

CHAPTER-1

INTRODUCTION

1.1 Background of the Study

Due to globalization of economy and market, present world economy has been more competitive and complicated. Every sort of change 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 savers to firms and individuals who need capital. Without efficient transfer, the economy simply is impossible without good system for allocating capital within the economy.

Nepal is a landlocked country economically based on agriculture. It occupies an area of 147181km sq and bounded by India and China. Nepal is one of the least developed countries with about 25 million people but it 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 traditional agriculture system is used till now. The current situation of Nepalese economy is not satisfactory due to poor infra-structure, unutilized natural resources miserable agriculture, deficit trade, illiteracy, political instability and so on.

Like blood is necessary for human beings, finance is for business organizations and industries. Each and every business organization should base 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 a vital 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.

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.

1.2 Origin and Growth of Banking

The origin of Banking can be traceable in the early times of human history. History tells us that it was the merchant who first evolved the system of banking by trading commodities reviewing the history we can find the present day of banker has three ancestor of particular note. One the merchant and two other were lender and goldsmith. Lending and borrowing are almost as old as money itself. Traditional forms of Banking were traced during the civilization of Greece, Rome and Mesopotamia. The practice of storing precious metals

and coins at safe places and loaning out of money for public and private, purpose on interest was prevalent, Despite of strong Christian's prohibition against charging of interest, modern banking originated in medieval Italy. The Bank of Venice found in 1157 was supposed to be the most ancient bank. Subsequently, the bank of Barcelona and the Bank of Geneva in 1401 and 1407 A.D were established. Following it the bank of Amsterdam set up in 1609, which was very popular then. The bank of Venice and Geneva Continued to operate until the end of eighteenth century.

The concept of modern commercial bank came into existence by the emergence of Bank of England in 1694 with a capital of £ 1.2 million by group of wealthy merchants and financiers of London. At that time, there was no concept of joint stock company and it was necessary to obtain a special charter from the crown to pool their money in common venture, King William III was too pleased to grant a Royal charter to Bank of England because in return of capital subscribed by £ 1.2 million was lent to him to finance his war against France. The charter also gave the new bank the right to issue notes payable on demand up to the amount of loan to the King. Though the bank of England was established in 1694 as a joint stock Bank and later on, it became the first bank in the world in 1844, the growth of bank accelerated only after the introduction of Banking Act 1833 in United Kingdom as it allowed opening joint stock commercial Banking system development in the leading countries. With the expansion of Commercial Banking activities in Northern Europe, there sprang up a number of private Banking in Europe and slowly it spread through out the world.

However the development of banking in Nepal is relatively recent, like other countries, landlords, moneylenders, merchants, goldsmith etc are the ancient bankers in Nepal. Though establishment of banking history was very recent, some crude banking operations were in private even in the ancient time. In the Nepalese chronicle, it was recorded that the new era known as Nepal Sambat was introduced by Shankadhar Sakhwa, a Shudra Merchant of Kantipur in 880 A.D. After having paid all the outstanding debt in the country. This shows the basis of money lending practice in ancient Nepal. The establishment of Tejarath Adda during the year 1877 A.D. was the first step in institutional development of banking sector in Nepal. Tejrath Adda did not collect deposit from public but granted loan to public against the collateral of bullions. Consequently the major parts of the country remain

untouched from these limited banking activities. The development of trade with India and other countries increase the necessity of institutional bankers, which can act more widely to enhance the trade and commerce and to touch the remote non banking sector in the economy. Reviewing this situation the “Udhyog Parishad” was constituted in 1936 A.D. one year after its formulation, its formulated Act in 1937 A.D. Nepal Bank limited was established under Nepal Bank Act in 1937 A.D as a first Commercial Bank of Nepal with 10 million Authorized capital. It was established with a motive to help government’s policies, to develop economic and business activities in the country. However, the stand of NRB was set up on 1956 A.D. (2013\01\14) as central bank under Nepal Rastra Bank Act 1956 A.D (2012 B. S). Similarly in 1966 A.D (2022\10\10) Rastrya Banijya Bank was established as a fully government owned commercial bank. With the emergence of RBB, Banking service spread to both the urban and rural areas but customers failed to have quality/ competitive service because of excessive political and bureaucratic interference. For industrial development, industrial development centre (currently known as NIDC) was set up in 1956 A.D. Similarly, Agriculture Development Bank (ADB) was established in 1976 A.D with an objective to promote agricultural products so, that agricultural productivity would be enhanced through introduction to modern agricultural technique. At present there are 32 commercial banks registered and operated in Nepal.

Table No.-1.1

| S.N. | Name of the banks |
|-------------|---------------------------------------|
| 1. | Nepal Bank Limited |
| 2. | Rastriya Banijya Bank Limited |
| 3. | Agricultural Development Bank Limited |
| 4. | Nabil Bank Limited |
| 5. | Nepal Investment Bank Limited |
| 6. | Standard Chartered Bank Limited |
| 7. | Himalayan Bank Limited |
| 8. | Nepal SBI Bank Limited |

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|-----|--|
| 9. | Nepal Bangladesh Bank Limited |
| 10. | Everest Bank Limited |
| 11. | Bank Of Kathmandu Limited |
| 12. | Nepal Credit And Commerce Bank Limited |
| 13. | NMB Bank Limited |
| 14. | Lumbini Bank Limited |
| 15. | Nepal Industrial And Commercial Bank Limited |
| 16. | Machhapuchre Bank Limited |
| 17. | Development Credit Bank Limited |
| 18. | Kumari Bank Limited |
| 19. | Laxmi bank Limited |
| 20. | Siddhartha Bank Limited |
| 21. | Global Bank Limited |
| 22. | Citizens Bank Limited |
| 23. | Prime Bank Limited |
| 24. | Sunrise Bank Limited |
| 25. | Bank Of Asia Limited |
| 26. | Kist Bank Limited |
| 27. | Janata Bank Limited |
| 28. | Mega Bank Nepal Limited |
| 29. | Commerz and Trust Bank Nepal Limited |
| 30. | Civil Banl Limited |
| 31. | Century Commercial Bank Limited |
| 32. | Sanima Bank Limited |

Source: Banking and financial Statistics, 2012

1.3 Commercial Banks

Commercial Bank is the bank which is engaged in performing the routine banking business of accepting the deposits and lends it to trade, industry and commerce. When the

bank accepts money from the depositors through various deposit schemes, it allows interest on such deposits. Similarly when the banker lends money, it charges interest on such borrowings. The difference between the lending rate and borrowing rate is his profit.

1.4 Function of Commercial Banks

The main functions of commercial banks include:

- i. accepting deposits in the forms of current
- ii. saving and fixed deposits, 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. by the customer,
- iv. buying and selling shares and debentures of any company and government bonds
- v. collecting interests on debenture and government bonds, dividend on shares and funds from other banks for its customers
- vi. making payments on insurance premium, rent, income tax, school fees, telephone bills to the concerned offices on behalf of customers
- vii. carrying out the foreign currency exchange, and
- viii. Helping in foreign trade etc.

Moreover, other functions include: to protect the precious jewelries; to provide travelers cheque, to underwrite the debentures; to issue credit card, debit card, master card, visa card etc.; to create credit on the specific basis and expand credit and so on

1.5 Profile of the Banks

a) Nabil Bank Limited

Nabil Bank Limited, the first foreign joint venture bank of Nepal, started operations in July 1984. Nabil was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil provides a full range of commercial banking services through its 47 points of representation across the kingdom and over 170 reputed correspondent banks across the globe. Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business.

At the end of fiscal year 2010/11, NBL has an authorized capital of Rs .2100 million and issued capital of Rs.2029 million and its paid up capital also stands at 2029 million. to fulfill its supplementary capital requirements, NBL issued short term unsecured subordinates bond in July/August 2008 with maturity in July/August 2018 having face value of Rs.1000 and coupon rate of 8.5%.Mr.Anil Gyawali is leading the management of the bank in the capacity.

b) Bank of Kathmandu Limited

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.

1.6 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.

This study is based upon the study of overall cost of capital structure by using various relative measurement tools. It considered earning per share, dividend per share, return on total assets etc. Optimal capital structure plays vital role in every organization. So, this study tries to evaluate the optimality of their capital structure using various financial variables for the purpose of comparative evaluation.

Hence the focus of this study mainly deals with the effects of the capital structure on the growth of the firm and the extent to which the capital structure policy is followed by the commercial banks.

1.7 Statement of the problems

Bank plays 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.

Another problem faced by the banking industry is the lack of optimal capital structure in the commercial banks. The success and prosperity of a bank relies heavily on maximization of the wealth of the shareholders or return on equity. Nepalese banks do not take the capital structure concept seriously. The combination of debt and equity used in the capital structure is not proportionate which in turn affects the value maximization of the bank

The present study will try to analyze and examine the practice of capital structure in the commercial banks in Nepal. This study specially deals with the following problems.

- i. Whether the capital structure affects the growth of a bank or not?

- ii. To what extent the capital structure policy is followed by the commercial banks.
- iii. What are the main problems faced by the commercial banks in developing and implementing the capital structure policy.

Therefore this study deals with the problems in terms of capital structure formation and its overall effects and its difficulties in implementation and after its implementation.

1.8 Objectives of the Study

This study has been conducted to accomplish the following objectives:

- a. To find out comparative position of capital structure of Nabil Bank Limited and Bank of Kathmandu Limited
- b. To study and evaluate the role of capital structure on the growth of the commercial banks in Nepal.
- c. To analyze the capital structure of the commercial banks in Nepal.
- d. To examine the relationship of capital structure with variables such as earning per share, dividend per share and net worth.
- e. To provide suggestions on the basis of findings for future growth of the banks under study.

1.9 Significance of the Study

This study is concern with the capital structure management of Nabil Bank Limited and Bank Of Kathmandu Ltd. It is expected that this study will significantly contribute towards the field of capital structure.

The bank's capital structure should be managed in such a way that the fund could be provided efficiently and effectively. The goal of the study is to examine the efficiency and performance of these two banks management as reflected in the annual financial reports.

The following points justify the study:

- a. The study will help to specify the entire glory of these two banks especially in the sector of capital structure.
- b. The study will help to show the financial position of the banks to the investors as well as concerned management.
- c. The study will help to find out which bank is showing comparatively good performance in the economic development of the country.
- d. The study will help to indicate strengths and weaknesses of these banks especially in the sector of capital structure.
- e. Optimum capital structure is the key of success of any organizations to lack of sound knowledge of capital structure, many organizations failed in our country. So, this study will help to the concerned management to improve their efficiency.
- a) This study will also helpful to depositors, lenders, borrowers, policy madder, shareholders and customers of the banks under research.

1.10 Limitations 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:-

- a. This study has been based on secondary sources of data.
- b. The study covers only the last five fiscal years.
- c. The study covers the capital structure management and its impact on risk- return trade-off the banks under research.
- d. This study has been conducted by taking only two commercial banks.
- e. Standard normal performance level is not available.

1.11 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

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

2. Review of literature

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

3. Research methodology

Similarly, the third chapter explains the research methodology including research design, nature and resource of data, sample size, data collection procedure, tabulation, analysis and interpretation of data, period covered of research and review of literature.

4. Presentation and analysis of data

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

5. Summary, conclusion and recommendation

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

CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

This chapter deals with the capital structure management as a brief to find previous condition of the company which gives proper material to forecast the future of the company. In terms of literature review, "the literature" means the work you consulted in order to understand and investigate your research problem. "Research is a process of systematic, meticulous, and critical summary of the published literature in your field of research. (Pant, P.R,2010)

According to Polonsky and Waller (2005),"A literature review is a classification and evaluation of what accredited scholars and researchers have written on a topic."

According to Walliman (2006), A literature review (or overview) is a summary and analysis of a current about a particular topic or area of enquiry."

For the study of comparative capital structure management of Nabil Bank Ltd. (NABIL) and Bank Of Kathmandu Ltd.(BOK); there is not enough previous investigation information of capital structure management about them .During the investigation; Thesis have been consulted which are presented by various students (researcher) about capital structure management.

2.2 Review of books

Various books and principle are reviewed to clarify capital structure management

2.2.1 Concept of Capital Structure

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 fund 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.

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.

According to Van Horne (1997),"Capital structure is the mix (or proportion) of a firm's permanent long term financing represented by debt, preferred stock and common stock equity. "

According to Pandey (1988),"The financial manager is concerned with determining the best financial mix or capital structure where the optimal financing mix would exist, in which market price per share could be maximized."

According to Weston and Brigham (1978),"Capital structure of the firm is the permanent financing represented by long term debt, preferred stock and shareholder's equity. Thus, a firm's capital structure is only part of its financial structure."

According to Pradhan, S. (2003), " Different sources of financing are use to finance current and fixed assets. The sources of financing may be short-term and long-term, but they are usually grouped into debt and equity which characterized the firm's capital structure".

According to Weaston &Brigham (1978),"Sound capital structure is required to operate Business smoothly and achieve the business goal. Capital structure is concerned with analyzing the capital composition of the company."

According to Gautam R.R&Thapa K. (2008),"**Capital Structure** refers to the combination of long-term sources of fund, such as long term debt, preference share and common equity including reserves and surplus(i.e. retained earnings). Capital structure represents the relationship among different kinds of long-term capital and their amount. Normally a firm raises long-term capital through the issue of common shares, sometimes accompanied by preference shares. The share capital is often Supplemented by debt securities and other long term borrowed capital. In a going concern, retained earnings, or

surpluses too form a part of capital structure. Except for the common shares, different kinds of external financing i.e. preference shares as well as the borrowed capital carry fixed return to the investors."

According to Battarai, R. (2005), " **Capital** is termed in different ways by different scholars and professionals. Economics speak of as wealth, businessmen speak of it as total assets whereas the accountant as net assets or stockholders interest as shown by the balance sheet or the net worth of the shareholders equity. Similarly, a lawyer calls it capital stock. Whatever may be the term used, capital is the fund raised to finance different assets, short-term or long-term. Therefore, capital is a mix of long-term as well as short-term funds."

Financial structure

According to Gautam R.R&Thapa K. (2008),"**Financial Structure** refers to the composition of all sources and amount of funds collected to use or invest in business .In other words, financial structure refers to "capital and liabilities side of balance sheet". Therefore, it includes shareholder's funds, long -term loans as well as short-term loans. it is different from capital structure includes only the long term sources of financing while financial structure includes both long-term and short –term sources of financing .Thus firm's capital structure is only a part of its financial structure ."

