CHAPTER I
INTRODUCTION

1.1 Background of the Study

Fund or capital is the most essential part for the development of any sector. Establishment of trade and industry is impossible in the absence of sufficient capital. In the context of capital flows, the bank plays a vital role as a financial intermediary. Without banks, capital flow could not be systematic. In the present competitive business market, no one can operate their business successfully with their own capital. Everyone should depend upon financial intermediary even for the small scale business. Thus, the bank plays the key role in the economic development of the country.

Commercial banks play a vital role in the economic development of a country. They act as intermediaries, which mobilize funds through the prudential combination of investment portfolios in every country. With the emergence of open market and globalization concept, the trend of opening banks in foreign land as a joint venture is in increasing trend.

Joint Venture Banks (JVBs) in developing countries like Nepal have the greatest responsibility towards the economic development of the country. JVBs are the mode of trading to achieve mutual exchanges of goods and services for sharing competitive advantages by performing joint investment schemes between a domestic and a foreign country as parent and subsidiary bank.

JVBs are formed in Nepal as full-fledged commercial banks under the company act 2021 B.S. and operated under the Banijya Bank Act 2032 B.S. All the JVBs are established and operated under the rules and regulations of Nepal Rastra Bank (NRB). HMG of Nepal's deliberate policy of allowing JVBs to operate in Nepal is basically targeted to encourage local traditionally run commercial banks to enhance their banking capacity

through competition, efficiency, modernization, mechanization via computerization and prompt customer service. However, in Nepal, the role of JVBs are still to be realized as an essential machine of mobilizing internal saving through various competitive banking schemes and uplift the economy. In order to uplift the backward economic condition of the country, the process of capital accumulation among other pre- requisition should be expedited.

Capital accumulation plays an essential role in acceleration of the economic growth of nations. But the capacity of saving in the developing country is quite low with a relatively higher marginal propensity of consumption. As a result developing countries are badly trapped into the vicious circle of poverty. The basic problem of these countries is raising the level of saving and investments. In order to collect the enough saving and put them into productive channels, financial institutions like banks are necessary. It will be utilized within the economy and will either be diverted abroad or used for productive consumption or speculative activities.

Success and failure of any organization or banks mainly depends upon the structure of its optimum structure. It determines the profit making power of the bank as well as it helps to reduce its risk to minimum level. Increase in equity capital decreases the earning power as well as risk to its shareholders. Similarly, increase in debt capital increase the profit as well as risk to the shareholders. Therefore, the bank should manage the optimum capital structure so that profit and risk both could be managed well.

Capital structure concept holds a major place in the financial management and it refers the proportion of debt and equity capital. A perfect balance between debt and equity is required to ensure the trade-off between risk and return. Thus, optimal capital structure means the capital structure having reasonable proportion of debt and equity. Also, by increasing the firm’s opportunity to engage in future wealth-creating investment, it increases the economy’s rate of investment and growth.

Commercial banks are the suppliers of finance for trade and industry, which plays a vital role in the economic and financial life of the country. They help in the formation of capital by investing the savings in productive areas. Rural people from under developed countries like Nepal need various banking facilities to enhance its economy. In most of the countries, the banks are generally concentrated in urban and semi-urban sectors. They neglect rural sector due to heavy risk and low return, which is in fact, without it, other sectors of economy cannot be flourished.

The concept of banking is developed from the history with the effort of ancient goldsmith who developed the practice of storing people's gold and valuables. They used to receive valuables and issue a receipt to the depositors. As such receipts are good for payment equipment to the amount mentioned, it becomes like the modern cheque, as a medium of exchange and means of payment.

The history of the systematic development of commercial banks in Nepal as compared to other developed countries is of recent origin. In Nepal, efforts are being made to accelerate the pace of economic development after the adaptation of first five year plan in 1956. Nepal Bank Limited, the first and the oldest bank in modern banking history of Nepal, was established in 1937 A.D. (30^{th} Kartik, 1994 B.S) with 51% government equity. Nepal Bank Limited also used to function as Central bank of the country up to 2012 B.S. On 2013 B.S, Nepal Rastra Bank was established as Central bank of Nepal under the Nepal Rastra Bank Act 2012. Government initiated some corrective measures to stabilize the economy with the assistance of IMF standby arrangement in mid 1980s. In F/Y 1985, it subsequently embarked upon structured adjustment program encompassing measures to increase domestic resource mobilization, strengthen financial sectors and liberalize industrial and trade policies. Since then several financial institutions and commercial JVBs have been established in the process of development and liberalization policy for the economic development of the nation.

The commercial bank collects the scattered saving and place them into productive channels. They hold the deposit of the people, government establishments and business

units. They make funds available through their lending and investing activities to borrowers, individuals, business firms and government establishments. In doing so, they assist both the flows of goods and services from the government. They are the media through which monetary policy is affected. These banks are resources for the development. It maintains economic confidence of various segments and extends credit to people.

Commercial banks provide capital for the development of industry, trade and business by investing the saving collected as deposits from the public. They render various other services to their customers facilitating to improve their economic and social life. They are the most important instruments for the country's development. Therefore, a competitive and reliable banking system is essential to every country to develop.

At present there are altogether 32 'class A category' Commercials Banks in Nepal. Besides this there are 88 'class B category' Development Banks, 70 'class C category' Finance Companies and 24 'class D category' Micro Credit Development Banks, which are licensed by Nepal Rastra Bank and are competing with these 'A' class commercial banks.

1.2 Capital Structure

Capital structure is the composition of long term debt, preferred stock and common equity including reserves and surpluses i.e. retained earnings. Capital structure represents the relationship among different kinds of long term sources of capital and their amount. Normally, a firm raised 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 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 term to the investors. Capital structure of a firm can be shown in equation as follows:

Capital Structure = Long term debt + Preference stock + Common equity

Banks should have sufficient capital in relation to the volume and risk of their business to absorb the losses without using the depositors' funds. This capital investment gives owners and managers a powerful incentive to run the bank safely and soundly. Capital is simply the difference between the value of a bank's assets and its liabilities to third parties.

The major portion of the capital comprises of owners fund and creditors fund. The owners expect dividend and appreciation in the share price whereas creditors expect interest and return of the fund at the mentioned time. So the capital structure of the firm is important factor in determining the success of the firms.

Capital structure decision affects the cost of capital and value of the firm. The structure of long term financing which minimizes the overall cost of capital or maximizes the value of firm is optimal capital structure. At optimal capital structure, market price per share is also maximized. As a result, shareholder's wealth is maximized and goal of the firm is achieved.

1.3 Brief Introduction of Sample Banks

Of the leading banks of the Nepalese economy, two 'A category' commercial banks are observed for this study. They are: Nabil Bank Limited (NABIL) and Himalayan Bank Limited (HBL).

1.3.1 Nabil Bank Limited (NABIL)

Nabil Bank Limited, the first joint venture bank of Nepal, started operations on the 12th July, 1984. It is one of the leading commercial bank of Nepal. Nabil bank, through a joint venture with Dubai Bank Ltd., under a Technical Service Agreement (TSA) marks a new dawn in the Nepalese banking industry. It was incorporated with the objective of

extending international standard modern banking services to various sectors of the society. It is a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector and represents a milestone in the banking history of Nepal. The bank has 49 branches all across the nation with its head office in Kathmandu.

Operations of the bank including day-to-day operations and risk management are managed by highly qualified and experienced management team. Bank is fully equipped with modern technology, which includes ATMs, credit cards, debit cards, state-of-art, world-renowned software from Infosys Technologies System, Bangalore, India, Internet banking system and Tele-banking system. Nabil is geared to cover almost all sectors through an integrated approach from corporate lending through small & medium enterprise lending. Grameen Micro Lending to Personal Banking, and Infrastructure Financing in the days to come. Today, Nabil entering the 28th year of operation, it is serving a wider clientele and supportive stakeholders. It has succeeded in positioning itself strongly in the market.

1.3.2 Himalayan Bank Limited (HBL)

Himalayan Bank Limited was incorporated in 1992 by a few distinguished business personalities of Nepal in partnership with Employees Provident Fund and Habib Bank Limited, one of the largest commercial Bank of Pakistan, Banking operation was commenced from January 1993. Himalayan Bank is the first commercial bank of Nepal whose maximum shares are held by the Nepalese private sector. Besides commercial banking services, the bank also offers industrial and merchant banking services. It has 40 branches all across the nation with its head office in Kathmandu.

Despite the cut throat competition in the Nepalese banking sector, Himalayan bank has been able to maintain a lead in the primary banking activities (Loans and Deposits). Himalayan Bank Limited holds of a vision to become a leading bank of the country by providing premium products and services to the customers, thus ensuring attractive and substantial returns to the stakeholders of the bank.

All Branches of HBL are integrated into Globus (developed by Temenos), the single Banking software where the Bank has made substantial investments. This has helped the Bank provide services like 'Any Branch Banking Facility', Internet Banking and SMS Banking. Living up to the expectations and aspirations of the Customers and other stakeholders of being innovative, HBL very recently introduced several new products and services. Millionaire Deposit Scheme, Small Business Enterprises Loan, Pre-paid Visa Card, International Travel Quota Credit Card, Consumer Finance through Credit Card and online TOEFL, SAT, IELTS, etc. fee payment facility are some of the products and services. HBL also has a dedicated offsite 'Disaster Recovery Management System'. Looking at the number of Nepalese workers abroad and their need for formal money transfer channel; HBL has developed exclusive and proprietary online money transfer software- Himal Remit TM. By deputing its own staff with technical tie-ups with local exchange houses and banks, in the Middle East and Gulf region, HBL is the biggest inward remittance handling Bank in Nepal. All this only reflects that HBL has an outside-in rather than inside-out approach where Customers' needs and wants stand first.

1.4 Statement of Problem

Capital structure is a barometer which measures the success or failure of a firm in the long run. The major capital structure question is how a firm should go about choosing its debt - equity ratio. The decision of capital structure is crucial as it decides the well being of the business. As in other sectors, the decision of capital structure is equally significant in banking industry as it involves the public's money. As commercial banks are the building pillars of an economy, it is also essential that they are economically sound too. The bank management must ensure that the return on the investor's money is maximized or the cost of capital is minimized. This study is concerned with studying the capital structure management of two JVBs in Nepal namely Nabil Bank Ltd. and Himalayan Bank Ltd. The study highlights on the capital structure of these banks and its effect on the earnings, liquidity, assets, and overall performance of the bank by use of various financial indicators and ratios including capital adequacy, asset quality, earnings and profitability,

and liquidity. Other statistical tools are also used such as regression analysis and correlation analysis.

Most of the theoretical and empirical debuts so far are revolved around the maximization of the value of firms through the judicious composition of its debt and equity fund. Net Income (NI) approach and Traditional theory of capital structure claims that there is the existence of the optimal capital structure. They contend that proper mix of debt and equity can maximize the value of the firms. Whereas, Net Operating Income (NOI) approach and M-M hypothesis contend that capital structure is irrelevant to the value and cost of capital of the firm. Capital structure concept has been the subject of controversy since the publication of M-M's classic paper in 1958 *(Ghimire; 1993, 3).* They hold the view that the cost of a firm remains invariant to capital structure changes. On the other hand, the Static Trade off theory states that the firm's capital structure is determined by a trade-off of the value of tax shields against the costs of bankruptcy. This theory claims that tax shield benefits of debt financing need to be adjusted for financial distress costs that rise with increasing debt levels, creating an optimal capital structure that balances both forces. As per the Pecking Order model, there is a strict ordering or hierarchy of sources of finance which results from adverse selection issues which arise when the firm has more information about its value than providers of funds. The result is that firms will have a preference for internal sources of funds followed by debt and then, when such sources are exhausted, equity finance will be used. That is the firms have a preference, or pecking order of preferred sources of financing, when all else is equal. Internally generated funds are the most preferred, new debt is next, debt - equity hybrids are next, and new equity is the least preferred source.

Various studies have been conducted regarding the capital structure. It is found that the capital structure not only affects the earnings and profitability of bank but also determines the liquidity and other qualitative aspects related with banking, for instance psychology of the stakeholders. Capital structure depends upon the owner's willingness to share the control of the management by issuing debt in the market. If management

currently has voting control (over 50 percent of the stock) but is not in a position to buy any more stock, it may choose debt for new financings. On the other hand, management may decide to use equity if the firm's financial situation is so weak that the use of debt might subject it to serious risk of default. Generally, aggressive management uses more debt in the quest for higher profits. If the management has ambitious growth vision, then it is likely that capital structure is affected or altered as compared to other players in the industry.

Studies till date have considered the capital structure of the firm and its impact on the overall performance but haven't considered the capital adequacy in terms of its risk weighted assets. Likewise the impact of capital structure on liquidity and earnings haven't been examined on a broader perspective. As different approaches hold different beliefs related to the impact of capital structure on the value of the firm, this study has been commenced to map out the following questions.

- What is the existing situation of capital structures of sample commercial banks?
- Is the capital of the bank adequate with respect to its risk weighted assets?
- What is the debt servicing capacity of the commercial banks?
- What are the determinants of bank's capital structure?
- What is the linear relationship between capital structure and profitability?
- What is the relationship between the liquidity position of the bank and its capital structure policy?

1.5 Objectives of the Study

The main objective of this study is to analyze capital structures of sample banks. The specific objectives are as follows:

- To examine the relationship between different ratios related to capital structure.
- To analyze the effects of capital structure on the profitability of sample banks.
- To study the debt servicing capacity of the sample banks.

1.6 Significance of the Study

The study has been done in reference to the periodical performance of Nabil Bank Ltd. and Himalayan Bank Ltd. This study has tried to focus on capital structure of the bank so the study could be significant in revising the bank's capital structure for past five years at a glance. The study could be beneficial to various groups of people of the economy.

Firstly, this study provides valuable information about the debt and equity (leverage) ratio of the selected Nepalese enterprise. Investors will be benefited by such information to perform securities analysis before taking investment decision. Likewise, financial managers of Nepalese enterprise will also be benefited because they will get important information regarding optimum capital structure which will help them to make least cost combination of debt and equity.

This study can also be an aid to future researchers. They will get additional information in capital structure and cost of capital in the literature of finance. They will be benefited by getting secondary data in this context.

Besides helping to enhance the level of understanding in capital structure for other researchers, management scholars and other stakeholders, this study will also be a guideline and review of past performance of the respective sampled commercial banks and the pros and cons of their capital structure and its impact in the financial performance. This study will also be assistance to the team of financial strategists for the improvisation of their existing leverage ratio.

1.7 Limitations of the Study

The study has been prepared with the help of the financial reports and annual publications of the bank. It has been initiated with view of tracing out different aspect of capital structure of the bank and the calculation has been done with the figures provided by the

bank. Further, it has been initiated by the student rather than by some economic or financial analyst so it has some of its own limitations as stated below:-

- As mentioned earlier, this study is based on secondary data (published annual reports of commercial banks), journals, newspapers, magazines etc and unpublished studies.
- The study covers only 5 years data, beginning from Fiscal Year (FY) 2006/07 to 2010/11.
- The study covers only the quantitative aspect such as capital structure, liquidity, earnings, profitability, and assets quality and ignores other qualitative aspects such as management team and their efficiency.
- Among 32 commercial banks, only two of them are studied due to time and resources constraints. Thus, we cannot have a true picture of the overall conditions of commercial banks in Nepalese banking sector and the average performance of these banks is not the average of all the commercial banks in Nepal. Thus, the findings of the study cannot be generalized.
- The study deals with limited financial and statistical tools. Hence, the drawbacks and weaknesses of those tools are the limitations of the study.

To some extent, the data published on the websites may vary sometimes, with that of the annual reports of commercial banks.

1.8 Organization of the Study

The entire study is divided into five chapters. Brief information of what each chapter contains is given below:

Chapter 1: Introduction

It is an introductory chapter, which describes the basic concept and general background of banks. It contains basic information of the research area, focus of the study, statement

of problems, objectives, significance and limitation of the study. It also contains a brief profile of concerned banks.

Chapter 2 : Literature Review

This chapter deals with the review of related books, journals, annual reports published by banks and other authorities. It includes the theories of capital structure, empirical evidences in capital structure, reexamination or appraisal of the existing works in relevant areas and a review of related previous studies.

Chapter 3 : Research Methodology

This chapter contains research design, population sample, nature and sources of data, method of data collection and analysis. Various financial and statistical tools are defined which have been used in the analysis of data.

Chapter 4 : Data Presentation and Analysis

This is the heart of the study as it is concerned with presentation and analysis of relevant data and information. In order to find out the true picture of the capital structure of Nabil Bank Ltd. and Himalayan Bank Ltd, various financial and statistical tools, indicators, and techniques are used. Thus, this chapter is concerned with the findings of analysis and the calculated results have been presented in a tabulated form and graphical presentation has also been made along with the interpretation of the calculated figures.

Chapter 5 : Summary, Conclusion and Recommendation

This chapter summarizes the overall picture of the study, draws conclusions, and offer suggestions and recommendations for improvement in the future. Bibliography and appendices are also included.

CHAPTER 2

LITERATURE REVIEW

The purpose of reviewing the literature is to develop some expertise in one's area to see what new contribution can be made and to receive some ideas for developing a research design. Thus, the previous studies can't be ignored because they provide the foundation to the present study. In other words, there has to be continuity in research. This continuity in research is ensured by linking the present study with the past research studies. From this, it is clear that the purpose of literature review is to find out what research studies have been conducted in one's chosen field of study and what remains to be done. Such a review has been made from various sources of literature available in different libraries, documentation centre, Nepal Stock Exchange Ltd., other information bureaus and the concerned commercial banks' websites. This chapter first presents the conceptual review, review of articles, research papers and previous research studies relevant to this study, and the research gap.

This chapter is divided into following headings: Firstly, conceptual framework which deals with the basic concepts of capital, its structure, and definition of financial leverage. Secondly, this chapter deals with the existing theories of Capital Structure. Thirdly, it consists of empirical evidence in capital structure. The articles and journals will be reviewed in general. Lastly, this chapter ends with the research gap.

