capital formation have positive impact an economic development, the current values and past values of saving, investment and capital formation have positive impact on economic development but the current values have the largest impact, there is a strong role played by saving and capital formation on economic development while weak role played by investment.

Baral (2004) conducted study on “determinants of capital structure”. The objectives of the study were to examine the determinants of capital structure of the companies listed to Nepal Stock Exchange. As of to July 16, 2003. The study was based on secondary data. Eight variables multiple regression model was used to assess the

influence of defined explanatory variables on capital structure. On the basis of calculation research has conclude that growth size, earning rate are statistically significant determination of financial leverage. Researcher has also concluded that corporate size growth rate & profitability pay financial leverage in financial instruction and on risk, dividend payout ratio; debt source capacity and degree of operating leverage do a dismal role. Author researcher has concluded that financial institutions do not care of their debt resource capacity but do case of the expanses of their business.

Abor (2005) has concluded a study on "The effect of capital structure on profitability an empirical analysis of listed firms in Ghana". This paper seeks to investigate the relationship between capital structure and profitability of listed firms on the Ghana stock exchange during a five year period. Regression Analysis is used in the estimation of functions relating the ROE with measures of capital structure. The results reveal a significantly positive relation between the ratio of short term debt to total assets and ROE. However, a negative relationship between the ratio long term debt to total assets and ROE was found with regard to the relationship between total debt and return rates. The results show a significantly positive association between the ratio of total debt to total assets and return on equity. The research suggests that profitable firms depend more or debt as their main financing option. In the Ghanaian case, a high proportion of the debt is represented in short term debt.

### **2.3 Review of Dissertations**

Under this section various theses related to this study have been reviewed. There are as follows:

Ms. Manju Kumari Pandey (2003) in her thesis, "The Study on capital Structure of Standard Chartered Bank Ltd. and Nepal Bangladesh Bank Ltd." In her research the basic objective of the study made by Ms. Manju Kumari Pandey was to analyze the interrelationship of capital structure with various important variables such as earning per share, dividend per share and net worth of the joint venture banks and to provide suggestions to overcome various issues and gaps.

Study has used financial tools such as Ratio Analysis, EBIT-EPS analysis, overall capitalization rate, equity capitalization rate, total value calculation etc and Statistical tools such as Karl Pearson's correlation and probable errors.

The study concluded that all the joint venture banks are using high percentage of total debt in raising the assets and all the banks are able to pay the interest. The study suggested that the bank must control total deposit and the bank must also control investment. The bank needs to reduce its expenses and control fluctuations in the earnings per share to improve its market price per share.

Dhruba Devi Gurung (2003): In her MBS thesis "Analysis of Capital Structure in selected joint venture Banks in Nepal." In objectives are to analyze the relationship of capital structure and cost of capital of joint venture Banks .To analyze the comparative capital structure of JVBs in terms of financial and statistical tools. To analyze of profitability positions of banks. In her study financial and statistical tools were used for analyzing the data like Ratio analysis, Leverage analysis, standard deviation, regression etc. She found and concluded that all JVBs used high percentage of total debt in raising the assets. The higher ratio constitutes the outsider's claim in total assets of the banks is higher than owner's claim. The privates' sector banks have been successful in

increasing their deposit and credit portfolio remarkably over the last one year. Most of banks have been cautious about loans and advance. 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.

Keshar Jung Baral (2004): In his PhD research “Capital Structure and cost of capital in public sector Enterprises in Nepal” reached to the conclusion that performance of PEs is very poor and they are not adding the wealth of the development of the country. Further, the huge amounts of adjusted losses of manufacturing and trading enterprises is quite below in cost of capital and overall cost of capital in almost fiscal years of the study period. Thus it can be concluded that capital structure of enterprises in public sector in Nepal more or less is the outcome of the deliberate decision of HMG\N but not a product of market and public enterprise structures.

Ms. Anjana Shah (2004): In her MBS Thesis "A study On the Capital Structure of Selected Manufacturing Companies." In this research Ms. Anjana Shah made the study with a purpose to access the debt serving capacity of the mentioned manufacturing companies, examining the relation between Return on equity and total debt, Return on equity and debt ratio, earning after tax and total debt and interest and earnings before interest and tax. Both financial tools such as ratio analysis as well as statistical tools such as correlation coefficient and regression analysis have been used as the methodology. The study revealed that Nepal Lever Ltd. is fully equity based and has not been using long term debt. The Bottlers Nepal Ltd. is free of long term debt because of improved cash flows and effective management. The Sriram Spinning Mills has 66.33% of assets financed with debt and hence there is less flexibility to the owners. The degree of Financial Leverage analysis of Jyoti Spinning Mills shows the failure of the company to gain expected profits. And the Arum Vanaspati Udhog has a fluctuating debt equity ratio. Its long term debt is decreasing and only creditors make a small share of finance.

Resam Raj Sharma (2005): In his MBS thesis “A study of capital structure of selected commercial Banks in Nepal.”In objectives are to analyze the trend of paid up capital in past five years? To analyze the proportion of total debt and equity capital in the Nepalese commercial banks. To analyze debt servicing capacity of the commercial banks. To measure the capital adequacy of the banks. To measures theirs core capital adequacy in past five years. To analyze the supplementary capital adequacy of the commercial banks. Major findings of the study are The increasing trend of paid –up capital indicates the banks are trying to abide the NRB regulation in regard of paid –up capital. The total equity capital is growing rapidly as compared to total debt in the Nepalese commercial banks over the study period. The banks are not following stable debt policy; however, the declining trend of total debt to equity ratio in most recent years implies that the Nepalese commercial banks are applying strict debt policy in final years of the study. The banks are trying to decrease the proportion of total debt in their total financing by increasing the proportion of equity capital. The banks are highly levered and they are taking higher advantage of leverage in owning total assets as a result there is lower margin of safety to the outsiders in these institutions. The earning stream and interest expenses of these institutions are inconsistent over the study period. The debt servicing capacity of the Nepalese commercial banks is not highly satisfactory. The banks are running with fluctuating amount of total risk adjusted assets. The capital fund of the Nepalese commercial banks is significant.

Mr.Niraj Shrama (2009): In his MBS thesis “A Study on Capital Structure management of Commercial Banks.” In objectives are analyze and interpret different aspects of capital structure management and to see whether the capital structure is optimal or not of selected commercial banks .He found and concluded that the overall cost of capital is high in selected banks .Profitability of the banks have low ratio. The banks have properly used their permanent capital to have adequate rate of return. Banks are having return on the shareholders equity.EPS have effectively utilized its resources and increased its profitability on per share basis. Average return loan and advances were not able to earn sufficient return to pay off the interest on their deposit.

Mrs.Parbati Pokharel (2009): In her MBS thesis “Comparative Analysis of capital structure management between Himalayan Bank Ltd and Nepal Investment Bank Ltd” In objectives are to analyze the trend of paid up capital .To analyze the debt servicing capacity between HBL and NIBL. To examine the ratio of debt and equity capital .To measures the core capital adequacy ratio and capital adequacy ratio of sampled banks. To evaluate the profitability position. She found and concluded that the banks are trying to abide the NRB regulation in the regard of paid up capital. The earning stream and interest expenses stream are consistence over the study period. DE ratio has been found extremely higher. The banks have adequately maintained its internal sources and indicates financially sound and strong, strictly followed by NRB standard. The banks are running with the adequate capital and strictly followed by NRB directives. Banks have held the adequate capital to support their risk adjusted assets. The total expenses to total income ratio is fluctuating trend of the both banks. The ROE, ROA, Net Interest Margin, PE ratio are fluctuating trend.

## **2.4 Research Gap**

This study is different in the sense that the selected banks are totally different from the above previous studies because it has taken in sample domestic and joint venture banks. Relationship between capital structure and cost of capital may not have a definite trend in Nepal. So, there is needed to carry our specific study on the impact of capital structure on cost of capital. This study done considering the data of five year (2005/06-2009/10) all the selected banks which have latest data from previous study. This study tried to analyze and evaluate the relationship of capital structure with various variables on like, leverage ratio, cost of capital and cost of equity and so on.

# Chapter III

## RESEARCH METHODOLOGY

It is known as a path from which the researcher can systematically solve the research problem. In order to accomplish the objectives at this study the research methodologies have been designed on the basis of secondary data by using useful financial and statistical tools. The research methodologies adopted in this study are discussed in the following manner. This chapter is composed of five sections.

Research design

Populations and samples

Selection of enterprises

Nature and sources of data

Method of analysis and interpretation

### 3.1 Research Design

The main objective of the study is to analyze the relationship between debt and equity, profitability and cost of capital. The study follows the analytical and descriptive research design. In order to achieve the objective of the study secondary data has been used.

### 3.2 Sampling Technique

There are altogether 31 commercial banks (domestic commercial banks and joint venture banks) functioning till to date and most of their stocks are traded actively in the stock market. Out of them four commercial banks have been chosen where two are domestic and two are joint venture banks. The samples are chosen by judgment sampling technique due to the sameness of established date and the capital structure of these selected banks among others. The sampling has been done over the same four banks as follows:

Machhapuchhre Bank Ltd (MBL)

Kumari Bank Ltd (KBL)

Bank of Kathmandu (BOK)

Everest Bank Ltd (EBL)

### 3.3 Nature and Sources of Data

The study is based on secondary data. Thus secondary data are extensively used in this study. The raw secondary data are modified to some extent for the study purpose mostly; data are collected from the balance sheet, income statement and profit and Loss account of concerned banks. Other supplementary data are collected from a number of institutions and regulation authorities like Nepal Rastra Bank, Nepal Stock Exchange Ltd., security exchange board, etc. and from different related websites. This study has based in the historical data of 5 year period.

### **3.4 Method of Analysis and Interpretation**

The main purpose of analyzing the data is to change it from an unprocessed form to an understandable presentation. The method of analysis employed in this study consists of two types of analytical tool and technique.

Financial tools

Statistical tools

### **3.5 Tools for Analysis**

For the purpose of data analysis, various financial and statistical tools have used to achieve the objective of the study. The evaluation of data has carried out to the pattern of data available.

Different tools have selected according to the nature of data as well as subject matter. The major tool employed for the analysis of the data is ratio analysis, which established the numerical relationship between two variables of the financial statement. Besides financial tools, the statistical tools are also used.

### **Financial Tools**

Financial analysis is the process of identifying the financial strength and weakness of the firm by properly establishing relationship between the items of the balance sheet. In this study ratio, analysis is used as the financial tools for the data analysis.

The financial tools that have used for data analysis are:

Ratio analysis

Leverage analysis

Cost of capital analysis

Traditional analysis

### **Ratio Analysis**

Ratio analysis is a technique of analyzing interpreting financial statements to evaluate the performance of an organization by creating the ratios from the figures of different accounts consisting in balance sheet and income statement. The qualitative judgment concerning financial performance of a firm can be carried out with the help of ratio analysis. Even though there are many ratios, only those ratios have been covered in this study, which are related to investment operation of the bank.

This study contains following ratios:

### **Debt to Total Assets**

This ratio measures the extent to which borrowed funds have been used to finance the company's assets. It is related to calculate total debt to the total assets of the firm. The total debt included interest bearing long term debt and current liabilities. The total assets consist of permanent assets and other assets. It is calculated as:

$$\text{Debt to Total Asset Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}} \times 100$$

The lower total debt to total assets ratio indicates that the creditors claim in the total assets of the company is lower than the owner's claim and vice versa.

### **Long Term Debt to Total Debt**

The long term debt to total debt ratio measures the percentage of long term debt to total debt used in the companies. So it is the percentage of long term debt among the total debt employed by the company.

The Long Term Debt to Total Debt is calculated as:

$$\text{Long Term Debt to Total Debt Ratio} = \frac{\text{Long Term Debt}}{\text{Total Debt}} \times 100$$

### **Debt to Equity Ratio**

The debt equity ratio measures the long term components of capital structure. Long term debt and shareholder's equity are used in financing assets of the companies. So, it reflects the relative claims of creditors and shareholders against the assets of the firm. Debt to equity ratio indicated the relative proportions of debt and equity. The relationship between outsiders claim and owners' capital can be shown by debt equity ratio. It is calculated as:

$$\text{Debt to Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholders Equity}} \times 100$$

This ratio is also known as debt to net worth ratio. A high debt equity ratio indicates that the claims of the creditors are greater than that of the shareholders or owners of the company.

### **Interest Coverage Ratio**

This ratio indicates the ability of the company to meet its annual interest costs or it measures the debt servicing capacity of the firm. It is determined by using following formula:

$$\text{Interest Coverage Ratio} = \frac{\text{Earning Before Interest and Tax}}{\text{Interest}}$$

Hence, higher interest coverage ratio indicates the company's strong capacity to meet interest obligations. A firm always prefers interest coverage ratio because low interest coverage ratio is a danger signal. Lower interest coverage ratio means the firm is using excessive debt and does not have an ability to offer assured payment of interest to the creditors.

### **Financial Leverage**

The degree of financial leverage as part of leverage analysis also reflects the leverage of the firm as similar as above ratios. The degree of financial leverage analyzes the burden of interest expenses and financial risk of the company. The degree of financial leverage (DFL) is defined as the percentage change EPS due to a given percentage change in EBIT or this is a relationship between EBIT and EBT. In this study the following relationship will be used. It is expressed as:

$$DFL = \frac{\% \text{ Change in EPS}}{\% \text{ Change in EBIT}} \text{ or}$$

$$DFL = \frac{EBIT}{EBT}$$

### **Fixed Assets Ratio**

The fixed assets to total asset ratio is the relationship between fixed asset and total assets. It is determined to measure the bank's how much assets covered by fixed assets. A high ratio implies that a proportion of fixed asset is more in total asset and vice-versa. The fixed assets to total assets can be calculated as:

$$\text{Fixed Asset To Total Assets} = \frac{\text{Fixed Assets}}{\text{Total Assets}}$$

### **Profitability Analysis**

Profitability analysis is used to measure the profitability position of the firm. It can be use to various tools to measures as bellows:

#### **Return on Total Assets**

Return on total assets ratio measures the profitability of bank that explains a firm to earn satisfactory return on all financial resources invested in the banks' assets. The ratio explains net income for each unit of assets.

The return on total assets ratio is calculated using the formula below:

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

Higher ratio indicates efficiency in utilizing its overall resources and vice versa. From the point of view of judging operational efficiency, rate of return on total assets is more useful measure.

### **Return on Shareholders' Equity**

Shareholders are the owners of the company. To measure the return of shareholders, we use return on shareholders' equity. This ratio analyze whether the company has been able to provide higher return on investment to the owners or not. It is calculated as:

$$\text{Return on Shareholders' Equity} = \frac{\text{Net profit AfterTax}}{\text{Shareholders' Equity}}$$

A company's owners always prefer higher ratio of return on shareholders' equity. And higher ratio represents the higher profitability of the firm and vice versa.

### **Earnings per Share (EPS) Analysis**

The profitability of bank from the point of view of the ordinary shareholders is earning per share. The ratio explains net income for each unit of share. Earnings per share of an organization give the strength of the share in the market. It shows how much of the total earnings belong to the ordinary shareholders. EPS is calculated as:

$$EPS = \frac{\text{Net Income}}{\text{No of Shares}}$$

### **Dividend per Share (DPS) Analysis**

Dividend per share is calculated to know the share of dividend that the shareholders receive in relation to the paid up value of the share. A large number of present and potential investors may be interested in the dividend per share, rather than the earning per share. Therefore, an institution offering a high dividend per share is regarded as efficient in fulfilling shareholders expectations, which will also enable to increase the value of an institution.

Dividend per share is the earning distribute to ordinary shareholders divided by the number of ordinary shares outstanding, i.e.

$$DPS = \frac{\text{Total Dividend}}{\text{No of Ordinary Shares}}$$

### **Price Earnings Ratio**

Price earnings ratio reflects the price currently being paid by the market for the each rupee of currently reported EPS. In other words, it measures investor expectations and the market appraisal of the performance of a firm. It is an indication of the way investors think that the banks would perform better in the future. Higher market price

suggest that investor expect earnings to grow and this gives a high P/E implies that investor feel that earning are not likely to rise. Price earnings ratio is calculated as below:

$$PERatio = \frac{Market \ Pri \ ce \ per \ Share}{Earning \ per \ Share}$$

### **Per Employee Productivity**

Per employee productivity measures the profitability position of the banks in terms of contributing by employee. It is calculated as bellows:

$$Per \ Employee \ Pr \ oductivity = \frac{NPAT}{No \ .of \ Staff}$$

### **Deposit per Employee**

Deposit per employee measures the productivity of employee to collect deposits. Higher rate is better in terms of collecting more deposit and generate profit and reduce per employee cost .Deposit per employee is calculated as bellows:

$$Deposit \ Per \ Employee = \frac{Total \ Deposit}{No \ .of \ Staff}$$

### **Cost of Employee**

Cost of employee measures the profitability of the banks. Higher cost indicates less profitability and lower cost shows more profitability of the banks. It can calculate as bellows:

$$Cost \ of \ Employee = \frac{Employee \ Expenses}{Total \ Income}$$

Where total income =Operating income + interest expenses

### **3.5.1.3 Cost of Capital**

Various approaches have been developed under the relevancy of the capital structure, which helps to evaluate value of the firm, such as Net Income approach (NI), Net Operating Income approach (NOI), Traditional Method and MM approach. Rather than this approach we can calculate the cost of capital by using following methods.