2.2.2 Common Assumptions of Capital Structure

To explain different theories, following assumption are made;

- a. Two types of capital are employed, long term debt and common stock.
- b. The firm's total assets are fixed, but its capital structure can be changed immediately by selling debt to repurchase common stock, or vice versa.

- c. The net operating income (NOI or EBIT) is not expected to grow nor decline over time.
- d. There are no personal and corporate taxes.
- e. The firm is expected to continue indefinitely.

In addition to these assumptions, the following symbols are employed;

B= total market value of debt

S=total market value of stock (equity)

V=total market value of firm=B+S

NOI=net operating income =Earnings before interest and taxes

NI=net income

k=overall capitalization rate or marginal cost of capital

k_s =cost of equity capital

k_d = cost of debt capital before taxes

Given these assumptions, the firm's cost of debt is:

$$\text{Cost of debt}(k_d)=\frac{I}{B}$$

While it's cost of equity is:

$$k=\frac{NI}{S}=\frac{NOI-I}{S}$$

The cost of capital to a firm is equal to the weighted average of the debt and equity costs where:

$$k=k_d * \frac{B}{V} + k_s * \frac{S}{V}$$

The total value of firm is equal to the combined values of debt and equity, or

$$\text{Value of the firm}(V) = \frac{I}{k_d} + \frac{\text{NOI}-I}{S}$$

$$\text{Value of the firm}(V) = \text{EBIT} \text{ or } \frac{\text{NOI}}{k}$$

2.2.3 Approaches of capital structure

2.2.3.1 The Net Income (NI) Approach

This approach was developed by David Durand in 1952. According to **net income approach**, the cost debt capital and the equity capital remains unchanged when leverage ratio varies. As a result, the weighted average cost of capital declines as the leverage ratio increases. This is because when the leverage ratio increases, the cost of debt, which is lower than the cost of equity, receives a higher weight in calculation of the average cost of capital. Thus, higher leverage results higher value of the firm. Assumptions of this approach are:

- i. Change in leverage does not change the risk position / risk perception of investors, as a result, the cost of equity (k_s), and cost of debt (k_d) remain constant with changes in leverage.
- ii. Cost of debt (k_d) is less than cost of equity (k_s).
- iii. Overall cost of capital (k) decreases as leverage increases.

Under the NI approach, the firm is able to lower its cost of capital as the amount of financial leverage increase.

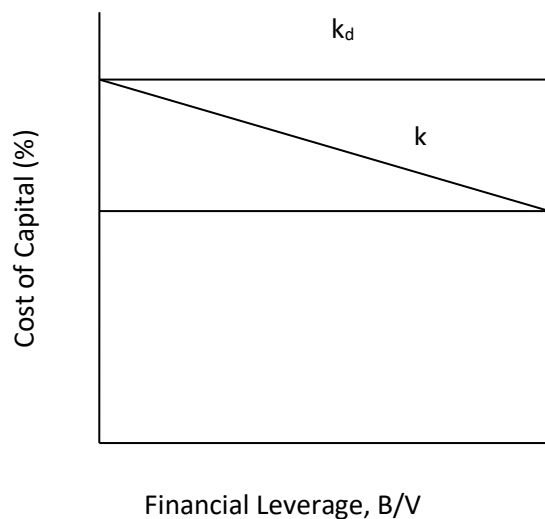


Figure (i)

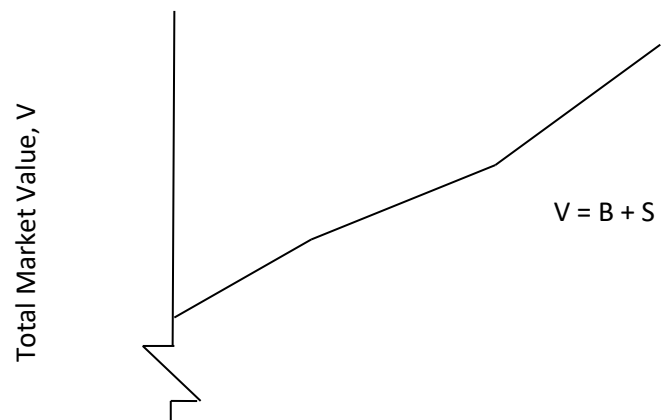


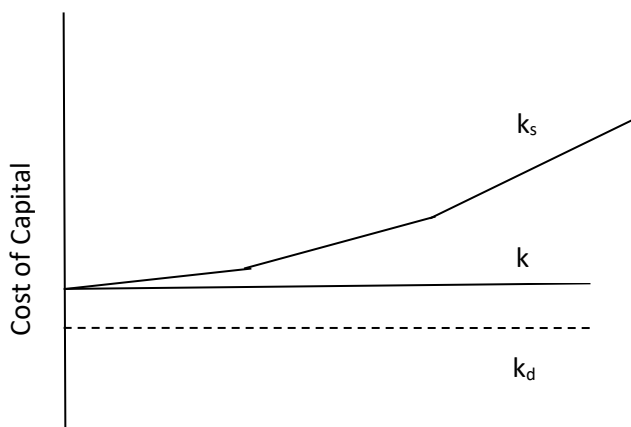
Figure (ii)

Graphically, the effects on the firm's cost of capital and its total market value are shown in figure (i) and (ii). If k_d and k_s are constant, as is assumed in the NI approach, as the proportion of cheaper debt funds in the capital structure increases, the cost of capital decreases. Thus, under the NI approach, the firm can lower its cost of capital and raise its total market value through the addition of debt capital.

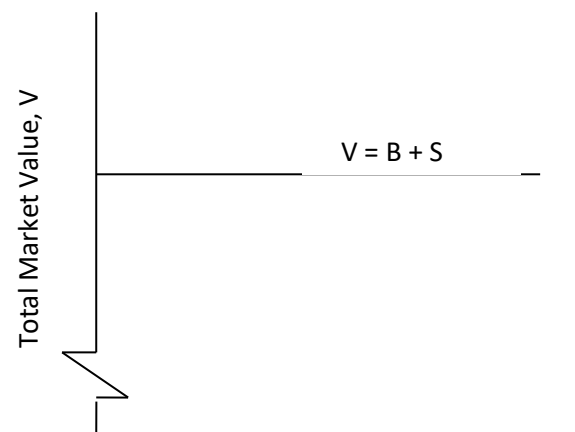
2.2.3.2 Net Operating Income (NOI) Approach

This approach is also developed by David Durand in 1952. In this approach, net operating income is capitalized at an overall capitalization rate to obtain the total market value of the firm. As EBIT and overall capitalization rate remain constant, capital structure does not affect the market value of the firm. Market value of the equity is computed after deducting market value of debt from total market value of the firm. Note that in the net operating income approach the overall capitalization rate and the cost of the debt remain constant for all degrees of leverage. The required return on equity increases linearly with financial leverage. Assumptions of this approach are:

1. The market uses an overall capitalization rate, k , to capitalize the net operating income; k depends on the business risk. If the business risk is assumed to remain unchanged k is a constant.
2. Debt capitalization rate, k_d , remain constant.
3. The use of less costly debt funds increases the risk of shareholders. This causes the equity capitalization rate to increase. Thus, the advantage of debt is offset exactly by the increase in the equity capitalization rate, k_s .
4. Market value of the equity is the residual value.



Financial Leverage, B/V 19
Figure (i)



Financial Leverage, B/V
Figure (ii)

Under the NOI approach, the capital structure selected is a 'mere detail' since the value of the firm is independent of the firm's capital structure. If the increases its use of financial leverage by employing more debt, this is directly offset by an increase in the cost of equity capital. This relationship is presented in figure (i) and (ii) indicates that as more and more debt is added to the firm's capital structure, the cost of equity capital rapidly rises. According to the NOI approach, the cost of debt has two parts; the explicit cost, which is represented by the interest rate, and an implicit or hidden cost, which results from the increased cost of equity attributable to increase in the degree of financial leverage. At extreme degrees of financial leverage, this hidden cost become very high; hence, the firm's cost of capital and its total market value are not influenced by the use of additional cheap debt funds.

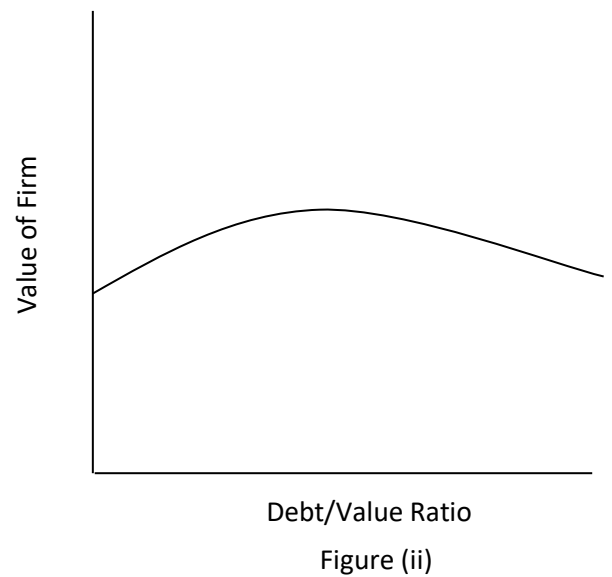
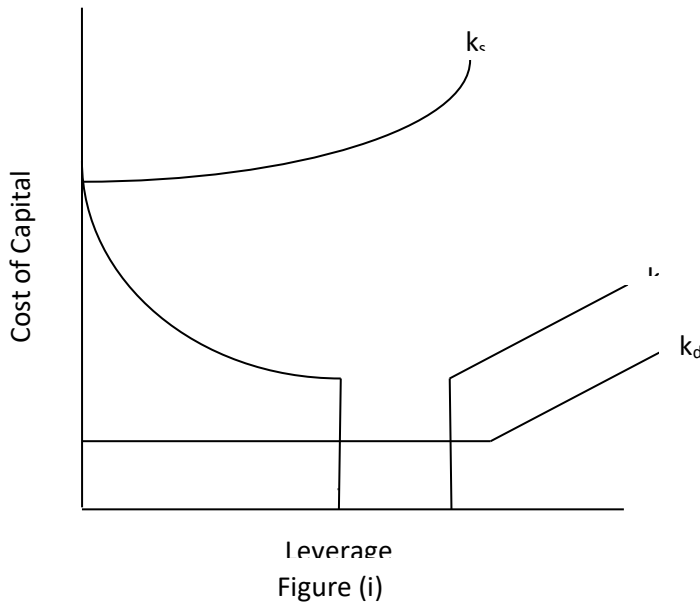
2.2.3.3 Traditional Approach

This **traditional approach** is also developed by David Durand in 1952. The traditional capital structure theory, which is taken as middle ground position is also known as intermediate approach. It is a compromise between the NI and NOI. According to traditional view, which suggested that up to some 'moderate' amount of leverage risk, does not increases noticeably on either the debt or equity. So both k_d and k_s are relatively constant up to some point of leverage. However, beyond this threshold debt ratio, both debt and equity cost begin to rise sharply, and this increases more than offset the advantages of cheaper debt. The result of (i) a 'U' shaped weighted average cost of capital curve and (ii) a value of the firm which first rises, then hits a peak, and finally declines as the debt ratio increases. Thus, according to traditionalists, there are some capital structures with less than hundred percent debts which maximize the value of the firm.

Here, we can point out main proposition of the traditional approach are:

- i. The cost of debt capital, k_d , remain more or less constant up to a certain degree of leverage but rises thereafter at an increasing rate.
- ii. The cost of equity capital, k_s , remains more or less constant or rises only gradually up to a certain degree of leverage and rises sharply thereafter.

- iii. The average cost of capital, k , as the consequence of the above behavior of k_s and k_d (a) decreases up to a certain point (b) remain more or less unchanged for moderate increases in leverage thereafter, and (c) rises beyond a certain point.



The Modigliani-Miller Model

2.2.3.4 (MM Hypothesis without taxes)

Franco Modigliani and Merton Miller (generally referred to as MM) both Nobel prize winners in financial economics, have had a profound influence on capital structure theory ever since their seminal paper on capital structure was published in 1958. The Modigliani Miller hypothesis is identical with net operating income approach. In other words, MM has restated and amplified the NOI Approach. MM argue that, in the absence of taxes, a firm's market value and the cost of capital remain invariant to the capital structure changes. In their article, they provide analytically sound and logically consistent behavior justification in the favor of their hypothesis. To begin, MM made the following assumptions, some of which they later relaxed:

Assumptions

1. Perfect capital markets: Information is costless and readily available to all investors; no transaction costs or government restrictions interfere with capital market transactions; and all securities are infinitely divisible. In addition, both firms and individuals can borrow or lend at the same rate.

2. Homogeneous expectations: All present and prospective investors have identical estimates of expected value of the probability distribution for each firm's future EBIT.

3. Homogeneous or equivalent return classes of firms: Firms can be classified based on their degree of business risk. Since all firms within a class are equally risky, their expected future earnings are capitalized at the same rate. (This assumption is later relaxed.)

4. No taxes: There are no taxes on either corporations or individuals. (This assumption is later relaxed.)

MM first performed their analysis under the assumption that there are no corporate taxes. Based on the preceding assumptions, and in the absence of corporate taxes, MM stated and then proved two propositions:

Proposition I. The value of any firm is established by capitalizing its expected net operating income (NOI or EBIT) at a constant rate (i.e. overall cost of capital) which is appropriate for the firm's risk class.

$$V = \frac{EBIT}{k} = \frac{EBIT}{k_{sU}}$$

Here $k_{s(U)}$ is the required rate of return for an all equity (unlevered firm). Since V as established by proposition I equation is constant, then under the MM theory the value of the firm is independent of its leverage. This also implies that the weighted average cost of capital (k) to any firm, leveraged or not, is (1) completely independent of its capital structure (2)

Equal to the cost of equity to an unlevered firm in the same risk class. Thus, MM's proposition I is identical to the NOI hypothesis.