2.1 Conceptual Framework

Capital refers to the fund which is essential for starting up a business. Bank capital refers to the fund generated by bank through various sources – issuance of equity and preference shares, floatation of debentures and bonds, and acceptance of deposits. A bank needs capital as it is the institution to carry out financial transactions. Bank can't be imagined without capital. The nature or the structure of total capital that is required for

any business is called capital structure. In other words, the total sum of equity capital and the borrowed amount is capital structure. In business, necessary capital can be accumulated by issuing different types of securities. The company's management should know as to what sorts of and how many securities is to be issued for the collection of total capital, how many shares to be issued, and how many debentures are to be issued. Capital structure is made of debt and equity securities which comprise a firm's finance of its assets. It is the permanent financing of a firm, represented by long-term debt plus preferred stock plus net worth *(Kulkarni; 1983, 363)*. It refers to the composition or make-up of its capitalization and it includes all long term capital resources, via, loans, reserve, and shares and bonds *(Charles Gerestnberg; 1960, 72).*

A firm's capital structure is only a part of its financial structure. The term 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 the '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 as capital structure includes only the long-term sources of financing while financial structure includes both long term and short-term sources of financing. Financial leverage involves the use of funds obtained at fixed costs in the hope of increasing the return to stockholders. Weston and Brigham *(Weston and Brigham; 1981, 556)* defined financial leverage as the ratio of total debt to total assets or total value of the firm. The use of the fixed charges sources of funds, such as debt and preference share capital along with the owner's equity in the capital structure, is described as financial leverage or 'trading on equity'*(Pandey ; 1999, 23).* Trading on equity is derived from the fact that it is the owner's equity that is used as a basis to raise debt, i.e. the equity that is traded upon. The supplier of debt has limited participation in the company's profit, therefore, debt holder will insist on protection in earnings and value represented by ownership capital.

The selection of the capital structure will obviously depend on the firm's objective of maximization of shareholder's wealth. A financing mix which will lead to maximization of shareholder's wealth as reflected in the market price of shares is termed as an optimum

capital structure. There has always been controversy between financial theorists and corporate managers regarding capital structure. There are number of capital structure theories proposed by different personalities. This is the area in which several theoretical and empirical works have been done by different personalities. Capital structure theories developed so far are clung to the question of existence of the optimal capital structure. The optimum capital structure may be defined as that capital structure or combination of debt and equity that leads to the maximum value of the firm (*Khan and Jain; 1990, 487).* Erza Soloman expresses the optimum capital structure and its implications as that mix of debt and equity which will maximize the market value of the claims and ownership interest represented on the credit side of the balance sheet *(Solomon; 1969, 132).* Further, the advantages of having an optimum capital structure is twofold: it maximizes the value of the company and hence the wealth of its owners and it minimizes the company's cost of capital which in turn increases its ability to find new wealth creating investment opportunities. Also, by increasing the firm's opportunity to engage in future wealth-creating investment, it increases the economy's rate of investment and growth.

2.2 Theories of Capital Structure

The two primary sources of long term debt are debt and equity. Normally, we say the application of higher leverage (debt) produces the higher level of profitability and thus it can increase the value of firm, but it has adverse impact on financial risk which may reduce the total value of firm. In other words, a sort of controversy had existed whether the capital structure affects the value of firm or not. Some financial analyst argue that capital structure can increase the value of firm if more and more leverage is added, where traditionalists believe the value of firm can be maximized by adopting an optimal capital structure (not maximum leverage). Modigliani and Miller, on the other hand argues that capital structure does not matter in the value of firm provided the capital market is perfect.

There are four dimensional lists when thinking about capital structure decision.

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

b) **Bankruptcy cost:** With presence of bankruptcy cost, financial distress is costly; other things constant, distress is more likely for the firms generally issue less debt.

c) Assets type: The cost of distress is likely to be greater for firms whose value depend on growth opportunity or intangible assets. These firms are likely to pursue more profitable opportunities and if default occurs, their assets should borrow significantly less on average their holding assets they can kick.

d) Financial slack: In the long run, a company's value rests more on its capital investment on operating decision than on financing. Therefore, we need to make sure that our fire has sufficient financial slacks, so that financing is quickly accessible when good investment opportunity arises. Financial slack is most valuable to the firms that have positive NPV growth opportunity. This is another reason that why growth company usually sticks to conservation of capital structure.

There are number of capital structure theories proposed by different individuals which has also created some controversy due to different concepts of capital structure theory held by different personalities. This is the area in which several theoretical and empirical works have been done by different personalities. Capital structure theories developed so far revolve around the question of existence of the optimal capital structure. Most of the theoretical and empirical debuts so far are revolved around the maximization of the value of firms through the judicious composition of its debt and equity fund. Net Income (NI) approach and Traditional theory of capital structure claims that there is the existence of the optimal capital structure. They contend that proper mix of debt and equity can maximize the value of the firms. Whereas, Net Operating Income (NOI) approach and M-M hypothesis contend that capital structure is irrelevant to the value and cost of capital of

the firm. According to the NOI approach, cost of equity increases linearly as debt increases in the capital structure. The use of debt does not affect the value of the firm as the benefit of debt capital is just offset by the increase in the cost of equity. (Ezra Solomon; 1969) Likewise, M-M hypothesis states that there is no optimal level of capital structure. They support the NOI approach by providing logically consistent behavioral justifications in its favor. Between the two extreme views, we have the middle position of intermediate version advocated by the traditional writers. . Thus, there exists an optimum capital structure at which the cost of capital is low. But the logic of this view does not seem very sound. The M-M position changes when corporate taxes are assumed.

This section is developed to discuss briefly about the theoretical concept regarding the theories of capital structure and financial leverage. All the approaches are based on some common assumptions, which are as follows:

Basic Assumptions and Definitions:

1. The firm's capital structure consists of debt and equity.
2. The issue of equity is to retire debt and the issue of debt is used to repurchase equity, i.e. total assets (accounting value of assets) of the form remains unchanged regardless in the change in leverage ratio.
3. The firms maintain 100 percent dividend payout ratio and thus there is no existence of growth rate (i.e. EPS=DPS).
4. No existence of flotation cost and the debt is assumed to be perpetual.
5. Net operating income (NOI) or earnings before interest and tax (EBIT) remains unchanged regardless in the change in leverage ratio.
6. No existence of taxes and bankruptcy cost.
7. The life of firm is assumed to be perpetual.

In addition to above assumption, the following symbols are employed.

For debt financing

- Debt capitalization rate or cost of debt (k_d) = I/NP
- Cost of debt (k_d) = I/B (no existence of flotation cost)
- B = I/ k_d
- I = B x k_d

Where, I = Interest expenses

NP = Net Proceeds

B = Value of Debt

FV = Face Value

For equity financing

- Equity capitalization rate or cost of equity (k_s) = D_1/ P_o + g

(As per assumption, Equity capitalization rate or cost of equity (k_s) = EPS/ P_o

Or, Net Income/(NI)/Market Value of Stock (S)

- Market Value of Stock (S) = Net Income (NI)/ k_s
- Net Income = Value of Stock x k_s

Where, D_1 = Expected Dividend in Year 1

P_o = Price of stock

EPS = Earnings per share

G = Growth rate of dividend

NI = Net Income; (EBIT – Interest)

Overall cost of capital (K_o) or Weighted average cost of capital (WACC)

- WACC = W_d x k_d + W_e x k_s

= B/V x k_d + S/V x k_s

= (B x k_d)/V x (S x k_s)/V

= I/V + NI/V

= (I + NI)/V

= NOI/V

- Total value of firm (V) = Value of debt (B) + Value of stock (S)

  V = NOI/ K_o

Most commonly cited theories of Capital Structure are as follows: Net Income Approach, Net Operating Income Approach, Traditional Approach, Modigliani and Miller Approach, Static Trade-Off Theory, Pecking Order Theory, and Agency Theory. They are briefly discussed below.

2.2.1 Net Income Approach

This approach was developed by David Durand in 1952. This approach states that the cost of 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.

According to this approach, the capital structure decision is relevant to the valuation of the firm. This theory suggests that the change in leverage ratio affects the overall cost of capital and market value of firm.

This approach is based on the following assumptions:

1. The cost of equity and debt remain constant regardless of the change in leverage ratio.
2. The corporate income tax does not exist.
3. The cost of debt is less than the cost of equity.
4. An increasing leverage brings about no deterioration in the equity of net earnings so long as borrowing is consigned to the amount below the acceptable limits.

The implication of these assumptions underlying in NI approach is that as the degree of leverage increases, the proportion of a cheaper sources of funds, i.e. debt in capital structure increases. As a result, the cost of capital gradually decreases, leading to an increase in the total value of the firm. Thus, with the cost of debt and equity being constant, the increased use of debt will increase the market value of firm.

As per NI approach, increase in ratio of debt to total capitalization brings about corresponding increase in total value of firm and decline in cost of capital *(Pandey; 1999, 26)*. On the contrary, decrease in ratio of debt to total capitalization causes decline in total value of firm and increase cost of capital. Overall, NI approach states that the value of firm will be highest at the point where weighted average cost of capital is lowest. Thus, this theory suggests total debt or maximum possible debt financing for minimizing the cost of capital.

Graphically, the effect of leverage on the firm's cost of capital and the total market value of the firm is shown below.

Figure: 2.1

The effect of Leverage on Cost of Capital

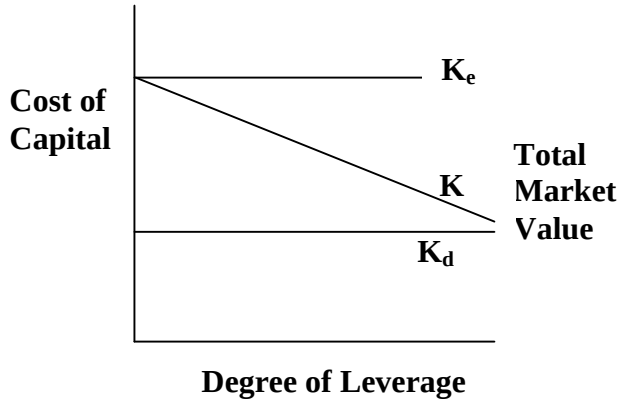


Figure: 2.2

The effect of leverage on Total Market Value of the Firm

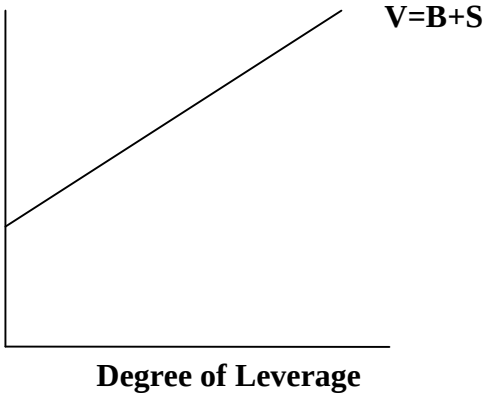


Figure 1 shows a continuous decrease in K with the increase in debt-equity ratio, since any decrease in K directly contributes to the value of the firm. It increases with the

increase in the debt-equity ratio (Figure 2.2). Thus the financial leverage, according to the NI approach is an important variable in the capital structure decision of a firm. Under the NI approach, a firm can determine an optimal capital structure. If the firm is not leveraged, the overall cost of capital will be just equal to the equity capitalization rate.

In brief, the essence of the Net Income approach is that the firm can lower its cost of capital by using debt. The approach is based on the crucial assumption that the use of debt does not change the risk perception of the investor. Consequently, the interest rate of debt (K_d) and the equity capitalization rate (K_e) remains constant to debt. Therefore, the increased use of debt results in higher market value of shares which results in lower overall cost of capital (K). As the firm goes on increasing the proportion of cheaper debt, the overall cost of firm (K) decreases and the value of the firm (V) increases. The benefits of using cheaper funds are offset by the decreasing cost of capital and increase in market price per share *(Pandey; 1999, 26).*

2.2.2 Net Operating Income Approach (NOI)

NOI approach is another behavioral approach developed by David Durand in 1952. In this approach, net operating income is capitalized at an overall capitalization at an overall capitalization rate to obtain the total market value of the firm. As EBIT and overall capitalization rate remains 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. In the net operating income approach, the overall capitalization rate and the cost of debt remain constant for all degrees of leverage. The required rate on equity increases linearly with financial leverage.

According to NOI approach, capital structure decision is irrelevant to the valuation of the firm. . Any change in leverage ratio will not lead to any change in overall cost of capital as well as value of firm. This theory assumes that as the leverage ratio increases, the risk perception of investors or shareholders changes so in this case their required rate of return also increases. Because of increased K_s, it offsets overall cost of capital to remain

constant though the debt having cheaper cost is added more. Therefore, this approach argues that firms having same business risk, total assets and operating income but only the way of financing is different should have same market value.

The NOI approach is based on the following assumptions:

1. The market uses an overall capitalization rate (K) to capitalize the net operating income. K depends on the business risk. If business risk is assumed to remain unchanged, k is constant.
2. The use of less costly debt funds increases the risk of shareholders. This causes the equity-capitalization rate to increase. Thus, the advantages of debt are offset exactly by the increase in the equity capitalization rate, K_e.
3. The debt-capitalization rate K_d is constant.
4. The corporate income taxes do not exist.
5. Market value of equity is the residual value.

The value of the firm based on NOI approach can be ascertained as follows:

- Market value of firm (V) = NOI/ K_o
- Market value of equity (S) = Total market value of firm(V) – Market value of debt(B)
- Cost of equity = Net Income (NI)/Market value of equity (S)

Figure:2. 3

The effect of Leverage on Cost of Capital

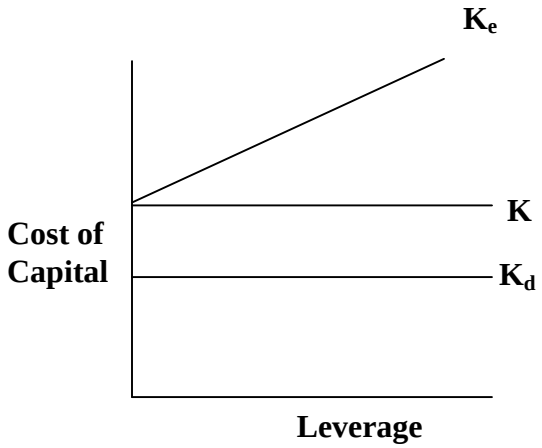
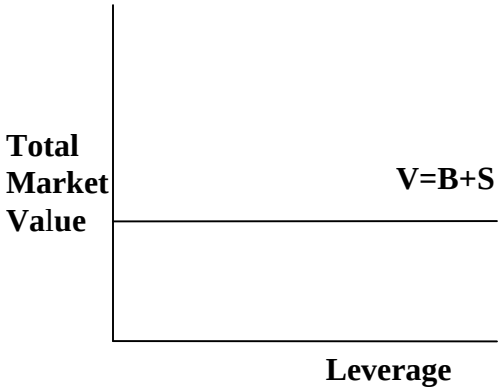


Figure: 2.4

The effect of Leverage on value of firm



In the Figure 2.3, it is shown that the line K and K_d are parallel to the horizontal x-axis and K_e is increasing continuously. This is because K and K_d remain constant under all the circumstances but the K_e increases with the degree of increase in the leverage *(Gitman; 1998, 791)*. Thus, there is no single point or range where the capital structure is optimum. It is known obviously from Figure 4 that under the NOI approach, as low cost of debt is used, its advantage is exactly offset by increase in cost of equity in such a way that the cost of capital remains constant. By this, value of the firm also remains constant. At the extreme degree of financial leverage, hidden cost becomes very high hence the firm's cost of capital and its market value are not influenced by the use of additional cheap debt fund.

2.2.3 Traditional Approach

The traditional approach developed by David Durand in 1952 is also known as intermediate approach. It has mix features of NI and NOI approach. This approach suggests that there is an optimal capital structure and the firm can increase the total market value of firm through judicious use of leverage but not maximum leverage as suggested by NI approach.

The main propositions of traditional approach are:

1. This approach assumes that cost of equity increases as leverage ratio increases but not linearly as in NOI approach. Starting slightly up to reasonable limit of leverage ratio, after that it increases rapidly as financing risk increases.
2. On the other hand, it assumes that cost of debt remains constant but only up to certain extent or leverage ratio, after that cost of debt also increases because of increase in the risk of firm.

According to the traditional position, the manner in which the overall cost of capital reacts to changes in capital structure can be divided into three stages:

First Stage: Increasing Value

The first stage starts with the introduction of debt in the firm's capital structure. In this stage, the cost of equity (K_e) either remains constant or rises slightly with debt because of the added financial risk. But it does not increase fast enough to offset the advantage of low cost debt *(Soloman; 1969, 139)*. In other words, the advantage arising out of the use of debt is so large that, even after allowing for higher cost of equity, the benefit of the cheaper sources of funds are still available. As a result the value of the firm (V) increases as the overall cost of capital falls with increasing leverage.

During this stage cost of debt (K_d) remains constant or rises only modestly. The combined effect of all these will be reflected in increase in market value of the firm and decline in overall cost of capital (K).

Second Stage: Optimum Value

In the second stage, further application of debt will raise cost of debt and equity capital so sharply as to offset the gains in net income. Hence, the total market value of the firm would remain unchanged. While the firm has reached a certain degree of leverage, increase in it has a negligible effect on the value of the firm or overall cost of capital of the firm *(Pandey; 1999, 358)*. The increase in the degree of leverage increases the cost of equity due to the added financial risk that offsets the advantage of low cost debt. Within the range of such debt level or at a specific point, the value of the firm will be maximized or the cost of capital will be minimized.

Third Stage: Declining Value

Beyond the acceptable limit of leverage, the value of the firm decreases with the increase of the leverage or the overall cost of capital increases with the additional leverage. This happens because investors perceive a high degree of financial risk, which increases the cost of equity by more than enough to offset the advantage of low cost debt.