#### **Cost of Debt Capital**

Debt is the creditorship source of financing, fixed interest is paid for the suppliers of the bet capital. Interest expenses on debt is tax- deductible because it is paid before computing taxable income and certain portion of

interest is paid by the government in the form of decreased tax. Due to tax advantage, the cost of debt capital will be low but it is little riskier. It is fixed obligation to the issuing company. If the firm fails to pay interest, the creditors may put legal pressure to liquidate the firm. But if the proportion of debt used by the firm is appropriate and its cash flow position and earning is sufficient to meet the fixed charge obligation, the possibility of liquidation does not exist. The cost of debt capital is computed on the after tax basis, because the interest expenses is tax- deductible expenses.

$$\text{Cost of Debt After Tax} = K_d (1 - T)$$

Where,  $K_d$ =cost of debt

$$T = \text{Tax}$$

### **Average Cost of Equity (Ke)**

Average cost of equity shows the cost of equity from the middle point. Book value model shows the cost of equity is very aggressive which has more than it occurs. On the other hand earning model shows the cost of equity very small than book value. So we can calculate cost of equity by using average rate.

$$\text{Average Cost of Equity} = \frac{\text{Cost of Equity Book value Model} + \text{Cost of Equity Earning Model}}{2}$$

### **Cost of Preferred Stock**

Cost of preferred stock is the rate of return that must be earned on the preferred stockholder's investment to satisfy their required rate of return. It is the function of preferred dividend, value and floatation costs.

$$\text{Cost of preferred Stock } (K_p) = \frac{PD}{NP}$$

Where, P.D. = Preferred Dividend

$$N.P. = \text{Net Proceed}$$

### **Weighted Average Cost of Capital**

The combined cost of all sources of cost of capital is called overall, or average, cost of capital. Costs of individual sources their proportions determined the overall cost of capital of the firm. Thus the overall cost is called the weighted average cost of capital. Weight is taken in book value basis. The weighted average cost of capital (WACC) is computed by using following formula:

$$WACC = K_d W_d + K_p W_p + K_e W_e$$

Where, WACC= Weighted Average Cost of Capital

$K_d$ = Cost of debt after tax

$W_d$ = Weight of debt

$K_p$ = Cost of preferred stock

$W_p$ = Weight of preferred stock

$K_e$ = Cost of equity

$W_e$ = Weight of equity

### 3.5.2 Statistical Tools

To meet the objectives of the study statistical tools are equally important. It helps us to analyze the relationship between two or more variables. In this research, the following statistical tools are used.

The statistical tools that have used for data analysis are:

Mean

Karl Pearson's Coefficient of Correlation

Probable Error

#### Mean

The arithmetic mean is the sum of total values to the number of values in the sample.

#### Corrélation Coefficient (r)

Correlation coefficient measures the relationship between two and more than two variable, when they are so related that the change in the value of one variable is accompanied by the change in the value of the other. Or it indicates the direction of relationship among variables.

A method of measuring correlation is called Pearson's coefficient of correlation. It is denoted by 'r'. The correlation coefficient can be calculated by using following formula:

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

Where,

N= number of observations

X and Y are variables.

The decision criteria:

When,

r = 0, there is no relationship between the variables.

r = 1, the variables have perfectly positive correlated.

r = -1, the variables have perfectly negative correlated.

### **Probable Error (P.E.)**

P.E. interprets the value of correlation co-efficient. It helps to determine applicability for the measurement of reliability of computed value of the correlation coefficient 'r'. It can be calculated as:

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

Where,

r = correlation coefficient

N = number of pairs of observations.

If the value of r is less than the probable error there is no evidence of correlation, i.e. the value of r is not significant.

If the value of r is more than 6 times of probable error the coefficient of correlation is practically significant. ∴ the value of r is significant.

## Chapter IV

### DATA PRESENTATION AND ANALYSIS

This chapter constitutes the most crucial part of the study. It provides mechanism for meeting the basic objectives stated earlier in the first chapter of this research. The research has followed the, methodology described in this third chapter in order to attain the objectives. Thus, application of the major variables taken into account for the purpose study are total Debt and Total Assets, EBIT and EBT, Net Profit after tax and Shareholder's Equity, EBIT and Interests, average cost of capital, Co-efficient of Correlation analysis of different variables of selected banks.

The bank should maintain a sound capital structure to run its business operation in this competitive world. Both excessive as well as inadequate capital positions are dangerous from the firm's point of view. So, an enlightened management should, therefore, maintain right capital structure to meet its objectives.

#### Financial Analysis

The ratios of a bank by themselves do not reveal anything. For meaningful interpretation, the ratios of a firm should be compared with the ratios of similar firms and the international and national standard and industry norms. Such comparisons will reveal whether the firm is significantly out of line with its competitors. If it significantly out of line, the bank should undertake a detailed analysis to spot out the troubled areas. The study is conducted using each of the bank's financial statement for the last five fiscal years.

##### 4.1.1 Calculation of Debt Ratio

The ratio of total debt to total assets, generally called debt ratio, measures percentage of fund provided by creditor (Brigham, 2004:82).

Debt ratio shows what portion of the capital assets is financed by outside funds. When successfully employed, this ratio benefits the shareholders by raising their expected return-earnings per share. High ratio shows bank's success in exploiting debt to be more profitable as well as it also indicates its riskier capital structure and vice versa. Deposits, borrowing and bonds and debentures are including in total debt.

$$\text{Debt Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

**Table 4.1: Debt Ratio of Selected Banks (%)**

Bank \ Year	2005/06	2006/07	2007/08	2008/09	2009/10	Average

<i>Source : Annua l report s and websit e of concer ned banks.</i>	MBL	89.05%	90.66%	90.58%	90.17%	91.33%	90.36%
	KBL	90.28%	91.31%	90.68%	90.99%	91.09%	90.87%
	BOK	93.05%	93.13%	92.32%	91.35%	90.94%	92.16%
	EBL	93.61%	93.90%	92.67%	93.90%	93.17%	93.45%
	Combined Average				91.46%		

*banks.*

Table 4.1 shows debt ratio of the selected banks over the study periods. In terms of total debt to total assets reveals that the selected banks are highly leveraged (i.e. more than 90 percent in average) on five year time horizon. It means the assets of selected banks have been financed more funds collected from depositors.

Everest Bank has the highest average ratios of 93.45 percent. In other words, creditor's finance is 93.45 percent of total bank's fund and remaining 6.55 percent is shareholder's claim. In comparison to four selected banks, the lowest ratio has MBL which is 90.36 percent. The ratio of EBL has fluctuating trend over the study period. KBL has average ratios of 90.87% and BOK has 92.16% average debt ratios. Combined Average of Debt ratio is 91.46% where MBL and KBL average ratios are lower than combined average and BOK and EBL are higher than combined average.

The ratio of banks is slightly fluctuating trend, the creditor's margin of safety is very low, which means they have high risk. The banks are found using higher debt capital to finance their assets.

#### **4.1.2 Long Term Debt to Total Debt Ratio**

The relationship between long term debt and total debt has a decisive impact on the financial structure of the banks. This relationship indicates what percentage of total debt is covered by long term debt of the firm. Normally firms use short term and long term debt. Current liabilities and provisions are also needed during the operation of the firm. Simply dividing long-term debt by the total debt can derive the relationship between the long term debt and total debt of the firm. The total debt includes all types of borrowed fund, current liabilities and provisions. If the firm used large amount of short term loans and over current liabilities and provision in the larger amount, the percentage of long term debt will be low and vice versa. The higher ratio of long term debt to total debt indicates the higher claim of long term debt holders upon the total debt and the lower ration indicates the higher portion of short term loans and current liabilities in the total debt of the firm. The amount of short term loans and current liabilities used depends upon the liquidity of that firm. This relationship of long term debt and total debt is presented in the following table.

$$\text{Long Term Debt to Total Debt Ratio} = \frac{\text{Long Term Debt}}{\text{Total Debt}} \times 100$$

**Table 4.2: Long term Debt and Total Debt Position (%)**

Year \ Banks	05/06	06/07	07/08	08/09	09/10	Average
MBL	48.56%	44.74%	45.00%	46.00%	59.33%	48.72%
KBL	34.9%	41.95%	51.96%	36.1%	50.10%	43.00%
BOK	33%	33.74%	26.69%	24.27%	50.00%	33.54%
EBL	62.14%	54.98%	51.22%	47.96%	40.00%	51.26%
Combined Average	44.13%					

Source: Annual reports and website of concerned banks.

Table 4.2 indicates the long term debt to total debt ratio of selected banks. Among the banks EBL has highest ratio than others which rates 51.26% in average. Over the period in FY 2006/07, the ratio is 62.14% which is the highest ratio similarly the lowest ratio is 40.00% in FY 2009/10. EBL ratio is higher than Combined Average i.e. it has higher long term debt to total debt ratio.

BOK has the lowest ratio among the selected banks i.e.33.54%. The highest ratio is 50.00% in FY 2009/10 and lowest ratio is 24.27% in FY 2008/09. MBL and KBL average ratios are 48.72% and 43.00% respectively. Over the study period EBL is shown decreasing trend of ratio and other remaining banks are seen in fluctuating trend. Long term debt to total debt ratio of KBL and BOK are less than Combined Average which is 44.13%. i.e. these banks are low long term to total debt ratio.

#### 4.1.3 Debt- Equity Ratio

The debt-equity ratio is the relationship between borrowed funds and owner's capital. It is determined to measure the firm's obligation to creditors in relation to the funds invested by owners. The total debt includes deposits, borrowing and bonds & debentures. Shareholder's equity or net worth includes paid-up capital, reserve and surplus.

$$\text{Debt to Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholder's Equity}} \times 100$$

**Table 4.3: Debt- Equity Ratio of Selected Banks**

Year \ Bank	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	8.62	9.70	9.62	9.17	10.53	9.53
KBL	9.28	10.50	9.73	10.09	10.23	9.97

BOK	13.38	13.56	10.20	10.56	10.04	11.55
EBL	15.12	15.39	12.64	15.40	13.64	14.44
Combined average	11.27					

*Source: Annual reports and website of concerned banks.*

Table 4.3 shows the debt equity ratio of selected banks over the study period. Combined Average of four selected banks D/E ratio is 11.27. MBL D/E ratio is 9.53 times an average. It means debt capital financing is more than 9.53 times higher than shareholder's equity. The Highest D/E ratio is in the FY 2009/010 and lowest in the FY 2005/06 with 8.62 times. MBL has the lowest D/E ratio among the selected banks.

On the other hand KBL has an average of 9.97 times D/E ratio. It means debt capital financing is more than 9.97 times higher than shareholder's equity but BOK has average 11.55 times. EBL's D/E ratio has 14.44 times an average. It means debt capital financing is more than 14.44 times higher than shareholder's equity. It is the highest rate among the selected banks. MBL and KBL Debt to Equity ratio is less than Combined Average. BOK and EBL have above the combined average D/E ratio.

#### **4.1.4 Calculation of Interest Coverage Ratio**

Interest coverage ratio or interest earned ratio is determined by dividing earnings before interest and tax. The TIE Ratio measure the extent to which operating income can decline before the firms is unable to meets its annual interest costs (Brigham & Ehrhardt, 2004:82).

Interest coverage ratio reflects the firm's ability to pay interest out of earnings. This ratio shows the number of times the interest charges are covered by funds that are ordinarily available for their payment. Too high or too low ratio is unfavorable to the banks. Too high ratio implies unused debt capacity or a firm's conservativeness in using debt to its best advantage. Whereas, low ratio imply a danger signal that the firm is using excessive debt and does not have the ability to offer assured payment of interest to the creditors.

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

**Table 4.4: Interest Coverage Ratio**

Bank \ Year	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	1.67	1.21	1.39	1.30	1.07	1.33
KBL	1.43	1.63	1.52	1.45	1.38	1.48
BOK	1.97	2.13	2.26	2.17	1.38	1.98
EBL	1.86	1.88	2.06	1.90	1.76	1.89
Combined Average	1.67					

Source: Annual reports and website of concerned banks.

Table 4.4 shows the effects of interest coverage ratio of selected banks over five years study period. Combined Average of Interest Coverage Ratio is 1.67 in which BOK is able to maintain the highest interest coverage ratio than other banks. Its average interest coverage ratio during five year's period is 1.98 times.

MBL has average interest coverage ratio of 1.33 times, which is the lowest among the selected banks. The highest ratio of the FY 2005/06 is 1.67 and the lowest ratio is 1.07 in the FY of 2009/10.

On the other hand KBL has highest average ratio which records 1.48 times. Interest coverage ratio of KBL shows the fluctuating trend over the study period. The highest ratio is 1.63 in FY 2006/07 and the lowest ratio is 1.38 in the FY of 2009/10. Likewise EBL has average ratio of 1.89 where EBL shows the fluctuating trend of the study period. The highest ratio is 2.06 in the FY 2007/08 and the lowest ratio is 1.38 time in the FY of 2009/10.

To sum up MBL and KBL interest coverage ratio are lower than Combined Average and similarly BOK and EBL are greater than Combined Average.

#### 4.1.5 Calculation of Degree of Financial Leverage

Financial leverage is the ratio of total debt to total assets or the total value of the firm (Weston and Brigham, 1981:555).

It is already stated that financial leverage refers to the use of interest bearing debt with debt capital. The degree of financial leverage indicates the degree of financial risk, i.e., higher the value of degree of financial leverage, higher the degree of financial risk and vice-versa. The degree of financial leverage can be calculated as:

$$DFL = \frac{\% \text{ Change in EBT}}{\% \text{ Change in EBIT}} \text{ Or, } DFL = \frac{EBIT}{EBT}$$

Here, EBIT-I=EBT

**Table 4.5: Degree of Financial Leverage**

Bank \ Year	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	2.50	5.65	3.56	4.29	12.03	5.61
KBL	3.31	2.60	2.94	3.22	3.60	3.13
BOK	2.02	1.88	1.79	1.85	2.23	1.95
EBL	2.16	2.14	1.95	2.10	2.32	2.13
Combined Average	3.21					

Source: Annual reports and website of concerned banks.

Table 4.5 shows the degree of financial leverage of selected banks over the study period. The Combined Average of DFL is 3.21 in which, the average degree of financial leverage of MBL is 5.61. In this study period, it shows the fluctuating trend. The lowest ratio of the MBL is 2.50 in the FY of 2005/06 and highest ratio is 13.03 in FY of 2009/10. Similarly, MBL has the highest financial leverage among selected banks which is greater than combined average.

Likewise, BOK is shown as the lowest financial risk among the selected banks an average ratio of 1.95. Where the lowest ratio is 1.79 in FY of 2007/08 and highest ratio is 2.23 times in FY of 2009/10. KBL and EBL have the average financial risks are 3.13 and 2.13 respectively. Except MBL, other banks DFL is lower than Combined Average.