Proposition II. MM's proposition defines the cost of equity. The cost equity to a levered firm is equal to (1) the cost of equity to an unlevered firm in the same risk class plus (2) risk premium whose size depends on both the differential between the cost of equity and debt to an unlevered firm and the amount of leverage used.

$$\begin{aligned}k_{s(L)} &= k_{s(U)} + \text{Risk premium} \\ &= k_{s(U)} + (k_{s(U)} - k_d) (B/S)\end{aligned}$$

Here the subscripts L and U designate levered and unlevered firms in a given risk class. Proposition II states that as the firm's use of debt increases, its cost of equity also raises, and in an exactly specified manner.

When taken together, the first two-MM proposition that the inclusion of more debt in the capital structure will not increase the value of the firm because the benefits of cheaper debt will be exactly offset by an increase in the cost of equity. Thus, the basic MM theory states that in a world without taxes, both the values of the firm and its cost of capital are completely unaffected by its capital structure.

2.2.3.5 MM with Corporate Taxes

When taxes are introduced, MM derive a new set of propositions. With corporate income taxes, they conclude that leverage will increase a firm's value because interest on debt is a deductible expense; hence, more of the operating income flows through to investors. Here are their two propositions for corporations subject to income taxes.

Proposition I. The value of an unlevered firm is the firm's after tax operating income divided by its cost of equity.

$$V_U = \frac{EBIT(1 - T)}{k_{sU}}$$

The value of a levered firm is equal to (1) the value of a unlevered firm in the same risk plus (2) the gain from leverage, which is the present value of the tax saving and which equals the corporate tax rate times the amount of debt the firm uses.

$$V_L = V_U + BT_C$$

Where,

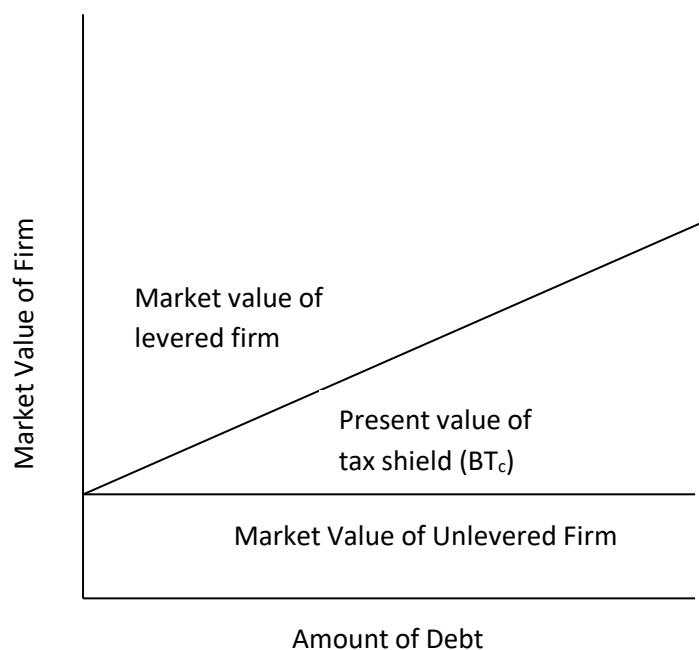
V_L = value of levered firm

V_U = value of unlevered firm

BT_C = present value of the debt tax shield

T_C = corporate tax rate

It is noted that when corporate taxes are introduced, the value of the levered firm exceeds that of the unlevered firm. Additionally, the differential increases as the use of debt increases, so a firm's value is maximized at virtually hundred percent debt financing.



Proposition II. The cost of equity of a levered firm is equal to (1) the cost of equity of an unlevered firm in the same risk class, plus (2) a risk premium whose size depends on the differential between the cost of equity and debt to an unlevered firm, the amount of financial leverage and the corporate tax are:

$$k_{sL} = k_{sU} + (k_{sU} - k_d) (1-T) (B/S)$$

Thus, according to proposition II with taxes, as the firm's use of debt increases, its cost of equity also rises, and in an exactly specified manner. However, the cost of equity rises at a slower rate than it did in the absence of taxes. It is this characteristic that produces the increase in firm value as the leverage increases as shown in proposition I.

2.2.3.6 MM with Personal Taxes

Although MM included corporate taxes in the second version of their model, they did not extend the model to include the personal taxes. However, in his 1976 presidential address to the American Finance Association, Merton Miller did introduce a model designed to show how leverage affects the firm value when both personal and corporate taxes are taken into account. The presence of taxes on personal income, however, may reduce advantage associated with debt financing. If the returns to investors from purchasing debt instruments are taxed at a higher rate than the returns on common stock, the overall advantage of debt financing in the economy is reduced. In the MM approach, with corporate taxes (and ignoring bankruptcy and agency costs), the net gain from leverage is the difference between the value of the levered and an unlevered firm is:

$$\text{Gain} = V_L - V_U = B_L T_C$$

Which show that the gain from leverage is equal to the debt subsidy, $B_L T_C$. However once personal taxes on stocks (T_{PS}), and bonds (T_{PD}) are recognized, the gain from leverage is as follows:

$$Gain = B \left[1 - \frac{(1 - Tc)(1 - Tps)}{(1 - Tpd)} \right]$$

The value of the levered firm is given by following equation:

$$VL = VU + B \left[1 - \frac{(1 - Tc)(1 - Tps)}{(1 - Tpd)} \right]$$

When the personal tax rates on set equal to zero, the gain from leverage is equal to the same as originally specified by MM with corporate taxes. If there are no personal taxes, or if personal taxes on stocks are equal to personal taxes on bonds, we are back to the MM approach with corporate taxes.

However, if the tax on stocks on stocks is less than tax on bonds, the gain from leverage when personal taxes are considered is less than the gain from the MM with corporate taxes. If the personal tax on stocks is less than the personal tax on bonds, the before tax return on bonds has to be high enough to offset this disadvantages to investors; otherwise, they would not want to hold the bonds.

2.2.4. Leverage

Leverage means result from the use of fixed cost assets or funds to magnify returns of the firm's owners. Changes in leverage result in changes in level of return and associated risk, whereas decreases in leverage result in decrease return and risk. There are mainly two types of leverage: Operating leverage and financial leverage. Leverage associated with investing activities is known as operating leverage and leverage associated with financial activities is known as financial leverage.

2.2.4.1. Financial leverage

Financial leverage refers to the firm's use of fixed-income securities, such as debt and preferred stock, and financial risk is the additional risk placed on the common stock holders as a result of using financial leverage.

The debt is risky as well as more advantageous in the context of earning. The use of debt and preferred stock financing provide the income advantage over the common stock financing of the firm under the favorable condition and they increase the risk too. Leverage is employed by the company to earn more. The surplus will increase the return on equity. Since the interest and principle payments are the contractual obligation to the firm. It is risky in the viewpoint of the shareholders.

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

According to Waterman and Martin (1963)," The use of fixed sources of funds, such as debt and preference capital along with the owners' equity in the capital structure is described as financial leverage."

According to Lawrence D.Schell And Haley (1983)," Financial leverage refers to the response of shareholders income to change in earnings before interest and tax and is created by debt or preferred stock financing with fixed interest and dividend payment."

2.3 Review of Articles and Journals:

Under this section various articles related to capital structure management have been reviewed. These are as follows:

Modigliani and Miller (1958) wrote an article on debt–equity composition “The cost of capital corporation finance and theory of investment”. They argued that “The impact of additional debt in a tax and economically perfect world, the total market value of a

company's debt plus equity should not change as debt is substitution for equity. Although expected earnings per share will increase as debt is substituted for equity (or additional financing is done with debt rather than equity), this effect is exactly offset by markdown in the company's price/earnings ratio. The markdown occurs because the additional debt exposes the common stockholders to an extra financial risk.

Marsh, P (1982) in his article "The choice between equity and debt" had expressed an issue that whether companies have target debt ratio or not. They should have similar targets for the composition of debt. Another issue is whether other factors influence their debt ratios or the choice of financial instrument. He has questioned how accurate the prediction of the company is issuing debt or equity can be made. His suggestion to the study was that when planning their issues, companies should consider further as well as current debt ratio. If companies are looking at book value debt ratios, there will be change during the inter issue period because of retentions and bank loans. Any overall change in tax levels could cause issuing companies to shift their performance towards either debt or equity. Small companies rely on bank loans rather than long term debt because of location cost and problems of access to capital market. Equity issues seem to be favored after it provides strong share price and overall market performance.

Poudyal, S (2002) wrote an article on "A study on Capital Structure: Its impact on value of a Firm," concentrated to examine the interrelationship between the objective of achieving an optimal capital structure and to provide conceptual framework for the determination of the optimal capital structure.

For this, a hypothetical firm is constructed and different assumptions are laid down to analyze the effect of capital structure. Various statistical and financial tools like ratio analysis are used to extract reasonable figure for the hypothetical firm. It is observed that the minimum weighted average cost of capital, maximum value of the firm and price per share are attended at debt ratio of 30%.

Furthermore, if there is flexibility to select capital structure in any proportion, optimal capital structure range from 30% to 40%. An optimal capital structure would fulfill the interest of equity shareholder and financing requirement of a company as well as other concerned groups.

Abor, J (2005) in the study "The effect of capital structure on profitability" mentioned that the relationship between capital structure and firm value has been the subject of considerable debate. Throughout the literature, debate has centered on whether there is an optimal capital structure for an individual firm or whether the proportion of debt usage is irrelevant to the individual firm's value. The capital structure of a firm concerns the mix of debt and equity the firm uses in its operation. Brealey and Myers contend that the choice of capital structure is fundamentally a marketing problem. According to Weston and Brigham, the optimal capital structure is the one that maximizes the market value of the firm's outstanding shares.

Other theories that have been advanced to explain the capital structure of firms include bankruptcy cost, agency theory, and the pecking order theory. These theories are discussed in turn.

Bankruptcy costs are the cost directly incurred when the perceived probability that the firm will default on financing is greater than zero. The bankruptcy probability increases with debt level since it increases the fear that the company might not be able to generate profits to pay back the interest and the loans. The potential costs of bankruptcy may be both direct and indirect. Examples of direct bankruptcy costs are the legal and administrative costs in the bankruptcy process. Examples of indirect bankruptcy costs are the loss in profits incurred by the firm as a result of the unwillingness of stakeholders to do business with them. The use of debt in capital structure of the firm also leads to agency costs. Agency costs arise as a result of the relationships between shareholders and managers and those between debt-holders and shareholders. The need to balance gains and costs of debt financing emerged as they known as the static trade-off theory by Myers. It values the company as the value of the firm if

unleveled plus the present value of the tax shield minus the present value of bankruptcy and agency costs.

In summary, there is no universal theory of the debt-equity choice. Different views have been put forward regarding the financing choice.

2.4 Review of Thesis

a) **Sudedi N. (2003)** has studied, "**Capital structure of Necon Air Ltd.**" The main objectives were as follows:

1. To describe the capital structure position of the company.
2. To examine the reason of loss bearing by the company in recent years before the company was collapsed.
3. To find out the earning power of the company.

The major findings were as follows:

1. Necon Air Limited is highly debt oriented in the capital structure.
2. The company must earn sufficient profit and curtail certain portion of debt from existing capital structure by issuing ordinary shares.
3. The company should reduce its over staffing by providing training opportunities to untrained man-power or by hiring skilled and well trained main-power from outsider.
4. The company should increase its sales revenue.

b) **Gurung, D.D. (2003)** has studied made, "**Analysis of capital structure in selected joint banks of Nepal.**"

The main objectives were as follows:

1. To find out the profitability of the banks in respect to its capital structure.
2. To determine the interest burden of debts over the banks.
3. To examine the efficiency of working capital of the joint venture banks.

The major findings were as follows:

1. The utilization of total assets is not adequate to generate earning.
2. The banks using more debt capital to procure total assets.
3. The profitability situation of the banks is poor due to nominal return rate.

The suggestions of the problems are as follows:

1. The banks should have more unfavorable debt and should procure debt capital by reliable sources to reduce a great interest payment.
2. The banks should try to determine its cost of capital to identify the existing capital structure of the company.
3. The banks should operate in its full capacity to meet the target.

c) Summan A. (2005) has studied made, "A comparative study on capital structure of selected joint venture banks."

The main objectives were as follows:

1. To suggest appropriate capital structure and profitability trend.
2. To examine the cost capital of the joint venture banks.
3. To examine the financial condition and performance of the banks.

4. To determine the proper utilization of the resources.

The major findings were as follow:

1. Interest and commission expenses are the major expenses of the joint venture banks.
2. The Problem of over and under inventory exists there.
3. The bank's financial condition/performance is not sound.

To solve these problems, following suggestions are made:

1. The banks must utilize the scientific inventory management system.
2. The banks must minimize cost of capital in order to maximize the profit.
3. The banks should pay attention on proper use of the available resources.
4. The banks must follow other pricing policies according to the situation.

d) Tamang, M.B (2005) has conducted study made "Financial Performance Analysis of commercial Banks of Nepal" with reference to NIB and NABIL."

The major objectives were as follows:

1. To measure the operating efficiency, stability and profitability.
2. To measure their financial strength and weakness.

The major findings were as follows:

The liquidity position of NIB is better than that of NABIL, NABIL has utilized more debt than NIB,

1. The profitability ratio of NABIL is better than that of NIB in terms of ROA,

2. The EPS and DPS of NABIL are better than that of NIB
3. There is positive correlation between total debt and net profit for both the banks etc.

The suggestions of the problems were as follows:

1. Both the banks should review their overall capital structure and investment portfolio to make better mix in capital structure.
2. Both the banks should also give due consideration in improving their liquidity position.

e) **Alam, M (2008)** has conducted a study on " **A comparative analysis of capital structure management between NIBL and HBL.**"

The major objectives were as follows:

1. To find out comparative position of capital structure of NIBL and HBL.
2. To determine the relationship between interest expenses and operating of NIBL and HBL.
3. To measure the cost of capital of NIBL and HBL

The major findings were as follows:

1. Both banks are extremely levered and facing heavy burden of interest payment due to the employment of more debts. Both the banks financial structure shows the dangerous signals to the creditors.

2. Both the banks are using higher debt capital to finance its assets. Equity costs of both banks are diminishing in nature
3. Return on assets and ROE of both the banks was fluctuating throughout the study period and are not satisfactory.
4. The average EPS of HBL was better enough over NIBL, which increases the strength of the share and improve the market price of the share than NIBL.