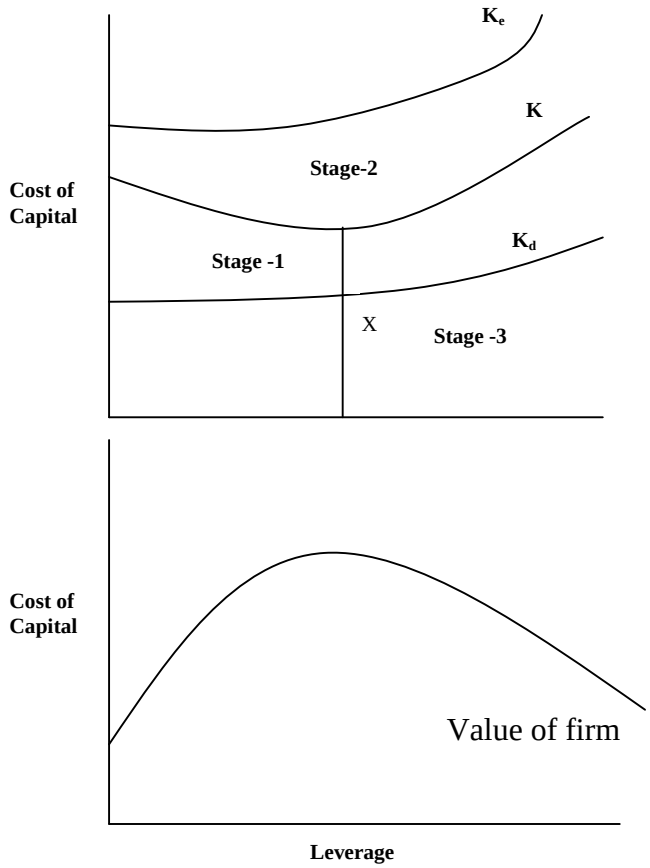
In short, at starting overall cost of capital decreases due to constant cost of debt and slightly increases in cost of equity to which this approach has define as decline stage. At certain point, K_o will be minimum which is known as optimum point. The point of leverage where K_o is minimum is known as optimal capital structure. Then after this, certain extent, K_o starts to increase because of increase in cost of debt as well as rapid increase in cost of equity to which this approach has been defined as increasing stage.

So based on the assumptions made on $K_{d,}$ $K_{o\ and}$ $K_{e,}$ this approach suggest that the value of firm increases up to where K_o decreases. Then after the value of firm starts to decrease as K_o starts to increase. The value of firm will be maximum where K_o is minimum.

The overall effect of these three stages is to suggest that the cost of capital is a function of leverage, i.e. first falling and after reaching minimum point or range it would start rising. The three stages of capital structure and the relation between cost of capital and leverage is graphically shown in figure below:

Figure: 2.5

The effect of Leverage on Cost of Capital under Traditional Theory



In Figure 2.5, it is assumed that K_e rise at an increasing rate with leverage, whereas K_d is assumed to rise only after significant leverage has occurred. At first, the weighted cost of capital, K, declines with leverage because the rise in K_e does not entirely offset the use of cheaper debt funds. As a result, K declines with moderate use of leverage *(Srivastav; 1984, 881)*. After a point, however, the increase in K_e more than offset the use of cheaper debt funds in the capital structure, and K begins to rise. The rise in K is supported further once when K_d begins to rise. The optimal capital structure is point X where the cost of capital is minimized. Thus the traditional position implies that the cost of capital is not independent of capital structure of the firm and that there is an optimal capital structure.

2.2.4 Modigliani-Miller Approach (MM approach)

The Modigliani and Merton Miller theorem is perhaps the most widely accepted capital structure theory. Franco Modigliani and Merton miller (M & M) revolutionized the financial world in 1958 and set the cornerstone for thinking about a company's structure. In 1958, Franco Modigliani and Merton Miller established two propositions for the relation between a firm's capital structure, its market value and cost of capital. They both won the Nobel Prize for their contribution to corporate finance.

The Modigliani-Miller study relating to the relation is akin to net operating income approach. M-M approach, supporting the net operating income approach, argues that, in the absence of taxes, total market value and cost of capital of the firm remain invariant to the capital structure changes. They make a formidable attack on the transitional position by offering behavioral justification for having the cost of capital, K, remains constant through all degree of leverage. M-M contend that cost of capital is equal to the capitalization rate of pure equity stream of income and the market value is ascertained by capitalizing its expected income at the appropriate discount rate of its risk class. M-M position is based on the idea that no matter how you divide up the capital structure of a firm among debt, equity and other claims, there is a conversion of investment value. The M-M cost of capital hypothesis can be best expressed in terms of their proposition I and II *(Modigliani & Miller; 1958, 261 297)*. However, the following assumptions regarding

the behavior of the investors and the capital market, the actions of the firms and the tax environment are crucial for the validity of the M-M hypothesis.

1. Perfect capital markets: The implication of perfect capital market is that securities are infinitely divisible, investors are free to buy and sell securities, investors can borrow without restrictions on the same terms and conditions as firms can, there are no transaction costs and investors are rational and behave accordingly.
2. Firms can be grouped into homogenous risk classes. Firms would be considered to belong to a homogenous risk class as their expected earnings, adjustment for scale differences have identical risk characteristics. The share of the homogeneous firm would be perfect substitute for one another.
3. Firms distribute all net earning to the shareholders, i.e. dividend payout ratio is 100 percent.
4. Absence of growth rates. Expected operating earnings for all future periods are the same as present operating earnings.
5. There are no taxes. MM relaxed this assumption later.
6. The assumption of perfect information and rationality. All investors have the same exception of firm's net operating income with which to evaluate the value of any firm.

Approach 1: M-M hypothesis without taxes

Proposition I

This approach supports Net Operating Approach and suggests that the value of firm is independent of capital structure. In spite of supporting to NOI approach, M-M approach provides operational justification for the irrelevance of the firm's total market value and overall cost of capital at any degree of leverage ratio.

This approach is based on following assumptions:

1. Perfect capital means investors are free to buy and sell securities. They behave rationally. They are well informed about the risk-return on all types of securities.

There is no transaction cost and lending and borrowing rate is equal with risk free rate.

2. Firms operate in similar business conditions and have similar operating risk.
3. There do not exist any corporate taxes.
4. All investors have the same expectations from a firm's EBIT.
5. All earnings are distributed as dividend.

On the basis of above assumptions, M-M argues that in a perfect capital market, without taxes and bankruptcy cost, a firm's total market value and overall cost of capital remain in-variant to capital structure decision. The value of a firm is dictated first by the earning power and riskiness of its assets, not by how those assets are financed.

According to this approach,

Value of Levered Firm ($V_{L)}$ = Value of Unlevered Firm (V_U) = $NOI/K_e(U)$

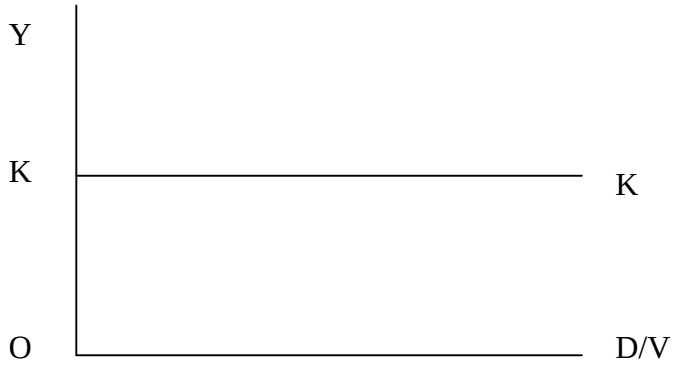
Where, NOI = Net Operating Income

$K_e(U)$ = Cost of equity of unlevered firm

M-M argues that, if the value of firm differ due to capital structure only, there exist arbitrage opportunity. It means if the situation as suggested by NI and Traditional approach exist, investors can get similar amount of profit remaining at same level of financial risk but with reduced investment through shifting their investment from overvalued firm to undervalued firm.

Figure: 2.6

The cost of capital under the M-M hypothesis without tax



Thus two firms identical in all respects except for their capital structure cannot command different market values nor have different cost of capital *(Pandey; 1999, 37)*. But if there is discrepancy in the market values or the cost of capital, arbitrary will take place, which will enable investors to engage in personal leverage to restore equilibrium in the market.

With the help of this arbitrage, M-M claims that if the value of firm as suggested by NI and Traditional approach differs due to capital structure only, investors will continue this arbitrage process. Due to this arbitrage opportunity, value of overvalued firm gradually decreases due to increased supply and on the other hand, value of undervalued firm gradually increases due to increased demand. In this way, M-M argues the arbitrage benefit, which ultimately forces to make the value of two firms equal through demand and supply forces.

Proposition II:

As suggested by NOI approach, M-M approach also assumes that the cost of equity of levered firm is greater than unlevered firm. The cost of equity linearly changes with the debt ratio. According to M-M approach, cost of equity for levered firm is:

$K_{e(L)} = K_{e(U)} + (K_{e(U)} - K_d)$ x debt equity ratio

Where, $K_{e(L)}$ = Cost of equity of levered firm

$K_{e(U)}$ = Cost of equity of unlevered firm

K_d = Cost of debt

<u>Approach II: M-M hypothesis with corporate taxes</u>

Modigliani and Miller argue that if there exist corporate taxes, the levered firm can get tax advantage from interest expenses. It means interest paid to debt holders is treated as tax deductible expenses thus interest payable by firm saves taxes. This makes debt financing advantageous. In this case values of levered firm will ne greater than unlevered firm will be:

Value of levered firm (V_L) = Value of unlevered firm (V_U) + PV of tax shield

Value of unlevered firm (V_U) = {EBIT(1-T_C)}/ $K_{e(U)}$

Where,

PV of tax shield = Annual tax saving/ k_d

= (B x k_d x T_C) / k_d

= B x T_C

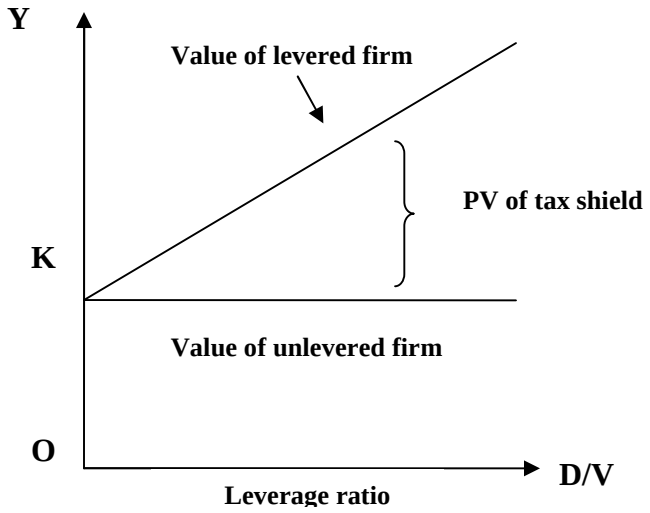
Here, B = face value of debt

T_C= corporate tax rate

k_d = cost of debt

Figure: 7

The cost of capital under the M-M hypothesis with tax



If there is the existence of corporate taxes, the market value of firm can be maximized using maximum debt.

M-M hypothesis with corporate and personal taxes

Modigliani and Miller did not include the affect of personal taxes on their second version although they included the impact of corporate taxes. However, they presented a model to show leverage affects firms' values when both personal and corporate taxes are taken into

account. When both personal and corporate taxes are taken into consideration, firms' market value can be calculated as:

Value of levered firm (V_L) = Value of unlevered firm (V_U) + PV of tax shield

PV of tax shield = $B\{ 1-\{(1- T_C)(1- T_{pe})\}/(1- T_{pd})\}$

Where, B = face value of debt

T_C = corporate tax of debt

T_{pe} = personal tax rate on stock income

T_{pd} = personal tax rate on debt income

2.2.5 Static Trade – Off Theory

This theory states that the firm's capital structure is determined by a trade-off of the value of tax shields against the costs of bankruptcy. This theory claims that tax shield benefits of debt financing need to be adjusted for financial distress costs that rise with increasing debt levels, creating an optimal capital structure that balances both forces. Issuing equity means moving away from that optimum and should therefore be interpreted as bad news. The magnitude of this effect should be related to the size of the tax burden.

Under the tradeoff model, companies equate the marginal benefit of an additional unit of debt with the associated marginal cost, holding constant the firm's assets and investment plans. The key benefits of debt are the tax deductibility of its servicing cost and the mitigation of agency costs. The main cost of additional debt is bankruptcy risk and the costs associated with such bankruptcy. These costs would include the direct costs of re-organization in the event of insolvency as well as indirect costs that arise when companies get into financial difficulty. This has important empirical implications, in particular for the relation between debt, profitability and investment.

Under the tradeoff model, debt or leverage increases in the profitability of the firm. This reflects three forces. First, bankruptcy risk is lowered when cash flow/profitability increases. An increase in cash flow or profitability which thereby lowers bankruptcy risk should lead to an increase in debt as the firm is better placed to exploit the tax benefits of

interest deductibility. Second, the asymmetric tax treatment of profits versus losses is such that greater profitability implies a higher expected tax rate which also increases the benefit of debt. Third, under agency models (eg. Jensen, 1986) additional cash flow is the prime source of agency costs. Debt helps offset these agency costs as the firm is committed to paying out excess cash in the form of interest payments. Again, this implies a positive relation between firms' debt ratios and cash flow or profitability.

Under the tradeoff model, leverage varies inversely with the rate of investment. This is largely due to agency considerations. Firms with higher investments (for given cash flow) have less need for debt as a means of constraining the interests of managers which may diverge from those of shareholders, particularly for firms with large amounts of free cash flow.

2.2.6 Pecking Order Theory

Pecking order theory propounded by Stewart Myers in 1984 states that firms have preferred hierarchy for financing decisions. The highest preference is to use internal financing (retained earnings and the effects of depreciation) before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage. If a firm must use external funds, the preference is to be given to the following order of financing sources: debt, convertible securities, preferred stock and common stock. This order reflects the motivations of the financial manager to retain control of the firm since only common stock has a voice in management reduce the agency costs of equity and avoid the seemingly inevitable negative market reaction to an announcement of a new equity issue.

An implication of the pecking order approach is that firms do not have a target level of leverage and their actual level of debt essentially responds to the difference between investment and retained earnings. The pecking order model

implies that leverage is decreasing in company cash flow or profitability and increasing in investment, ceteris paribus. The availability of internal funds, through cash flow or current profitability, implies that firms have less need to make recourse to external debt, implying a lower debt ratio. Moreover, for a given level of cash flow the amount of debt will be increasing in the investment being undertaken by the firm. The important observation is that both of these predictions are in contrast to those described above for the tradeoff model. However, in a refined (i.e. non-static) pecking order model capital structure decisions are influenced by future as well as current financing costs. In this context, firms may wish to maintain a capacity for additional debt with larger expected investments implying lower current indebtedness. This implies the importance of controlling for investment opportunities.

A consideration of the relation between debt and growth opportunities is also of interest in its own right. A case for expecting a positive relation (particularly when the debt ratio is measured at book values) could be expected, especially under the pecking order model. As growth opportunities increase the demand for funds, this may mean that for given availability of internal funds, additional external funds are required including additional debt. Despite some weaknesses, the most common proxy for growth or investment opportunities has been the Tobin's Q ratio.

Tobin's Q ratio also known as Q ratio is developed by James Tobin of Yale University, hypothesized that the combined market value of all the companies on the stock market should be equal to their replacement costs. The Q ratio is calculated as the market value of a company divided by the replacement value of firm's assets. It can be shown as follows:

$$\text{Q Ratio} = \frac{\text{Total Market Value of Firm}}{\text{Total Assets Value}}$$

Q between 0 to 1 means the cost to replace a firm's assets is greater than the value of its stock, which implies that the stock is undervalued. Conversely, Q greater than 1 implies that the firm's stock is more expensive than the replacement cost of its assets, which implies that the stock is overvalued.

Under the tradeoff model however, an inverse relation between the debt ratio and Tobin's Q could arise since companies with a high level of Tobin's Q, which may reflect a high level of intangibles, may face greater costs of financial distress. The resale value of the company, ceteris paribus, is lower and this will discourage high levels of debt under the tradeoff model. The model of Myers (1977) also shares this prediction of an inverse relation between debt and Tobin's Q. It is argued that many corporate assets and growth opportunities in particular can be considered as a real option, the value of which depends on discretionary future investment by the firm. Such discretionary investment may be related to the capital structure of the firm as shareholders may perceive that future profits will be used to pay existing debt holders. Debt can then reduce the market value of the company in circumstances when the firm decides to forego investment opportunities. The a priori relation between the corporate debt ratio and Tobin's Q is therefore ambiguous. Indeed, prior research has recorded both positive and negative relations between debt and growth opportunities (*Harris and Raviv; 1991, 336*).

Pecking order theory, however, does not explain the influence of taxes, financial distress, security issuance costs, agency costs, or the set of investment opportunities available to a firm upon that firm's actual capital structure. It also ignores the problem that can arise when a firm's managers accumulate so much financial slack that they become immune to market discipline. In such a case, it would be possible for a firm's management to preclude ever being penalized via a low security price and if augmented with non-financial takeover defenses, immune to being removed in a hostile acquisition. For these reasons, pecking

order theory is offered as a complement rather than a substitution for the traditional trade off model.

2.2.7 Agency Theory

One of the defining characteristics of business in the 1990s was the adoption of prescriptions from agency theory to address the managerial excesses of the 1970's and 1980's. The classic agency theory concept was developed by Berle and Means (1932). They observed that ownership and control had become separated in larger corporations as a result of the dilution in equity positions. This situation provided an opportunity for professional managers, as those in control, to act in their own best interest. Today, the central issue for agency theory is how to resolve the conflict between owners and managers over the control of corporate resources through the use of contracts which seek to allocate decision rights and incentives.

Managers have a number of incentives to pursue growth-oriented strategic options. The larger the organization, the greater the economic and political power of the top management teams, and the greater the ability of the organization to marshal resources necessary to deal effectively with its competitive and social environment. Also, larger organizations are seen as being able to maintain their freedom from the discipline of the capital markets. As a generalization, it can be said that growth does lead to increasing the wealth of shareholders. However, the concern is that too many of the activities associated with increasing the size of organizations are motivated not by a desire for maximizing shareholder wealth, but by opportunities for the self-aggrandizement of management.

The contractual device suggested by agency theory to accomplish the transfer of wealth from the organization to the investors is debt creation. Debt provides a means of bonding manager's promises to pay out future cash flows. It also provides the means for controlling opportunistic behavior by reducing the cash flow available for discretionary spending. Top managers' attention is then clearly focused on those activities necessary to

ensure that debt payments are made. Companies failing to make interest and principal payments can be declared insolvent and can be dissolved. This use of debt as a disciplinary tool makes survival in the short-term the central issue for all concerned.

Agency theory also has important implications for the relationship between stockholders and debt-holders. Stockholders are interested in the return over and above that amount which is required to repay debt. Debt-holders are only interested in the debt payment specified in the contract. Stockholders are seen as sometimes being interested in pursuing riskier business activities than debt-holders would prefer. When this occurs debt-holders may charge higher prices for debt capital and institute greater control measures to prevent top managers from investing capital in riskier undertakings.