#### 4.1.6 Fixed Assets to Total Assets Ratio

The fixed assets to total asset ratio is the relationship between fixed asset and total assets. It is determined that how much assets are covered by fixed assets. A high ratio implies that a proportion of fixed asset is more than in total assets and vice-versa. The fixed assets to total assets can be calculated as:

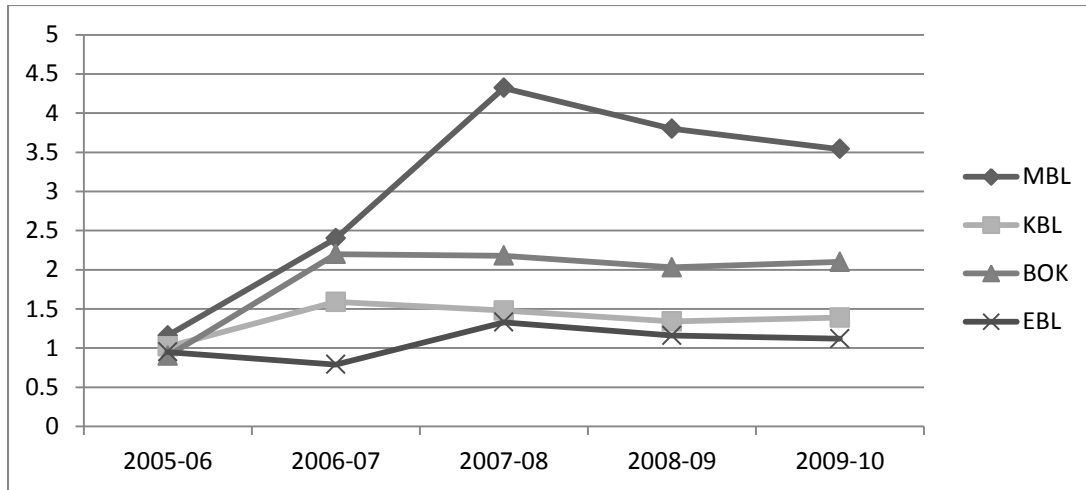
$$\text{Fixed Asset To Total Assets} = \frac{\text{Fixed Assets}}{\text{Total Assets}}$$

**Table 4.6: Fixed Assets to Total Assets Ratio**

Banks \ Year	05/06	06/07	07/08	08/09	09/10	Average
MBL	1.16%	2.40%	4.32%	3.80%	3.54%	3.04%
KBL	1.02%	1.59%	1.48%	1.34%	1.39%	1.36%
BOK	0.90%	2.20%	2.18%	2.03%	2.1%	1.88%
EBL	0.95%	0.79%	1.33%	1.16%	1.12%	1.01%
Combined Average	1.82%					

Source: Annual reports and website of concerned banks.

Table 4.6 shows the fixed assets to total assets ratio over the study period. Combined average fixed assets ratio is 1.82% in which EBL seems the lowest ratio i.e.1.01%. It means only 1.01% of total assets is covered by fixed assets. The highest ratio is 3.04% which is found in MBL. Similarly KBL and BOK's ratios are 1.36% and 1.88% respectively. In MBL and BOK, it is found higher than combined average. Similarly, KBL and EBL are seen in lower than combined average.



**Figure 4.1: Fixed Assets to Total Assets Ratio**

Figure 4.1 indicates the fixed assets ratio of selected banks over the study period. MBL is found the highest ratio among the selected banks. It has increasing trend till FY 2007/08 but then it has seen in decreasing trend. Similarly, EBL is found in lowest ratio among the selected banks. All the banks seem fluctuating trend.

## 4.2 Profitability Analysis

Profitability analysis is used to measure the profitability position of the firm. It can use to various tool to measures as bellows:

### 4.2.1 Calculation of Return on Total Assets

Return on total assets ratio measures the profitability of bank that explains a firm to earn satisfactory return on all financial resources invested in the bank's assets; otherwise its survivable is threatened. The ratio explains net income for each unit of assets. Higher ratio indicates efficiency in utilizing its overall resources and vice-versa. Rate return on total assets is major tool to judge the operational efficiency of a bank. The return on total assets of selected banks is as follows:

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

**Table 4.7: Return on Assets**

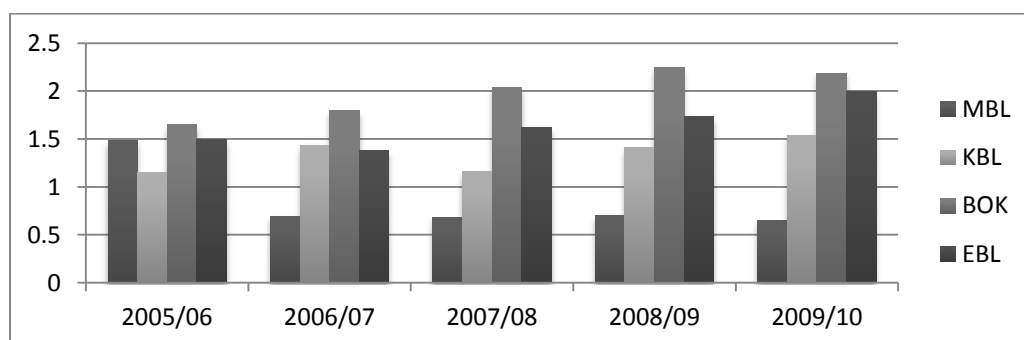
Bank \ Year	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	1.48%	0.69%	0.68%	0.70%	0.65%	0.78%
KBL	1.15%	1.43%	1.16%	1.41%	1.54%	1.34%
BOK	1.65%	1.80%	2.04%	2.25%	2.18%	1.98%
EBL	1.49%	1.38%	1.62%	1.73%	2.00%	1.64%
Combined Average	1.44%					

*Source: Annual reports and website of concerned banks.*

Table 4.7 shows the return on assets of selected banks over the study period. In where the Combined Average of selected banks ROA is 1.44%. MBL has lowest average ROA among the selected banks i.e. 0.78 percent. MBL shows the decreasing trend. The ratio is seen less than combined average in last four years, but it has seen higher than average in the beginning of the year. MBL has the lowest ROA among the selected banks.

Average ROA of BOK is 1.98 percent. In the FY 2005/06 and 2006/07, ROA is below the average and remaining year is above the average. BOK has the highest ROA among the selected banks. ROA of KBL is 1.34%. EBL has average ratio of ROA is 1.64%.

The entire bank's ROA has fluctuating trend over the study period. BOK has the highest average ROA among the selected bank i.e.1.98 percent so it has better utilized its assets to generate profit than other banks. MBL has lowest average ROA among the selected banks i.e. 0.78 percent. MBL and KBL have below the Combined Average ROA but BOK and EBL have above the Combined Average i.e. BOK and EBL have seen better performance of ROA and MBL and KBL have lower performance of ROA.



**Figure 4.2: Return on Assets of selected Banks.**

Figure 4.2 also indicates that BOK has the highest return on assets and MBL has the lowest return on assets among the selected banks. Bok has seen an increasing trend of return on assets over the study period. Similarly, MBL seems decreasing trend.

**4.2.2 Calculation of Return on Shareholder's Equity**

A return on shareholder's equity measures of productivity of shareholder's funds. It carries the relationship of return on shareholder's equity. The shareholder's equity includes common share capital, preference share capital and reserve and surplus. Management's objective is to generate the maximum return on shareholder's investment in the firm. ROE is therefore, the best single measurement of the company's success in fulfilling its goal. Thus, this ratio is of great interest and value to the present as well as the perspective shareholders and also of great concern to management, which has the responsibility of maximizing the owner's welfare. The ratio equals the net profit after taxes divided by the common stockholder's equity.

$$ROE = \frac{NPAT}{Equity}$$

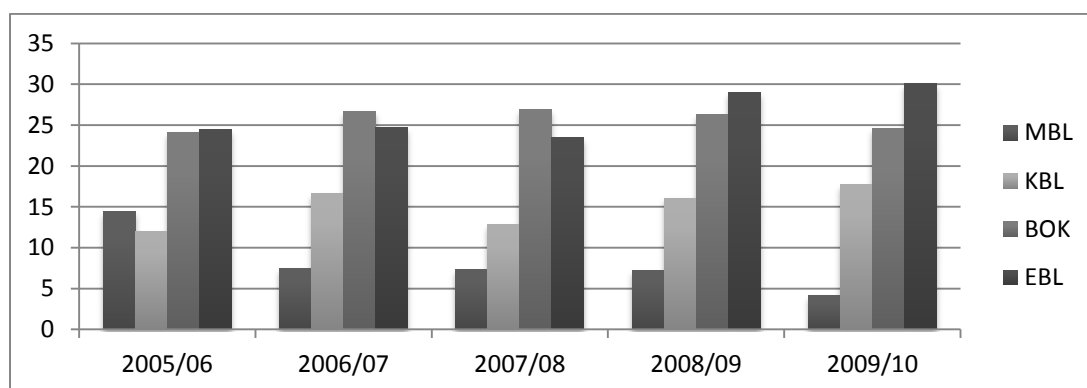
**Table 4.8: Return on Shareholder's Equity**

<b>Bank \ Year</b>	<b>2005/06</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>	<b>2009/10</b>	<b>Average</b>
<b>MBL</b>	14.39%	7.41%	7.31%	7.25%	4.13%	8.1%
<b>KBL</b>	12.00%	16.6%	12.82%	16.09%	17.73%	15.05%
<b>BOK</b>	24.10%	26.72%	26.94%	26.31%	24.56%	25.77%
<b>EBL</b>	24.46%	24.67%	23.49%	28.99%	30.15%	26.35%
Combined Average				18.82%		

*Source: Annual reports and website of concerned banks.*

Table 4.8 shows return on equity of the selected banks over the study periods. Combined Average ROE of the selected banks is 18.82%. MBL has an average of 8.1% which is the lowest return among the sample banks. It has the lowest return is 4.13% in FY 2009/10 similarly the highest rate is 14.39% in FY 2005/06. MBL's return on equity seems in decreasing trend where previous year has shown higher than combined average and the following year has less than combined average. Similarly KBL has an average of 15.05% of return on equity. BOK has 25.77% average return on equity. Likewise, EBL has 26.35% return on equity which is the

highest rate among the sample banks. KBL and MBL fall below the combined average but BOK and EBL return on equity have above the combined average.



**Figure 4.3: Return on Shareholder's Equity**

Figure 4.3 also indicates return on equity among the selected banks. MBL has the lowest return on equity and EBL has the highest return on equity among the selected banks. The increasing trend is seen in EBL in regards to the return on equity from beginning of the study period but MBL has decreased the return on equity than beginning year.

#### 4.2.3 Earnings per Share

Earnings per share show the profitability of the firm on a per share basis; it does not reflect how much is paid as dividend and how much is retained in the business. EPS is one of the most widely used measures of the bank's performance. It is an important index of the bank's performance and the investors rely heavily on it for their investment decisions. In order to see the strength of the share in the share in the market, EPS of selected banks are calculated as below:

$$EPS = \frac{\text{Net Income}}{\text{No. of Share}}$$

**Table 4.9: Earnings per share (Rs.)**

Bank \ Year	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	18.74	9.02	10.35	8.33	4.96	10.28
KBL	16.59	22.70	16.35	22.04	24.24	20.38
BOK	43.67	43.50	59.94	54.68	43.08	49.00
EBL	62.78	78.42	91.82	99.99	100.16	86.63
Combined Average	34.07					

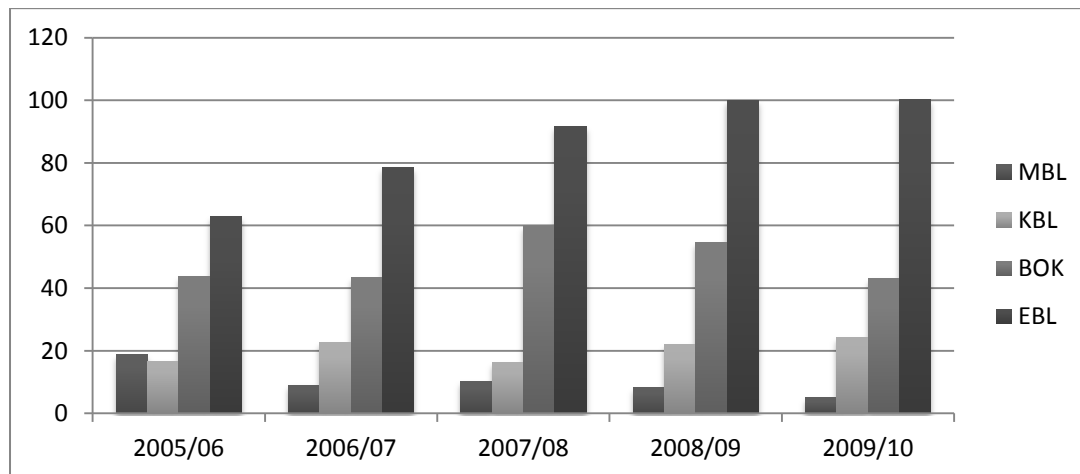
Source: Annual reports and website of concerned banks.

The Table 4.9 shows the earnings per share of selected banks over the study period. Here EBL possesses strength on earnings per share, which helps to maximize the shareholders' wealth. The Combined Average of earnings per share is Rs.34.07. Earnings per share of EBL has seen in increasing trends where in FY 2005/06 is 62.78 and remaining year it is increasing and it has gone to 100.16 in FY 2009/10. Earnings per share of MBL ranges the highest in FY 2005/06 which Rs.18.74 and the lowest in the FY 2009/10 with Rs. 4.96. An average earnings per share of MBL is Rs. 10.28 over the study period, which is the lowest among the selected banks.

Earnings per share of KBL range the highest of Rs.24.24 in FY 2009/10 and the lowest of Rs.16.35 in the FY 2007/08. Average EPS of KBL is Rs.20.38 over the study period. An earnings per share of KBL is in increasing trend. The lowest EPS is Rs. 16.35 in the FY of 2007/08 which is less than average EPS.

An average earnings per share of BOK is Rs 49, over the study period in which the earnings per share of BOK is in fluctuating trend.

Over the study period, EBL and BOK's average earnings per share is more than combined average and MBL and KBL's earnings per share is less than average combined average.



**Figure 4.4: Earnings per Share**

The above figure indicates the EPS condition of selected banks. In which EBL has the highest and MBL has the lowest EPS among the selected banks.

#### 4.2.4 Dividend per Share

Companies generally prefer to pay cash dividends. They finance their expansion and growth by issuing new shares or borrowings. Companies like to follow a stable dividend policy since investors generally prefer such policy for certain reasons. A stable dividend policy does not constitute constant DPS, but a reasonably predictable dividend policy.

$$DPS = \frac{\text{Total Dividend}}{\text{No of Ordinary Shares}}$$

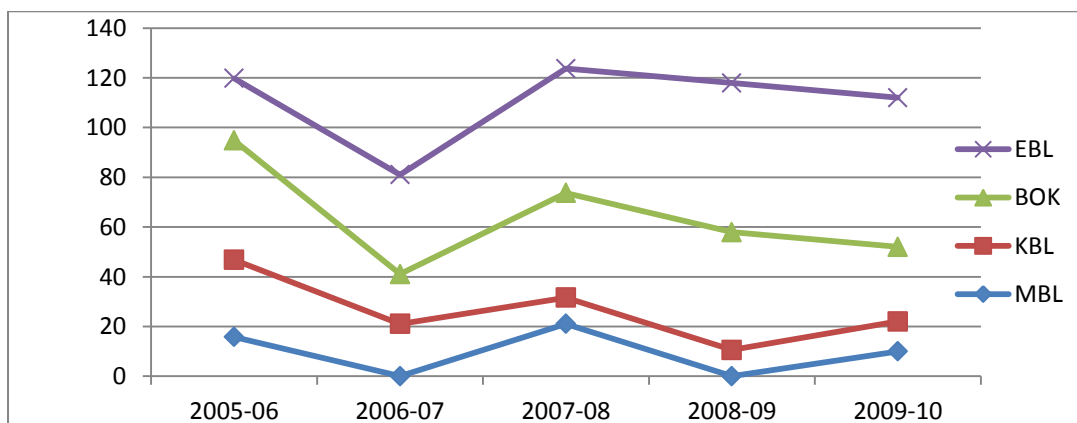
**Table 4.10: Dividend per Share (Rs.)**

Bank \ Year	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	15.79	-	21.05	-	10.00	9.37
KBL	21.05	21.05	10.53	10.58	12.00	18.80
BOK	48.00	20.00	42.11	47.37	30.00	37.50
EBL	25.00	40.00	50.00	60.00	60.00	47.00
Combined Average	28.17					

*Source: Annual reports.*

The above table shows the dividend per share of selected banks over the study period. Combined Average of dividend per share of selected banks is Rs. 28.17. The dividend includes both bonus share and cash dividend. Here, EBL is found to be paying relatively more dividend in average Rs. 47. In two years dividend per share Rs. 60 is same in FY 2008/09 and 2009/10 which is maximum dividend per share of the study period in this bank and minimum is Rs.25 in FY 2005/06.