The suggestions of the problems were as follows:

1. The bank should increase EBIT in compare to interest expenses to increase its capacity to handle the fixed charges and the payment of interest to the creditors easily.
2. The management of the banks should increase the return on shareholders' equity for fulfilling the expectation of shareholders.
3. The bank's management should reduce the debt capital and give more attention to increase owner's capital.
4. The management of NIBL should eager to increase its performance in the market so that investor should hold the share of NIBL like HBL.

f) Malik, A(2009) has studied made, "capital structure management in Nepal with reference to Nabil, NIBL, NEA, NTC and HGICL."

The major objectives were as follows:

1. To show the trend of composition of assets and capital structure.
2. To analyze the return on equity and assets.

3. To analyze the value of the firm.
4. To analyze the profitability of the selected organizations.

The major findings were as follows:

1. Being big financial houses NTC and NEA dominates other organizations in volume related issue.
2. ROSE of NABIL is highest, NIBL is in second position, NTC is in third position, HGICL is in fourth position and NEA is in last position in above concern.
3. ROA of NTC is highest, HGICL is in second position, NABIL is in third position, NIBL is in fourth position and NEA is in last position in above concern.

The suggestions of the problems were as follows:

1. The organizations should focus more on optimal capital structure rather than increasing debt portion or equity.
2. NTC should focus to the unutilized capital to generate extra income.
3. Cost and benefit should be analyzed before raising fund from different source of capital. Although debt creates tax benefit and increase ROE.
4. Every investment and financing decision of the company should be taken by considering the capital structure of firm.

CHAPTER-3

RESEARCH METHODOLOGY

3.1. Introduction

Researcher needs sequential steps to adopt realistic study or studying a problem with certain object/objects in view. Therefore, through research methodology researcher can get appropriate guidelines and knowledge about the various sequential steps to adopt a systematic analysis. Research methodology is the investigation tools of any certain area and it means clearly observation of certain object.

Research is the process of systematic and in depth study or search any particular topic, subject or area of investigation backed by collection presentation and interpretation of relevant details or data.

Research is a systematic and organized effort to investigate a specific problem that needs a solution. This process of investigation involves a series of well through out activities of gathering, recording, analysis and interpreting the data with the purpose of finding answers to the problem.

This chapter mainly deals with the research methodology used to ascertain the study objectives. Under this, research design, nature and sources of data, population and sample and method of data analysis technique have been described.

3.2. Research Design

Research design is the plan, structure and strategy of investigations conceived so as to obtain answers to research questions and to control variances. It included an outline of what the investigator will do from writing the hypotheses and their operational implications to the final analysis of data. The structure of the research is more specific, it is the outline, the scheme, and the standard of the operation of the variables. When we draw diagrams that outline the variables and their relation and juxtaposition, we build structural schemes for

accomplishing operational research purposes. Strategy, as used here, is also more specific than plan. In other words, strategy implies how the research objectives will be reached and how the problem encountered in the research will be tackled.

The method and definite technique, which guides to study and give ways to perform research work is known as research design. It is most necessary to complete the research and fulfill the objective of the research.

First of all information and data are collected. The important information and data are selected. Then data is arranged in useful manner. After that, data are analyzed by using appropriate financial and statistical tools. In analysis part, interpretation and comments are also made wherever necessary. Result and conclusion are given after analysis of data, recommendation and suggestion is also given, the thesis has been adopted from previous research works. Previous thesis styles and formats have been followed.

The main objective of research work is to evaluate the capital structures of Nabil Bank Limited and Bank of Kathmandu. To complete this study, following design and format has been adopted.

3.3. Data Collection Procedure

3.3.1 Nature and Sources of Data

Mainly, the study is conducted on the basis of secondary data. The required data are extracted from balance sheets, profit and loss accounts and different financial schedules of concerned banks annual reports. 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 is based on the historical data of 5 year period.

3.3.2 The Population and Sample

Population of this study includes all listed commercial banks in NEPSE. At present, there are 33 commercial banks have listed their shares in NEPSE. They have only been considered as

population for the study, two leading private commercial banks are selected randomly as sample. On the basis of establishment period and performances, samples are taken. The sampled commercial banks are Nabil Bank Limited and Bank of Kathmandu Limited.

3.4 Tools for Analysis

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

Different tools have been 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.

3.4.1 Financial Tools

Financial analysis is the process of analyzing various items of statements of a firm to examine its comparative strength and weakness. It involves analyzing financial statements prepared in accordance with generally accepted accounting principle to ascertain information that are useful for decision making.

The financial tools that will be used for data analysis are:

- Ratio analysis
- Leverage analysis
- Capital structure analysis
- Traditional analysis
- Modigliani-Miller's approach

3.4.1.1 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:

Long Term Debt to Total Debt

The long term debt to total debt ratio measure 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:

$$\text{Long Term Debt to Total debt} = \frac{\text{Long Term Debt}}{\text{Total Debt}} * 100$$

Long Term Debt to Capital Employed

This ratio is used to express the relationship between long term debt and capital employed by the firm. It shows the proportion of long term debt and shareholders' fund in the capital structure. This ratio is calculated as:

$$\text{Long Term Debt to Capital Employed} = \frac{\text{Long Term Debt}}{\text{Capital Employed}}$$

The higher ratio of long term debt to capital employed ratio shows the higher contribution of long term debt to the capital structure and vice versa.

Debt to Total Assets

This ratio measure 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 long term debt and current liabilities. The total assets consist of permanent assets and other assets. It is calculated as:

$$Debt\ To\ Total\ Assets = \frac{Debt}{Total\ Assets} * 100$$

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.

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:

$$Debt\ To\ Equity\ Ratio = \frac{Long\ Term\ Debt}{Shareholder's\ Equity} * 100$$

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:

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

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.

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:

$$\text{Return On Assets} = \frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

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:

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

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 gives 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:

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

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,

$$DPS = \frac{\text{Total Dividend}}{\text{No Of Outstanding Shares}}$$

3.4.1.2 Leverage Analysis

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:

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

OR

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

The higher ratio of DFL indicates the higher financial risk as well as higher fixed charges of the company and vice versa.

3.4.2.1 Capital Structure Analysis

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. These all approaches are based on the market value. Practical usualness of other approaches is bit complex thus NI and NOI approaches are used in this study.

$$\begin{aligned} \text{Market value of firm}(V) \\ = \text{Market Value Of Debt}(B) + \text{Market Value of Equity}(S) \end{aligned}$$

$$\text{Cost Of Overallcapitalization rate}(k) = \frac{\text{Net Operating Income}(EBIT)}{\text{Total Market Value Of Firm}(V)}$$

$$\text{Cost Of Equity}(k_e) = \frac{\text{Earning Available To Common Stock Holders}}{\text{Market Value Of Stock}(S)}$$

3.5 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 will be used for data analysis are:

- Mean
- Standard Deviation
- Karl Pearson's Coefficient of Correlation
- Probable Error

3.5.1 Mean

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

3.5.2. Standard Deviation (S.D.)

Standard deviation is an absolute measure of dispersion. The standard deviation is the square root of mean squared deviation from the arithmetic mean.

3.5.3. 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:

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

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.

3.5.4. 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:

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

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 certain, i.e. the value of r is significant.

CHAPTER -4

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This is the most important chapter of the study. In this chapter, collected data will be analyzed and presented mathematically. All the above-mentioned financial and statistical tools will be used to present the data.

The main objective of the study is to evaluate the capital structure of NABIL and BOKL. To analyze the financial performance in respect to capital structure, various presentation and analysis have been presented in this chapter according to analytical research design mentioned in the third chapter using various financial and statistical tools.

It is already stated that capital structure refers to the combination of preference share, equity share capital including reserve and surplus as well as long-term debt. Optimal capital structure refers to that combination of funds, which maximizes the EPS, value of the firm and overall cost of capital. Thus this chapter emphasizes the position of capital structure of BOKL and NABIL. The analysis in this chapter is divided into following section, which are directly and indirectly related to the capital structure.

- Ratio Analysis
- Analysis of Capital Structure
- Leverage Analysis
- Correlation Analysis

4.2 Ratio Analysis

4.2.1 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 companies. 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 along with the percentage change in that ratio to show the movement of trend individually. In addition the average (standard) ratios are also calculated to compare with each other. But the detailed calculation is shown in the appendix 1.

$$\text{Long Term Debt to Total debt} = \frac{\text{Long Term Debt}}{\text{Total Debt}} * 100$$

Table No. 4.1

Long term Debt and Total Debt Position

| Fiscal Years | Long Term Debt to Total Debt (%) | |
|--------------|----------------------------------|------|
| | NABIL | BOKL |
| 2006/07 | 3.5 | 6.84 |
| 2007/08 | 4.6 | 1.83 |
| 2008/09 | 4.9 | 1.6 |
| 2009/10 | 7.7 | 2.34 |
| 2010/11 | 3.6 | 2.98 |
| Average | 4.86 | 3.12 |

Source: Appendix 1

The above calculation shows that the ratio of long term debt to total debt of NABIL constituted 3.5% in fiscal year 2006/07. This means of contribution of long term debt in total debt is 3.5% and remaining portion is contributed by the current liabilities. This ratio of NABIL in FY 2007/08 is 4.6% which is increased than previous year and then increased to 4.9% in FY 2008/09. The company has 7.7% in 2009/10 and 3.6% in 2010/11. The company has 4.86% of average long term debt to total debt ratio.

In the case of BOKL, it shows in the fiscal year 2006/07, the ratio is 6.84%, which indicates there is 6.84% contribution of long term debt in total debt and remaining portion is contributed by current liabilities, in the year 2007/08, the ratio is 1.84% which is decreased to 1.6% in 2008/09. Then it again is increased to 2.34% in 2009/10 and in the year 2010/11 the ratio is 2.98%. The average ratio is 3.12%

4.2.2 Long Term Debt to Capital Employed Ratio

The optimal capital structure has important relationship with the long term debt to capital employed ratio. This relationship suggests the portion of long term debt and capital employed used in the capital structure of the firm. This ratio highlights the need of long term debt in the capital employed by the firm. Long term debt includes the debt, which matures in more than one accounting period whereas capital employed includes long term debt and shareholders' equity of the firm. The relationship of long term debt and capital employed can be analyzed by establishing the ratio between them. This ratio is called the long term debt to capital debt ratio. Larger the ratio, larger the proportion of long term debt in the capital employed and vice versa. This ratio can be calculated by dividing the long term debt with capital employed by the firm. This ratio is also known as debt to permanent capital ratio, whereas permanent capital means total assets minus current liabilities. The long term debt to permanent capital ratio is presented in the following table:

$$\text{Long Term Debt to Capital Employed} = \frac{\text{Long Term Debt}}{\text{Capital Employed}}$$

Table No. 4.2

Comparative Long term Debt to Capital Employed Ratio

| Fiscal Years | Long Term Debt to Capital Employed (times) | |
|--------------|---|-------|
| | NABIL | BOKL |
| 2006/07 | 0.3 | 0.48 |
| 2007/08 | 0.396 | 0.18 |
| 2008/09 | 0.388 | 0.15 |
| 2009/10 | 0.891 | 0.19 |
| 2010/11 | 0.299 | 0.21 |
| Average | 0.455 | 0.242 |

Source: Appendix 2

The above table shows that the long term debt to capital employed ratios of NABIL in fiscal year 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 are 30%, 39.6%, 38.8%, 89.1% and 29.9%. The average ratio is 45.5%.

Similarly BOKL has fluctuating trend of long term debt to capital employed ratio. In the FY 2006/07, the ratio is 48%. That means the contribution of long term debt in total capital employed is 48% and owner of the companies contributed remaining 52%. In the following year 2007/08, the ratio decreases to 18%. In the FY 2008/09 the ratio decreased to 15%. In the year 2008/09 and 2009/10, it is 19 % and 21% respectively. The average of five years data shows a ratio of 24.2%.

4.2.3 Debt to Total Assets Ratio

Debt to total assets ratio express the relationship between creditors fund and total assets. It is also the leverage ratio, which is generally called the debt ratio. This type of capital structure ratio is a variant of debt equity ratio. Calculating debt to total assets is one calculation approach of the debt to capital ratio. Debt includes all loans and total assets include all types of assets of the firm, it measures the percentage of total funds provided by creditors.

This ratio can be calculated by simply dividing long term debt by the total assets of the firm.

$$\text{Debt To Total Assets} = \frac{\text{Debt}}{\text{Total Assets}} * 100$$

Table No. 4.3

Comparative Debt to Asset Ratios

| Fiscal Years | Debt to Asset (%) | |
|--------------|-------------------|-------|
| | NABIL | BOKL |
| 2006/07 | 0.324 | 0.06 |
| 2007/08 | 0.431 | 0.02 |
| 2008/09 | 0.452 | 0.01 |
| 2009/10 | 0.72 | 0.02 |
| 2010/11 | 0.336 | 0.03 |
| Average | 0.4526 | 0.028 |

Source: Appendix 3

NABIL bank has significant long term debt in comparison to total assets but BOKL have negligible long term debt to in comparison to total assets. Hence the debt ratio or debt to total

assets ratio of BOK is negligible. Therefore the debt ratio is significant for NABIL but insignificant for BOKL.

4.2.4 Debt Equity Ratio

Debt-equity ratio (DE) is the most widely used leverage ratio to evaluate the long-term solvency of a firm. This ratio expresses the relationship between debt capital and equity capital and equity capital, and reflects the relative claim of them on the assets of the firm. It is calculated by dividing total debt by equity:

$$\text{Debt To Equity Ratio} = \frac{\text{Long Term Debt}}{\text{Shareholder's Equity}} * 100$$

Debt-equity ratio is used to analyze financial risk both by creditors and the firm. A high debt-equity ratio indicates higher contribution of creditors towards total financing of the firm. A high debt-equity ratio of a firm is riskier to creditors as the firm may be unable to satisfy their claim whereas low debt-equity ratio provides a cushion of protection to them against losses.

A high debt-equity ratio may not also be desirable from the management's point of view because, creditors may put unnecessary pressure and intervene into firm's management, and with high debt-equity ratio management may have to accept stringent and costlier terms and conditions to employ further amount of capital.