However, agency theory does not take into consideration competitive environments, nor does it consider the necessity for managers to make choices beyond a stockholder wealth-maximizing perspective. This would seem to be a serious omission for two reasons. First, debt and equity represent different constituencies with their own competing, and often mutually exclusive, goals. Second, as the level of debt increases, the corporate governance structure can change from one of internal control to one of external control. For firms that adopt debt as a control mechanism, lenders become the key constituents in the corporate governance structure. This can have a significant impact on both managerial discretion, and on the ability of an organization to deal effectively with its competitive environment.

2.3 Empirical Evidence in Capital Structure

Various studies have been conducted in the field of capital structure management. A capital structure study is one of the most puzzling issues in the corporate finance literature. Numerous empirical studies have shown that announcements of seasoned equity offerings cause negative price reactions, whereas the news of an additional debt issue is followed by an increase in stock prices. The majority of these studies use capital

structure arguments emphasizing the importance of tax shield benefits from debt financing, as the explanation for this phenomenon.

The available empirical studies in capital structure are categorized into three sub headings: studies in general, Nepalese studies, and studies available in bank capital structure.

2.3.1 Studies in General

The success and failure of the industry mainly depends upon the ability of top management to make appropriate capital structure decision. One of the most confusing issues facing financial managers is the relationship between capital structure and stock price. How much debt financing, as opposed to equity financing, should a firm use? Should different industries and different firms within industries have different capital structures and if so what are the factors that lead to these differences?

Following the seminar work of Modigliani and Miller (1958, 1963), a substantial amount of effort has been put forward in corporate finance theory to determine the factors that influence a firm's choice of capital structure. The important question facing companies in need of new finance is whether to raise debt or equity capital. The issue of finance has been identified as an immediate reason for business failing to start or to progress. It is very important for firms to be able to finance their activities and grow over time if they are ever to play an increasing and main role in creating value-added, providing employment as well as income in terms of profits, dividends and wages to households, expanding the size of the directly productive sector in the economy, generating tax revenue for the government and facilitating poverty reduction through fiscal transfers and income from employment and firm ownership. It is important in this regard to understand how firms in Nigeria finance their operations by examining their capital structure decisions.

Capital structure concept has been the subject of controversy since the publication of M-M's classic paper in 1958 *(Ghimire; 1993, 3).* They hold the view that the cost of a firm remains invariant to capital structure changes. Modigliani and Miller in their first study they used the previous works of "Allen and Smith" in support of their independence hypothesis. In the first part of their work M-M tested their proposition I - the cost of capital is irrelevant to the firms' capital structure by determining the correlation between after tax cost of capital with leverage B/V. They found that the correlation co-efficient are statically insignificant and positive in sign. The regression line doesn't consist of curvilinear "U" Shaped cost of capital key of traditional view, when the data are shown in scatter diagram. In the second part of their study, they tested their proposition II - the expected yield on common share is a linear function of debt to equity ratio. The second part of their study is consistent with their views i.e. if the cost of borrowed funds increases, the cost of equity will decline to offset this increase Modigliani and Miller second study. M-M were conducting the second study in 1963 while correcting their original hypothesis for corporate income taxes and expected cost of capital to be affected by leverage for its tax advantages, therefore they wanted to test whether leverage had tax advantages or not, for this they conducted the mathematical analysis regarding the effect of leverage and other variable on the cost of capital. They found that the leverage is significant only because of the tax advantage involved *(Modigliani & Miller; 1958, 261).*

There are many empirical works regarding the capital structure supporting and invalidating the M-M view and traditional view. Weston in the year 1959 used M-M cost of capital model for his sample of 59 utilities. He found that the regression coefficient of leverage to be positive and significant. However, multiple regressions were run and the results were consistent with the traditional view. Wiper R (1960) in *"Financial Structure and Value of the Firm"* has made a test to empirical relationship between financial structure and value of the firm. He tried to eliminate the principle problem of empirical study on the leverage and attempted to offer what were hoped to be more, alternative's in determining the relationship between leverage and cost of capital. He found that the shareholder's wealth can be enhanced by judicious use of debt financing. In support of this study, Weston J.F. (1963) in *"A Test of Cost of Capital Proposition"* made some

important improvement in the cost of capital models. He also included firm size and growth as additional explanatory in his model. He found the regression co-efficient of leverage to be positive and significant, when he used M-M model. However, when the multiple regressions was shown he found that the correlation coefficient is significant and the regression co-efficient of leverage is negative and significant. When the influence of growth is isolated leverage is found to be negatively correlated with the cost of capital. He concluded that the apparent lack of influence of leverage on the overall cost of capital observed by M-M was due to the negative correlation of leverage with earning growth.

2.3.2 Review of Related Studies

Review of Journals & Articles

Dr. Manohar Krishna Shrestha (1985) in his article *"Analysis of Capital Structure in Selected Public Enterprises"* has found that the public enterprises have a very confusing capital structure. In many instances atheism became the basis of capital structure and in that also most of them wanted to eliminate debt if possible to relieve financial obligations. Furthermore, the determination of capital structure is greatly influenced by the inflow of International Donor Agency's long term credit through the medium of His Majesty's Government of Nepal (HMG/N). In a way, neither the public enterprises nor HMG developed criteria to determine capital structure. This is the reason as to why debt equity ratio became a ticklish problem. Also true that the calculation of equity capitalization rate and overall capitalization rate according to given data provide very fantastic results in many cases, although they carry valid and meaningful results in some instances. As such, the use of Net Operating Income Approach and Net Income Approach on the whole is more an academic exercise rather than proving much valid. While determined and there is growing tendency among most of public enterprises to have least combination of debt with equity to escape financial obligations as far as possible. Again, it is an implied fact that the contribution of debt to procurement of assets shows significant deviations. The earning of the public enterprises in most cases does not prove satisfactory except in limited few. There are many unfavorable side effects such as

growing accumulated losses climbing greater heights and little maintenance of tax provisions.

He suggested that debt equity ratio neither should be highly levered to create too much financial obligations that lie beyond capacity to meet nor should it be much low levered to infuse operational strategy to bypass responsibilities without performance. [The Nepalese Journal of Public Administration, March 1985]

Rima Devi Shrestha (1999) conducted a study on the topic "Focus on Capital Structure of selected and listed Public Companies" has used data from 19 companies, which covered different sectors such as manufacturing, finance, utility service and other allied areas. It was found that most of these companies have debt capital relatively very high than equity capital. Consequently most of them are operating at loss to the extent that payment of interest on loan which has been a serious issue. Most of these losses are after changing interest on loan. It has suggested that the government has to consider the public enterprises in evaluating the relationship between use of debt and its impact on overall earning of public enterprises. So government should be sure in knowing how to use debt capital which will maximize return. It should develop a suitable capital structure guideline to make public enterprises aware of its responsibility and to repay the debt schedules. Government has to analyze cost and risk return trade off. Thus capital structure needs to be made more determine by realistic analysis of cost. Lastly, she concluded that policy makers have to be careful in developing the suitable capital structure guidelines in making public enterprises as well as listed companies to be aware of financial accountability.

Keshar J. Baral in his article (2004) in his journal "Determinant of Capital Structure: A Case Study of Listed Companies of Nepal" attempted to examine the determinants of capital structure -size, business risk, growth rate, earning rate, dividend payout, debt service capacity, and degree of operating leverage-of the companies listed to Nepal Stock Exchange Ltd. as of July 16, 2003. Eight variables multiple regression model had been used to assess the influence of defined explanatory variables on capital structure. In the

preliminary analysis, manufacturing companies, commercial banks, insurance companies, and finance companies were included. However, due to the unusual sign problem in the constant term of the model, manufacturing companies were excluded in final analysis. This study showed that size, growth rate and earning rate are statistically significant determinants of capital structure of the listed companies. [Journal of Nepalese Business Studies, 2004]

Arbor (2005) in his study, "The effect of capital structure on profitability", mentioned that the relationship between capital structure and firm has been the subject of considerable debate. Throughout the literature, debate has centered on whether there is optimal capital structure for an individual firm or whether the proposition 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's uses in its operation Berkley 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 cost and pecking order theory. These theories are discussed below:

The firm can get tax advantage from the interest expenses but it cannot use maximum debt to maximize market value of firm. M-M suggests that though the firm can get more tax advantage from the use of high volume of debt, it has also adverse effect impact in the value of firm.

As the firm increases the volume of debt increases, interest expenses also increases. The excess amount of fixed obligation may create the situation of financial distress. When the firm will be on extreme financial distress, this may lead to bankruptcy, a formal legal proceeding where an overextended firm is placed under the protection of the bankruptcy court, allowing it to keep operating while developing a new plan to pay off creditors. When the firm gets declared as bankrupt, it will bear various legal, accounting and

administrative expenses and could be forced to sell assets at fire sell price to meet creditors' claim. Lenders anticipate the risks of attend cost of bankruptcy and required higher rate of return as compensation. Thus, the firms' shareholders bear these costs of bankruptcy.

Bankruptcy cost are the cost directly incurred when the perceive profitability that the firm will default on financing is greater than zero. The bankruptcy profitability increases with debt level since it increases the fear that the interest and the company might not be able to generate profits to pay back the interest and the loans. The potential costs at the bankruptcy may be both direct and indirect. 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 a theory 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.

Dr. Radhe Shyam Pradhan (2008) in his book "Capital Structure Management" has mentioned that capital structure is a difficult issue to test empirically. Often changes in capital structure are made simultaneously with new investment decisions. Capital structure is difficult to test because it is difficult to measure as well. It is hard to get good market value data for publicly held debt while it is almost impossible to get data on privately held debt. He has quoted some empirical evidence on whether capital structure affects the value of the firm. There are two broad approaches to empirical tests of capital structure: Cross sectional studies attempted to explain that observed financial leverage is a function of the firm's tax rate, its non-debt tax shields, potential for agency costs,

operating leverage, systematic risk, etc. and time series studies attempted to establish relationship between changes in leverage and simultaneous changes in the value of debt and equity on the announcement date of a leverage - changing event.

Dr. Pradhan concluded that empirical results are mixed on the issue of optimal capital structure and pecking order hypothesis. In order to resolve the capital structure issue, it requires more studies to be conducted. There are various market imperfections which would lead to existence of optimal capital. These imperfections are concerned with the uncertainty of debt tax shield, presence of bankruptcy costs, financial signaling effect, agency costs, incentive issues, and so on. There is also a pecking order hypothesis which suggests that the firm has a preference hierarchy while choosing the financing sources. It is therefore not yet resolved whether the firm goes by optimal capital structure or pecking order hypothesis. The empirical evidences are also mixed.

Review of Thesis

Neupane (2002) conducted research on *"A Study on Capital & Assets Structure of Nepal Bank Limited (NBL)"*. The basic objective of this study was to analyze interrelation between different ratio, component parts of capital structure, debt equity ratio, net worth, deposit/investment ratio etc. According to him the research analyzed different financial aspects of NBL. He remarked that the total deposit and total investment were not significantly related. He concluded that the net worth was used in unproductive assets of the bank and further commented that the bank needs to have productive use of its net worth. In the same year Bindy Shrestha in her study of capital structure analysis of Bottlers Nepal, Nepal Lever, Soaltee Hotel and Yak & Yeti Hotel (2052/3-2057/8) found out that most of them have used no debt in their capital structure.

Pathak (2003) has carried out a study on "Capital Structure and Profitability: a comparative case study between the Nepal Indosuez Bank Ltd. (now Nepal Investment Bank Ltd.) and Nepal Grindlay Bank Ltd. (now Standard Chartered Bank Ltd.). the capital structures of both banks are highly levered, so it is difficult for them to pay

interest and principal that may ultimately lead them to liquidity or for them to pay interest and principal that may ultimately dead them to liquidity or bankruptcy. There is no significant relationship between debt and equity ratio in terms of fixed deposits to net worth and overall capitalization rates of the banks. The ROE fluctuation is found to be influenced by the dividend payout ratio and interest margin in NIBL. Both banks vary in the case of total assets, number of bank branches and volume of transactions. Both the banks are efficient and well established and doing well. He has suggested that NIBL should expand assets and branches, which may ultimately affect the banks performance and increase the profitability more than ever.

Koirala (2004) has studied "A Comparative Evaluation of Capital Structure between Dabur Nepal Pvt Ltd (DNL) and Nepal Lever Ltd (NLL)". According to his study the Dabur Nepal Pvt Ltd is highly levered firm and NLL is unlevered since four years. The debt equity ratio in terms of long term debt and shareholders' equity of DNL is higher than NLL.

The capital structure of DNL is debt based whereas NLL cut off long term debt financing. So, he has suggested both the companies to change their debt by changing long term debt to share capital and in the case of NLL, to consider long term debt while financing. So, both the companies are suggested to maintain appropriate debt ratio, which minimizes the cost and maximizes the return of the firm. He further finds that the DNL is bearing high amount of interest expenses due to higher debt equity ratio and other operating expenses. Similarly, NLL is also bearing high interest expenses even it does not use long term debt in its capital structure. As a result, the return of the firm is not satisfactory. So, he has recommended both the companies to minimize interest expenses by using cheaper debt as well as other operating expenses to the return of the firm.

Subedi (2005) has analyzed the capital of Nabil Bank Ltd. to show the financial position, examine the different profitability ratios and show overall trend analysis. He found and concluded that liabilities and capital item show the overall situation of bank in falling down. Deposit is the biggest amount in balance sheet. Fixed deposit is taken as long term

debt in banking business. This study suggests that deposit is the major concern to the capital structure. It affects the investment policy. The more fixed deposit increase, the more the long term investment becomes possible.

Bhattarai (2006) research titled "Capital Structure of Manufacturing Companies in Nepal" concluded that companies do not always plan capital structure and it develops as a result of the financial decision taken by the financial manager without any formal planning. Moreover some industries even could not meet the interest and other expenses from the income. So they increase loan and become more levered.

Research suggested increasing the profitability of the company by reducing the burden of interest on debt. The study recommends having the optimal capital structure. Hence the excessive use of the debt should be gradually unfilled in the coming year because the companies have no earning capacity to meet the interest burden.

Subedi (2007), in the MBA thesis," A study on capital Structure on Nabil Bank Ltd", specific objective were analyzed the capital of Nabil Bank Ltd to show financial position examine the different probability ratio and show overall trend analysis. Under this study used various tools such as graph, %, diagram, mean, standard deviation and covariance. He found and concluded that total liabilities and capital item show the overall situation of bank fallen down. Deposit is the biggest amount in the balance sheet, fix deposit is taken as long term debt in banking business. It is key determinant factor to capital structure debt and equity is properly mixed good capital structure in found. Price earning ratio reflected the price currently reported EPS. It measures investors' expectation and the market appraised of the performance of a firm. This study suggests, deposit is the major concern to the capital structure, it effects on investment policy. The more the fix deposit increase the more long term investment become possible is become more successful and competent as per its capacity to collect the fix deposit. So fix deposit should be collect as more as possible.

Kandel (2008), in her thesis, "A comparative analysis of capital structure of commercial banks" formulated the objectives of the study as to evaluate the role of capital structure on growth of commercial banks in Nepal, examine present capital structure of commercial banks of Nepal and to state a relationship of capital structure with EPS, DPS and net worth. Research design focused on the various tools such as ratio analysis, leverage analysis, traditional analysis, capital structure analysis and MM analysis on the study. From the study, it was found that the commercial banks of Nepal are not using large portion of debt in their capital structure which is shown by finding of the study of long term debt to total assets ratio. It has tried to test the MM proposition that value of firm is affected by the use of debt in capital structure by using MM model which has given mixed result that increase in debt causes increase in value of firm in some years, whereas in some years, increase in debt caused decrease in value of the firm. On the correlation analysis, it found the relation between long term debt and EPS is insignificant but the relationship between EBIT and DPS is significant.

Baidya (2009) in his MBA research entitled "Capital Structure Management of Manufacturing Companies listed in NEPSE" was prepared with the main objective to analyze, evaluate and interpret their capital structure employed by the selected organization but specific objective was to examine the capital structure. According to Baidya, the average ratio between shareholders' equity and total assets for Arun Vanaspati Udhyog and Jyoti Spinning Mill was negative. It showed the negative value of shareholder equity. In this study EPS, P/E ratio and Book value per share of Nepal Lever Limited was higher than other companies. The higher price ratio indicated the greater confidence of investors with its future. At last he suggested to be a safe mode against liquidation, debt amount was very huge and that was needed to reduce the debt capital.

Shrestha (2010), in her thesis "A study on capital structure management of listed manufacturing companies" was prepared with the main objective to know the existing capital structure of manufacturing companies if they are optimal or not. Other objective was to analyze the cost of capital and profitability and access the debt servicing capacity of the selected Nepalese manufacturing companies. She has concluded the thesis with the

major findings that the listed manufacturing industries have in an average positive degree of operating leverage as well as financial leverages. Some manufacturing industries were found to be used 82.82% long term debt and some haven't used it at all. The calculation of profit margin ratio found out that less than 5% is making average profit. Due to high use of leverage, the EPS was also not satisfactory and book values per share of those industries were less than that of their face values. Only negligible companies were distributing dividend on regular basis but most of the industries had not given dividend since a long time. The correlation and regression analysis also indicated the need of restructure of capital of those industries.

Thapa (2011), in his thesis "A study on capital structure management" was prepared with the objective of examining the current capital structure, analyzing the debt and equity position and analyzing relationship between capital structure, cost of capital and profitability
of HBL and NBL. The study concluded the thesis with the major findings that the assets of selected banks had been financed with more funds collected from the shareholders. Debt capital financing was higher than the equity financing. The correlation coefficient of NBL had negative value of 'r' in ROE and debt to equity ratio. All banks had insignificant relationship between ROE and debt to equity ratio. The value of selected banks was positive. HBL had higher overall capitalization rate in the study period. Price earning ratio of HBL and NBL showed the fluctuating trend in the study period.

2.4 Research Gap

Most of the studies cited in the review of related literature have been conducted in different joint venture banks of Nepal. The banks are more concentrating in the area of loan and advances. It has been noticed that fixed deposits of the banks are increasing. The shareholder's equity of the banks is increasing but the proportion of shareholder's equity is found much lower in the banks. The banks are extremely levered and facing heavy burden of interest payment due to the employment of more debts.

Various studies have been conducted on Capital Structure Management of various owned and public limited companies of Nepal. The study focused that sound principle of capital structure cost of capital and its management has not been followed thoroughly by the enterprises in Nepal. The studies also observed defect in capital structure. As for example, in many enterprises their debt capital was comparatively high than equity, progress of time, there to bring down the amount of beta capital. The defective capital structure shown in the studies induced the research for the further study on the subject.