In MBL, it is found to be paying the lowest dividend among the selected banks i.e. an average DPS is Rs.9.37 but BOK found to be paying dividend in average Rs. 37.50. It shows Rs. 48 in FY 2005/06 and it decreases to Rs. 20 in FY 2006/07 and again it has increased in the following year. So, it has fluctuating trends. Next, KBL found to be paying dividend in average Rs.18.80. MBL and KBL have been seen less than combined average dividend per share but BOK and EBL are found more than Combined Average.



#### Figure 4.5: Dividend per Share

Figure 4.5 shows the dividend per share of selected banks over the study period, which indicates EBL has the highest dividend per share among the selected banks. Similarly, MBL is found in the lowest dividend per share. All the banks seem in fluctuating trend.

#### 4.2.5 Price Earnings Ratio

Price earnings ratio reflects the price currently being paid by the market for the each rupee of currently reported EPS. In other words, it measures investor expectations and the market appraisal of the performance of a firm. It is an indication of the way investors think that the banks would perform better in the future. Higher market price suggest that investor expect earnings to grow and this gives a high P/E implies that investor feel that earning are not likely to rise. Price earnings ratio is calculated as below:

$$PE \text{ Ratio} = \frac{\text{Market Price Per Share}}{\text{Earning Per Share}}$$

**Table 4.11: Price Earnings Ratio**

Bank \ Year	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	17.08	68.74	124.19	50.41	56.90	63.46
KBL	26.71	36.56	61.47	31.76	19.31	35.16
BOK	19.46	31.61	39.21	33.37	19.50	28.63
EBL	21.97	30.99	34.11	24.55	16.27	21.18
Combined Average	37.11					

Source: Annual reports.

Price earnings ratio of EBL is the lowest among the selected banks i.e.2.18. P/E ratio of EBL is increasing since FY 2005/06 to 2007/08 and it has decreasing trend in remaining years. At the beginning of the study period FY 2005/06, the ratio is 21.97, while in the end of the study period it reaches up to16.27.

Price earnings ratio of MBL shows 63.46 in average. In some of the year, it is clearly the increasing trend and in some of the fiscal year it is decreasing trend i.e.17.08, 68.54,124.19 in FY 2005/06, 2006/07, 2007/08 respectively and it has again decreased in remaining fiscal year ie.50.41 and 56.90 respectively.Average price earnings ratio of KBL is Rs. 35.16 which is the second highest among the selected banks. Overall trend of price earnings ratio shows the fluctuating trend, which ranges highest of 36.56 in the FY 2006/07 and the lowest in the FY 2005/06 is 19.46. Average price earnings ratio of BOK is 28.63 times. On an average, the investors were interested to pay 28.63 times higher than per rupee of reported earnings in the market. Overall, the trend of price earnings ratio shows the fluctuating trend.

The Combined Average price earnings ratio is 37.11. Then MBL is found higher than combined average and other three selected banks are less than combined average.

Year Banks	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	683.67	316.24	271.57	280.87	148.98	340.27
KBL	585.88	803.30	683.20	1005.38	869.51	789.45
BOK	1143.50	1465.92	966.7	944.17	1073.42	1118.74
EBL	775.49	754.20	1004.9	1196.1	1464.44	1039.01
Combined Average	821.87					

#### 4.2.6 Per Employee Productivity

Per employee productivity measures the profitability position of the banks in terms of contributing by employee. It is calculated as follows:

$$\text{Per Employee Productivity} = \frac{\text{NPAT}}{\text{No. of Staff}}$$

#### Table 4.12: Per Employee Productivity Rs. (000)

Source: Annual reports

Table 4.12 shows the per employee productivity of selected banks over the study period. The Combined Average per employee productivity is Rs. 821.87 thousands. Whereas MBL has been found the lowest per employee productivity, among the selected banks is Rs. 340.27 thousands which is less than combined average. BOK has been seen the highest per employee productivity among the selected banks which is Rs. 1118.74 thousands but EBL has been seen second highest per employee productivity i.e. Rs. 1039.01 thousands. Finally, KBL average per employee productivity is Rs 789.45 thousands.

Among the selected banks MBL and KBL have less than combined average per employee productivity and BOK and EBL have more than combined average.

#### 4.2.7 Deposit per Employee

Deposit per employee measures the productivity of employee to collect deposits. Higher rate is better in terms of collecting more deposit and generate profit and reduce per employee cost. Deposit per employee is calculated as follows:

Deposit per employee = Total deposit / No of staff.

**Table 4.13: Deposit per Employee Rs (000)**

Year Banks	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	40271	40493	35471	35528	37675	37887.6
KBL	43893	49800	49900	60427	47900	50384
BOK	59240	69212	40599	36982	42770	49790.6
EBL	45106	46276	53400	63549	66262	54918.6
Combined Average	48245.2					

*Source: Appendix 9*

The above table shows the deposit per employee of selected banks over the study period. EBL has been seen the highest deposit per employee i.e. Rs.54918.6 thousands but in MBL, it is found an average deposit per employee is Rs.37887.6. Similarly, KBL and BOK have been found an average deposit per employee is Rs. 50384 and Rs.49790.6 thousand respectively.

Rather than MBL, all the banks have been found an average deposit per employee is higher than combined average and MBL is found lower than combined average.

#### **4.2.8 Cost of Employee**

Cost of employee measures the profitability of the banks. Higher cost indicates less profitability and lower cost shows more profitability of the banks. Total income includes operating income and interest expenses. It can calculate as bellows:

$$\text{Cost of Employee} = \frac{\text{Employee Expenses}}{\text{Total Income}}$$

**Table 4.14: Cost of Employee**

Year \ Banks	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	6.72%	6.74%	7.86%	7.60%	8.26%	7.44%
KBL	8.95%	8.55%	8.40%	7.57%	7.00%	8.09%
BOK	6.68%	6.87%	7.08%	8.73%	7.50%	7.37%
EBL	6.70%	6.30%	8.50%	7.29%	6.50%	7.06%
Combined Average	7.49%					

Source: Appendix 10

Table 4.14 shows the cost of employee of selected banks. Combined average cost of employee is 7.49%. KBL is seen in the highest rate among the selected banks i.e. 8.09%. KBL cost of employee shows in decreasing trend. In FY 2005/06 it has the highest cost of 8.95% and it goes to 7.50% in FY 2009/10.

On the other hand EBL is shown in the lowest cost of employee among the selected banks. EBL average cost of employee is 7.06% where the lowest rate is 6.30% in FY 2006/07 and the highest rate is 8.50% in FY 2007/08.

In MBL, the average cost of employee is 7.44% and it is seen in increasing trend. Which lowest cost is 6.72% in FY 2005/06 and highest rate is 8.26% in FY 2009/10. Likewise BOK has an average cost of employees i.e. 7.37% which is greater than EBL and lowers than MBL and KBL, which is seen in fluctuating trends.

In a nutshell, KBL has found an average cost of employee is more than combined average and other three selected banks are less than combined average cost of employee.

### 4.3 Cost of Capital

When companies issue stocks or bonds, they are raising capital that can be investment in various projects. Capital is a necessary factor of production, and like any other factor, it has a cost. This cost of equal to the marginal investor's required return on the security.

Cost of capital is the minimum acceptable rate of return to the supplier of fund on new investment made by the firm. In every business, the promoter collects funds from individual and institutional investors. Such investors do not make investment unless the firm seems capable to earn a minimum acceptable rate of return for them. This minimum rate of return is the cost of capital. The minimum required rate of return to investor may vary according to the level of risk in that investment. Therefore the cost of capital for an investment project, expected to earn less than the cost of capital reduces the value of the firm; which is against achieving the basic objective of the firm i.e. wealth maximization. Business firm above to earn profit equal to its cost of capital will be able to maintain the value of the firm unchanged.

There are various sources of capital for business firm. Each source has its specific feature. Such feature affects the cost of capital. The cost of capital for each component of capital is virtually decided in the market depending

upon the demand and supply of fund for investment at different levels of risk. Therefore each component of capital will have different costs. The sources of capital classified into two groups like ownership sources and creditor ship sources. The supplier of ownership sources of capital assumes more risk as compared to the supplier of creditorship sources. Therefore the component cost of ownership capital will be higher than component cost of creditor ship capital.

### 4.3.1 Cost of Debt Capital

Debt is the creditorship source of financing, fixed interest is paid for the suppliers of the bet capital. Interest expense on debt is tax- deductible because it is paid before computing taxable income and certain portion of interest is paid by the government in the form of decreased tax. Due to tax advantage, the cost of debt capital will be low but it is little riskier. It is fixed obligation to the issuing company. If the firm fails to pay interest, the creditors may put legal pressure to liquidate the firm. But if the proportion of debt used by the firm is appropriate and its cash flow position and earning is sufficient to meet the fixed charge obligation, the possibilities of liquidation do not exist. The cost of debt capital is computed on the after tax basis, because the interest expenses is tax- deductible expenses.

Cost of debt is the rate that has to be received from an investment made in order to achieve the required rate of return for the debt holders (creditors).

Perpetual debt or irredeemable debt:

Perpetual debt has usually infinite period. If firm has practice of using certain fixed portion of debt in their capital structure permanently the debt is called perpetual debt on these debts only annual interest is paid. Under the perpetual debt the after tax cost of debt is found by using this equation.

$$\text{Cost of Debt After Tax} = Kd (1 - T)$$

**Table 4.15: Cost of Debt after Tax (Kdt)**

Bank \ Year	05/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	2.52%	2.87%	2.56%	2.60%	5.04%	3.68%
KBL	2.94%	2.72%	2.81%	4.07%	5.26%	3.56%
BOK	2.15%	1.94%	1.95%	2.18%	3.14%	2.27%
EBL	2.17%	2.15%	1.97%	2.46%	3.33%	2.22%
Combined Average	3.06%					

Source: Appendix 11

Table 4.15 shows cost of debt after tax of the selected banks over the study periods. In table, MBL has 3.68% on average. Lowest rate in the FY 2005/06 which records is 2.52% and highest rate is 5.04% in FY 2009/10. Similarly KBL has an average rate of 3.56% where the highest rate is 5.26% in FY 2009/10 and lowest rate is

2.72% in 2007/08. EBL has an average of 2.22%. Which is lowest rate among the selected banks. BOK has an average rate of 2.27%. Finally, EBL and BOK's cost of debt after tax is less than combined average and MBL and EBL's cost of debt after tax is more than combined average.

### 4.3.2 Cost of Equity

The costs of equity include cost of retained earnings and cost of newly issued common stock, or external equity. It is the rate of return stockholders require on equity capital the firm obtains by equity capital. It can be calculated by using various methods.

#### 4.3.2.1 Cost of Equity under Book Value Model:

Book value is an accounting concept, amount of book value the firm's equity records/ includes common stock, share premium (paid in capital) and retained earnings. It is also known as net worth of the firm. A return on shareholder's equity is the cost of equity for the company. The ratio equals the net profit after taxes divided by the common stockholder's equity.

$$\text{Cost of Equity} = \frac{\text{NPAT}}{\text{Equity}}$$

**Table 4.16.A: Cost of Equity under Book Value Model**

Year Bank	2005/06	2006/07	2007/08	2008/09	2009/10	Average
<b>MBL</b>	14.39%	7.41%	7.31%	7.25%	4.13%	8.1%
<b>KBL</b>	12.00%	16.6%	12.82%	16.09%	17.73%	15.05%
<b>BOK</b>	24.10%	26.72%	26.94%	26.31%	24.56%	25.77%
<b>EBL</b>	24.46%	24.67%	23.49%	28.99%	30.15%	26.35%
Combined Average	18.82%					

Source: Appendix 12

The above table shows the cost of equity among the selected banks over the study periods. In which Combined Average cost of equity is 18.82% then, MBL has an average cost of 8.1% which is the lowest rate among the sample banks. It has the lowest rate in FY 2009/10 rating 4.13% and highest rate of 14.39% in FY 2005/06. On the other hand, KBL has an average of 15.05% cost of equity but BOK has 25.77% average cost of equity, and EBL has 26.35% cost of equity which is the highest rate among the sample banks. At the last MBL and KBL have less than combined average cost of equity and KBL and BOK have more than combined average cost of equity. Which is vividly seen in the table.

#### 4.3.2.2 Cost of Equity under Earning Model

Earning model is one of the concepts to calculate the cost of equity.

$$K_e = \frac{EPS}{MVPS}$$

**Table 4.16.B: Cost of Equity under Earning Model**

Year Bank	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	5.87%	1.45%	0.81%	1.98%	1.76%	2.37%
KBL	3.74%	2.73%	1.62%	3.15%	5.80%	3.41%
BOK	5.14%	3.16%	2.55%	3.00%	5.13%	3.8%
EBL	4.55%	3.23%	2.91%	4.07%	6.14%	4.18%
Combined Average	3.44%					

Source: Appendix 13.

The equity capitalization rate of MBL has decreasing trend over the study period, having average rate of 2.37%. This is the lowest among the selected banks. In the FY 2005/06 to 2007/08, the rate of KBL is in downward trend, i.e. 3.74% in FY 2005/06 and it again increases to 3.15% in FY 2008/09.

Average equity capitalization rate of BOK is 3.8%. Over the study period the highest ratio is 5.14% in the FY 2005/06 and the lowest in the FY 2007/08 is 2.55%. The Equity capital of BOK does not show any clear direction. But the bank has a decreasing trend of equity capitalization rate which are decreasing trend and the market is above the par value of the banks. The par value of selected banks has Rs. 100 per share.

The average equity capitalization rate of EBL is 4.18%, which is the highest rate among the selected banks. Over the study period the highest ratio is 6.14% in the FY 2009/10 and the lowest in the FY 2007/08 is 2.91%.

#### Average Cost of Equity

Average cost of equity shows the cost of equity from the middle point. Book value model shows the cost of equity is very aggressive which has more than it occurs. On the other hand earning model shows the cost of equity very small than book value. So we can calculate cost of equity by using average rate.

$$\text{Average Cost of Equity} = \frac{\text{Cost of Equity Book value Model} + \text{Cost of Equity Earning Model}}{2}$$

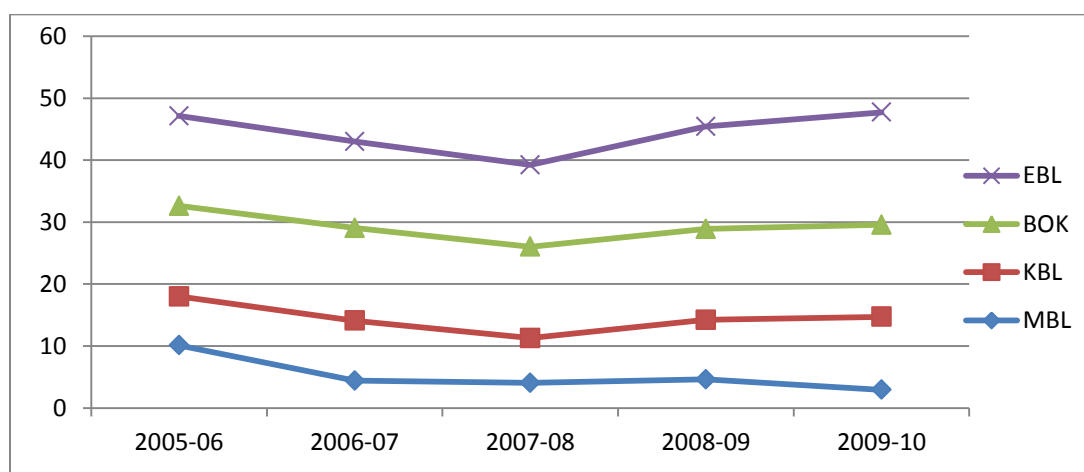
**Table 4.17: Average Cost of Equity**

Year Bank	2005/06	2006/07	2007/08	2008/09	2009/10	Average
MBL	10.13%	4.43%	4.06%	4.62%	2.95%	5.24%
KBL	7.87%	9.67%	7.22%	9.62%	11.77%	9.23%
BOK	14.62%	14.94%	14.75%	14.66%	14.85%	14.76%
EBL	14.51%	13.95%	13.2%	16.53%	18.15%	15.27%
Combined Average	11.13%					

Table 4.17 shows the average cost of equity under the book value model and earning model of selected banks. The cost of equity of MBL is the lowest among the selected banks i.e. 5.24%. The MBL cost of equity is the highest in FY 2005/06 recording 10.13% and the lowest rate is 2.95% in FY 2009/10.

Likewise, EBL has the highest cost of equity among the selected banks which is an average of 15.27%. Lowest cost is 13.2% in FY 2007/08 and the highest rate is 18.15% in the FY 2009/10.