D/E ratios of concerned companies are shown in the following table :

Table No. 4.4

Comparative Debt - Equity Ratios

| Fiscal Years | Debt to Equity (%) | |
|--------------|--------------------|------|
| | NABIL | BOKL |
| 2006/07 | 0.429 | 0.95 |
| 2007/08 | 0.656 | 0.22 |
| 2008/09 | 0.633 | 0.17 |
| 2009/10 | 0.978 | 0.24 |
| 2010/11 | 0.426 | 0.27 |
| Average | 0.624 | 0.37 |

Source: Appendix 4

The debt equity ratio and average ratio has been calculated in the above table. Five years data have been presented here.

The table shows that D/E ratios of NABIL are 0.429, 0.656, 0.633, 0.978 and 0.426 in fiscal years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 respectively. The average D/E ratio of NABIL is 0.624.

Calculated value of BOKL shows that the D/E ratios of BOKL have fluctuating trend. In the fiscal year 2006/07, D/E ratio is 0.95 which decreases to 0.22 in the fiscal year 2007/08. Again it decreased to 0.17 in FY 2008/09. The ratio increases to 0.24 and 0.27 in the following year 2009/10 and 2010/11 respectively. The average D/E ratio of BOKL is 0.37.

4.2.5 Interest Coverage Ratio

The interest coverage ratio is useful tool to measure long term debt serving capacity of the firm. It is also called interest earned ratio. Interest is fixed charges of the companies, which is charged in long term and short term loans. Generally, interest coverage ratio measured the

debt serving capacity of a firm and it is concerned with long term loans. It shows how many times the interest charges are covered by EBIT out of which they will be paid. This ratio uses the concept of net profit before tax because interest is tax deductible or tax is calculated after paying interest on loan. This ratio examines the interest paying capacity of the firm by how many times the interest charges are covered by EBIT.

Interest coverage ratio is calculated dividing EBIT by interest. So, it is necessary to analyze EBIT and interest. This ratio is useful to measure long term debt serving capacity of the firm. The high ratio shows that the firm may imply unused debt capacity and the firm has greater capacity to handle fixed charges liabilities of creditors. Whereas, low ratio is a signal that the firm is using excessive debt and does not have the ability to offer assured payment of interest to the creditors. The calculated interest coverage ratios of two companies are presented in the following table.

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

Table No. 4.5

Comparative Interest Coverage Ratio

| Fiscal Years | Interest Coverage Ratio (times) | |
|--------------|---------------------------------|-------|
| | NABIL | BOKL |
| 2006/07 | 2.79 | 2.13 |
| 2007/08 | 2.44 | 2.26 |
| 2008/09 | 2.28 | 2.17 |
| 2009/10 | 1.82 | 1.81 |
| 2010/11 | 1.65 | 1.20 |
| Average | 2.196 | 1.914 |

Source: Appendix 5

In the above table, the average ratio of NABIL is 2.196, which implies the number of times the interest covered by its EBIT. The interest coverage ratio of NABIL shows a fluctuating trend. The interest coverage of NABIL in FY 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 is 2.79, 2.44, 2.28, 1.82 and 1.65 respectively.

In case of BOKL, the interest coverage ratio is 2.13, 2.26, 2.17, 1.81 and 1.2 in the FY 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 respectively.

4.2.6 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. The ratio explains net income for each unit of 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.

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

$$\text{Return On Assets} = \frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

Table No. 4.6

Position of comparative Return on Total Assets

| Fiscal Years | Return on Total Assets | |
|--------------|------------------------|-------|
| | NABIL | BOKL |
| 2006/07 | 2.47 | 1.8 |
| 2007/08 | 2.01 | 2.04 |
| 2008/09 | 2.62 | 2.25 |
| 2009/10 | 2.19 | 2.18 |
| 2010/11 | 2.31 | 2.44 |
| Average | 2.32 | 2.142 |

Source: Appendix 6

The above table shows the comparative position of return on total assets of the two commercial banks. From the table, the ROA of NABIL in the years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 are 2.47, 2.01, 2.62, 2.19 and 2.31 respectively. The average ratio is 2.32.

Similarly, the ROA of BOKL in the years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 is 1.8, 2.04, 2.25, 2.18 and 2.44. Respectively and the average return is 2.14.

4.2.7 Return on Shareholders' Equity

Shareholders' fund represents that part of long term source of funds, which is collected by issuing equity shares and preference shares. Shareholders are actually the owners of the company. Shareholders have ultimate claim in the return of the company. To measure the return earned by shareholders, return on shareholder's equity is used or this ratio is calculated to find out the profitability on the owners' capital or investment.

If the company's earning is good, shareholders' earning is greater than outside investors because they are ultimate owners and they are bearing high risk as well. But outside investors return before the owners that is fixed. Shareholders get the return after paying the fixed interest charge to the creditors and tax to the government. Earning after tax (EAT) is the profit of the shareholders. Therefore this ratio is calculated on the basis of EAT. In this study, the sampled companies have not employed the preference share thus it includes only return on shareholders' equity.

The high ROSHE represents the high profitability of the firm and vice versa. So, high ROSHE is desirable from the point of view of the owners of the firm. This ratio can be calculated simply by dividing earning after tax by shareholders' equity, which is presented in the following table.

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

Table No. 4.7

Position of comparative ROSHE

| Fiscal Years | Return on Shareholder's Equity | |
|--------------|--------------------------------|------|
| | NABIL | BOKL |
| 2006/07 | 32.8 | 26.7 |
| 2007/08 | 30.6 | 27 |
| 2008/09 | 32.9 | 26.5 |
| 2009/10 | 29.7 | 24.6 |
| 2010/11 | 29.4 | 24.8 |
| Average | 31.2 | 25.9 |

Source: Appendix 7

Above table exhibits ROSHE of sampled companies. In case of NABIL, in the fiscal year 2006/07, the ratio is 32.8% that implies that one rupee investment by shareholders' equity earned 32.80 paisa in one year. In the fiscal year 2007/08, it decreased to 30.6% but increased to 32.9% in FY 2008/09. But in FY 2009/10 it is again decreased to 29.4% and further to 29.4% in FY 2010/2011. The average ratio is 31.2%.

Similarly in the case of BOKL, in the fiscal 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 are 26.7%, 27%, 26.5%, 24.6% and 24.8% respectively. Average ratio is 25.9%.

4.2.8 Earning per share

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 theoretically belongs to the ordinary shareholders. The EPS is calculated as below:

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

Table No. 4.8

Position of comparative EPS

| Fiscal Years | Earnings Per Share | |
|--------------|--------------------|-------|
| | NABIL | BOKL |
| 2006/07 | 137.08 | 43.5 |
| 2007/08 | 108.31 | 59.9 |
| 2008/09 | 106.76 | 54.7 |
| 2009/10 | 78.70 | 43.08 |
| 2010/11 | 66.22 | 44.51 |
| Average | 99.41 | 49.14 |

Source: Appendix 8

The earnings per share of NABIL are 137.08, 108.31, 106.76, 78.70 and 66.62 in the years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 respectively. The average EPS is 99.41. The overall trend is decreasing. The highest EPS is 137.08 in the year 2006/07

Similarly, the earnings per share of BOKL in the years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 are 43.5, 59.9, 54.7, 43.08 and 44.51 respectively. And the average EPS is 49.14. Here, the overall trend is fluctuating.

4.3 Capital Structure

4.3.1 Net Income (NI) Approach

Net income (NI) approach is known as dependent hypothesis of capital structure. The essence of this approach is that the firm can reduce its cost of capital by using debt and total valuation of the firm through the reduction in the cost of capital leading to an increase in the cost of capital thus leading to an increase in the degree of leverage. This theory assumes that the cost of debt and cost of equity remain constant as change in the firm's capital structure. In other words, the firm can increase its value or lower the overall cost of capital by increasing the proportion of debt in the capital structure. It gives attention on overall capitalization rate. According to this theory, optimum capital structure is that, where the total value of the company is highest and the overall capitalization rate is lowest. The overall capitalization rate can be calculated simply by dividing EBIT by the value of the company. Calculated rates are presented below that is referred from appendix 10.

Table No. 4.9

Comparative Position of Overall Capitalization Rate

| Fiscal Years | NABIL | | BOKL | |
|--------------|----------------------|-------------------------------|----------------------|-------------------------------|
| | Cost of Capital (Ko) | Value of Firm (in million Rs) | Cost of Capital (Ko) | Value of Firm (in million Rs) |
| 2006/07 | 6.03 | 25711.1 | 7.83 | 9223.19 |
| 2007/08 | 4.87 | 37956.14 | 6.53 | 14473.82 |
| 2008/09 | 5.34 | 49293.25 | 7.79 | 15710.26 |
| 2009/10 | 10.23 | 34922.02 | 15.67 | 10430.12 |
| 2010/11 | 17.76 | 27363.31 | 17.47 | 8413.94 |
| Average | 8.85 | 35049.16 | 11.06 | 11650.27 |

Source: Appendix 9

Above computed overall capitalization rate of NABIL shows that the costs are 6.03%, 4.87%, 5.34%, 10.23% and 17.76% in the fiscal years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 when the values of the firm are Rs. 25711.1, 37956.14, 49293.25, 34922.02 and 27363.31 million respectively. The average cost is 8.85% at an average value of Rs. 35049.16 million.

Similarly, in the case of BOKL, the costs are the costs are 7.83%, 6.53%, 7.79%, 15.67% and 17.47% in the fiscal years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 respectively. And the values of the firm are Rs. 9223.19, 14473.82, 15710.26, 10430.12 and 8413.94 million respectively. The average cost is 11.06% at an average value of Rs11650.27 million.

4.3.2 Net Operating Income (NOI) Approach

It is an independent hypothesis of capital structure decision of the firm and which is irrelevant to the value of firm an overall cost of capital. Change in leverage will not lead to any change in the total value of the firm and market price of share, as the overall cost of capital is independent of the degree of leverage. The increase in leverage leads to an increase in financial risk of the ordinary shareholders. To minimize the financial risk, the shareholders want a higher return on their investment. Increases in K_o are exactly offset by using cheaper debt fund keeping K_o constant. So equity capitalization rate K_e is calculated here by simply dividing EBT by the market value of common equity, which is presented in the following table. Detail calculation of K_e is presented in the appendix.

Table No. 4.10

Comparative Position of Effect of Debt on Equity Capitalization Rate

| Fiscal Years | NABIL | | BOKL | |
|--------------|--------------------------|--------------------------------|--------------------------|--------------------------------|
| | Cost of Equity (K_e) | Long Term Debt (in million Rs) | Cost of Equity (K_e) | Long Term Debt (in million Rs) |
| 2006/07 | 4.01 | 882.6 | 4.63 | 930 |
| 2007/08 | 3 | 1600 | 3.72 | 300 |
| 2008/09 | 3.12 | 1981.3 | 4.29 | 300 |
| 2009/10 | 4.67 | 374.9 | 7.37 | 500 |
| 2010/11 | 7.54 | 1950.6 | 11.16 | 664.9 |
| Average | 4.47 | 1357.88 | 6.23 | 538.98 |

Source: Appendix 10

The equity capitalization rates of NABIL in the fiscal years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 are 4.01%, 3%, 3.12%, 4.67% and 7.54% respectively. And their respective long term debts are Rs. 882.6, 1600, 1981.3, 374.9 and 1950.6 million respectively. The average cost is 4.17% at an average long term debt of Rs1357.88 million.

The equity capitalization rates of BOKL are 4.63%, 3.72%, 4.29%, 7.37% and 11.16% in the fiscal years 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 respectively. And the long term debts are Rs. 930, 300, 300, 500 and 664.9 million respectively. The average cost is 6.23% at an average long term debt of Rs. 538.98 million.

4.4 Leverage Analysis

Leverage and capital structure are closely related concepts linked to cost of capital and therefore capital budgeting decision. Leverage results from the use of fixed cost assets or tends to magnify return to the firm's owners. Changes in leverage result in changes in level of return and associated risk. Generally, increase in leverage result in increase in return and risk, where as decrease in leverage result in decreased return and risk. The amounts of leverage in the firm's capital structure the mix of long term debt and equity maintained b the firm can significantly affect its value by affecting return and risk. Because of its effect on value, the financial manager must understand how to measure and evaluate leverage when attempting to create the best capital structure.

Generally, leverage refers to the use of special force of power to have more than normal results from a particular action. Similarly in financial term it is used to describe about utilization of funds for which the firm has to pay fixed cost and to have more return than normal having more risk as well. Leverage may be used to boost owners' returns, but it is used at the risk of increasing losses, if the firm's economics fortune declines. Thus gain and losses are magnified by leverage, and the higher the leverage employed by a firm, the greater will be the volatility of its returns. There are three types of leverages: operating leverage, financial leverage and combine leverage. Operating leverage is the function of fixed cost, contribution margin and sales volume. Financial leverage is the relationship between EBIT and EBT and combined leverage is the combined effect of operating leverage and financial leverage. The operating leverage indicates the impact of changes sales an operating income and financial leverage exist when the capital structure if the firm composed debt capital. Financial leverage is related to the capital structure of the firm. So, financial leverage is the relevant issue of this study, which is explained in this section.

4.4.1 Analysis of Financial Leverage

When the company employs debt or other fund carrying fixed charges i.e. interest in the capital structure, financial leverage exists. If the financial charge is high the company can have advantage of tax shield but it will affect to owners' return i.e. net profit as well. Financial leverage explains the relationship between earnings before interest and taxes and net profit of the company.

Two methods: either dividing percentage change into EPS by percentage change into EBIT or dividing percentage change into EBT by EBIT can calculate degree of financial leverage. In this analysis of financial leverage second method is chosen. High the financial leverage, high will be the financial risk and also high will be the shareholders' return. The degree of financial leverage of sampled companies is presented in the following table.

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

OR

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

Table No. 4.11

Comparative Degree of Financial Leverage

| Fiscal Years | Degree of Financial Leverage | |
|----------------|------------------------------|-------------|
| | NABIL | BOKL |
| 2006/07 | 1.55 | 1.88 |
| 2007/08 | 1.7 | 1.79 |
| 2008/09 | 1.77 | 1.85 |
| 2009/10 | 2.21 | 2.23 |
| 2010/11 | 2.54 | 1.7 |
| Average | 1.95 | 1.89 |

Source: Appendix 11

Above calculated DFL of NABIL indicates fluctuation trend. In the fiscal year 2006/07 the DFL is 1.55 times. In the second year i.e. 2007/08 the DFL is 1.7 times. In the fiscal years 2008/09, 2009/10 and 2010/11 the DFL is 1.77, 2.21 and 2.54 times respectively.