The researchers have tried their best to fill up the gap created by previous studies. Even there are not enough study conducted on the topic of relationship between capital structure and cost of capital. Therefore, this study is also devoted to test the effective management of capital structure among joint ventures. Moreover, this study covers the most recent financial data as well.

CHAPTER III

RESEARCH METHODOLOGY

A systematic methodology is required to pick out an actual result for any special study. So research methodology refers to various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. In order to achieve the objective of the study, certain method of research has to be used. Research methodology describes the methods and process applied in the entire subject of the study.

According to Michael V.P., (2000), "Research is the process of systematic and in-depth study or search for any particular topic, subject or area of investigation backed by collection, presentation and interpretation or relevant details or data."

According to Kothari C.R. (1991), "Research Methodology refers to the four various sequential steps to be adopted by a researcher in studying a problem with certain objective in view. Research methodology basically describes the methods, processes, tools and techniques applied in the entire process of a scientific research."

Research Methodology is the way to solve the research problem systematically. There are two broad methodologies which can be used to answer any research question – experimental research and non experimental research. Under experimental research, the investigator controls extraneous variables and manipulates at least one variable for research purpose. On the contrary, under non-experimental research there is no intervention beyond that needed for the purpose of measurement. The research method adopted in this study is non experimental in nature. This chapter is, therefore, devoted to describe the methods used for carrying out the research and attempts to have an insight into the capital structure management of Nabil Bank Limited and Himalayan Bank Limited. The research methodology used for this study is discussed in the following manner.

3.1 Research Design

Research design is defined as the specification of methods and procedures for acquiring the information needed. It is a plan or framework for doing the study and collecting the data. It helps to fulfill the objectives of the study. It is a previous planning about what the research can do in the process of research, i.e. how one should collect data and what method of analysis should be adopted. So it is also an important part of research because without proper planning about process, we cannot draw efficient result. A good research design consists of various characteristics like objectivity, reliability, validity, generalized. Research should be designed in such a way that the result of research would be consistent and stable.

There are various types of research design like historical research, development research, descriptive research, case study research, field study research, action research, etc. Among those, this study has adopted descriptive as well as analytical research design. As this study is designed primarily to describe what is going on or what exists in the sample banks with reference to their capital structure, it can be considered as descriptive research. And since various analytical tools such as regression analysis, correlation etc are used to examine the capital structure and financial statements of the sampled banks, this study can be also considered as analytical in nature.

3.2 Population and Sample

There are currently 32 ‘A category’ Commercial banks which are operating under the license of Nepal Rastra Bank. Besides this, there are 88 ‘B category’ Development banks, 70 ‘C category’ Finance companies and 24 ‘D category’ Micro Credit Development Banks licensed by Nepal Rastra Bank which are also playing active role of financial intermediation in the Nepalese Economy.

For the purpose of this study, two Joint Venture class ‘A’ commercial banks, namely Nabil Bank Limited and Himalayan Bank Limited are taken as sample.

3.3 Sources and Nature of Data

The study is based on "Secondary Data" due to time and resource constraint. Data has been collected from the financial statements of the sampled commercial banks. Other relevant data have also been supplemented from Nepal Stock Exchange Ltd. and various related journal in management and other publications. Various published and unpublished sources are also the means for data collection.

In order to support the study more effectively, primary data has also been collected by interviewing related commercial Bank's Personnel.

3.4 Period Covered

For analyzing the capital structure management of JVBs in Nepal, the period covered is of last five years i.e. fiscal year 2006/07 to 2010/11. This study has been prepared on the basis of data available of limited time period from their respective Annual Reports and Publications.

3.5 Tools used for the Study and Analysis

Different tools have been selected according to the nature of data and as per the requirement of the analysis. The major tools employed for the analysis of the data are the **Ratio Analysis** which establishes the quantities or numerical relationship between two variables of the financial statement. The study also uses **Statistical Tools** such as regression analysis and correlation analysis.

3.5.1 Ratio Analysis

Ratio Analysis is the powerful tool of financial analysis. Financial ratio presents the relationship between two accounting figure expressed mathematically. Ratio analysis is defined as the systematic use of ratio to interpret the financial statements so that the

strengths and weakness of a firm as well as its historical performance and current financial condition can be determined and compared.

) Debt Management Ratio

It is also known as leverage ratio. It indicates the extent to which debt financing is being used by a firm. It is a measure of long term solvency of a firm. In the study following debt management ratios are calculated:

a. Debt Equity Ratio (Leverage Ratio)

Debt equity ratio is used to show the relationship between borrowed funds and owners' capital. It reflects the relative claims of creditors and shareholders against the assets of the firm. It is an important tool for the financial analysis to appraise the financial structure of a firm. The ratio reflects the relative contribution of owners and creditor's capital of business in its financing. In other words, this ratio exhibits the relative proportions of capital contributed by owners and creditors. Debt equity ratio can be calculated on the basis of shareholders' equity and long-term debt. Shareholders' equity includes reserve and accumulated profit, preference share and equity share capital where long-term debt includes total debt minus short-term debt or current liabilities. Here debt equity ratio is also computed by simply dividing long-term debt of the firm by shareholders' equity. The high D/E ratio shows the large share of financing in the capital by the creditors than the owners. It also reflects that the creditors claim is higher against the assets of firm.

The leverage ratio can be calculated as follows:

$$\text{Debt equity ratio} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

In the above relationship, total debt includes long term debt and current liabilities. The total equity includes common stock, additional aid in capital and retained earnings.

b. Debt to Total Capital 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 that one accounting period whereas capital employed includes long term debt and shareholders' equity of the firm. The relationship of the 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.

As a general rule, debt-equity ratio of 2:1 is considered to be satisfactory. It means that long term funds should not be more than twice of the owners' funds. Larger the ratio, larger the proportion of long term debt in the capital employed and vice versa. A low ratio is considered favorable. It is calculated by dividing 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. It is calculated as follows:

$$\text{Debt to total capital ratio} = \frac{\text{Long Term Debt}}{\text{Permanent Capital}}$$

c. Total Debt to Total Asset Ratio

The total debt of the firm comprises long term debt plus current liabilities while total assets consist of permanent capital plus current liabilities. Assets may be described as valuable resources owned by a business which have been acquired at a measurable money cost. Assets as an economic resource must satisfy three requirements. Firstly, the resources must be valuable or it may provide future benefits to the operations of the

firms; secondly, the resources must be owned, and thirdly the resources must be acquired at a measurable money cost. When intangible assets are significant, they are frequently deducted from net worth to obtain the tangible net worth of the firm. A comparison of debt ratio for a given company with those of similar firms gives us a general indication of the credit worthiness and financial risk of the firm. The reason is that the assets and cash flows of the firm provide the means for payment of debt.

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.

$$\text{TD/TA Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

Lower the ratio, the role of loaned funds in financing the assets engaged in profit generating activities of the organization is less.

d. Long Term Debt to Total Debt Ratio (LTD / TD)

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 borrowings, current liabilities and provisions. If the firm uses large amount of short term

loans, current liabilities and provisions, the percentage of the long term debt on the total 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 holder upon the total debt and lower ratio indicates the higher claim of short term debt holders as the portion of short term loans and current liabilities in the total debt of the firm would be high. The amount of short term loans and current liabilities used depends upon the liquidity of that firm.

Debt is considered as the total debt, which includes all secured and unsecured loan. Within these two types of loan there comes long term, short term debt, debenture, overdraft etc. It is externally borrowed from financial institutions. Debt capital is the capital to which a fixed rate of interest should be paid. Interest paid for debt is tax deductible expenses. Debt capital is a cheap means of financing. But there is risk in holding debt capital. Risk can be in terms of timely payment of interest and the redeemable value at the end of maturity period. Debt capital should be limited up to a level, which the earning capacity of the firm can support. Otherwise, the company has to sell its assets and be forced to go into liquidation. The ratio of long term debt to total debt indicates what percentage of company's total debts is included in the form of long term debt. It is calculated as:

$$\text{LTD/TD Ratio} = \frac{\text{Long Term Debt}}{\text{Total Debt}}$$

e. Interest Coverage Ratio

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

As interest coverage ratio is calculated by dividing EBIT by interest, it is necessary to analyze EBIT and interest. This ratio is useful to measure long term debt serving capacity of the firm. It is also useful in determining whether a borrower is going to be able to service interest payments on a loan. In other words, the ratio is designed to relate the financial charges of a firm to its ability to service them. This ratio determines whether a firm has the ability to meet its long term obligations. A high interest coverage ratio indicates the company's strong debt servicing capacity and ability to handle fixed liabilities of creditors whereas, lower 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 creditor.

This is calculated as:

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

DFL is the part of leverage ratio which is calculated as follows:

f. The Degree of Financial Leverage (DFL)

The degree of financial leverage at a particular EBIT level is measured by the percentage change in earning per share relative to the percentage change in EBIT. The company needs a lot of funds to operate activities. These funds are collected from different sources having different rates. On the way to profitability, the company can use equity capital. In the process of profit planning, it tries to increase the amount of profit, but different kinds of leverage should be considered. Degree of financial leverage is one kind of leverage.

Degree of financial leverage (DFL) measures proportionate change in EPS as a result of given change in EBIT. The financial leverage measures the financial risk arising due to the interest. Higher the financial leverage higher the financial risk. The financial leverage exists when the company adds debt capital in the composition of capital structure. The extra amount of investment by debt capital can be measured only with the help of financial leverage. This may be calculated as:

$$\text{Degree of Financial Leverage} = \frac{\%\text{ change in EPS}}{\%\text{ change in EBIT}}$$

$$= \frac{\text{EBIT}}{\text{EBIT} - \text{R}}$$

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

Where, R represents fixed financial costs which are interest and preference dividend.

) Profitability Ratio

Profitability Ratio gives answers about how effectively the firm is being managed and how effectively it uses its assets. In the study following profitability ratios are calculated.

g. 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 assets. The ratio explains net income for each unit of assets. It is also known as Return to Investment.

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.

$$\text{Return on Assets} = \frac{\text{EBIT}}{\text{Total Assets}}$$

Because of the tax shelter benefit of interest, we add the after tax interest expenses to net income for the numerator of the ratio.

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

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

If the companies' earning is good, shareholders' earning is greater than outside investors because they are ultimate owners of the company who are bearing higher risk as well. But in case of liquidation or at times of financial crisis, outside investors get the first priority in getting the return before the real owners. 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.

This ratio tells us the earning power on shareholders equity and is frequently used in comparing two or more firms in an industry. It also indicates that the funds supplied by owners. The higher ratio indicates that the funds have been effectively used in the company. It reflects the extent to which the objective of profit maximization has been achieved. The higher return on shareholders' equity (ROE) represents high profitability of the firm and vice versa. For instance, ROE of 14% represents that for every rupee in

equity, a shareholder earns 14 percent in profit. So, ROE is desirable from the point of view of the owner of the company.

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

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. Earning per share of an organization shows the strength of the share in the market. It shows how much belongs to the ordinary shareholders theoretically. If there are both preference and equity share capital, then out of net profit first of all preference dividend should be deducted in order to find out the net income available for equity shareholders.

Earnings per share is the most concerned ratio which is analyzed by the investors as it is the ultimate return they get by investing in the shares of that particular company. It is calculated as follows:

$$\text{Earning per Share (EPS)} = \frac{\text{Net Profit after Interest, Tax, \& Pref. Dividend}}{\text{No. of outstanding shares}}$$

h. Dividend per Share Analysis

Dividend per share is evaluated to know the share of dividend that the shareholders received in relation to the paid up value of the share. It refers to the proportion between earnings paid to the shareholders and the total earnings available to the shareholders. Dividend per share is the earning distributed to ordinary shareholders divided by the number of ordinary shares outstanding.

$$\text{Dividend per Share} = \frac{\text{Dividend for the year}}{\text{Total Number of Outstanding Shares}}$$

Capital Structure Analysis

There are various approaches for capital structure analysis. Among them net income approach will be taken for calculating overall capitalization rate and net operating income approach will be taken for calculating equity capitalization rate.

The essence of net income approach is that the firm can increase its value or lower the overall cost of capital by increasing the proportion of debt in the capital structure whereas, under net operating approach, any change in leverage will not lead to any change in the value of the firm and the market price of share, as the overall cost of capital is independent of the degree of leverage.

Ko is the overall cost of capitalization rate and it depends on the business risk of the firm. It is not affected from financial mix. If non operating income and overall cost of capital are independent of financial mix then value of the firm will be constant and independent of change of capital structure.

Under NI and NOI approach, we can sort out some formulas:

NI Approach (Overall Capitalization Rate)

The overall cost of capital is measured by dividing net of capital is measured by dividing net operating income by the value of firm. The value of the firm is the book value of debt and market value of the equity.

$$\text{Overall cost of Capital } (K_o) = \frac{\text{EBIT}}{V}$$

Where,

V = B+S

EBIT = Earning Before Interest and Tax

V = Value of the firm

B = Value of debt

S = Value of stock

NOI Approach (Equity Capitalization Rate)

This approach argues that the value of the firm remains constant to the degree of leverage and equity capitalization rate tends to increase with the degree of leverage.

$$\text{Equity capitalization rate } (K_e) = \frac{EBIT - I}{S}$$

Where, EBIT = Earning Before Interest and Tax

I = Interest

S = Value of stock/equity

3.5.2 Statistical Tools

Many statistical tools are often employed in the analysis and interpretation of data as an aid to management and managerial decision. Statistical tools help to find out the trends of financial position of the bank and to analyze the relationship between variables. Following statistical tools are used more systematically in this chapter:

a. Correlation Coefficient (r)

Correlation analysis is the statistical tool that can be used to describe the degree to which one variable is linearly related to other variable. Two or more variables are said to be correlated if change in the value of one variable appears to be related or linked with the change in the other variable. It is an analysis of covariance between two or more

variables and correlation analysis deals to determine the degree of relationship between two or more variables. It refers to the closeness of the relationship between two or more variables. It doesn't tell us anything about cause and effect relationship i.e. if there is a high degree of correlation between two variables; we cannot say which is the cause and which is the effect. Thus, correlation doesn't necessarily imply causation while causation always implies correlation. In correlation analysis, only one variable is treated as dependent and one or more variables are treated as independent.

This analysis contributes to the understanding of economic behavior, aids in locating the critical important variables on which others depend, may reveal to the economist the connection by which disturbances spread stabilizing forces may become effective.

There are three types of correlation: simple, partial and multiple. Here the focus is on simple correlation. The degree of relationship between two variables is known as simple correlation. The most widely used in practice for calculating correlation coefficient between two variables is "Karl Pearson's correlation coefficient". The correlation co-efficient denoted by r shows the direction of relationship between coefficients.

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

Where,

r = Karl Pearson's correlation coefficient

N = No. of Observation

X, Y = Variables

If one variable increases or decreases then r will fall between 0 and 1. If one variable increases the other also increases and the value of r will be ranged between 0 and 1 i.e. the relationship exists.

Decision criteria

When the value of r = + 1, the variables have perfect positive correlation

When the value of r = 0, there is no correlation between the variables

When the value of r = -1, the variables have perfect negative correlation

When r lies between 0.7 to 0.999 (-0.7 to -0.999) there is a high degree of positive (or negative) correlation

When r lies between 0.5 to 0.699, there is a moderate degree of correlation

When r is less than 0.5, there is low degree of correlation.

If $-1 < r < 0$ then two variables either increase or decrease but will be in the opposite direction.

Probable error has also been used to measure the reliability and test of significance of correlation coefficient. It is calculated by the following formula:

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

Where,

P.E. = Probable error of correlation coefficient

r = Correlation coefficient

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. Similarly, 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.

In this study, the variables under study are EBIT and interest expenses; long term debt and equity; debt equity ratio and return on total assets; debt equity ratio and return on shareholder's equity. This study intends to examine the correlation between these variables of the sampled banks.

b. Simple regression

The term multiple "regression" literally means "stepping back towards the average". The concept of regression was first given by the English biometrician Sir Francis Galton (1822-1911) in reports of his research on heredity. He described a tendency of adult offspring having either short or taller parents to revert back toward the average height of general population. Regression analysis is a general process of predicting the value of one variable on the basis of known values of other variables, i.e. in regression analysis, we establish a kind of average irreversible functional relationship between the two variables. The cause and effect relationship is clearly indicated through regression analysis. It is a mathematical measure of the average relationship between two or more variables in terms of original units of data. There are two types variables in regression analysis, dependent (also known as regressed/explained) variable and independent (regressor/predictor) variable. The variable whose value is influenced or is to be predicted is called dependent variable whereas the variable which influences the value or is used for prediction is called independent variable. Simple regression analysis helps to study the linear relationship between only two variables, independent and dependent variable and based upon this relationship, the value of dependent variable for a given value of independent variable can be predicted.

The simple regression equation for the observed data is given by:

$Y = a + bX$ ……(i)

Where, Y = Dependent variable

X = Independent variable

a = Intercept of the line or regression constant

b = Slope of the line or regression coefficient

The values of the constants a and b can be determined by solving the following two normal equations:

$\sum Y = na + b\sum X$……..……..(ii)

$\sum XY = a\sum X + b\sum X^2$……....(iii)

In this study, the variables under study are return on shareholder's equity and debt equity ratio; Interest Coverage Ratio and Total Debt to Total Assets; EPS and debt equity ratio. This study intends to examine the regression between these variables of the sampled banks.

- **Regression constant (a)**

It is known numerical constant directly above or below the origin (i.e. y-intercept). The value of the constant, which is intercept of the model, indicates the leverage level of dependent variable when independent variable is zero.

- **Regression coefficient (b)**

The regression coefficient of each independent variable (b) indicates the marginal relationship between that variables and the value of dependent variable, holding constant effect of all other independent variable in the regression model. It is also known as the slope of regression line. In other words, the coefficient describes how changes in independent variable estimate. It is also known as the numerical constant change in independent variable.

CHAPTER IV
DATA PRESENTATION AND ANALYSIS

General Background

This is the most crucial chapter of the study as the core part of the study and its objectives are analyzed and studied in this chapter through diagrammatic presentation and quantitative analysis. All the above-mentioned financial and statistical tools have been used for the examination of the data.

This chapter analyses the facts and figures of two sample banks namely: Nabil Bank Ltd and Himalayan Bank Ltd. All the required information is collected from their respective annual reports of five years. The chapter consists of two segments. The first segment of the chapter deals with presentation and analysis of data collected from various sources while the second part deals with major findings of the study. This chapter is performed to show the clear picture of the capital structure of the sampled banks.

4.1 Analysis of Financial Position and Capital Structure

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 and value of the firm and minimizes the overall cost of capital.