Finally, KBL and BOK average cost of equity are 9.23% and 14.76% respectively which are greater than combined average. On the other hand MBL and KBL's average cost of equity is less than combined average.



### Figure 4.6: Average Cost of Equity

The above figure indicates the average cost of equity of selected banks over the study period. MBL have seen fluctuating trend and it has also the lowest cost of equity. Similarly, EBL seems the highest cost of equity.

### 4.3.3. Cost of Preferred Stock

Cost of preferred stock is the rate of return that must be earned on the preferred stockholder's investment to satisfy their required rate of return. It is the function of preferred dividend, value and floatation costs.

$$\text{Cost of preferred Stock } (K_p) = \frac{PD}{NP}$$

**Table 4.18: Cost of Preferred Stock**

Bank	Year					Average
	2005/06	2006/07	2007/08	2008/09	2009/10	
MBL	-	-	-	-	-	-
KBL	-	-	-	-	-	-
BOK	-	-	-	-	-	-
EBL	9.00%	9.00%	9.00%	7.00%	7.00%	8.2%

table shows that the three banks selected banks MBL, KBL and BOK are not issued preferred stock. Only EBL has issued the preferred stock which records cost is 8.2%.

### 4.3.4 Weighted Average Cost of Capital

The combined cost of all sources of cost of capital is called overall, or average, cost of capital. Costs of individual sources their proportions determined the overall cost of capital of the firm. Thus the overall cost is called the weighted average cost of capital. Weight is taken in book value book value basis. The weighted average cost of capital (WACC) is computed by using following formula:

$$WACC = K_d W_d + K_p W_p + K_e W_e$$

**Table 4.19: Weighted Average Cost of Capital**

Bank	Year					Average
	2005/06	2006/07	2007/08	2008/09	2009/10	
MBL	3.30%	3.01%	2.70%	2.80%	4.86%	3.60%
KBL	3.41%	3.32%	3.21%	4.56%	5.83%	4.07%
BOK	3.00%	2.82%	2.96%	3.24%	5.41%	3.49%

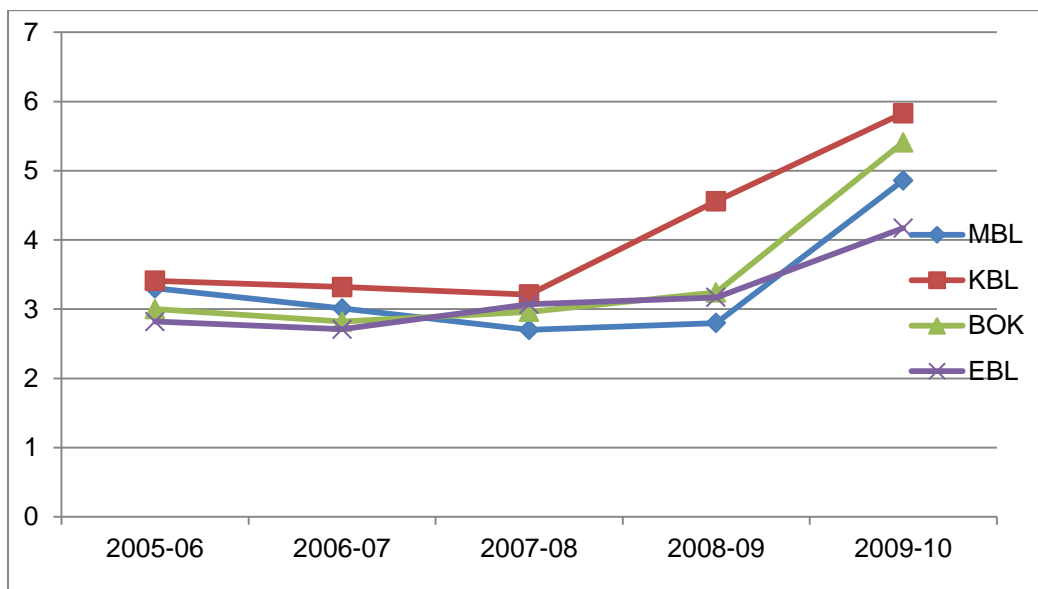
<i>Sourc</i>	EBL	2.82%	2.71%	3.07%	3.17%	4.17%	3.19%
<i>e:</i>	Combined Average		3.59%				

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Table 4.19 shows the average cost of capital of selected banks where KBL has the highest cost of capital among these banks. KBL cost of capital is 4.07% in average. Where the lowest cost of capital is 3.21% in FY 2007/08 and the highest cost is 5.83% in FY 2009/10. The Combined Average cost of capital is 3.59% in which BOK and EBL have lower than Combined Average but MBL and KBL have higher than Combined Average cost of equity.

EBL has lowest cost of capital i.e.3.19%. EBL lowest cost is 2.82% in FY 2006/07 and the highest rate is 4.17% in FY 2009/10.

MBL and BOK average cost of capital are 3.60% and 3.49% respectively.



**Figure 4.7: Weighted Average Cost of Capital**

Figure 4.7 indicates the weighted average cost of capital of selected banks over the study period where KBL has seen highest cost and EBL as the lowest cost of capital among the selected banks.

#### 4.4 Correlation Analysis

Correlation analysis enables us to have an idea about the degree and direction of the relationship between the two or more variables. The correlation is a statistical tool which studies the relationship between two or more variables and correlation analysis involves various methods and techniques used for studying and measuring the extent of the relationship between the two or more variables. It is denoted by 'r'. However, it fails to reflect upon the cause and effect relationship between the variables. Although there are three types of correlation i.e. simple, partial and multiple but here we focus on simple correlation based on 'Pearson's coefficient of correlation'. In the following section correlation between different variables are calculated and presented of the sampled companies.

Total debt and shareholders' equity

EBIT and interest payment.

Debt Equity ratio and ROA

Debt ratio and overall cost of capital.

##### 4.4.1 Total Debt and Shareholders' Equity

The relationship between total debt (TD) and shareholders' equity (SHE) have been shown in the following table below. The total debt includes all types of long term borrowed funds, current liabilities and provisions. Whereas shareholders equity includes share capital, reserve and surplus. This correlation indicates whether there is positive or negative correlation between TD and SHE and their respective probable error is also presented. P.E. interprets the value of correlation co-efficient. It helps to determine applicability for the measurement of reliability of the computed value of the correlation coefficient (r).

**Table 4.20: Correlation between Total Debt and Shareholder's Equity**

Banks	r	6XPE	Level of significant
MBL	0.98	0.0717	significant
KBL	0.9947	0.0191	significant
BOK	0.9910	0.0322	significant
EBL	0.9761	0.0855	significant

*Source: Appendix 15*

Table 4.20 shows Karl Pearson's correlation coefficient between total debt and shareholders' equity, where KBL has 0.9947 which is the highest among the selected banks. KBL probable error is 0.0191 which is lowest among the selected banks. There is positive correlation between TD and SHE. The probable error 6(PE) of KBL is 0.0197 where PE is less than correlation coefficient (r).

Similarly, the correlation coefficient of EBL is 0.9761 which is lowest among the selected banks. The probable error is 0.0855, which is less than r.

Finally, all the banks have seen positive relationship between TD and SHE and result also significant.

#### 4.4.2 EBIT and Interest Payment

The relation between EBIT and interest payment is evaluated in order to measure debt-servicing capacity of the banks. It is assumed that there is significant relationship between EBIT and interest payment. Here interest payment (x) is dependent variable and EBIT (Y) is independent variable. Positive values show the positive relation and negative values shows the negative relation. The following result is obtained for selected banks.

**Table 4.21: Correlation between EBIT and Interest Payment**

Banks	r	6 X PE	Level of significant
MBL	0.9910	0.0326	significant
KBL	0.9977	0.0083	significant
BOK	0.9812	0.0675	significant
EBL	0.9961	0.0142	significant

*Source: Appendix 16*

Table 4.21 shows the relation between EBIT and Interest payment. All the selected banks have found positive correlation between EBIT and Interest. KBL has the most positive among others and the next EBL is in having than others i.e. r is 0.9961. BOK is the lowest r among the selected banks i.e.0.9812. All the banks are nearly in perfect correlation between EBIT and interest.

#### 4.4.3 Debt Equity Ratio and ROA

The correlation between debt equity ratio and return on assets of selected banks are analyzed in order to examine which debt capital is significant in generating more return. It is assumed that there is significant relationship between return and debt capital. Positive values show the positive relation and negative values shows the negative relation. The following result is obtained for MBL, KBL, BOK and EBL.

**Table 4.22: Correlation between Debt Equity Ratio and ROA**

Banks	r	6 X PE	Level of significant
MBL	-0.90	-1.22	insignificant
KBL	0.80	0.65	significant
BOK	-0.70	0.92	insignificant
EBL	-0.39	1.053	insignificant

*Source: Appendix 17*

Table 4.22 shows the relationship between Debt equity ratio and ROA. There is positive relationship between DE ratio and ROA in KBL. Rather than KBL, the other banks are in negative correlation between Debt Equity

and ROA. PE indicates insignificant result when it is greater than r. To sum up, except KBL, all the banks are seen insignificant result.

#### 4.4.4 Cost of Capital and Debt Ratio

Correlation of coefficient between Cost of capital (X) and debt ratio(Y) in terms o total debt to total debt is calculated in order to measure whether increase in the debt ratio decreases cost of capital of the banks. Applying Karl Pearson’s correlation coefficient, following result is obtained.

**Table 4.23: Correlation between Cost of Capital and Debt Ratio**

Banks	R	6 X PE	Level of significant
MBL	0.4677	1.41	insignificant
KBL	0.37	1.56	insignificant
BOK	-0.1357	1.78	Insignificant
EBL	-0.037	1.81	insignificant

*Source: Appendix 18*

Table 4.23 shows the correlation coefficient between the cost of capital and debt ratio, in selected banks over the period. Here, correlation coefficient of MBL, KBL, BOK and EBL are 0.4677, 0.37,-0.1357 and -0.037 respectively. In which correlation coefficient of MBL and KBL shows that the r is positive but BOK and EBL shows r is low negative whose Correlation coefficient in Debt ratio and cost of capital obtained is poor in negative relationship it means increase in debt capital portion in capital structure poorly decreases the cost of capital. On the other hand, MBL and KBL r is positive i.e. when debt capital is increased then the cost of capital is also increased.

Therefore, form above correlation coefficient, it cannot be ascertained to establish the relationship that the capital structure decision strongly affects the cost of capital. Correlation coefficient of selected banks i.e. r is less than P.E. of all banks show relationship is insignificant. Hence, it can be concluded that value of r is insignificant and there is no proper relationship between cost of capital and debt ratio of selected banks.

#### 4.5 Major findings of the study

In terms of total debt to total assets reveals that the selected banks are highly leveraged (i.e. more than 90 percent in average) on five year time horizon. It means the assets of selected banks have been financed more funds collected from depositors. Everest bank has the highest average ratio of 93.45% in comparison to the lowest of 90.36 % of MBL. BOK has average ratios of 92.16% and KBL is less than that of BOK 90.87%.The combined average debt ratio is 91.46%. MBL and KBL have less than combined average debt ratio but BOK and EBL have greater than combined average debt ratio.

The percentage of total debt of the banks covered by long term debt is indicated by long term debt to total debt ratio. Combined ratio of long term debt to total debt ratio is 44.13%. EBL has 51.26 % of average long

term debt to total debt ratio. This is the highest among the selected bank. Similarly, BOK has average ratio of 33.54% which is the lowest among the others. MBL has seen the second highest ratio in terms of long term to total debt i.e. 48.52%. KBL has an average ratio of 43% which is greater than BOK and less than MBL and EBL. In terms of long term to total debt ratio, EBL and MBL have greater than combined average and KBL and BOK have seen less than combined average.

EBL has the highest D/E ratio of 14.44 times on an average. It means debt capital financing is more than 14.44 times higher than shareholder's equity. Combined average debt equity ratio is 11.27. EBL's debt to equity ratio has more than combined average over the all study period. MBL has an average of 9.53 times D/E ratio which has been seen less than combined average all over the study period. It means debt capital financing is more than 9.53 times higher than shareholder's equity which is the lowest among the selected banks. KBL has average 9.97 times D/E ratio. It means KBL debt capital financing is 9.97 times higher than equity financing. KBL's debt to equity ratio has less than combined average. BOK has an average 11.55 times of D/E ratio.

BOK is able to maintain the highest interest coverage ratio than other banks. Combined average interest coverage ratio is 1.67 times. BOK's interest coverage ratio is greater than combined average. Its average interest coverage ratio during five years period is 1.98 times. MBL has average interest coverage of 1.33 times, which is the lowest among the selected banks and less than combined average. EBL is the second highest ratio to maintain interest an average of 1.89. KBL's average ratio is 1.48 times which is greater than MBL and less than BOK and EBL. Ratio, computed interest coverage of all banks in above table shows how many times the interest charges are covered by funds that the ordinary available to pay interest charges. BOK and EBL have able to maintain combined average and KBL and MBL have unable to maintain interest coverage ratio.

Combined average degree of financial leverage is 3.21. Financial leverage of BOK has the lowest ratio of 1.95 times on an average. Which reflects the bank has lower degree of financial risk. MBL constitutes higher degree of financial leverage, which represents higher financial risks for the bank average DFL i.e 5.61. KBL and EBL are 3.13 and 2.13 times respectively. MBL and EBL have seen highly financial risk because of combined average, is less than that of degree of financial leverage. Similarly, BOK and EBL have successes to maintain the degree of financial risk.

Combined average fixed assets to total assets ratio is 1.82%. MBL and BOK have found 3.04% and 1.88% average fixed assets ratio respectively which are higher than combined average. Similarly, EBL found 1.01% average fixed ratio which is the lowest among the selected banks. Finally, KBL seems 1.36% average fixed ratio which is lower than combined average.

BOK has highest average ROA among the selected bank i.e. 1.98 percent. BOK has better utilized its assets to generate profit than other banks. MBL has lowest average ROA among the selected banks i.e. 0.78 percent. Average ROA of KBL and EBL are 1.34 percent and 1.64 percent respectively. EBL seems in increasing trend over the study period. Combined average return on assets is 1.44%. Except MBL other three banks are able to maintain combined average return on assets.

Combined average return on equity is 18.82%. Among the selected banks EBL has highest average ROE i.e. 26.35%. EBL has seemed greater than combined average. Average ROE of MBL, KBL and BOK are 8.1%, 15.05% and 25.77% on the shareholders equity fund respectively. MBL has least ROE among the selected banks. Which shows the weak performance of banks, in the maximizing the shareholders equity. BOK and EBL have higher return on equity than combined average and MBL and KBL have lower than combined average so they are unable to maintain maximize the value of equity.

Average earning per share of EBL is highest among the selected banks i.e. Rs.86.63. Here EBL process strength on earning per share, which helps to maximize the shareholders wealth. Combined average earning per share is Rs. 34.07. Average earning per share of MBL is Rs.10.28 which is lowest among the selected banks over the study period. Average EPS of KBL and BOK are Rs.20.38 and Rs.49 respectively over the study period. Earnings per share of EBL is in increasing trend. BOK and EBL have successes to earn more than combined average per share. Similarly, MBL and KBL have unable to earn more than combined average.

EBL found to be paying relatively more dividend in an average Rs.47. MBL has distributed less dividend among the selected banks which is Rs.9.37. Similarly BOK and KBL found average DPS Rs 37.50 and 18.80 respectively. Combined average DPS is Rs. 28.17.

Average price earnings ratio of MBL is 63.46 times which is highest among the selected banks. On an average, the investors were interested to pay 63.46 times higher than per rupee of reported earnings in the market. A Price earnings of EBL is consistent in comparison to other banks with an average price earnings ratio 21.18 which is the lowest among the selected banks. Overall, trend of price earnings ratio shows the fluctuating trend.

Average per employee productivity of BOK, has found highest among the selected banks i.e. Rs.1118.74 thousands. MBL has seen lowest productivity of Rs.340.27 thousands. EBL is second highest per employee productivity of selected banks i.e. Rs.1039.0 thousands. Then KBL is greater than MBL and less than BOK and EBL. It has per employee productivity of Rs. 789.45 thousands. Combined average per employee productivity is Rs. 821.87 thousands. MBL and KBL have found less than combined average. Similarly EBL and BOK have found more than combined average per employee productivity.