The trend of BOKL also indicates fluctuating trend. The DFL of BOKL in the fiscal year 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 is 1.88, 1.79, 1.85, 2.23 and 1.7 respectively. The average DFL of BOKL is 1.89 times.

4.5 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
- Long term debt and earnings per share
- EBIT and interest
- EBIT and DPS

4.5.1 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 shareholder's 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). Detail calculations are presented in the appendix 12.

Table No. 4.12

Comparative Coefficient between TD and SHE with Probable Error

| NABIL | | BOKL | |
|-----------------------------|-----------------------|-----------------------------|-----------------------|
| Correlation Coefficient (r) | Probable Error (P.E.) | Correlation Coefficient (r) | Probable Error (P.E.) |
| 0.98 | 0.072 | 0.99 | 0.035 |

Source: Appendix 12

Karl Pearson's correlation coefficient between total debt and shareholders' equity of NABIL is 0.98. There is positive correlation between TD and SHE. The probable error (PE) of NABIL is 0.072. PE is less than correlation coefficient (r).

Similarly, the correlation coefficient of BOKL is 0.99, which is positive. The probable error is 0.035, which is less than r.

4.5.2 Long term Debt and Earning Per Share

Long term debt is the source of long term financing or long term funds. Company should pay interest for this debt capital. Whereas earning per share (EPS) is earning of a share of a firm for one year business. EPS has positive relationship with company's earning. In this section the relationship between these two variables has been shown using Karl Pearson's correlation coefficient method. It tries to analyze that the increment in LTD leads to increment in the EPS or not. The calculated correlation coefficient and their respective probable error have been shown in the following table referred from appendix.

Table No. 4.13

Correlation Coefficient between Long Term Debt (LTD) and Earning Per Share (EPS) and their respective Probable Error

| NABIL | | BOKL | |
|-----------------------------|-----------------------|-----------------------------|-----------------------|
| Correlation Coefficient (r) | Probable Error (P.E.) | Correlation Coefficient (r) | Probable Error (P.E.) |
| -0.13 | 1.78 | -0.79 | 1.697 |

Source: Appendix 13

In the basis of above table, correlation coefficient between long term debt and earning per share of NABIL is -0.13, which implies that there is negative correlation between LTD and EPS. The Probable error (PE) of NABIL is 1.78. PE is greater than correlation coefficient (r).

In the case of BOKL, the correlation coefficient is 0.93, which implies that there is positive correlation between LTD and EPS. The Probable error (PE) of BOKL is 1.697. PE is greater than correlation coefficient (r).

4.5.3 EBIT and Interest

Long term debt holders get the interest as return and EBIT is operating profit of the company. Here correlation coefficient of interest and EBIT has presented of concerned companies to analyze whether there is positive or negative correlation between interests and operating profit, those are calculated on the basis of Karl Pearson's correlation coefficient. Following table shows the relationship between these variables of sampled companies. And to check the significance of these calculated correlations. PE is also presented, which is referred from appendix:

Table No. 4.14

Correlation Coefficient between EBIT and Interest, and their respective Probable Error

| NABIL | | BOKL | |
|-----------------------------|-----------------------|-----------------------------|-----------------------|
| Correlation Coefficient (r) | Probable Error (P.E.) | Correlation Coefficient (r) | Probable Error (P.E.) |
| 0.99 | 0.01 | 0.86 | 0.48 |

Source: Appendix 14

In the above table, correlation coefficient of NABIL is found to be 0.99 i.e. there is positive correlation between Interest and EBIT. PE of respected correlation is 0.01, which is less than correlation coefficient (r).

Similarly, in the case of BOKL, the correlation coefficient between Interest and operating profit is 0.86. It is positive. The Probable error of respected correlation is 0.48, which is less than correlation coefficient (r).

4.5.4 EBIT and DPS

Shareholders get the dividend as return and EBIT is operating profit of the company. Here, correlation coefficient of EBIT and DPS has been presented of concerned companies to analyze whether there is positive or negative correlation between dividends and operating profit. Following table shows the relationship between these variables of sampled companies. And to check the significance of these calculated correlations. PE is also presented, which is referred from appendix:

Table No. 4.15

Correlation Coefficient between EBIT and DPS and their respective Probable Error

| NABIL | | BOKL | |
|-----------------------------|------------------------|-----------------------------|------------------------|
| Correlation Coefficient (r) | Probable Error 6(P.E.) | Correlation Coefficient (r) | Probable Error 6(P.E.) |
| -0.58 | 1.20 | 0.135 | 1.78 |

Source: Appendix 15

In the above table, correlation coefficient of NABIL is found to be -0.58, i.e. there is negative correlation between EBIT and DPS. 6PE of respected correlation is 1.2, which is greater than correlation coefficient (r).

Similarly, in case of BOKL, the correlation coefficient between operating profit and dividend is 0.135. It is positive. The 6PE of respected correlation is 1.78, which is greater than correlation coefficient (r).

4.6 Major findings of the Study

The percentage of total debt of the firm covered by long term debt is indicated by long term debt to total debt ratio. NABIL has 4.86% of average long term debt to total debt ratio. Similarly BOKL has average ratio of 3.12%. In two cases, the total debt is contributed by current liabilities to a large extent. The analysis of two companies reveals the fluctuating trend of long term debt to total debt ratio. Among the two, NABIL has used maximum long term debt in comparison to BOKL.

The analysis shows that among the two banks, BOKL has least and NABIL has the highest long term debt to capital employed ratio of 0.242 and 0.455 respectively. This indicates that NABIL is using more long term debt financing as its capital. It can be said that long term debt to capital employed ratio of both companies are inappropriate.

The long term debt for financing used by both NABIL is appropriate but It is negligible for BOKL. Hence, the debt to total assets ratio of NABIL is more than that of BOKL.

The debt equity ratio shows the claim of creditors on the total asset of the company. The trend analysis shows fluctuating trend in two sample banks. The average debt equity ratio of BOKL is 0.37, which shows that the creditors have 37% claims on the assets of BOKL. It also indicates that the company has used less amount of debt as financing and has lesser amount to be paid as interest on debt. NABIL has the highest debt equity ratio among the two with the average ratio of 0.624. It implies that the claim of creditors is 62.4% which is higher than that of owners of the company. The ratio shows that NABIL has used higher amount of debt and equity for financing where as in case of BOKL the contribution of debt is low in comparison to the equity.

The analysis shows that both the sample companies NABIL and BOKL are able to pay the interest amount. Among the two, BOKL has the lowest interest coverage ratio of 1.91, which

shows that the firm is able to pay the interest amount. In case of NABIL, the average interest coverage ratio is 2.2.

In comparison, NABIL and BOKL have the average return on asset of 2.32 and 2.14 respectively. The overall return on asset of NABIL is fluctuating in trend and of BOKL is increasing trend.

The returns on shareholder's equity of both banks are fluctuating over the period of five years. The average return of NABIL is 31.2% which indicates that the shareholders earned Rs. 31.20 paisa investing rupee one. By analyzing the average return, we can conclude that return earned by the shareholders' equity of NABIL is highest among two companies i.e. 31.2%

The earnings per share explain net income for each unit of share. It shows the market position of the market. The average earning per share of NABIL is Rs. 99.41. The average earning per share of BOKL is Rs.49.14. Among the two, NABIL has the highest earning per share.

Under the NI approach, the interest rate and the cost of equity are dependent of the capital structure. With the increased use of leverage, overall cost of capital declines and the total value of firm rise. From the calculations, NABIL has the optimum capital structure because it has the least cost of capital and the highest value of the firm.

Net operating income (NOI) approach is an independent hypothesis of capital structure. Any changes in leverage will not lead to any change in the total value of the firm and market price of share. From the position of average cost of equity, it is found that BOKL has an average cost of equity of 6.23% with an average long-term debt of Rs. 538.980 million, which in comparison to NABIL is higher, where NABIL has average cost of equity of 4.47% at long term debts of Rs. 1357.88 million. So we can say that NABIL has the optimum capital structure compared to BOKL.

The financial leverage analysis helps to evaluate the financial risk of the firm. The average degree of financial leverage of NABIL and BOKL are 1.95 and 1.89 respectively, which

concludes that NABIL is bearing the highest risk and BOKL is bearing the least financial risk among the two.

NABIL has positive correlation between TD and SHE of 0.98 that is they deviate in the same direction. Likewise, the probable error is 0.012, less than correlation coefficient, i.e. relationship between TD and SHE is significant. In case of BOKL the correlation coefficient is 0.99. The $6(PE)$ of BOKL is 0.245 which shows that the value of r is significant.

Correlation coefficient and PE between long term debt and earning per share of NABIL and BOKL shows that there is negative correlation and insignificant relationship in both NABIL and BOKL as PE is greater than correlation coefficient.

The correlation coefficient between EBIT and interest of both banks are positive. In case of both banks the value are significant that PE are less than correlation coefficient.

The correlation coefficient between EBIT and DPS of NABIL is -0.581 and $6PE$ is 0.2 indicating negative and insignificant correlation. In case of BOKL the correlation is positive and less than probable error indicating insignificant correlation.

CHAPTER- 5

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 companies 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, two commercial banks have been chosen. These banks are Nabil Bank Ltd and Bank of Kathmandu Ltd. Both 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, is presented briefly. This study endeavors to evaluate capital structure of commercial banks with reference to Nabil Bank Ltd and Bank of Kathmandu Ltd. 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? Does capital structure help to maximize the value of the firm in the context of Nepalese firms? 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 evaluate the role of capital structure on the growth of the commercial banks in Nepal, to analyze the effectiveness and efficiency of

capital structure of the commercial banks in Nepal and to analyze the relationship of capital structure with variables such as earning per share, dividend per share and net worth.

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 companies. Five years data are taken as sample years and are analyzed by using financial and statistical tools such as ratio analysis, leverage analysis, capital structure 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, leverage analysis, correlations, and probable errors and capital structure analysis. Detail calculations presented in this chapter are shown in appendix, which is presented after fifth chapter.

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, comparison among concerned banks has been done taking data of these banks. To evaluate the capital structure, different types of tools and technique are used. The following conclusion can be drawn.

i) Long term debt to total debt ratio shows that all of the sample banks have fluctuating trend of long term debt to total debt ratio. In average NABIL has 4.86% of average long term debt to total debt ratio, which means that about 95.14% of the total debt is contributed by current liabilities. Similarly BOKL has the average ratio of 3.12%.

ii) Long term debt to capital employed ratio highlights the portion of fund financed by long term debt in the capital employed by the firm. The data shows NABIL has the average ratio of 45.5%. Similarly BOKL has the average of 24.2%. We can conclude that two companies do not have appropriate ratio of long term debt to capital employed and among the two in average NABIL has employed more of the long term debt in the capital than the BOK.

iii) Debt to total assets ratio express the relationship between creditors fund and total assets. The debt ratio or debt to total assets ratio of BOKL is negligible which concludes that the debt used as the capital are negligible but debt to total assets ratio of NABIL is significant.

iv) Debt equity ratio of BOKL shows the creditors have 37% claims on the assets, which is very lowest among the two banks. It also indicates that the company has lesser amount to be paid as interest on debt. In case of NABIL, the claim of creditors is 62.4%, which is higher than that of owners of the company.

v) Interest coverage ratio shows how many times the interest charges are covered by EBIT out of which they will be paid. The conclusion drawn by the study is the average interest coverage ratio of NABIL is 2.2 and BOKL is 1.91, which shows that both banks are able to cover the interest but as the higher interest coverage ratio is better. NABIL seems to have higher ratio than BOKL.

vi) In regards of the comparative position of return on total assets of the two commercial banks NABIL seems to have the highest return of 2.32 in comparison of 2.14 of BOKL.

vii) The return on shareholder's return of NABIL shows the average ratio of 31.2% and it has fluctuating trend. The data indicates that NABIL has instable return. Similarly BOKL has also fluctuating trend and the ratio of 25.9%. By analyzing the average ROSHE, we can conclude that return earned by the shareholders equity of BOKL is least i.e. 25.9% and the return of NABIL is highest i.e. 31.2%. So we can conclude that both companies should apply suitable action to increase ROSHE.

viii) Earning per share of an organization shows the strength of the share in the market. The average earning per share of NABIL is Rs. 99.41. Similarly, the average earning per share of BOKL is Rs. 49.14. Among the two, NABIL has the highest earning per share.

ix) Net income approach is the dependent hypotheses of capital structure, which states with the increased use of leverage, overall cost of capital declines and the total value of the firm rise. According to this hypothesis the firm with the highest value and the least cost of capitalization rate is considered to have the best capital structure. The average value of firm of NABIL and BOKL are Rs. 35049.16 and 11650.27 million respectively and the average cost of capitalization rate is 8.85% and 11.6% respectively. From the calculation it can be concluded that NABIL has the better capital structure in comparison with BOKL.

x) Net operating income is the independent hypothesis of the capital structure decision of the firm. According to this hypothesis, any change in the leverage will not lead to any change in the total value of the firm and market price of the share, as the overall cost of capital is independent of the degree of leverage. From the position of average K_e we can conclude that NABIL has lesser K_e i.e. 4.47% than BOKL i.e. 6.23%.

xi) When the company employs debt or other fund carrying fixed charges in the capital structure, financial leverage exists. From the calculations, we can conclude that NABIL is using high long term debt and so is bearing the highest risk among the two.

xii) Considering the correlation coefficient and probability error calculated the correlation coefficients are positive and PE are less than the correlation coefficient which concluded that the total debt and shareholder's equity deviate in the same direction and relationship between total debt and correlation coefficient are insignificant. Likewise in the case of EBIT and interest the correlation coefficient are positive and significant in relationship.

xiii) In the case of long term debt and earning per share, the correlation coefficients of both are negative which concluded that the negative correlation exists between the two variables. Since PE in all cases is greater than correlation, the relationship between LTD and EPS is insignificant.

xiv) In the case of EBIT and DPS, BOKL shows positive correlation and NABIL shows negative correlation but PE is greater than correlation coefficient which shows insignificant relationship in both banks.