By using various financial and statistical tools the capital structure of sampled commercial banks have been analyzed. Firstly the ratios that depict the capital structure and profitability of the sample banks have been calculated and shown. Secondly the ratios that indicate the financial performance and liquidity of the sampled banks have been calculated. Lastly, the statistical tools such as correlation and regression analysis have been done.

4.1.1. Debt Equity Ratio

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

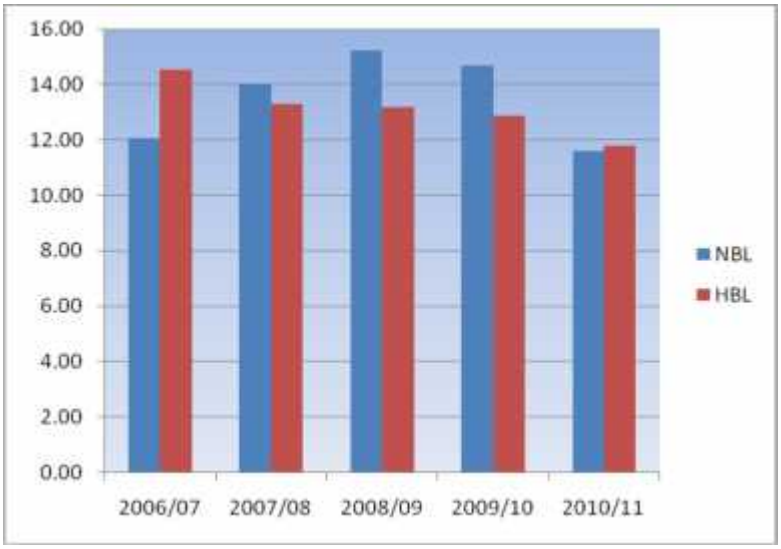
Table 4.1

Comparative Debt – Equity Ratio

Fiscal Year	Debt Equity Ratio (times)	
	NABIL	**HBL**
2006/07	12.05	14.55
2007/08	14.04	13.28
2008/09	15.22	13.17
2009/10	14.70	12.86
2010/11	11.59	11.79
Average	**13.52**	**13.13**

Source: Appendix II

Figure: 4.1



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

The average D/E ratio of NABIL is 13.52 times. It shows that creditors have 13.52 times claims on assets as compared to the shareholders or owners. In the FYs 2007/08 to 2010/11, the D/E ratio is highly above the average ratio which implies that more debt was employed in those years as compared to the amount of equity. The ratio which are below the average ratio indicates that claim of owners is higher than the creditors in those FYs. It also indicates that the company has lesser amount to be paid as interest on debt.

Calculated value of Debt to Equity of HBL shows D/E ratio has decreasing trend from year 2006/07 to 2010/11. In FY 2009/10 this ratio has decreased to 12.86 times, which is below the average ratio i.e., 13.13 times which implies that the claim of creditors is 13.13 times of what the claim of owner's is. The decreasing trend of D/E ratio implies that the amount of debt portion is being reduced in the capital structure of HBL. It is incurring high cost of capital, that is equity financing.

Between NABIL and HBL, HBL has lowest average D/E ratio. This implies that HBL is less leveraged and is more inclined towards the equity financing. In case of need for finance, HBL has enough room for raising the funds from the market. On the other hand, NABIL will face problems in servicing the debt if they couldn't generate enough return on the investment. They carry relatively more risk of default in comparison to HBL. However, while considering the net profit after tax figure, NABIL has the highest earnings. From this what can be interpreted is that since the NPAT is high for NABIL it has more debt servicing capacity and risk of default in timely interest payment is relatively low.

4.1.2 Debt to Total Capital Ratio

Long term debt to permanent capital ratio is presented in the following table:

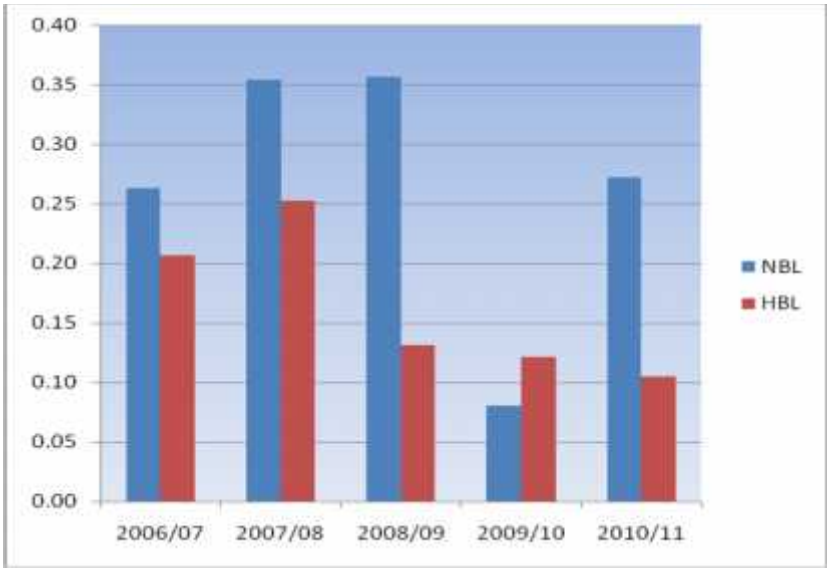
Table 4.2

Comparative Debt to Total Capital Ratio

Fiscal Year	Debt to Total Capital Employed Ratio (%)	
	NABIL	**HBL**
2006/07	0.26	0.21
2007/08	0.35	0.25
2008/09	0.36	0.13
2009/10	0.08	0.12
2010/11	0.27	0.11
Average	**0.27**	**0.16**

Source: Appendix II

Figure: 4.2



According to Table 4.2, NABIL has fluctuating trend of debt to total capital ratio. During the FYs 2006/07 – 2008/09, the ratio is in increasing trend, which implies that the leverage has also increased. Later in FY 2009/10, this ratio has again decreased to 0.08. In FY 2010/11, the ratio has again increased. In FY 2009/10, the ratio of debt to total

capital is at the lowest that is 0.08, which means during that year insignificant capital was contributed by the long term debt holders. Most of the debt was of short term in nature. Its average ratio is 27% which implies that in the total capital, 27% was long term debt.

HBL have less fluctuating trend in terms of debt to total capital ratio as compared to NABIL. From FY 2006/07 to 2007/08, the ratio has increased but from FYs 2007/08 to 2010/11, the ratio is in decreasing trend. The average ratio is 16%, which implies that almost 16% of total capital comprises of long term capital which is less in comparison to NBL.

Between NABIL and HBL, NABIL shows highest average ratio which means that it has higher amount of capital financed by long term debt. The decision of leverage depends upon the strategies undertaken by management and is governed by various other external factors as well. HBL has been less aggressive in raising long term funds as compared to NABIL.

4.1.3 Debt to Total Assets Ratio

The ratio of Total Debt to Total Assets is shown with the help of figure and table below:

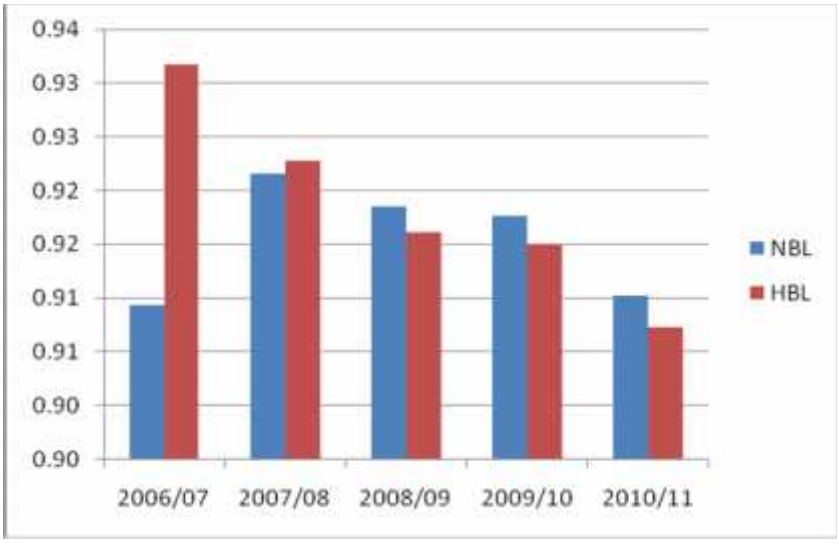
Table 4.3

Comparative Debt to Total Asset Ratio

Fiscal Year	Debt To Total Asset Ratio (%)	
	NABIL	HBL
2006/07	0.91	0.93
2007/08	0.92	0.92
2008/09	0.92	0.92
2009/10	0.92	0.92
2010/11	0.91	0.91
Average	**0.916**	**0.92**

Source: Appendix II

Figure: 4.3



According to Table 4.3, the average ratio is 0.92 i.e. 92%. Debt to Total Assets ratio of NABIL is consistent from FY 2007/08 to FY 2009/10. During this fiscal year, total asset ratio of NABIL is maximum and is more than the average ratio 0.916, i.e. 91.60%, which implies that during those year most of the assets of NABIL were financed by debt. The trend of debt to total assets is constant in nature.

The average ratio of HBL is 92% which implies that 92% of its total assets are financed by long term debts. The Debt to Total Assets ratio of HBL is stable at the range of 92%. However, the ratio is in decreasing trend. From the FY 2007/08 to FY 2009/10, the ratio is constant and is equal to the average. In FY 2010/11, this ratio has decreased to 91%.

The average Debt to Total Asset ratio of NABIL is lower than that of HBL, which implies that HBL has employed more debt in purchasing its total assets.

4.1.4 Long Term Debt to Total Debt Ratio

The ratio of Long Term Debt to Total Debt is shown with the help of figure and table below:

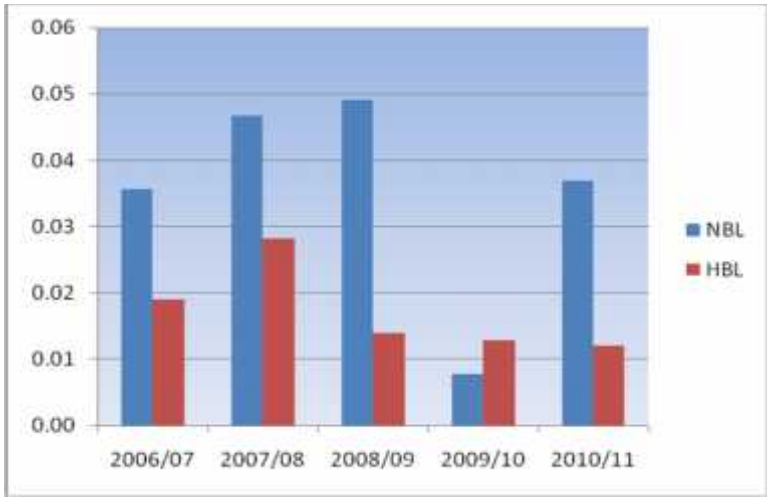
Table 4.4

Comparative Long Term Debt to Total Debt

Fiscal Year	Long Term Debt to Total Debt	
	NABIL	**HBL**
2006/07	0.04	0.02
2007/08	0.05	0.03
2008/09	0.05	0.01
2009/10	0.01	0.01
2010/11	0.04	0.01
Average	**0.04**	**0.02**

Source: Appendix II

Figure: 4.4



The trend analysis of NABIL reveals that it has quite fluctuating trend of LTD/TD ratio. The average ratio is 4% which implies that of total debt only 4% is of long term in nature. The above calculation shows that the ratio of LTD/TD of NABIL is 4% in F/Y 2006/07. This means contribution of long term debt is only 4% and remaining is short term debt. In the FY 2007/08 and 2008/09, this ratio has remained 5%, which is equal to the average

ratio. Later, this ratio has decreased to 1% in FY 2009/10 and increased to 4% in FY 2010/11.

The average ratio of HBL is 2%, which implies that of total debt only 2% is of long term in nature. In the fiscal year 2006/07, its LTD/TD is at 2% and has increased by 1% in FY 2007/08, which is above the average ratio. During this FY 2007/08, HBL raised more long term debt as compared to other short term debts or liabilities. In the following three FYs, the ratio has remained constant at 1%.

From the above calculation we can say that HBL have employed less amount of long term debt in its total debt portfolio. As compared to HBL, NABIL has more long term debt. The major implication of this is in the long run NABIL may face the problem of interest rate risk. If the market interest rate on long term debt decreases in the future then it must serve the debt in the agreed rate of interest rather than the reduced rate, if the interest rate in future reduces. It would be expensive to serve the debt then.

4.1.5 Interest Coverage Ratio

The calculated interest coverage ratios are presented in the following table:

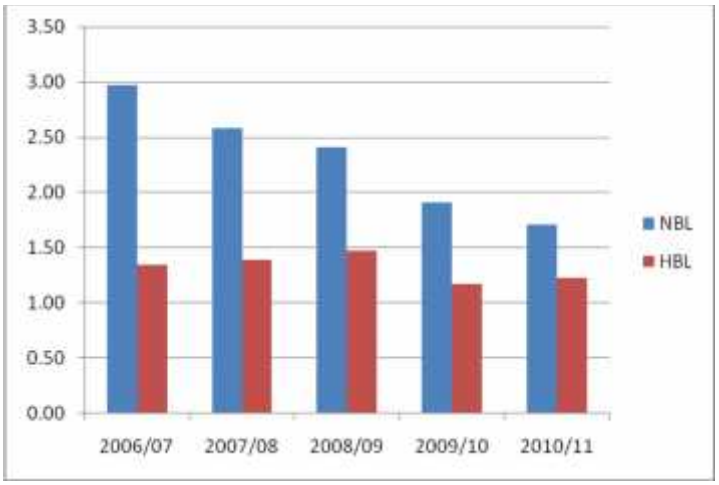
Table 4.5

Comparative Interest Coverage Ratio

Fiscal Year	Interest Coverage ratio (times)	
	NABIL	HBL
2006/07	2.97	1.35
2007/08	2.58	1.39
2008/09	2.41	1.47
2009/10	1.91	1.17
2010/11	1.71	1.23
Average	**2.32**	**1.32**

Source: Appendix II

Figure: 4.5



In the Table 4.5, the average ratio of NABIL is 2.32 times which imply that NABIL can pay its interest expense 2.32 times from its available EBIT. ICR in FY 2009/10 and 2010/11 is less than the average ratio. The interest coverage ratio of NABIL shows decreasing trend, which indicates the weakness of bank to pay its interest. The decline in the ratio is not a welcome sign. However, one must not reach to the conclusion that the bank is unable to pay its creditors. Various other things play significant role. In case of NABIL, the main reason behind the decreasing trend is that the EBIT has increased tremendously but the interest expense has been rising in a slower trend as the amount of debt raised is lower in these years.

In case of HBL the Interest coverage ratio is fluctuating in nature. It rises in one FY and declines in the other. The average calculated ratio is 1.32 times. The ICR of FY 2009/10 and 2010/11 is less than the average ratio. The basic cause behind the changing trend is due to the fluctuating Interest expense amount. When the amount of debt has increased, increasing its Interest Expense amount, the interest coverage ratio has also increased. This is enabled by the consistent performance of EBIT which has also been performing uniformly. Among the two banks, HBL is relatively poor in covering its interest payment through its available EBIT.

4.1.6 Degree of Financial Leverage (DFL)

When the company employs debt or other fund carrying fixed charge, 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 affects the owner's return, i.e. net profit as well as it analyzes the burden of interest expenses and financial risk of the company. The degree of financial leverage is mathematical presentation of interest burden and financial risk position. This can be calculated in percentage as well as in times. The below table shows the summary of financial leverage:

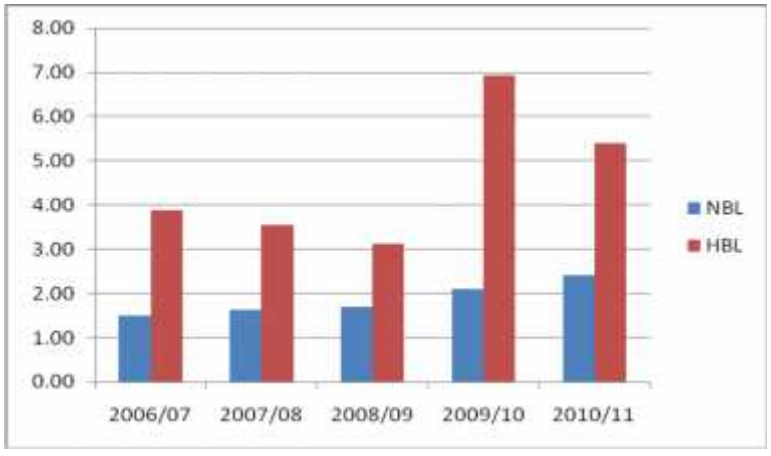
Table 4.6

Comparative Degree of Financial Leverage (DFL)

Fiscal Year	DFL (times)	
	NABIL	HBL
2006/07	1.51	3.88
2007/08	1.63	3.55
2008/09	1.71	3.13
2009/10	2.10	6.93
2010/11	2.41	5.40
Average	**1.87**	**4.58**

Source: Appendix II

Figure: 4.6



In Table 4.6, the average DFL of NABIL is 1.87 times, which means when EBIT increase by 1%, EBT or EPS will increase by 1.87%. DFL of NABIL in FY 2006/07, 2007/08 and 2008/09 is 1.51, 1.63 and 1.71 times respectively, which is less than the average calculated ratio and in FY 2009/10 and 2010/11, DFL of NABIL is 2.10 and 2.41 times respectively. The DFL of NABIL is in increasing trend.

In case of HBL, the average DFL of HBL is 4.58 times, which shows that when EBIT increase by 1%, EBT or EPS will increase by 4.58%. The DFL in FY 2006/07 is 3.88 times. Similarly in FY 2007/08, 2008/09, 2009/10 and 2010/11, DFL of HBL is 3.55, 3.13, 6.93 and 5.40 respectively. Upto FY 2008/09, the DFL of HBL is lower than the average calculated ratio and higher in FY 2009/10 and 2010/11.