Deposit per employee shows how much deposit collected by an employee. Average deposit per employee of EBL is highest among the selected banks i.e. Rs 54918.6 thousands. MBL found Rs. 37887.6 thousands per employee deposit which is the lowest among the selected banks. BOK and KBL have Rs.49790.6 and 50384 thousands per employee deposit respectively. Combined average per employee deposit is Rs.48245.2 where rather than MBL other three banks have more than combined average deposit per employee and MBL found less than combined average.

Average cost of employee of KBL is highest among the selected banks which occupy of income is 8.09%. It concludes that a greater part of the total income is incurred for employee expenses .Lowest cost of employee is 7.06% of EBL. EBL maintain the low expenses for paying the employee. BOK and MBL cost of employee are 7.37% and 7.44% respectively. Combined average cost of employee is 7.49% where MBL and KBL have shown

lower performance due to high cost of employee and BOK and EBL shows better performance due to low cost of employee than combined average.

Over viewing the above calculated cost of debt after tax is highest among the selected banks is MBL i.e. 3.68%. EBL has 2.22% which is lowest among the selected banks. KBL and BOK cost of debt after tax is 3.56% and 2.27% respectively. Cost of debt after tax of all the banks is highest in fiscal year 2009/10.

Cost of equity under book value model, EBL has highest rate among the selected banks which is 26.35%. MBL seems lowest cost of equity i.e.8.1%. KBL and BOK cost of equity is 15.05% and 25.77% respectively. On the other hand under earning model, cost of equity of EBL seems highest rate and MBL seems lowest rate among the selected banks which are 4.18% and 2.37% respectively. Then average cost of equity of book value model and earning model also seems, EBL rate is highest i.e.15.27%. BOK and KBL cost of equity are 14.76% and 9.23% respectively. MBL has lowest cost of equity of 5.24%. Combined average cost of equity is 11.13%. BOK and EBL have found higher cost of equity than combined average and MBL and KBL found lower than combined average.

In terms of cost of preferred stock except EBL other banks are not issued preferred stock. Average cost of preferred stock of EBL is 8.20%.

Weighted average cost of capital of EBL found lowest rate among the selected banks of 3.19%. KBL is highest cost of capital i.e. 4.07%. MBL is less than KBL and greater than other banks is 3.60% cost of capital .Finally BOK cost of capital is 3.49% which is greater than EBL and less than KBL and MBL. Combined average weighted average cost of capital is 3.59% where MBL and KBL found greater than combined average and BOK and EBL have less than combined average cost of capital.

All the selected banks have positive correlation between TD and SHE. Correlation between TD and SHE of MBL, KBL, BOK and EBL are 0.98, 0.9947, 0.9910 and 0.9761 respectively. Likewise, the probable error is less than  $r$  or  $6(PE)$  is less than  $r$  shows the value of  $r$  is significant.

Correlation coefficient between EBIT and interest payment of MBL, KBL, BOK and EBL is 0.9910, 0.9977, 0.9812 and 0.9961 respectively, which has shown positive relationship. It shows that increase in EBIT, interest payment also increase. On the other hand, the correlation between EBIT and interest payment of banks which shows higher positive relationship. Therefore, it is depicted that value of ' $r$ ' in banks is significant, i.e. there is significant relationship between EBIT and interest payment. It shows that the all banks are significantly able to service their debt. Significant result is obtained from the  $6(PE)$  and  $r$ , where  $r$  is greater than  $PE$ .

Correlation between D/E ratio and ROA, KBL has found 0.80 where the relation is moderate positive. Correlation coefficient of MBL, BOK, and EBL is -0.90, -0.70, and -0.39 respectively. Here correlation coefficient of MBL shows the highly negative relationship, EBL shows the low negative relation and BOK shows the moderate negative relationship. Value of ' $r$ ' is less than six times probable error of selected banks. Which shows the value of  $r$  is insignificant, i.e. there is not significant relationship between debt to equity and

return on assets rather than KBL. It shows that the three selected banks are insignificant in terms of debt to equity to return on assets.

Regarding of correlation between cost of capital and debt ratio of selected banks, correlation coefficient of MBL, KBL, BOK and EBL are 0.4677, 0.37, -0.1357 and -0.037 respectively. Correlation of MBL and KBL show the low positive  $r$  and BOK and EBL show the low negative correlation. Correlation coefficient of selected banks i.e. ' $r$ ' is less than P.E. of all banks, show relationship is insignificant. Hence, it can be concluded that value of ' $r$ ' is insignificant and there is no proper relationship between overall capitalization debt-equity ratio of selected banks.

## Chapter V

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

This is the concluding chapter of the study. This chapter is divided into three sections: Summary, Conclusions and Recommendations. In this chapter, we summarize the study in brief. In the last section of this chapter some recommendations have given, which are useful to stakeholders and to concerned banks as well. They can use these recommendations to take some corrective actions to draw decisions.

#### 5.1 Summary

In this study, to analyze about capital structure, four commercial banks have been chosen. These banks are Machhapuchhre Bank, Kumari Bank, Bank of Kathmandu and Everest Bank. All banks are listed in NEPSE. To make the study more reliable, the whole study has been divided into five chapters. The summaries of each chapter are presented following.

**First chapter:** First chapter starts with historical background of the study. In this chapter an introduction to banking industry in Nepal, introduction of the banks selected for the study, description of the capital structure is presented briefly. This study endeavors to evaluate capital structure of commercial banks with reference to MBL, KBL, BOK and EBL. The main questions presented as the "focus of the study" are what are the condition of capital structure of the commercial banks of Nepal? Whether they are using an appropriate financial mix or not? If not, what may be the suggested to improve or to make appropriate capital structure? What is the relationship between capital structure, profitability and cost of capital? The statement of the problems deals with the effect of the capital structure on the growth of the firm, the extent to which the capital structure policy is followed by the commercial banks, and the main problems faced by the commercial banks in developing and implementing the capital structure.

The main objectives of the study presented are to examine the current capital structure of Commercial banks, to analyze the profitability position of the bank and to analyze the relationship between capital structure and cost of capital.

Finally, "significance of the study" and "limitations of the study" are also presented in the first chapter.

**Second chapter:** In this chapter various books, research studies and articles concerned with the capital structure have been reviewed and presented as the review of literature to make the concept of capital structure more clear. Capital structure theories such as NI approach, NOI approach, MM model and other theoretical approaches to establish appropriate capital structure are described in this chapter. Review of different management journals, articles as well as related Nepalese studies have been presented as well.

**Third chapter:** In this chapter the steps to adopt realistic study needed for the researchers have been presented. The methodology, researcher can use to get appropriate guidelines and knowledge about the various sequential steps to adopt a systematic analysis has been explained in this chapter. Most of data used in this study are

secondary in nature that is annual reports provided by concerned banks. Five years data are taken as sample years and are analyzed by using financial and statistical tools such as ratio analysis, leverage analysis, profitability analysis, cost of capital analysis, correlation analysis, probable error etc. Methods, which the study is going to use, are exhibited in this chapter.

**Fourth chapter:** The data mentioned in the third chapter are presented and analyzed in this chapter using methods mentioned in the chapter third above such as ratios, profitability analysis, correlations, and probable errors and cost of capital analysis. Detail calculations presented in this chapter are shown in appendix, which is presented after fifth chapter.

The capital structure position has been analyzed by calculating various ratios. The ratio of debt ratio is slightly fluctuating trend; the creditor's margin of safety is very low, which shows high risk. EBL has held high protection of average debt ratio with 93.90%. EBL has debt to equity financing and long term debt to total debt are higher than other selected bank i.e. 14.44 and 51.26% average ratio respectively. BOK has long term debt to total debt ratio is lowest among the selected banks is 33.34% i.e. contribution of long term debt in total debt is 33.54% and remaining portion is contributed by the current liabilities. Interest coverage ratio of BOK is able to maintain highest interest coverage ratio than other bank. It is average ratio during the five year's period is 1.98 times but MBL has lower average interest coverage ratio among the selected banks. Degree of financial leverage of BOK has low ratio which shows low risk and MBL has highest degree of financial leverage which shows high financial risk to the creditor. Leverage ratio measures the long term solvency of firm. ROA ratio of selected bank have mixed trend. BOK has better utilizes its assets to generate profit than other banks. ROA of KBL and EBL is fluctuating over the study period. ROA of MBL is least among the selected banks. Which is shows the week performance of banks.

Earnings per share of EBL is higher among the selected bank. Here EBL possesses strength on earnings per share, which helps to maximize the shareholder's wealth. Average EPS of MBL is lowest among the study period but EPS of allover the bank have a fluctuating trend. Dividend per share of MBL, KBL and BOK is the lowest dividend previous study period. Bonus share also includes in dividend per share. It reduces the market price per share and it's more attractive to investor. A Price earnings ratio of MBL is 63.46 times is highest among the selected banks on an average; the investors were interested to pay 63.46 times higher than per rupee of reported earnings in the market. Overall trend of price earnings ratio shows the fluctuating trend.

Per employee productivity of EBL shows highest among the selected banks is Rs.1039.01 thousands an average. Average per employee productivity of MBL is Rs.340.27 which is lowest among the selected banks. MBL has seen weak performance in the case of employee productivity.

KBL found highest overall cost of capital which is 4.07%. Similarly EBL found lowest cost of capital which is 3.19%.

The relationship between Total debt and shareholder's equity is positive in case of all the banks. Probable error indicates the significant or insignificant result.  $t_{PE}$  is lower than  $r$  so the relation between total debt and shareholder's equity is significant. The correlation coefficient between EBIT and interest payment of selected

banks are positive relationship. Significant relationship all the selected banks. Relationship between debt equity ratio and ROA except KBL all the banks are negative i.e. there is negative relationship between debt equity ratio and ROA of MBL, BOK and EBL and positive relationship is in KBL. PE of KBL seems significant result and other banks 6PE shows insignificant result. Between cost of capital and debt ratio is negative relationship and r is also insignificant.

**Fifth chapter:** In this chapter, summary of the study are presented in brief to understand the whole to get about of the study instantly after which conclusion of the study with recommendation are presented.

## 5.2 Conclusion

In this study, comparisons among concerned banks have been taking data from these banks. To evaluate the capital structure, different types of tools and techniques are used. The following conclusion can be drawn.

Debt to total assets ratio shows all the sample banks have been fluctuating trend. MBL and KBL have not reached combined average debt ratio. So it can be concluded that these banks are in lower debt ratio status. Similarly, BOK and EBL have been used as a greater debt financing as compared to combined average.

In terms of interest coverage ratio, MBL and KBL couldn't achieve good result because of lower interest coverage ratio. So it can be concluded that these banks are not able to maintain average interest coverage ratio. BOK and EBL have found better performance on it. The result reflects on the financial leverage, so MBL seems highest financial risk and remaining three banks are less financial risk as compared to the combined average.

In terms of fixed assets ratio, EBL and KBL seem lower and MBL and BOK are found higher ratio comparing with combined average.

Analyzing of ROA, ROE, EPS and DPS, it can be concluded that MBL and KBL have low profitability position. Similarly, BOK and EBL have better performance as compared to combined average.

BOK is seen as a successful bank to utilize own resources because of high return though it's fixed assets, also high, but MBL is found low performance in utilizing resource by getting low return though high fixed assets ratio.

In terms of per employee productivity it can be concluded that MBL and KBL have low performance but BOK and EBL have better performance i.e. employees are succeed to earn more profit as comparing to combined average. Similarly, EBL is seen highest per employee deposit. Rather than MBL, the other three banks are able to maintain combined average per employee deposit.

KBL is found as the highest percentage of total income incurred to employee expenses. Other three banks are able to maintain low cost of employee, while comparing is made with combined average.

Analyzing of cost of capital, EBL is found as the lowest cost of debt among the selected banks. Similarly EBL is found as the highest cost of equity. MBL seems the highest cost of debt and lowest cost of equity. In overall,

KBL is found as the highest average cost of capital and EBL as the found lowest cost of capital among the selected banks.

Regarding of correlation analysis of total debt and shareholder's equity found positive relationship and  $r$  is significant. It can be concluded that when debt portion is increased, the equity capital has also been increased due to the retained earnings, issue of new share and other reserve funds. Likewise in the case of EBIT and interest the correlation coefficient is positive and has significant relationship.

In the case of debt equity ratio and return on assets there is positive relationship exists on KBL but negative relationship for three remaining banks.

Considering the correlation between debt ratio and cost of capital MBL and KBL are found positive relationship exists. Similarly, BOK and EBL have negative relationship. It can be concluded that BOK and EBL have succeed to take tax advantage by using high portion of debt but MBL and KBL seem low status to take this opportunity.

### **5.3 Recommendations**

The sound capital structure enhances the profitability and growth of any bank and it also indicates sound financial position of the company. The capital structure decision in terms of banking, is very much different from other industry. Based on finding following recommendation are provided financial position of MBL, KBL, BOK and EBL.

The low level of interest coverage ratio is an indicator of poor debt servicing capacity. So the higher ratio is favorable. MBL and KBL seem lower interest coverage ratio, it is recommended to these banks to improve the interest coverage efficiency. It is necessary to sustain the business in long run. They are recommended to use less costly debt. To improve the operating income of the banks, promotional strategy & activities should be introduced, the result of which can minimize the operating and financial risk.

It is recommended that MBL and EBL should have optimum utilization of long term debt to maintain sound rate of return.

Regarding of ROA and ROE, MBL and KBL seem lower performance. So the banks are recommended to increase their ROA and ROE ratio through the use of available resources.

These banks might have rapid expansion of branches in the different parts of the country.

Nepalese shareholders are very much concerned about the payment of dividend rather than their financial status. Therefore the banks are suggested to adopt continuous and consistent dividend policy.

MBL and KBL are unable to maintain per employee productivity as compared to combined average. So all the banks are suggested to increase per employee productivity by providing both conceptual and practical input to the staff to enhance their knowledge, skill and competency level. Considering these variables, it may also help to increase deposit per employee and reduce cost of employee.

Observing the cost of capital all the banks are recommended to decrease the cost of equity by increasing EPS as compared to market price per share.

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## APPENDICES

### APPENDIX 1:

$$\text{Total Debt to Total Assets Ratio} = \frac{\text{Total Debt}}{\text{Total Asset}}$$

#### Total debt to Total Assets of MBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Liabilities					
Share capital	715.0	821.6	901.3	1479.2	1627.4
Reserve and fund	216.0	178.6	262.0	220.9	146.3
<b>Total equity capital</b>	<b>931.0</b>	<b>1000.2</b>	<b>1163.3</b>	<b>1700.1</b>	<b>1773.8</b>
Debentures and bonds	-	-	-	-	-
Borrowing	131.7	228.5	88.5	-	150.0
deposits	7893.2	9475.4	11102.2	15596.7	18535.9
<b>Total debt</b>	<b>8024.9</b>	<b>9703.9</b>	<b>11190.7</b>	<b>15596.7</b>	<b>18685.9</b>
Total equity and debt	8955.9	10704.1	12354.0	17296.8	20459.7
Wd	0.8905	0.9066	0.9058	0.9017	0.9133
We	0.1040	0.0934	0.0942	0.0983	0.0867

#### Total debt to Total Assets of KBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Liabilities					
Share capital	625.0	750.0	1070.0	1186.1	1306.0
Reserve and fund	238.9	275.6	294.9	438.9	479.7
<b>Total equity capital</b>	<b>863.9</b>	<b>1025.6</b>	<b>1364.9</b>	<b>1625.0</b>	<b>1785.7</b>
Debentures and bonds	-	-	400.0	400.0	400.0
Borrowing	251.4	213.0	100.0	293.4	429.7
deposits	7769.0	10557.4	12774.3	15710.9	17432.3
<b>Total debt</b>	<b>8020.4</b>	<b>10770.4</b>	<b>13274.3</b>	<b>16404.3</b>	<b>18262.0</b>
Total equity and debt	8884.3	11796.0	14639.2	18029.3	20047.7
Wd	0.9028	0.9131	0.9068	0.9099	0.9109
We	0.0972	0.0869	0.0932	0.0901	0.0891

**Total Debt to Total Assets of BOK (in millions)**

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Liabilities					
Share capital	463.6	603.1	603.1	844.4	1359.5
Reserve and fund	376.2	378.8	738.9	897.2	714.0
<b>Total equity capital</b>	<b>839.8</b>	<b>981.9</b>	<b>1342.0</b>	<b>1741.6</b>	<b>2073.5</b>
Debentures and bonds	200.0	200.0	200.0	200.0	200.0
Borrowing	553.2	730.0	100.0	100.0	300.0
deposits	10485.4	12388.9	15833.7	18084.0	20315.8
<b>Total debt</b>	<b>11238.6</b>	<b>13318.9</b>	<b>16133.7</b>	<b>18384.0</b>	<b>20815.8</b>
Total equity and debt	12078.4	14300.8	17475.7	20125.6	22889.3
Wd	0.9305	0.9313	0.9232	0.9135	0.9094
We	0.0695	0.0687	0.0768	0.0865	0.0906