5.3 Recommendations

In this section of study, few points that can be helpful to stakeholders as well as to the company are recommended based upon above calculations and drawn conclusions. These recommendations are guidelines, which would be helpful in taking prompt and appropriate decision about capital structure. These recommendations are given below:

i) First of all, the companies lack the theoretical knowledge regarding the capital structure. They have not given significant attention to the capital structure matter. Capital structure is a serious matter. It affects EPS, Value of the firm, cost of capital etc. So it is recommended that these companies should follow the theoretical aspects of the capital structure management or give bit more attention in this matter and try to manage their activated accordingly.

ii) Observing the return on shareholders' equity, earning per share, dividend per share, return on assets, NABIL seems to have better capital structure but with greater financial risk than the HBL. The companies along with the return should also consider the risk associated. The companies' shareholders not only seek the high return from their investment but also consider the risk of the investment. So it is recommended to all these companies to plan their capital structure well by analyzing the possible financial alternatives considering high return and least risk.

iii) NABIL is using high long term debt and so is bearing the highest risk among the two. So it should take corrective actions to decrease its risk since the trend is increasing.

iv) BOKL had lower EPS than NABIL. The number of shares outstanding and low earnings might be the factor of decreasing EPS of BOKL, which increases the strength of the share and improve the market price of NABIL than BOKL. The management of BOKL should eager to increase its performance in the market so that investor should hold the share of BOKL like NABIL.

v) The companies are also recommended to minimize the financial and other expenses so the interest coverage ratio could be increased. They are recommended to use less cost debt, improve strategy of promotion activities, analyze and evaluate before making investments etc to increase the return and decreases risk.

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APPENDICES

APPENDIX 1 : Long Term Debt to Total Debt

$$\text{Long Term Debt to Total debt} = \frac{\text{Long Term Debt}}{\text{Total Debt}} * 100$$

Long Term Debt to Total Debt of NABIL

| F/Y | Long Term Debt | Total Debt | (LTD/TD)% |
|---------|----------------|------------|-----------|
| 2006/07 | 882.6 | 25196.3 | 3.5 |
| 2007/08 | 1600 | 3469.6 | 4.6 |
| 2008/09 | 1981.3 | 40737.2 | 4.9 |
| 2009/10 | 374.9 | 48245.5 | 7.7 |
| 2010/11 | 1950.6 | 53527.6 | 3.6 |
| Average | | | 4.86 |

Long Term Debt to Total Debt of BOKL

| F/Y | Long Term Debt | Total Debt | (LTD/TD)% |
|---------|----------------|------------|-----------|
| 2006/07 | 930 | 13588 | 6.84 |
| 2007/08 | 300 | 16379.9 | 1.83 |
| 2008/09 | 300 | 18754.4 | 1.6 |
| 2009/10 | 500 | 21322.7 | 2.34 |
| 2010/11 | 664.9 | 22322.6 | 2.98 |
| Average | | | 3.12 |

APPENDIX 2 : Long Term Debt to Capital Employed

$$\text{Long Term Debt to Capital Employed} = \frac{\text{Long Term Debt}}{\text{Capital Employed}}$$

Long Term Debt to Capital Employed NABIL

| F/Y | Long Term Debt | Capital Employed | LTD/CE |
|---------|----------------|------------------|--------|
| 2006/07 | 882.6 | 2939.7 | 0.3 |
| 2007/08 | 1600 | 4037.2 | 0.396 |
| 2008/09 | 1981.3 | 5111.5 | 0.388 |
| 2009/10 | 374.9 | 4209.1 | 0.891 |
| 2010/11 | 1950.6 | 6522.7 | 0.299 |
| Average | | | 0.455 |

Long Term Debt to Capital Employed BOKL

| F/Y | Long Term Debt | Capital Employed | LTD/CE |
|---------|----------------|------------------|--------|
| 2006/07 | 930 | 1912 | 0.48 |
| 2007/08 | 300 | 1642.1 | 0.18 |
| 2008/09 | 300 | 2041.6 | 0.15 |
| 2009/10 | 500 | 2573.5 | 0.19 |
| 2010/11 | 664.9 | 3100.1 | 0.21 |
| Average | | | 0.242 |

Appendix 3 : Debt to Total Asset Ratio

Long Term Debt-Total Asset Ratio NABIL

| F/Y | Long Term Debt | Total Asset | LTD/TA |
|------------|-----------------------|--------------------|---------------|
| 2006/07 | 882.6 | 27253.1 | 0.324 |
| 2007/08 | 1600 | 37132.8 | 0.431 |
| 2008/09 | 1981.3 | 43867.4 | 0.452 |
| 2009/10 | 374.9 | 52079.7 | 0.72 |
| 2010/11 | 1950.6 | 58099.6 | 0.336 |
| Average | | | 0.453 |

Long Term Debt-Total Asset Ratio BOKL

| F/Y | Long Term Debt | Total Asset | LTD/TA |
|------------|-----------------------|--------------------|---------------|
| 2006/07 | 930 | 14570 | 0.06 |
| 2007/08 | 300 | 17721.9 | 0.02 |
| 2008/09 | 300 | 20496 | 0.01 |
| 2009/10 | 500 | 23396.2 | 0.02 |
| 2010/11 | 664.9 | 24757.8 | 0.03 |
| Average | | | 0.028 |

Appendix 4 : Debt-Equity Ratio

$$\text{Debt To Equity Ratio} = \frac{\text{Long Term Debt}}{\text{Shareholder's Equity}} * 100$$

Debt to Equity Ratio of NABIL

| F/Y | Long Term Debt | Total Equity | D/E Ratio |
|------------|-----------------------|---------------------|------------------|
| 2006/07 | 882.6 | 2057.1 | 0.429 |
| 2007/08 | 1600 | 2437.2 | 0.656 |
| 2008/09 | 1981.3 | 3130.2 | 0.633 |
| 2009/10 | 374.9 | 3834.2 | 0.978 |
| 2010/11 | 1950.6 | 4572.1 | 0.426 |
| Average | | | 0.624 |

Debt to Equity Ratio of BOKL

| F/Y | Long Term Debt | Total Equity | D/E Ratio |
|------------|-----------------------|---------------------|------------------|
| 2006/07 | 930 | 982 | 0.95 |
| 2007/08 | 300 | 1342.1 | 0.22 |
| 2008/09 | 300 | 1741.6 | 0.17 |
| 2009/10 | 500 | 2073.5 | 0.24 |
| 2010/11 | 664.9 | 2435.2 | 0.27 |
| Average | | | 0.37 |

Appendix 5 : Interest Coverage Ratio

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

Interest Coverage Ratio of NABIL

| F/Y | EBIT | Interest | I/C Ratio |
|------------|-------------|-----------------|------------------|
| 2006/07 | 1550.8 | 555.7 | 2.79 |
| 2007/08 | 1847.4 | 758.4 | 2.44 |
| 2008/09 | 2632 | 1153.3 | 2.28 |
| 2009/10 | 3573.4 | 1960.1 | 1.82 |
| 2010/11 | 4861.8 | 2946.7 | 1.65 |
| Average | | | 2.2 |

Interest Coverage Ratio of BOKL

| F/Y | EBIT | Interest | I/C Ratio |
|------------|-------------|-----------------|------------------|
| 2006/07 | 722.6 | 339.2 | 2.13 |
| 2007/08 | 945.4 | 417.5 | 2.26 |
| 2008/09 | 1224.4 | 563.1 | 2.17 |
| 2009/10 | 1634.8 | 902.9 | 1.81 |
| 2010/11 | 1470.2 | 1218.8 | 1.20 |
| Average | | | 1.91 |

Appendix 6 : Return on Total Assets

$$\text{Return On Assets} = \frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

Return on Total Assets of NABIL

| F/Y | Net Profit | Total Assets | ROA |
|------------|-------------------|---------------------|------------|
| 2006/07 | 674 | 27253.1 | 2.47 |
| 2007/08 | 746.5 | 37132.8 | 2.01 |
| 2008/09 | 1031.1 | 43867.4 | 2.62 |
| 2009/10 | 1140.5 | 52079.7 | 2.19 |
| 2010/11 | 1344.2 | 58099.6 | 2.31 |
| Average | | | 2.32 |

Return on Total Assets of BOKL

| F/Y | Net Profit | Total Assets | ROA |
|------------|-------------------|---------------------|------------|
| 2006/07 | 262.4 | 14570 | 1.8 |
| 2007/08 | 361.5 | 17721.9 | 2.04 |
| 2008/09 | 461.7 | 20496 | 2.25 |
| 2009/10 | 509.3 | 23396.2 | 2.18 |
| 2010/11 | 605.2 | 24757.8 | 2.44 |
| Average | | | 2.142 |

Appendix 7 : Return on Shareholders' Equity

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

Return on Shareholders' Equity of NABIL

| F/Y | Net Profit | S.E. | ROE (%) |
|------------|-------------------|-------------|----------------|
| 2006/07 | 674 | 2057.1 | 32.8 |
| 2007/08 | 746.5 | 2437.2 | 30.6 |
| 2008/09 | 1031.1 | 3130.2 | 32.9 |
| 2009/10 | 1140.5 | 3834.2 | 29.7 |
| 2010/11 | 1344.2 | 4572.1 | 29.4 |
| Average | | | 31.2 |

Return on Shareholders' Equity of BOKL

| F/Y | Net Profit | S.E. | ROE (%) |
|------------|-------------------|-------------|----------------|
| 2006/07 | 262.4 | 982 | 26.7 |
| 2007/08 | 361.5 | 1342.1 | 27.0 |
| 2008/09 | 461.7 | 1741.6 | 26.5 |
| 2009/10 | 509.3 | 2073.5 | 24.6 |
| 2010/11 | 605.2 | 2435.2 | 24.8 |
| Average | | | 25.92 |

Appendix 8 : Earning Per Share

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

Earnings Per Share of NABIL

| F/Y | EBIT | Interest | Tax | EAT | No. of Shares(N) | EPS |
|------------|-------------|-----------------|------------|------------|-------------------------|------------|
| 2006/07 | 1550.8 | 555.7 | 321.1 | 674 | 4916544 | 137.08 |
| 2007/08 | 1847.4 | 758.4 | 342.5 | 746.5 | 6892160 | 108.31 |
| 2008/09 | 2632 | 1153.3 | 447.6 | 1031.1 | 9657470 | 106.76 |
| 2009/10 | 3573.4 | 1960.1 | 472.8 | 1140.5 | 14491240 | 78.70 |
| 2010/11 | 4861.8 | 2946.7 | 570.9 | 1344.2 | 20297694 | 66.22 |
| Average | | | | | | 99.41 |

Earnings Per Share of BOKL

| F/Y | EBIT | Interest | Tax | EAT | No. of Shares(N) | EPS |
|------------|-------------|-----------------|------------|------------|-------------------------|------------|
| 2006/07 | 722.6 | 339.2 | 121.02 | 262.4 | 6031413 | 43.5 |
| 2007/08 | 945.4 | 417.5 | 166.4 | 361.5 | 6031413 | 59.9 |
| 2008/09 | 1224.4 | 563.1 | 199.53 | 461.7 | 8443979 | 54.7 |
| 2009/10 | 1634.8 | 902.9 | 222.61 | 509.3 | 11821571 | 43.08 |
| 2010/11 | 1470.2 | 1218.8 | 259.9 | 605.2 | 13594800 | 44.51 |
| Average | | | | | | 49.14 |

Appendix 9 : Calculation of NI Approach

Market Value Of Shares(S) = No. of shares outstanding * Closing MPS

Market value of firm(V)

= Market Value Of Debt(B) + Market Value of Equity(S)

Value of firm of NABIL

| F/Y | No. of Shares(N) | Closing MPS | Market Value of Share (S) | Market Value of Debt (B) | V=S+B |
|---------|------------------|-------------|---------------------------|--------------------------|----------|
| 2006/07 | 4916544 | 5050 | 24828.5 | 882.6 | 25711.1 |
| 2007/08 | 6892160 | 5275 | 36356.14 | 1600 | 37956.14 |
| 2008/09 | 9657470 | 4899 | 47311.95 | 1981.3 | 49293.25 |
| 2009/10 | 14491240 | 2384 | 34547.12 | 374.9 | 34922.02 |
| 2010/11 | 20297694 | 1252 | 25412.71 | 1950.6 | 27363.31 |
| Average | | | | | 35049.16 |

Value of firm of BOKL

| F/Y | No. of Shares(N) | Closing MPS | Market Value of Share (S) | Market Value of Debt (B) | V=S+B |
|---------|------------------|-------------|---------------------------|--------------------------|----------|
| 2006/07 | 6031413 | 1375 | 8293.19 | 930 | 9223.19 |
| 2007/08 | 6031413 | 2350 | 14173.82 | 300 | 14473.82 |
| 2008/09 | 8443979 | 1825 | 15410.26 | 300 | 15710.26 |
| 2009/10 | 11821571 | 840 | 9930.12 | 500 | 10430.12 |
| 2010/11 | 13594800 | 570 | 7749.04 | 664.9 | 8413.94 |
| Average | | | | | 11650.27 |

Calculation of Overall Capitalization rate (K)

$$\text{Cost Of Overallcapitalization rate(k)} = \frac{\text{Net Operating Income(EBIT)}}{\text{Total Market Value Of Firm(V)}}$$

Calculation of Overall Capitalization rate (K) of NABIL

| F/Y | EBIT | Value of Firm | K |
|----------------|-------------|----------------------|-------------|
| 2006/07 | 1550.8 | 25711.1 | 6.03 |
| 2007/08 | 1847.4 | 37956.14 | 4.87 |
| 2008/09 | 2632 | 49293.25 | 5.34 |
| 2009/10 | 3573.4 | 34922.02 | 10.23 |
| 2010/11 | 4861.8 | 27363.31 | 17.76 |
| Average | | | 8.85 |

Calculation of Overall Capitalization rate (K) of BOKL

| F/Y | EBIT | Value of Firm | K |
|----------------|-------------|----------------------|--------------|
| 2006/07 | 722.6 | 9223.19 | 7.83 |
| 2007/08 | 945.4 | 14473.82 | 6.53 |
| 2008/09 | 1224.4 | 15710.26 | 7.79 |
| 2009/10 | 1634.8 | 10430.12 | 15.67 |
| 2010/11 | 1470.2 | 8413.91 | 17.47 |
| Average | | | 11.06 |