4.1.7 Return on Total Assets (ROA)

The following are the Return on Assets of sample banks represented in Table and a figure:

Table 4.7

Comparative Return on Total Assets

Fiscal Year	Return on Total Assets (times)	
	NABIL	HBL
2006/07	0.025	0.01
2007/08	0.020	0.02
2008/09	0.024	0.02
2009/10	0.022	0.01
2010/11	0.023	0.02
Average	**0.023**	**0.02**

Source: Appendix II

Figure: 4.7

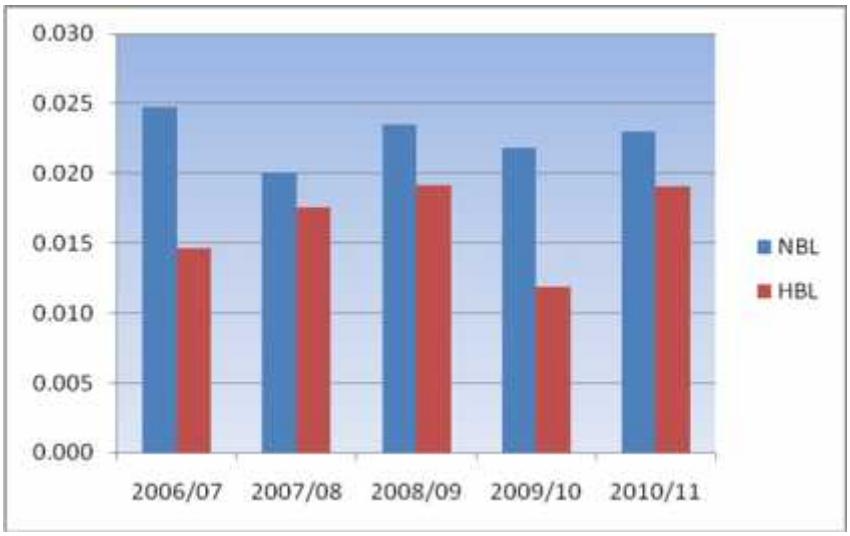


Table 4.7 shows the comparative position of Return on Total Assets of NABIL and HBL. The table shows that the ROA of NABIL is 0.025, 0.02, 0.024, 0.022 and 0.023 for fiscal year 2006/07, 2007/08, 2008/09, 2009/10 and 2010/11 respectively. It shows the fluctuating trend. Its average ratio is 0.023 which implies that every rupee investment in assets generates a return of 2.3% as profit. However, the return in FY 2007/08 and 2009/10 is less than the average return, the operational efficiency seems to be poor.

In case of HBL, the average ROA is 2%. ROA of FY 2006/07 is 0.01 and has remained constant at 0.02 from FYs 2007/08 to 2008/09. It has slightly increased to 0.2 in FY 2007/08 and 2008/09. However, it has again decreased to 0.01 in FY 2009/10 and increased to 0.02 in 2010/11. The main reason behind this is that the net profit after tax has remained consistent and had not increased tremendously. As comparison with the average return, FY 2006/07 and 2009/10 seems to be inefficient in utilizing its overall resources since the ROA is below the average return.

The average return on assets of NABIL is higher as compared to HBL which signifies that NABIL is more efficient in utilizing its overall resources. Its operational efficiency is also effective as compared to HBL.

4.1.8 Return on Shareholder's Equity (ROE)

The ROE has been calculated and presented with the help of following table and figure:

Table 4.8

Comparative Return on Shareholder's Equity

Fiscal Year	Return on Shareholder's Equity (times)	
	NABIL	HBL
2006/07	0.33	0.23
2007/08	0.31	0.25
2008/09	0.39	0.28
2009/10	0.35	0.17
2010/11	0.29	0.25
Average	**0.33**	**0.23**

Source: Appendix II

Figure: 4.8

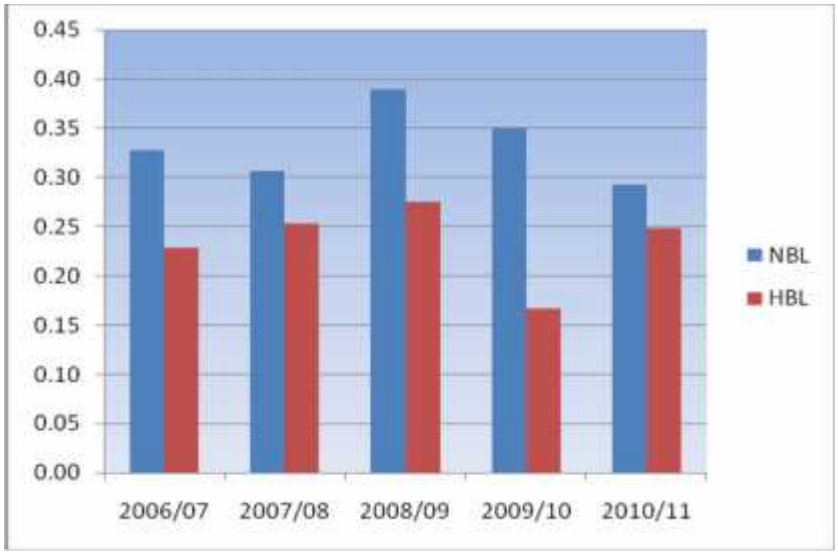


Table 4.8 exhibits return on shareholder's equity of sample banks. NABIL has a fluctuating trend. The average ratio is 33%, which shows that out of investment

amounting to Rs. 100, the shareholders earning is Rs. 133. In the context of NABIL, it has ratio of 30% ROE in the FY 2006/07 and 2009/10. In the FY 2006/07, the ratio is 33% which implies that of Rs.100/- investment, the shareholder's earned Rs.133/-. In FY 2007/08 it decreased to 31% then increased to 39% in FY 2008/09. In FY 2009/10 and 2010/11, it decreased to 35% and 29% respectively. The highest ROE is 39% which is earned in FY 2008/09. Since ROE in FY 2007/08 and 2010/11 is less than the average return, the shareholder's earning is less in the respective years.

The average ratio of HBL is 23%, which implies that out of investment of Rs. 100, the shareholder's earning is Rs. 123. From FY 2006/07 to FY 2008/09, the ratio is in increasing trend but after that ROE decreased to 17% from 28% in the FY 2009/10. Its ROE is 28% in FY 2008/09, which is the highest in the sample period. Again this ratio has increased to 25% in FY 2010/11 which implies that the shareholders earnings has increased to Rs. 125/- from Rs. Rs. 117/-. However, in FY 2009/10, the ROE of HBL is less than the average return. Hence, the shareholder's earning is not satisfactory in comparison with other fiscal years.

By analyzing the above calculation, it is found that the average ROE of NABIL is highly greater as compared to HBL. From the viewpoint of the investors and businessmen, NABIL is efficient in providing higher return to their shareholders. So it is better to invest in NABIL as it yields greater return on the investment.

4.1.9 Earning Per Share (EPS) Analysis

The following table and figure analyses the EPS for three sample banks:

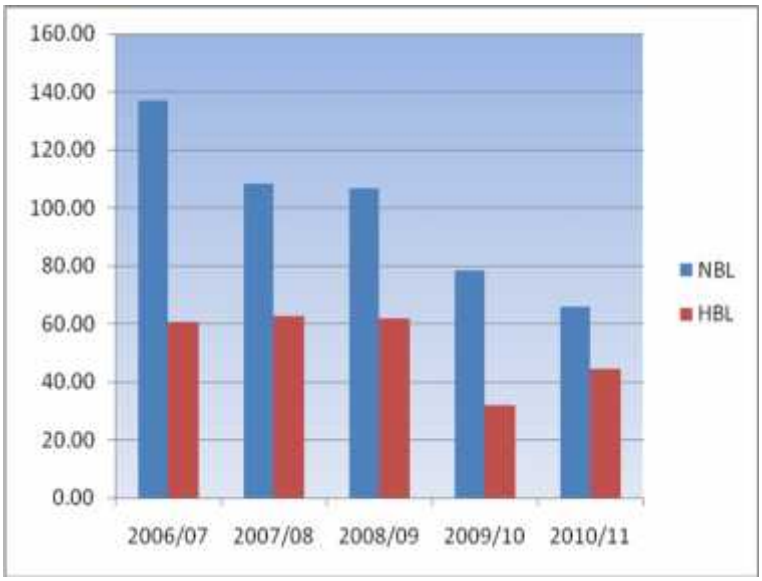
Table 4.9

Comparative Earning Per Share

Fiscal Year	Earning Per Share (In Rupees)	
	NABIL	**HBL**
2006/07	137.08	60.66
2007/08	108.31	62.74
2008/09	106.76	61.90
2009/10	78.61	31.80
2010/11	65.91	44.66
Average	**99.33**	**52.35**

Source: Appendix II

Figure: 4.9



From the above table, the average EPS of NABIL is Rs. 99.33. The Earning per share has decreased from FY 2006/07 to 2010/11. In terms of percentage basis, EPS is highest in the FY 2006/07, i.e., its EPS is Rs.137.08 that is for every outstanding per share a shareholder owns Rs.137.08. In the FY 2007/08 the EPS has decreased by 20.99% as compared to the previous FY 2006/07. In the FY 2009/10 and 2010/11, EPS has highly

decreased and is below the average return. The main reason behind this is the management has turn over its profit.

In the case of HBL, the average EPS is Rs. 52.35. In the FY 2006/07, HBL has its EPS of Rs.60.66 which signifies that for every share a shareholder gets Rs. 60.66 as earnings. The EPS has increased in FY 2007/08. From then on, it has decreased till FY 2009/10. Later in FY 2010/11, EPS has drastically increased to RS. 44.66. However, the EPS at FY 2009/10 and 2010/11 is less than the average EPS.

Between these two banks EPS of NABIL is higher with the average of Rs. 99.33, which shows NBL is the bank which gives higher return on the shares invested as compared to HBL. It is most beneficial from the viewpoint of shareholders particularly those who make the decision of investment by analyzing the earnings they can get per share.

4.1.10 Dividend per Share (DPS) Analysis

The following are the DPS of three sample banks. The numbers are depicted with the help of a figure as follows:

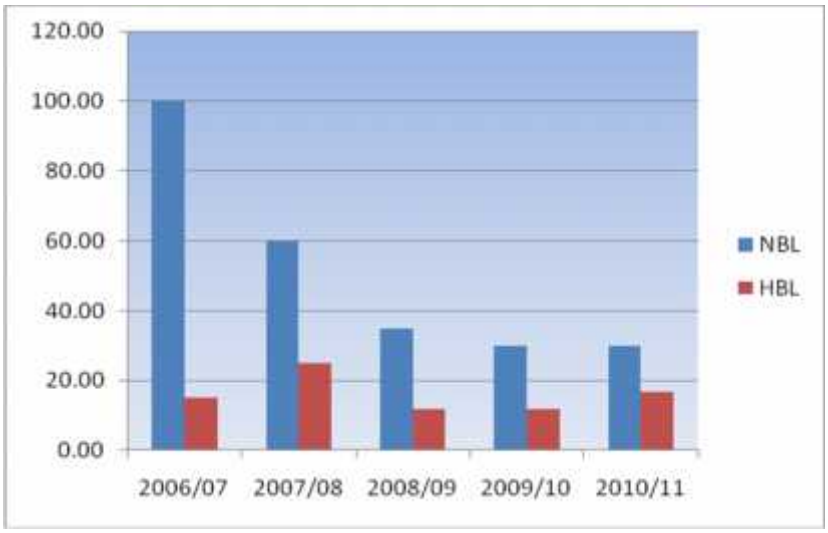
Table 4.10

Comparative Dividend per Share

Fiscal Year	Dividend Per Share (In Rupees)	
	NABIL	**HBL**
2006/07	100.00	15.00
2007/08	60.00	25.00
2008/09	35.00	12.00
2009/10	30.00	11.84
2010/11	30.00	16.84
Average	**51.00**	**16.14**

Source: Appendix II

Figure: 4.10



The dividend per share of NABIL is Rs.100, Rs.60, Rs.35, Rs.30 and Rs.30 for the FYs 2006/07, 07/08, 08/09, 09/10 and 10/11 respectively. The average DPS is Rs 51/-. DPS in FY 2008/09 to 2010/11 is less than the average DPS.

Similarly, HBL shows a DPS of Rs.15, Rs.25, Rs.12, Rs.11.84 and Rs.16.84 in the FYs 2006/07, 07/08, 08/09, 09/10 and 10/11 respectively. The average DPS is Rs.16.14/-. HBL has paid a highest dividend of Rs. 25/- in the FY 2007/08, which is also above the average DPS.

The table shows that NABIL has paid the highest average dividend of Rs. 51/-. It shows that more investors are likely to be attracted in investing at NABIL as the dividend per share is higher at NABIL as compared to HBL.

4.1.11 Overall Capitalization Rate (K_o)

Overall cost of capital reflects the total cost of capital collected from various sources by the company. The overall capitalization rate was calculated on the basis of NI approach. This approach assumes the cost of debt is less than the cost of equity. Based on this

approach, the overall capitalization rate of the firm can be lower by increasing the amount of debt in capital structure.

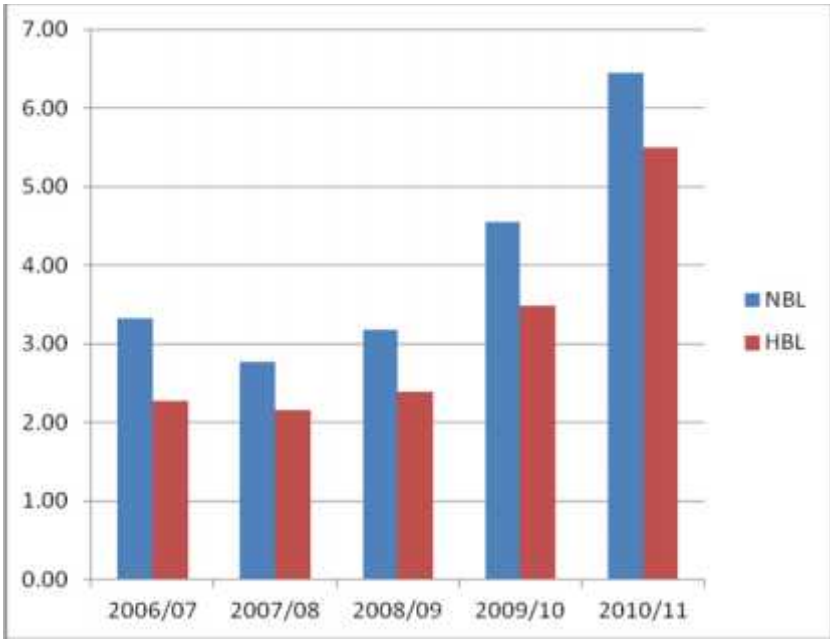
Table 4.11

Comparative Overall Capitalization Rate

Fiscal Year	Overall Capitalization Rate (%)	
	NABIL	**HBL**
2006/07	3.33	2.27
2007/08	2.77	2.15
2008/09	3.17	2.39
2009/10	4.55	3.48
2010/11	6.45	5.50
Average	**4.05**	**3.16**

Source: Appendix II

Figure 4.11



From Table 4.11 we can examine that the overall capitalization rate of NABIL is 3.33% in FY 2006/07, 2.77% in FY 2007/08, 3.17% in FY 2008/09, 4.55% in FY 2009/10,

6.45% in FY 2010/11. The average overall capitalization rate of NABIL is 4.05%. In FY 2009/10 and 2010/11, the overall capitalization rate of NABIL is higher than the average.

The average overall capitalization rate of HBL is 3.16%. The overall capitalization rate of HBL is 2.27% in FY 2006/07, 2.15% in FY 2007/08, 2.39% in FY 2008/09, 3.48% in FY 2009/10, 5.50% in FY 2010/11. In FY 2009/10 and 2010/11, HBL has the highest return in comparison with the average rate.

4.1.12 Equity Capitalization Rate (K_e)

The equity capitalization rate is calculated based on NOI approach. This approach argues that the value of the firm remains constant to the degree of leverage and equity capitalization rate tends to increase with the degree and vice versa.

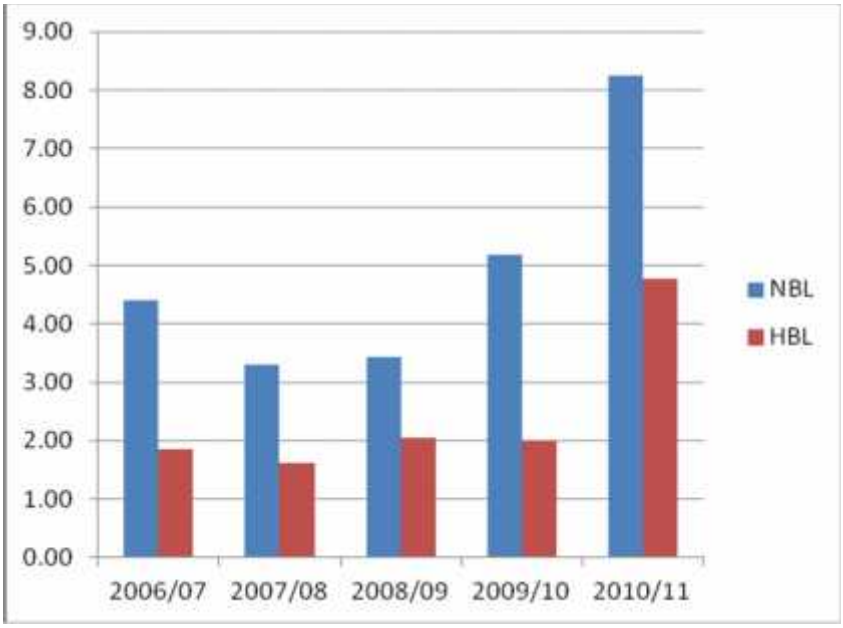
Table 4.12

Comparative Equity Capitalization Rate

Fiscal Year	Equity Capitalization Rate (%)	
	NABIL	**HBL**
2006/07	4.41	1.87
2007/08	3.29	1.62
2008/09	3.44	2.05
2009/10	5.17	2.01
2010/11	8.26	4.77
Average	**4.91**	**2.46**

Source: Appendix II

Figure 4.12



The equity capitalization rate of NABIL is 4.41% in FY 2006/07, 3.29% in FY 2007/08, 3.44% in FY 2008/09, 5.17% in FY 2009/10, 8.26% in FY 2010/11. In FY 2009/10 and 2010/11, NABIL has the highest return and is above the average rate. The average overall capitalization rate of NABIL is 4.91%.

The overall capitalization rate of HBL is 1.87% in FY 2006/07, 1.62% in FY 2007/08, 2.05% in FY 2008/09, 2.01% in FY 2009/10, 4.77% in FY 2010/11. In FY 2010/11, NABIL has the highest return, i.e. 4.77% and is above the average capitalization rate. The average overall capitalization rate of HBL is 2.46%.