**Total Debt to Total Assets of EBL (in millions)**

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Liabilities					
Share capital	518.0	518.0	831.4	838.8	1279.6
Reserve and fund	444.8	683.5	1089.8	1364.8	1479.5
<b>Total equity capital</b>	<b>962.8</b>	<b>1201.5</b>	<b>1921.2</b>	<b>2203.6</b>	<b>2759.1</b>
Debentures and bonds	300.0	300.0	300.0	300.0	300.0
Borrowing		-	-	312.0	404.6
deposits	13802.4	18186.3	23976.3	33322.3	36932.3
<b>Total debt</b>	<b>14102.4</b>	<b>18486.3</b>	<b>24276.3</b>	<b>33935.3</b>	<b>37636.9</b>
Total equity and debt	15065.2	19687.8	26197.5	36138.9	40396.0
Wd	0.9361	0.9390	0.9267	0.9390	0.9317
We	0.0639	0.0610	0.0733	0.0610	0.0683

**APPENDIX 2: Long Term Debt to Total Debt (Total Debt = All kind of Debt)**

$$\text{Long Term Debt to Total Debt Ratio} = \frac{\text{Long Term Debt}}{\text{Total Debt}} \times 100$$

**Long Term Debt to Total Debt of MBL (in millions)**

F/Y	LTD	TD	Ratio
2005/06	3952.046	8138.7	48.56%
2006/07	4388.265	9807.4	44.74%
2007/08	5101.579	11335.2	45.00%
2008/09	7895.3	15790.6	50.00%
2009/10	11314.689	18905.0	59.85%

**Long Term Debt to Total Debt of KBL (in millions)**

F/Y	LTD	TD	Ratio
05/06	2844.0	8146.4	34.9%
06/07	4570.0	10892.7	41.95%
07/08	7099.0	13661.7	51.96%
08/09	6105.0	16913.6	36.1%
09/10	94395.08	18736.7	50.10%

**Long Term Debt to Total Debt of BOK (in millions)**

F/Y	LTD	TD	Ratio
05/06	3774.7	11438.6	33%
06/07	4585.3	13588.1	33.74%
07/08	4372.5	16379.9	26.69%
08/09	4551.1	18754.4	24.27%
09/10	10589.6	21322.7	50.00%

**Long Term Debt to Total Debt of EBL (in millions)**

F/Y	LTD	TD	Ratio
05/06	9318.6	14996.48	62.13%
06/07	11122.1	20231.06	54.50%
07/08	12921.5	25523.11	50.63%
08/09	16647.0	34713.22	48.00%
09/10	15399.3	38623.62	39.87%

### APPENDIX 3: Debt Equity Ratio

**Debt = Borrowing + Bond and Debenture + Deposit**

#### Debt to Equity Ratio of MBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total debt	8024.9	9703.9	11190.7	15596.7	18685.9
Equity	931.0	1000.2	1163.3	1700.1	1773.8
Debt equity ratio	8.62	9.70	9.62	9.17	10.53

#### Debt to Equity Ratio of KBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total debt	8020.4	10770.4	13274.3	16404.3	18262.0
Equity	863.9	1025.6	1364.9	1625.0	1785.7
Debt equity ratio	9.28	10.50	9.73	10.09	10.23

#### Debt to Equity Ratio of BOK (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total debt	11238.6	13318.9	16133.7	18384.0	20815.8
Equity	839.8	981.9	1342.0	1741.6	2073.5
Debt equity ratio	13.38	13.56	10.20	10.56	10.04

#### Debt to Equity Ratio of EBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total debt	14102.4	18486.3	24276.3	33935.3	37636.9
Equity	962.8	1201.5	1921.2	2203.6	2759.1
Debt equity ratio	15.12	15.39	12.64	15.40	13.64

#### APPENDIX 4:

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

##### Interest Coverage Ratio of MBL (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	481.0	483.2	567.1	756.3	1248.6
Interest	288.66	397.7	407.9	580.0	1144.8
Ratio	1.67	1.21	1.39	1.30	1.07

##### Interest Coverage Ratio of KBL (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	484.2	645.6	756.2	1183.2	1646.4
Interest	337.1	397.1	498.7	816.2	1188.9
Ratio	1.43	1.63	1.52	1.45	1.38

##### Interest Coverage Ratio of BOK (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	609.4	722.6	945.4	1224.4	1634.8
Interest	308.2	339.2	417.5	563.1	902.9
Ratio	1.97	2.13	2.26	2.17	1.38

##### Interest Coverage Ratio of EBL (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	747.0	971.9	1300.7	1928.5	2761.6
Interest	401.4	517.2	632.6	1012.8	1572.8
Ratio	1.86	1.88	2.06	1.90	1.76

## APPENDIX 5:

$$\text{Degree of Financial Leverage} = \frac{EBIT}{EBT}$$

### Degree of Financial Leverage of MBL (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	481.0	483.2	567.1	756.3	1248.6
EBT	192.3	85.5	159.2	176.3	103.8
DFL	2.50	5.65	3.56	4.29	12.03

### Degree of Financial Leverage of KBL (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	484.2	645.6	756.2	1183.2	1646.4
EBT	147.1	248.5	257.5	367.0	457.5
DFL	3.31	2.60	2.94	3.22	3.60

### Degree of Financial Leverage of BOK (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	609.4	722.6	945.4	1224.4	1634.8
EBT	301.2	383.4	527.9	661.3	731.9
DFL	2.02	1.88	1.79	1.85	2.23

### Degree of Financial Leverage of EBL (in millions)

Year \ Subject	2005/06	2006/07	2007/08	2008/09	2009/10
EBIT	747.0	971.9	1300.7	1928.5	2761.6
EBT	345.6	454.7	668.1	915.7	1188.8
DFL	2.16	2.14	1.95	2.10	2.32

## Appendix: 6

$$\text{Fixed Assets Ratio} = \frac{\text{Fixed Assets}}{\text{Total Assets}}$$

### Fixed Assets Ratio of MBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Fixed Assets	105	259	536	664	732
Total Assets	9069	10808	12410	17491	20679
Ratio	1.16%	2.40%	4.32%	3.80%	3.54%

### Fixed Assets Ratio of KBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Fixed Assets	92	189	222	248	286
Total Assets	9010	11918	15027	18539	20522
Ratio	1.02%	1.59%	1.48%	1.34%	1.39%

### Fixed Assets Ratio of BOK (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Fixed Assets	111	321	387	417	491
Total Assets	12278	14570	17722	20496	23396
Ratio	0.90%	2.20%	2.18%	2.03%	2.10%

### Fixed Assets Ratio of EBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Fixed Assets	152	170	361	427	463
Total Assets	15959	21432	27149	36917	41380
Ratio	0.95%	0.79%	1.33%	1.16%	1.12%

## APPENDIX 7: Return on Assets

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

### Return on Assets of MBL (in millions)

F/Y	Net Profit	Total Assets	ROA
2005/06	134.0	9069.8	1.48%
2006/07	74.1	10807.6	0.69%
2007/08	85.0	12498.5	0.68%
2008/09	123.3	17490.8	0.70%
2009/10	73.3	20678.8	0.35%
Average			0.78%

### Return on Assets of KBL (in millions)

F/Y	Net Profit	Total Assets	ROA
2005/06	103.7	9010.3	1.15%
2006/07	170.3	11918.3	1.43%
2007/08	174.9	15026.6	1.16%
2008/09	261.4	18538.6	1.41%
2009/10	316.5	20522.4	1.54%
Average			1.34%

**Return on Assets of BOK (in millions)**

F/Y	Net Profit	Total Assets	ROA
2005/06	202.4	12278.3	1.65%
2006/07	262.4	14570.1	1.80%
2007/08	361.5	17721.9	2.04%
2008/09	461.7	20496.0	2.25%
2009/10	509.3	23396.2	2.18%
Average			1.98%

**Return on Assets of EBL (in millions)**

F/Y	Net Profit	Total Assets	ROA
2005/06	237.3	15959.3	1.49%
2006/07	296.4	21432.6	1.38%
2007/08	451.2	27149.3	1.62%
2008/09	638.7	36916.8	1.73%
2009/10	831.7	41382.7	2.00%
Average			1.64%

## APPENDIX 8: Return on Equity

$$\text{Return on Shareholder's Equity} = \frac{\text{Net Profit After Tax}}{\text{Shareholder's Equity}}$$

### Return on Equity of MBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subject					
Equity	931.09	1000.26	1163.35	1700.2	1773.51
Net profit after tax	134.0	74.09	85.02	123.25	73.31
ROE	14.39%	7.41%	7.31%	7.25%	4.13%

### Return on Equity of KBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subject					
Equity	863.85	1025.63	1364.89	1624.95	1785.76
Net profit after tax	103.67	170.26	174.93	261.44	316.54
ROE	12.00%	16.6%	12.82%	16.09%	17.73%

### Return on Equity of BOK (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subject					
Equity	839.73	981.98	1342.07	1741.58	2073.53
Net profit after tax	202.44	262.39	361.50	461.73	509.26
ROE	24.10%	26.72%	26.94%	26.51%	24.56%

### Return on Equity of EBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subject					
Equity	962.81	1201.52	1921.24	2203.63	2759.14
Net profit after tax	237.29	296.41	451.22	638.73	831.77
ROE	24.46%	24.67%	23.49%	28.99%	30.15%

## Appendix 9: per employee Productivity

$$\text{Per Employee Productivity} = \frac{\text{NPAT}}{\text{No. of employee}}$$

### Per Employee Productivity of MBL (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
NPAT	134000	74000	85000	123300	73300
No of staff	196	234	313	439	492
Per employee productivity	683.67	316.24	271.57	280.87	148.98

### Per Employee Productivity of KBL (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
NPAT	103700	170300	174900	261400	316500
No of staff	177	212	256	260	364
Per employee productivity	585.88	803.30	683.20	1005.38	869.51

### Per Employee Productivity of BOK (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
NPAT	202400	262400	361400	461700	509400
No of staff	177	179	390	489	475
Per employee productivity	1143.50	1465.92	926.67	944.17	1073.42

### Per Employee Productivity of EBL (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
NPAT	202400	262400	361400	461700	509400
No of staff	177	179	390	489	475
Per employee productivity	1143.50	1465.92	926.67	944.17	1073.42

## Appendix 10: Deposit per Employee

$$\text{Deposit per Employee} = \frac{\text{Total Deposit}}{\text{No. of Employee}}$$

### Deposit per Employee of MBL (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total deposit	789320	947540	1110220	1559670	1853590
No of staff	196	234	313	439	492
Deposit per staff	4027.1	4049.3	3547.1	3552.8	3767.5

### Deposit per Employee of KBL (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total deposit	776900	1055740	1277430	1571090	1743230
No of staff	177	212	256	260	364
Deposit per staff	4389.3	4980	4990	6042.7	4790

### Deposit per Employee of BOK (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total deposit	1048540	1238890	1583370	1808400	2031580
No of staff	177	179	390	489	475
Deposit per staff	5924.0	6921.2	4059.9	3698.2	4277.0

### Deposit per Employee of EBL (in Thousands)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Total deposit	1380240	1818630	2397630	3393530	3763690
No of staff	306	393	449	534	568
Deposit per staff	4510.6	4627.6	5340	6354.9	6626.2

## Appendix 11: Cost of Employee

$$\text{Cost of Employee} = \frac{\text{Employee Expenses}}{\text{Total Income}}$$

### Cost of Employee of MBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Employee expenses	43.4	54.	71.4	91.0	152.1
Total income	645.6	806.8	908.0	1196.4	1841.8
Cost	6.72%	6.74%	7.86%	7.60%	8.26%

### Cost of Employee of KBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Employee expenses	59.8	74.2	89.5	116.0	143.3
Total income	668.2	867.7	1065.3	1532.6	2050.9
Cost	8.95%	8.55%	8.40%	7.57	7.00%

### Cost of Employee of BOK (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Employee expenses	59.1	69.8	90.6	146.5	168.5
Total income	884.9	1016.2	1280.5	1677.9	2245.6
Cost	6.68%	6.87%	7.08%	8.73%	7.50%

### Cost of Employee of EBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Employee expenses	70.9	86.1	158.0	186.9	226.4
Total income	1063.6	1358.5	1842.5	2557.9	3500.8
Cost	6.7%	6.3%	8.5%	7.29%	6.50%

## Appendix 12: Cost of Debt after Tax

$$\text{Cost of Debt after Tax} = Kd (1 - T)$$

### Cost of Debt after Tax of MBL

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Kd	3.60%	4.10%	3.65%	3.72%	7.20%
tax	30%	30%	30%	30%	30%
Kdt	2.52%	2.87%	2.56%	2.60%	5.04%

### Cost of Debt after Tax Debt KBL

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Kd	4.20%	3.88%	4.01%	5.81%	7.52%
tax	30%	30%	30%	30%	30%
Kdt	2.94%	2.72%	2.81%	4.07%	5.26%

### Cost of Debt after Tax Debt of BOK

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Kd	3.07%	2.77%	2.78%	3.12%	4.49%
tax	30%	30%	30%	30%	30%
Kdt	2.15	1.94	1.95	2.18	3.14

### Cost of Debt after Tax of EBL

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Kd	3.10%	3.07%	2.82%	3.52%	4.75%
tax	30%	30%	30%	30%	30%
Kdt	2.17%	2.15%	1.97%	2.46%	3.33%

### Appendix 13: Cost of Equity under Book Value Model

$$\text{Cost of Equity under Book Value Model} = \frac{NPAT}{\text{Equity}}$$

#### Cost of Equity of MBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
subject					
Equity	931.09	1000.26	1163.35	1700.2	1773.51
Net profit after tax	134.0	74.09	85.02	123.25	73.31
Ke	14.39%	7.41%	7.31%	7.25%	4.13%

#### Cost of Equity of KBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
subject					
Equity	863.85	1025.63	1364.89	1624.95	1785.76
Net profit after tax	103.67	170.26	174.93	261.44	316.54
Ke	12.00%	16.6%	12.82%	16.09%	17.73%

#### Cost of Equity of BOK (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
subject					
Equity	839.73	981.98	1342.07	1741.58	2073.53
Net profit after tax	202.44	262.39	361.50	461.73	509.26
Ke	24.10%	26.72%	26.94%	26.51%	24.56%

#### Cost of Equity of EBL (in millions)

Year	2005/06	2006/07	2007/08	2008/09	2009/10
subject					
Equity	962.81	1201.52	1921.24	2203.63	2759.14
Net profit after tax	237.29	296.41	451.22	638.73	831.77
Ke	24.46%	24.67%	23.49%	28.99%	30.15%

#### Appendix 14: Cost of Equity under Earning Model

$$\text{Cost of Equity under Earning Model} = \frac{EPS}{MPPS}$$

#### Cost of Equity of MBL

F/Y	MPPS	EPS	Rate
2005/06	320.00	18.74	5.86%
2006/07	620.00	9.02	1.45%
2007/08	1285.00	10.35	0.81%
2008/09	420.00	8.33	1.98%
2009/10	282.00	4.96	1.76%

#### Cost of Equity of KBL

F/Y	MPPS	EPS	Rate
2005/06	443	16.59	3.74%
2006/07	830	22.7	2.73%
2007/08	1005	16.25	1.62%
2008/09	700	22.04	3.15%
2009/10	468	24.24	5.80%

**Cost of Equity of BOK**

F/Y	MPPS	EPS	Rate
2005/06	850	43.67	5.14%
2006/07	1375	43.5	3.16%
2007/08	2350	59.94	2.55%
2008/09	1825	54.68	3.00%
2009/10	840	43.08	5.13%

**Cost of Equity of EBL**

F/Y	MPPS	EPS	Rate
2005/06	1379	62.78	4.55%
2006/07	2430	78.42	3.23%
2007/08	3132	91.82	2.91%
2008/09	2455	99.99	4.07%
2009/10	1630	100.16	6.14%

## Appendix 15: Weighted Average Cost of Capital

$$\text{Weighted Average Cost of Capital} = W_d \times K_{dt} + W_p \times K_p + W_e \times K_e$$

### WACC of MBL

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Cost of debt(Kdt)	2.52%	2.87%	2.56%	2.60%	5.04%
Cost of equity(Ke)	10.13%	4.06%	4.06%	4.62%	2.95%
Weight of debt(Wd)	0.8905	0.9066	0.9058	0.9017	0.9133
Weight of equity(We)	0.1040	0.0934	0.0942	0.0983	0.0867
WACC	3.30%	3.02%	2.70%	2.80%	4.6%
Average cost of capital =	3.60%				

### WACC of KBL

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Cost of debt(Kdt)	2.94%	2.72%	2.81%	4.07%	5.26%
Cost of equity(Ke)	7.87%	9.67%	7.22%	9.62%	11.77%
Weight of debt(Wd)	0.9028	0.9131	0.9068	0.9099	0.9109
Weight of equity(We)	0.0972	0.0869	0.0932	0.091	0.0891
WACC	3.42%	3.33%	3.22%	4.57%	5.84%
Average cost of capital =	4.08%				

### WACC of BOK

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Cost of debt(Kdt)	2.15%	1.94%	1.95%	2.18%	4.49%
Cost of equity(Ke)	14.62%	14.94%	14.75%	14.66%	14.85%
Weight of debt(Wd)	0.9305	0.9313	0.9232	0.9135	0.9094
Weight of equity(We)	0.0695	0.0687	0.0768	0.0865	0.0906
WACC	3.00%	2.82%	2.96%	3.24%	5.41%
Average cost of capital =	3.49%				

### WACC of EBL

Year	2005/06	2006/07	2007/08	2008/09	2009/10
Subjects					
Cost of debt(Kdt)	2.17%	2.15%	1.97%	2.46%	3.33%
Cost of equity(Ke)	14.51%	13.65%	13.20%	16.53%	18.15%
Weight of debt(Wd)	0.9361	0.9390	0.9267	0.9390	0.9317
Weight of equity(We)	0.0476	0.0488	0.0443	0.0468	0.0558
Cost of preferred stock(Ke)	9.00%	9.00%	9.00%	7.00%	7.00%
Weight of preferred stock(Wp)	0.0163	0.0122	0.0290	0.0142	0.0125
WACC	2.86%	2.96%	2.67%	3.18%	4.20%
Average cost of capital =	3.17%				

**Appendix 15: Correlation Coefficient Between Total Debt and Shareholders Equity with Probable Error**

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

Where,

N= number of observations

X and Y are variables.