Appendix 10: Calculation of NOI Appr

$$\text{Cost Of Equity}(k_e) = \frac{\text{Earning Available To Common Stock Holders}}{\text{Market Value Of Stock}(S)}$$

Calculation of Equity Capitalization rate of NABIL

| F/Y | EBT | Market Value of Equity, S | Ke |
|----------------|--------|---------------------------|-------------|
| 2006/07 | 995.1 | 24828.5 | 4.01 |
| 2007/08 | 1089 | 36356.14 | 3 |
| 2008/09 | 1478.7 | 47311.95 | 3.12 |
| 2009/10 | 1613.3 | 34547.12 | 4.67 |
| 2010/11 | 1915.1 | 25412.71 | 7.54 |
| Average | | | 4.47 |

Calculation of Equity Capitalization rate of BOKL

| F/Y | EBT | Market Value of Equity, S | Ke |
|----------------|-------|---------------------------|-------------|
| 2006/07 | 383.7 | 8293.19 | 4.63 |
| 2007/08 | 527.9 | 14173.82 | 3.72 |
| 2008/09 | 661.3 | 15410.26 | 4.29 |
| 2009/10 | 731.9 | 9930.12 | 7.37 |
| 2010/11 | 865.1 | 7749.04 | 11.16 |
| Average | | | 6.23 |

Appendix 11: Degree of Financial Leverage

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

OR

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

Degree of Financial Leverage of NABIL

| F/Y | EBIT | EBT | DFL | Change (%) |
|----------------|-------------|------------|-------------|-------------------|
| 2006/07 | 1550.8 | 995.1 | 1.55 | 0.00 |
| 2007/08 | 1847.4 | 1089 | 1.7 | 9.68 |
| 2008/09 | 2632 | 1478.7 | 1.77 | 4.12 |
| 2009/10 | 3573.4 | 1613.3 | 2.21 | 24.86 |
| 2010/11 | 4861.8 | 1915.1 | 2.54 | 14.93 |
| Average | | | 1.95 | 10.72 |

Degree of Financial Leverage of BOKL

| F/Y | EBIT | EBT | DFL | Change (%) |
|----------------|-------------|------------|-------------|-------------------|
| 2006/07 | 722.6 | 383.7 | 1.88 | 0.00 |
| 2007/08 | 945.4 | 527.9 | 1.79 | (4.79) |
| 2008/09 | 1224.4 | 661.3 | 1.85 | 3.35 |
| 2009/10 | 1634.8 | 731.9 | 2.23 | 20.54 |
| 2010/11 | 1470.2 | 865.1 | 1.7 | (23.77) |
| Average | | | 1.89 | (0.934) |

Appendix 12: Correlation Coefficient Between Total Debt and Shareholders Equity with Probable Error

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

Where,

N= number of observations

X and Y are variables.

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

Where,

r = correlation coefficient

N = number of pairs of observations.

Correlation Coefficient Between TD and SHE of NABIL

| F/Y | TD(X) | SHE(Y) | XY | X2 | Y2 |
|--------------|-----------------|----------------|--------------------|-------------------|-------------------|
| 2006/07 | 25196.3 | 2057.1 | 51831308.73 | 634853533.7 | 4231660.41 |
| 2007/08 | 3469.6 | 2437.2 | 84560116.32 | 1203784659.4 | 5939943.84 |
| 2008/09 | 40737.2 | 3130.2 | 127515583.4 | 1659519463.8 | 9798152.04 |
| 2009/10 | 48245.5 | 3834.2 | 184982896.1 | 2327628270.3 | 14701089.64 |
| 2010/11 | 53527.6 | 4572.1 | 244733540 | 2865203961.8 | 20904098.41 |
| Total | 202402.2 | 16030.8 | 693623444.5 | 8690989889 | 55574944.2 |

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

$$= \frac{5 * 693623444.5 - 202402.2 * 16030.8}{\sqrt{[5 * 8690989889 - 202402.2^2]} \sqrt{[5 * 55574944.2 - 16030.8^2]}}$$

$$= 0.98$$

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

$$= 6 * \frac{0.6745 * (1 - 0.98^2)}{\sqrt{5}}$$

$$= 0.072$$

Correlation Coefficient Between TD and SHE of BOKL

| F/Y | TD(X) | SHE(Y) | XY | X2 | Y2 |
|--------------|----------------|---------------|--------------------|---------------------|-------------------|
| 2006/07 | 13588 | 982 | 13343416 | 184633744 | 964324 |
| 2007/08 | 16379.9 | 1342.1 | 21983463.79 | 268301124 | 1801232.41 |
| 2008/09 | 18754.4 | 1741.6 | 32662663.04 | 351727519.4 | 3033170.56 |
| 2009/10 | 21322.7 | 2073.5 | 44212618.45 | 454657535.3 | 4299402.25 |
| 2010/11 | 22322.6 | 2435.2 | 54359995.52 | 498298470.8 | 5930199.04 |
| Total | 92367.6 | 8574.4 | 166562156.8 | 1757618393.5 | 16028328.3 |

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

$$= \frac{5 * 166562156.8 - 92367.6 * 8574.4}{\sqrt{[5 * 1757618393.5 - 92367.6^2]} \sqrt{[5 * 16028328.3 - 8574.4^2]}}$$

$$= 0.99$$

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

$$= 6 * \frac{0.6745 * (1 - 0.99^2)}{\sqrt{5}}$$

$$= 0.034$$

Appendix 13: Correlation Coefficient Between Long Term Debt and Earning Per Share with Probable Error

Correlation Coefficient Between LTD and EPS of NABIL

| F/Y | LTD(X) | EPS(Y) | XY | X2 | Y2 |
|--------------|----------------|---------------|------------------|-------------------|----------------|
| 2006/07 | 882.6 | 137.08 | 120986.81 | 778982.8 | 18790.9 |
| 2007/08 | 1600 | 108.31 | 173296 | 2560000 | 11731.1 |
| 2008/09 | 1981.3 | 106.76 | 211523.6 | 3925549.7 | 11397.7 |
| 2009/10 | 374.9 | 78.70 | 29504.63 | 140550 | 6193.7 |
| 2010/11 | 1950.6 | 66.22 | 129168.73 | 3804840.4 | 4385.1 |
| Total | 6789.40 | 497.07 | 664479.77 | 11209922.9 | 52498.5 |

$$\begin{aligned}
 r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2]} \sqrt{[N \sum Y^2 - (\sum Y)^2]}} \\
 &= \frac{5 * 664479.77 - 6789.4 * 497.07}{\sqrt{[5 * 11209922.9 - 6789.4^2]} \sqrt{[5 * 52498.5 - 497.07^2]}} \\
 &= -0.134 \\
 \text{P. E.} &= 6 * \frac{0.6745 * (1 - r^2)}{\sqrt{N}} \\
 &= 6 * \frac{0.6745 * (1 - (-0.134)^2)}{\sqrt{5}} \\
 &= 1.78
 \end{aligned}$$

Correlation Coefficient Between LTD and EPS of BOKL

| F/Y | LTD(X) | EPS(Y) | XY | X ² | Y ² |
|--------------|---------------|---------------|-----------------|----------------|----------------|
| 2006/07 | 930 | 43.5 | 40455 | 864900 | 1892.3 |
| 2007/08 | 300 | 59.9 | 17970 | 90000 | 3588 |
| 2008/09 | 300 | 54.7 | 16410 | 90000 | 2992.1 |
| 2009/10 | 500 | 43.08 | 21540 | 250000 | 1855.9 |
| 2010/11 | 664.9 | 44.51 | 29594.7 | 442092 | 1981.1 |
| Total | 2694.9 | 245.69 | 125969.7 | 1736992 | 12309.4 |

$$\begin{aligned}
 r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2]} \sqrt{[N \sum Y^2 - (\sum Y)^2]}} \\
 &= \frac{5 * 125969.7 - 2694.9 * 245.69}{\sqrt{[5 * 1736992 - 2694.9^2]} \sqrt{[5 * 12309.4 - 245.69^2]}}
 \end{aligned}$$

$$\begin{aligned}
&= -0.786 \\
\text{P. E.} &= 6 * \frac{0.6745 * (1 - r^2)}{\sqrt{N}} \\
&= 6 * \frac{0.6745 * (1 - (-0.786)^2)}{\sqrt{5}} \\
&= 0.69
\end{aligned}$$

Appendix 14: Correlation Coefficient Between EBIT and Interest with Probable Error

Correlation Coefficient Between EBIT and Interest of NABIL

| F/Y | EBIT(X) | Interest(Y) | XY | X ² | Y ² |
|---------|---------|-------------|------------|----------------|----------------|
| 2006/07 | 1550.8 | 555.7 | 861779.6 | 2404980.6 | 308802.5 |
| 2007/08 | 1847.4 | 758.4 | 1401068.2 | 3412886.8 | 575170.6 |
| 2008/09 | 2632 | 1153.3 | 3035485.6 | 6927424 | 1330100.9 |
| 2009/10 | 3573.4 | 1960.1 | 7004221.3 | 12769187.6 | 3841992 |
| 2010/11 | 4861.8 | 2946.7 | 14326266.1 | 23637099.2 | 8683040.9 |
| Total | 14465.4 | 7374.2 | 26628820.8 | 49151578.2 | 14739106.9 |

$$\begin{aligned}
r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2]} \sqrt{[N \sum Y^2 - (\sum Y)^2]}} \\
&= \frac{5 * 26628820.8 - 14465.4 * 7374.2}{\sqrt{[5 * 49151578.2 - 14465.4^2]} \sqrt{[5 * 14739106.9 - 7374.2^2]}} \\
&= 0.997
\end{aligned}$$

$$\begin{aligned}
 \text{P. E.} &= 6 * \frac{0.6745 * (1 - r^2)}{\sqrt{N}} \\
 &= 6 * \frac{0.6745 * (1 - 0.997^2)}{\sqrt{5}} \\
 &= 0.011
 \end{aligned}$$

Correlation Coefficient Between EBIT and Interest of BOKL

| F/Y | EBIT(X) | Interest(Y) | XY | X ² | Y ² |
|--------------|---------------|---------------|------------------|------------------|------------------|
| 2006/07 | 722.6 | 339.2 | 245105.9 | 522150.8 | 115056.6 |
| 2007/08 | 945.4 | 417.5 | 394704.5 | 893781.2 | 174306.3 |
| 2008/09 | 1224.4 | 563.1 | 689459.6 | 1499155.4 | 317081.6 |
| 2009/10 | 1634.8 | 902.9 | 1476060.9 | 2672571 | 815228.4 |
| 2010/11 | 1470.2 | 1218.8 | 1791879.8 | 2161488 | 1485473.4 |
| Total | 5997.4 | 3441.5 | 4597210.7 | 7749146.4 | 2907146.3 |

$$\begin{aligned}
 r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2]} \sqrt{[N \sum Y^2 - (\sum Y)^2]}} \\
 &= \frac{5 * 4597210.7 - 5997.4 * 3441.5}{\sqrt{[5 * 7749146.4 - 5997.4^2]} \sqrt{[5 * 2907146.3 - 3441.5^2]}} \\
 &= 0.858
 \end{aligned}$$

$$\begin{aligned}
 \text{P. E.} &= 6 * \frac{0.6745 * (1 - r^2)}{\sqrt{N}} \\
 &= 6 * \frac{0.6745 * (1 - 0.858^2)}{\sqrt{5}}
 \end{aligned}$$

$$= 0.48$$

Appendix 15: Correlation Coefficient Between EBIT and DPS with Probable Error

Correlation Coefficient Between EBIT and DPS of NABIL

| F/Y | EBIT(X) | DPS(Y) | XY | X² | Y² |
|--------------|----------------|---------------|---------------|----------------------|----------------------|
| 2006/07 | 1550.8 | 100 | 155080 | 2404980.64 | 10000 |
| 2007/08 | 1847.4 | 60 | 110844 | 3412886.76 | 3600 |
| 2008/09 | 2632 | 35 | 92120 | 6927424 | 1225 |
| 2009/10 | 3573.4 | 30 | 107202 | 12769187.56 | 900 |
| 2010/11 | 4861.8 | 30 | 145854 | 23637099.24 | 900 |
| Total | 14465.4 | 255 | 611100 | 49151578.20 | 16625 |

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

$$= \frac{5 * 611100 - 14465.4 * 255}{\sqrt{[5 * 49151578.20 - 14465.4^2]} \sqrt{[5 * 16625 - 255^2]}}$$

$$= -0.581$$

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

$$= 6 * \frac{0.6745 * (1 - (-0.581)^2)}{\sqrt{5}}$$

$$= 1.19$$

Correlation Coefficient Between EBIT and DPS of BOKL

| F/Y | EBIT(X) | DPS(Y) | XY | X² | Y² |
|--------------|----------------|---------------|----------------|----------------------|----------------------|
| 2006/07 | 722.6 | 20 | 14452 | 522150.76 | 400 |
| 2007/08 | 945.4 | 2.1 | 1985.34 | 893781.16 | 4.41 |
| 2008/09 | 1224.4 | 7.4 | 9060.56 | 1499155.36 | 54.76 |
| 2009/10 | 1634.8 | 15 | 24522 | 2672571.04 | 225 |
| 2010/11 | 1470.2 | 18 | 26463.6 | 2161488.04 | 324 |
| Total | 5997.4 | 62.5 | 76483.5 | 7749146.36 | 1008.17 |

$$\begin{aligned}
 r &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2]} \sqrt{[N \sum Y^2 - (\sum Y)^2]}} \\
 &= \frac{5 * 76483.5 - 5997.4 * 62.5}{\sqrt{[5 * 7749146.36 - 5997.4^2]} \sqrt{[5 * 1008.17 - 62.5^2]}} \\
 &= 0.135 \\
 \text{P.E.} &= 6 * \frac{0.6745 * (1 - r^2)}{\sqrt{N}} \\
 &= 6 * \frac{0.6745 * (1 - 0.135^2)}{\sqrt{5}} \\
 &= 1.78
 \end{aligned}$$