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

Where,

r = correlation coefficient

N = number of pairs of observations.

**Correlation Coefficient Between TD and SHE of MBL(10 Million)**

F/Y	TD(X)	SHE(Y)	XY	X2	Y2
2005/06	802.49	93.10	74711.82	643990.2	8667.61
2006/07	970.39	100.02	97058.41	941656.75	10004.00
2007/08	1119.07	116.33	130181.41	1252317.67	13532.37
2008/09	1559.67	170.01	265159.50	2432570.51	28903.40
2009/10	1868.59	177.38	331450.49	3491628.59	31463.66
Total	6320.21	656.84	898561.63	8762163.72	92571.04

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

$$= \frac{5 \times 898561.63 - 6320.21 \times 656.84}{\sqrt{5 \times 8762163.72 - (6320.21)^2} \times \sqrt{5 \times 92571.04 - (656.84)^2}}$$

= 0.98

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.9604)}{\sqrt{5}}$$

= 0.0717

**Correlation Coefficient Between TD and SHE of KBL**

F/Y	TD(X)	SHE(Y)	XY	X2	Y2
-----	-------	--------	----	----	----

2005/06	802.04	86.39	69288.24	643268.16	7463.23
2006/07	1077.04	102.56	110461.22	1160015.16	10518.55
2007/08	1327.43	136.49	181180.92	1762070.41	18629.52
2008/09	1640.43	162.50	266569.88	2691010.59	26406.25
2009/10	1826.20	178.57	326104.53	3335006.44	31887.24
Total	6673.14	666.81	953604.79	9591370.75	94904.80

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

$$= \frac{5 \times 953604.79 - 6673.14 \times 666.81}{\sqrt{5 \times 9591370.75 - (6673.14)^2} \times \sqrt{5 \times 94904.80 - (666.81)^2}}$$

$$= 0.9947$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.9895)}{\sqrt{5}}$$

$$= 0.0191$$

#### Correlation between TD and SHE of BOK

F/Y	TD(X)	SHE(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	1123.86	83.98	94381.76	1263061.3	7052.64
2006/07	1331.89	98.19	130778.28	1773930.97	9641.28
2007/08	1613.37	134.20	216514.25	2602962.76	18009.64
2008/09	1838.40	174.16	320175.74	3379714.56	30331.70
2009/10	2081.58	207.35	431615.61	4332975.30	42994.02
Total	7989.1	697.88	1193465.65	13352644.89	108029.28

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

$$= \frac{5 \times 1193465.65 - 7989.1 \times 697.88}{\sqrt{5 \times 13353644.89 - (7989.1)^2} \times \sqrt{5 \times 108029.28 - (697.88)^2}}$$

$$= 0.9910$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{5}}$$

F/Y	EBIT(X)	Interest(Y)	XY	X2	Y2
-----	---------	-------------	----	----	----

$$= 6 \times \frac{0.6745 \times (1 - 0.9822)}{\sqrt{5}}$$

$$= 0.0322$$

F/Y	TD(X)	SHE(Y)	XY	X2	Y2
2005/06	1410.24	96.28	135777.90	1988776.86	9269.84
2006/07	1848.63	120.15	222112.89	3417432.88	14436.02
2007/08	2427.63	192.12	466396.28	5893387.42	36910.09
2008/09	3393.53	220.36	747798.27	11516045.86	48558.53
2009/10	3763.69	275.91	1038439.71	14165362.42	76126.33
Total	12843.72	904.82	2610525.06	36981005.43	185300.81

### Correlation between TD and SHE of EBL

$$= \frac{5 \times 2610525.06 - 12843.72 \times 904.82}{\sqrt{5 \times 36981005.43 - (12843.72)^2} \times \sqrt{5 \times 185300.81 - (904.82)^2}}$$

$$= 0.9761$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.9528)}{\sqrt{5}}$$

$$= 0.0855$$

### Appendix16: Correlation between EBIT and Interest Payment

2005/06	48.10	28.87	1388.47	2313.61	833.48
2006/07	48.32	39.77	1921.69	2334.82	1586.65
2007/08	56.71	40.79	2313.20	3216.02	1663.82
2008/09	75.63	58.00	4386.54	5720	3364
2009/10	122.85	114.48	14063.87	15092.12	13105.67
Total	351.61	281.91	24073.77	28676.48	20548.62

### Correlation between EBIT and Interest Payment MBL

$$\begin{aligned}
 &= \frac{5 \times 24073.77 - 351.61 \times 281.91}{\sqrt{5 \times 28676.48 - (351.61)^2} \times \sqrt{5 \times 20548.62 - (281.91)^2}} \\
 &= 0.9910 \\
 P.E. &= 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N \sum X^2 - (\sum X)^2} \times \sqrt{N \sum Y^2 - (\sum Y)^2}} \\
 &= 6 \times \frac{0.6745 \times (1 - 0.9820)}{\sqrt{5}} \\
 &= 0.0324
 \end{aligned}$$

### Correlation between EBIT and Interest of KBL

F/Y	EBIT(X)	Interest(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	48.42	33.71	1632.24	2344.50	1136.64
2006/07	64.56	39.71	2563.68	4167.99	1576.88
2007/08	75.62	49.87	3771.18	5718.38	2487.17
2008/09	118.32	81.62	9657.28	14000	6661.82
2009/10	164.64	118.89	19574.05	27106.33	14134.83
Total	471.56	323.8	37198.43	53337.2	25997.34

$$\begin{aligned}
 r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \times \sqrt{N \sum Y^2 - (\sum Y)^2}} \\
 &= \frac{5 \times 37198.43 - 471.56 \times 323.8}{\sqrt{5 \times 53337.2 - (471.56)^2} \times \sqrt{5 \times 25997.34 - (323.8)^2}} \\
 &= 0.9977 \\
 P.E. &= 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}} \\
 &= 0.9977
 \end{aligned}$$

$$= 0.0083$$

### Correlation between EBIT and Interest of BOK

F/Y	EBIT(X)	Interest(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	60.94	30.81	1877.56	3713.68	949.56
2006/07	72.26	33.20	2399.03	5221.51	1102.24
2007/08	94.54	41.75	3947.05	8937.81	1743.06
2008/09	122.38	56.31	6891.22	14976.86	3170.82
2009/10	163.48	90.29	14760.61	26725.71	8152.28
Total	513.6	252.36	59875.47	59575.58	15117.66

$$= 0.9812$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.9627)}{\sqrt{5}}$$

$$= 0.0675$$

### Correlation between EBIT and Interest of EBL

F/Y	EBIT(X)	Interest(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	74.54	40.14	2992.04	5556.21	1611.22
2006/07	97.19	51.72	5026.67	9445.90	2674.96
2007/08	129.13	63.26	8168.76	16674.56	4001.83
2008/09	192.85	101.29	19533.78	37191.12	10259.66
2009/10	276.16	157.28	43434.44	76264.35	24737
Total	769.87	413.69	79155.69	145132.13	43284.67

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

$$= \frac{5 \times 79155.69 - 769.87 \times 413.69}{\sqrt{5 \times 145132.13 - (769.87)^2} \times \sqrt{5 \times 43284.67 - (413.69)^2}}$$

$$= 0.9961$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.9922)}{\sqrt{5}}$$

$$= 0.0142$$

### Appendix 18: Correlation between Ko and Debt Ratio

#### Correlation between Ko and Debt Ratio of MBL

<b>F/Y</b>	<b>Ko(X)</b>	<b>D Ratio(Y)</b> $\frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \times \sqrt{N \sum Y^2 - (\sum Y)^2}}$	<b>XY</b> $\sum Y$	<b>X2</b>	<b>Y2</b>
2005/06	3.30%	89.05%	293.87	10.89	7929.90
2006/07	3.02	90.66	273.79	9.012	8219.23
2007/08	2.70	90.58	244.57	7.29	8204.74
2008/09	2.80	90.17	252.48	7.84	8130.63
2009/10	4.86	91.33	443.86	23.62	8341.69
<b>Total</b>	<b>16.68</b>	<b>451.79</b>	<b>1508.56</b>	<b>58.76</b>	<b>40825.67</b>

$$= \frac{5 \times 1508.56 - 16.68 \times 451.79}{\sqrt{5 \times 58.76 - (16.68)^2} \times \sqrt{5 \times 40825.67 - (451.79)^2}}$$

$$= 0.4677$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.2187)}{\sqrt{5}}$$

$$= 1.41$$

### Correlation between Ko and Debt Ratio of KBL

F/Y	Ko(X)	D Ratio(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	3.42%	90.28%	308.76	11.70	8150.48
2006/07	3.33	91.31	304.62	11.09	8337.52
2007/08	3.22	90.68	291.99	10.37	8222.86
2008/09	4.57	90.99	415.82	20.89	8279.18
2009/10	5.84	91.09	531.97	34.11	8297.39
Total	20.38	454.35	1852.60	88.14	41287.43

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

$$= \frac{5 \times 1852.60 - 20.38 \times 454.35}{\sqrt{5 \times 88.14 - (20.38)^2} \times \sqrt{5 \times 41287.43 - (454.35)^2}}$$

$$= 0.37$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.1369)}{\sqrt{5}}$$

$$= 1.56$$

### Correlation of Ko and Debt Ratio of BOK

F/Y	Ko (X)	D Ratio(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	3.00%	93.05%	279.15	9	8658.30
2006/07	2.82	93.13	262.63	7.95	8673.20
2007/08	2.96	92.32	273.27	8.76	8522.98
2008/09	3.24	91.35	295.97	10.50	8344.82
2009/10	5.41	90.94	491.99	29.27	8270.08
Total	17.43	460.49	1603.00	65.48	42469.39

$$\begin{aligned}
 r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \times \sqrt{N \sum Y^2 - (\sum Y)^2}} \\
 &= \frac{5 \times 1603 - 17.43 \times 460.49}{\sqrt{5 \times 65.48 - (17.43)^2} \times \sqrt{5 \times 42469.39 - (460.49)^2}} \\
 &= -0.1357 \\
 P.E. &= 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}} \\
 &= 6 \times \frac{0.6745 \times (1 - 0.0184)}{\sqrt{5}} \\
 &= 1.78
 \end{aligned}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.9627)}{\sqrt{5}}$$

### Correlation between Ko and of EBL

F/Y	DE Rati(X)	ROA(Y)	XY	X2	Y2
2005/06	8.62	1.48	10.17	74.30	2.19
2006/07	9.70	0.69	6.69	94.09	0.48
2007/08	9.62	0.68	6.54	92.54	0.46
2008/09	9.17	0.70	6.42	84.89	0.49
2009/10	10.53	0.65	6.84	110.88	0.42
Total	47.64	4.20	36.70	455.91	4.04

### Appendix 17: Correlation between D/E Ratio and ROA

#### Correlation between D/E Ratio MBL

$$= \frac{5 \times 1483.01 - 15.87 \times 467.25}{\sqrt{5 \times 51.52 - (15.87)^2} \times \sqrt{5 \times 43665.63 - (467.25)^2}}$$

$$= -0.037$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N} \times 36.70 - 47.64 \times 4.20}$$

$$= \frac{\sqrt{5 \times 455.91 - (47.64)^2} \times \sqrt{5 \times 4.04 - (4.20)^2}}{\sqrt{5}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.0014)}{\sqrt{5}}$$

$$= -0.90$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - )}{\sqrt{5}}$$

F/Y	Ko(X)	D Ratio(Y)	XY	X2	Y2
2005/06	2.86%	93.61%	267.72	8.18	8762.83
2006/07	2.96	93.90	277.94	8.76	8817.21
2007/08	2.67	92.67	247.43	7.13	8587.73
2008/09	3.18	93.90	298.60	10.11	8817.21
2009/10	4.20	93.17	391.31	17.64	8680.65
Total	15.87	467.25	1483.01	51.52	43665.63

### Correlation between D/E Ratio and ROA of KBL

F/Y	DE Rati(X)	ROA(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	9.28	1.15	9.91	74.04	1.32
2006/07	10.50	1.43	15.01	110.25	2.04
2007/08	9.73	1.16	11.29	94.67	1.64
2008/09	10.09	1.41	14.23	101.81	1.99
2009/10	10.23	1.54	15.75	104.65	2.37
Total	49.83	6.69	66.96	497.69	9.07

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

$$= \frac{5 \times 66.96 - 49.83 \times 6.69}{\sqrt{5 \times 497.69 - (49.83)^2} \times \sqrt{5 \times 9.07 - (6.69)^2}}$$

$$= 0.80$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.642)}{\sqrt{5}}$$

$$= 0.65$$

### Correlation between D/E Ratio and ROA of BOK

F/Y	DE Rati(X)	ROA(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	13.38	1.65	22.08	187.14	2.72
2006/07	13.56	1.80	24.41	183.87	3.24
2007/08	10.20	2.04	20.89	104.04	4.16
2008/09	10.56	2.25	23.76	111.51	5.06
2009/10	10.04	2.18	21.89	100.80	4.75
Total	57.74	9.92	112.94	687.37	19.94

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

$$= \frac{5 \times 112.94 - 57.74 \times 9.92}{\sqrt{5 \times 687.37 - (57.74)^2} \times \sqrt{5 \times 19.94 - (9.92)^2}}$$

$$= -0.70$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.49)}{\sqrt{5}}$$

$$= 0.92$$

### Correlation between D/E Ratio and ROA of EBL

F/Y	DE Rati(X)	ROA(Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2005/06	15.12	1.49	22.53	228.61	2.22
2006/07	15.39	1.38	21.24	236.85	1.90
2007/08	12.64	1.62	20.48	159.77	2.62
2008/09	15.40	1.73	26.64	237.16	2.99
2009/10	13.64	2.00	27.28	186.05	4.00
Total	72.19	8.22	118.17	1048.45	13.72

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

$$= \frac{5 \times 118.17 - 72.19 \times 8.22}{\sqrt{5 \times 1048.45 - (72.19)^2} \times \sqrt{5 \times 13.72 - (8.2)^2}}$$

$$= -0.39$$

$$P.E. = 6 \times \frac{0.6745 \times (1 - r^2)}{\sqrt{N}}$$

$$= 6 \times \frac{0.6745 \times (1 - 0.155)}{\sqrt{5}}$$

$$= 1.53$$