4.1.13 Correlation Coefficient and Probable Error (P.E.)

Correlation is a tool to measure the co-movement relationship of two headings of statistics. In other words, it helps to measure the effect of movement of one variable to the other variable. Universally, such relation can be found within the limit of -1 to +1.

Probable error interprets the value of correlation coefficient. It helps to determine applicability for the measurement of reliability of computed value of the correlation coefficient 'r'.

4.1.13.1 Correlation Coefficient and Probable Error between EBIT and Interest expenses

The correlation coefficient between EBIT and interest expenses is analyzed in order to examine the debt servicing capacity of sampled banks.

Table 4.13

Fiscal Year	NABIL (in billion)		HBL (in billion)	
	EBIT	**Interest expenses**	**EBIT**	**Interest expenses**
2006/07	1.65	0.56	1.03	0.77
2007/08	1.96	0.76	1.15	0.82
2008/09	2.78	1.15	1.37	0.93
2009/10	3.75	1.96	1.82	1.55
2010/11	5.05	2.96	2.96	2.41
Correlation (r)	**0.996**		**0.993**	
P.E.	**0.002**		**0.004**	
6 P.E.	**0.014**		**0.025**	

Source: Appendix III

In case of all financial institutions, the correlation between EBIT and interest expenses have positive relationship. It shows increase in EBIT increases interest payment. In the above table, both NABIL and HBL have 0.996 and 0.993 correlation coefficient respectively which shows the highly positive correlation. Considering the probable error (P.E.), the value of r is greater than six times of the probable error of NABIL and HBL.

Therefore, it shows the significant relationship between EBIT and interest expenses of concerned banks. This show the above banks are able to service their debt.

4.1.13.2 Correlation Coefficient and Probable Error between Long term Debt and Shareholder's Equity

The correlation coefficient between long term debt and shareholder's equity of sampled banks are analyzed in order to examine the effect of debt on shareholder's equity.

Table 4.14

Fiscal Year	NABIL (in billion)		HBL (in billion)	
	Long term Debt	Shareholder's Equity	Long term Debt	Shareholder's Equity
2006/07	24.78	2.06	31.30	2.15
2007/08	34.22	2.44	33.38	2.51
2008/09	40.30	2.65	36.03	2.74
2009/10	47.86	3.26	39.09	3.04
2010/11	52.92	4.57	42.40	3.60
Correlation	**0.001**		**0.002**	
P.E.	**0.30**		**0.30**	
6 P.E.	**1.81**		**1.81**	

Source: Appendix III

In the above table, both NABIL has 0.001 and HBL have 0.002 correlation coefficient, which shows the low degree of correlation. This means the relationship between long term debt and shareholder's equity of the company is positive but less correlated. Considering the probable error (P.E.), the value of r is less than six times of the probable error of NABIL and HBL. Therefore, the value of r of these two banks is insignificant.

4.1.13.3 Correlation Coefficient and Probable Error between Debt-Equity ratio and Return on Shareholder's Equity

The correlation coefficient between debt equity ratio and return on shareholder's equtiy of sampled banks are analyzed in order to examine if the debt capital portion in capital structure increase or decrease the return on shareholder's equity.

Table 4.15

Fiscal Year	NABIL		HBL	
	Debt-Equity Ratio	Return on Shareholder's Equity	Debt-Equity Ratio	Return on Shareholder's Equity
2006/07	12.05	0.33	14.55	0.23
2007/08	14.04	0.31	13.28	0.25
2008/09	15.22	0.39	13.17	0.28
2009/10	14.70	0.35	12.86	0.17
2010/11	11.59	0.29	11.79	0.25
Correlation	**0.77**		**-0.03**	
P.E.	**0.12**		**0.30**	
6 P.E.	**0.74**		**1.81**	

Source: Appendix III

This table shows the relationship between the debt equity ratio and return on shareholder's equity of concerned sampled banks over the study period. Here, correlation coefficient of NABIL has positive correlation, i.e. 0.77 and HBL has negative correlation coefficient, i.e. -0.03. Correlation coefficient of NABIL is greater than six times the probable error and correlation coefficient of HBL is less than six times the probable error. Hence, the relationship between debt equity ratio and return on shareholder's equity of

NABIL is significant whereas, the relationship between debt equity ratio and return on shareholder's equity of HBL is insignificant.

4.1.13.4 Correlation Coefficient and Probable Error between Debt-Equity ratio and Return on Total Assets

Table 4.16

Fiscal Year	NABIL		HBL	
	Debt-Equity Ratio	Return on Total Assets	Debt-Equity Ratio	Return on Total Assets
2006/07	12.05	0.025	14.55	0.01
2007/08	14.04	0.020	13.28	0.02
2008/09	15.22	0.024	13.17	0.02
2009/10	14.70	0.022	12.86	0.01
2010/11	11.59	0.023	11.79	0.02
Correlation	**-0.32**		**-0.37**	
P.E.	**0.27**		**0.26**	
6 P.E.	**1.62**		**1.56**	

Source: Appendix III

The correlation coefficient between debt equity ratio and return on assets of NABIL and HBL is -0.32 and -0.37 respectively. Here, correlation of NABIL and HBL shows negative relationship. Value of r of given banks is less than six times of probable error, which shows the value of r is insignificant, i.e. there is no significant relationship between debt to equity and return on assets.

4.1.14 Regression analysis

The simple regression helps to determine relationship between different variable considering one as dependent variable and other as independent variables. With the help of known variable unknown variable can be estimated and it also determines the relation between each dependent and independent variables. It shows how variables are related. It is the estimation of unknown values or prediction of one variable from known value of the other variables.

4.1.14.1 Regression analysis between Return on shareholder's equity and debt equity ratio

Using simple regression, the relation between Return on shareholder's equity and debt equity ratio of selected companies had been calculated under this section. The relation between these two reveals whether return on shareholder's equity changes linearly or not with the change in debt equity ratio Here, return on shareholder's equity has been taken as independent variable and debt equity ratio as dependent variable.

Table 4.17

Fiscal Year	NABIL		HBL	
	Return on shareholder's equity	Debt equity ratio	Return on shareholder's equity	Debt equity ratio
2006/07	0.33	12.05	0.23	14.55
2007/08	0.31	14.04	0.25	13.28
2008/09	0.39	15.22	0.28	13.17
2009/10	0.35	14.70	0.17	12.86
2010/11	0.29	11.59	0.25	11.79
Regression Coefficient	**0.018**		**-0.001**	

Source: Appendix III

The regression coefficient of debt equity ratio on return on shareholder's equity of NABIL shows positive but negligible relationship and in case of HBL, it shows negative negligible relationship. In case of NABIL, increase in return on shareholder's equity increases the leverage ratio and vice versa. In case of HBL, increase in shareholder's equity decreases the leverage ratio and vice versa.

4.1.14.2 Regression analysis between Interest Coverage Ratio and Total Debt to Total Assets

The relation between Interest Coverage Ratio and total debt to total assets of selected companies had been calculated using simple regression. Here, total debt to total assets has been taken as dependent variable and long term debt to total assets as independent variable.

Table 4.18

Fiscal Year	NABIL		HBL	
	Interest Coverage Ratio	Total Debt to Total Assets	Interest Coverage Ratio	Total Debt to Total Assets
2006/07	2.97	0.91	1.35	0.93
2007/08	2.58	0.92	1.39	0.92
2008/09	2.41	0.92	1.47	0.92
2009/10	1.91	0.92	1.17	0.92
2010/11	1.71	0.91	1.23	0.91
Regression coefficient	**1.33**		**1.83**	

Source: Appendix III

The regression coefficient of interest coverage ratio on total debt to total assets is positive for both NABIL and HBL. This shows the linear relationship between interest coverage

ratio and total debt to total assets ratio. This means increase in total debt to total assets ratio leads to increase in interest coverage ratio.

4.1.14.3 Regression analysis between EPS and Debt Equity Ratio

In this section, using simple regression the relation between EPS and debt equity of selected companies had been calculated. The impact of leverage upon EPS of selected companies had been explored by taking EPS as dependent variable and debt equity ratio as independent variable.

Table 4.19

Fiscal Year	NABIL		HBL	
	EPS	Debt Equity Ratio	EPS	Debt Equity Ratio
2006/07	137.08	12.05	60.66	14.55
2007/08	108.31	14.04	62.74	13.28
2008/09	106.76	15.22	61.90	13.17
2009/10	78.61	14.70	31.80	12.86
2010/11	65.91	11.59	44.60	11.79
Regression coefficient	**0.001**		**0.04**	

Source: Appendix III

The regression coefficient of debt equity ratio on EPS is positive for both NABIL and HBL but shows negligible relationship. This shows the linear relationship between EPS and debt equity ratio. This means increase in debt equity ratio leads to increase in EPS.

4.2 Major Findings

- The average D/E ratio of NABIL is 13.52 times. It shows that creditors have 13.52 times higher claims on assets as compared to the owners. HBL shows average D/E ratio of 13.13 times which implies that the claim of creditors is 13.13 times as compared to owners of the company. HBL has lower D/E ratio as compared to NABIL. NABIL is less leveraged and is more inclined towards the equity financing whereas HBL is highly leveraged.

- NABIL has fluctuating trend of debt to total capital ratio. Its average ratio is 27%. HBL have less fluctuating trend in terms of debt to total capital ratio. Its average ratio is 16% which implies that almost 16% of total capital comprises of long term capital which is more in comparison to NABIL. HBL shows lowest ratio which means HBL has lower amount of capital financed by long term debt. It has been less aggressive in raising long term funds as compared to other sample banks.

- The Debt to Total Assets ratio of NABIL and HBL is 92% which implies that 92% of its total assets are financed by long term debts. Both banks have consistent trend in terms of debt to total assets ratio.

- The trend analysis of the company reveals that NABIL has quite fluctuating trend of LTD/TD ratio. It has drastically reduced its Long term debt in the FY 2009/10 to 1% from 5%. The main reason behind this is in that year NABIL has decreased insignificant amount of Long term debt. Its average ratio is 4% which implies that of total debt only 4% is of long term in nature. Regarding HBL, the average ratio of LTD to total debt is 2% which is lower as compared to NABIL. HBL has consistency in Long term debt ratio and have employed less amount of long term debt in its total debt portfolio. As compared to these two banks, NABIL has high long term debt.

- The average interest coverage ratio of NABIL is 2.32 times which imply that NABIL can pay its interest expense 2.32 times from its available EBIT. It indicates that the

firm is able to satisfy interest claim of debt holders even if the firm's current EBIT falls 1/2.32 level. The interest coverage ratio of NABIL shows decreasing trend. In case of HBL the Interest coverage ratio is fluctuating in nature. Its average calculated ratio is 1.32 times. NABIL has greater interest coverage ratio than that of HBL. Therefore, greater the interest coverage ratio, more safety to creditors and vice versa.

- The average ratio of ROA for NABIL and HBL is 2% which implies that every rupee investment in assets generates a return of 2% as profit. ROA 2% implies that the firms' investment in total assets offers 2% return after recovering all operating expenses, interests and taxes. In case of NABIL, ROA has remained constant as 0.02 from FYs 2006/07 to 2010/11 whereas, in the case of HBL,ROA has fluctuating trend but in FY 2007/08 and FY 2008/09, it's ROA is constant to 0.02 times.

- The average Return on Shareholder's Equity (ROE) of NABIL is 33%, which means the firm's total shareholder's investment offers 33% return after recovering all operating expenses, interest and tax payments. In case of HBL its average ratio is 23% which is much less compared to NABIL.

- The EPS of NABIL has increased from FY 2006/07 to FY 2010/11. In terms of percentage basis, EPS is the highest in the FY 2006/07. Its average EPS is Rs. 137.08/-. The average EPS of NABIL is Rs.99.33. The EPS of HBL is in fluctuating trend. It has increased in FYs 2007/08. From then on it has decreased till FY 2009/10 and increased in FY 2010/11 to Rs. 44.66. The average EPS is Rs. 52.35/-.

- The average DPS of NABIL is Rs 51/-. The highest DPS of Rs. 100/- was paid in the FY 2006/07. The average DPS of HBL is Rs.16.14/-. It has paid a highest dividend of Rs.25/- in the FY 2007/08. NABIL has paid the highest average dividend of Rs.51/-.

- The average DFL of NABIL is 1.87 times, which is less than that of HBL DFL, i.e. 4.58 times. The trend of DFL of NABIL is in increasing trend whereas HBL has fluctuating trend.

- It is typical to see higher overall capitalization rates with less desirable assets and lower capitalization rates with more desirable assets. The average overall capitalization rate of NABIL is 4.05% which is higher than that of HBL, i.e. 3.16. The overall capitalization rate of both banks has decreased in FY 2007/08 because the proportion of debt has increased which lead to the increase in value of the firm.

- The average Equity capitalization rate of NABIL is 4.91% which is higher than that of HBL, i.e. 2.46%. The equity capitalization rate of HBL is more fluctuating than that of NABIL. The equity capitalization rate of NABIL has decreased in FY 2007/08 and increased in the following years, whereas the HBL has fluctuating trend of equity capitalization rate. As the proportion of debt is added in the firm's capital structure, the cost of equity capital rapidly rises.

- The correlation coefficient between EBIT and interest expenses of NABIL and HBL are 0.996 and 0.993 respectively, which is highly and positively correlated. Considering the value of r and comparing it with 6 P.E., there is significant relationship between EBIT and interest expenses. It shows that both banks are significantly able to service their debt. Similarly, the correlation coefficient between long term debt and shareholder's equity of both banks are less correlated and there is also the insignificant relationship between long term debt and shareholder's equity. The correlation coefficient between debt equity ratio and return on shareholder's equity of NABIL is moderately and positively correlated whereas, HBL is negatively correlated but the value of r of NABIL is significant and HBLs value of r is insignificant. This means there is no significant relationship between debt equity ratio and return on shareholder's equity of HBL. Similarly, the correlation coefficient between debt equity ratio and return on total assets of NABIL and HBL is negatively correlated and the value of r of both the banks is insignificant, i.e. there is no significant relationship between debt equity ratio and return on total assets.

- Based on return on shareholder's equity and debt equity ratio, regression coefficient of NABIL is 0.018 and HBL is -0.001. Similarly based on interest coverage ratio and total debt to total assets, regression coefficient of NABIL is 1.33 and HBL is 1.83.

And based on EPS and debt equity ratio, regression coefficient of NABIL is 0.001 and HBL is 0.04.

- Banks with lower leverage will generally report higher operating assets ratio such as ROA but lower operating equity ratios. Hence, an analysis of profitability based on operating equity ratios such as ROE disregards the greater risks normally associated with high leverage.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

This is the concluding chapter of this study. It is divided into three major sections: Summary, Conclusion and Recommendations. In this chapter, the study has been summarized in general and some recommendations have been forwarded which could be useful to stakeholders and to the concerned banks as well.

5.1 Summary

The capital structure of a firm involves the choice of an appropriate mix of different sources of funds i.e. owner funds and outsider funds. The selection of the capital structure will obviously depend on the bearing that it has on the firm's objectives of maximizing of shareholder's wealth. A financial mix which leads to maximization of shareholders wealth as reflected in the market price of share is termed as an optimal capital structure. An ideal capital structure should be determination of proper balance between borrower's fund, i.e. debt capital and owner's fund i.e. equity, which maximize the shareholders wealth and minimizes the composite cost of capital.

In this study, two leading joint venture banks, Nabil Bank Ltd. and Himalayan Bank Ltd. have been taken into consideration for the analysis of capital structure management. The study is based on the secondary data from FY 2006/2007 to 2010/2011. The data required for the analysis are directly obtained from the balance sheet and the P/L account of the concerned bank’s annual reports. Likewise, various data and information are collected from the economic journals, periodicals, bulletins, magazines and other published and unpublished reports and documents as well as the websites of concerned banks. The whole study has been divided into five chapters.

In the first chapter, introduction of the study is given. In this chapter, general background regarding the capital structure, the introduction of sample banks, and the statement of the

problems along with the objectives that motivated this study, significance of the study and limitations of the study are briefly described.

In chapter 2, the literature review is done. In this chapter the conceptual foundation of capital structure has been presented with reference to the literatures, publications, and books available regarding capital structure. Among various theories available regarding capital structure only 6 theories have been considered. They are Net Income approach, Net Operating Income approach, Traditional approach, Modigliani & Miller approach, Static-Trade off theory, Pecking Order theory, and Agency theory. Besides these theories, the empirical studies regarding capital structure has also been considered in this chapter. The empirical studies have been divided into studies in general and review of journals, articles and thesis.

In chapter 3 Research methodologies are presented. Various sequential steps to adopt a systematic analysis have been explained in this chapter. Almost all of the data used in this study are secondary in nature. Five years data are taken as sampled years, which are analyzed by using financial and statistical tools. Financial as well as statistical tools have been deployed in order to analyze and interpret the data and information. Under financial analysis, various financial ratios, i.e. debt equity ratio, assets long term debt to capital employed ratio, debt to total assets, long term debt to total debt ratio, interest coverage ratio, degree of financial leverage; profitability ratios, i.e. return on shareholder's equity, return on total assets, EPS, DPS; liquidity ratios, i.e. cash ratio, liquid assets to total assets and quick ratio has been analyzed and interpreted. Under statistical analysis, some relevant tools i.e. coefficient of correlation and simple regression analysis have been used for the analysis and interpretation of data. This analysis gives clear picture of the performance of the bank with regard to its capital structure management.

In chapter 4, the data have been calculated and analyzed using Ms Excel. The findings are presented with the aid of tables and are also presented diagrammatically. The calculated data are presented in the appendix.

Finally, Summary, Conclusion and Recommendations of the study are presented in the chapter 5 in order to summarize the whole study at an instance. The conclusions and recommendations presented in the study will be beneficial to the concerned stakeholders as well as the management of concerned banks.

5.2 Conclusions

It is a renowned fact that globalization of Joint Venture Banks is a reality. The growth and increasing integration of the world's economy has been parallel by expansion of global banking activities. Nepal, though a developing country couldn't deny the fact that JVBs/CBs has running potentially, which is responded by extending loans and developing new, highly innovative financial techniques that laid the foundation for totally new approaches to the provision of banking services.

This study particularly deals with conclusion about the capital structure management of two leading joint-venture commercial banks in Nepal. The Capital Structure decision is crucial because of the need to maximize returns to various organizational constituencies, and also because of the impact such a decision has on an organization's ability to deal with its competitive environment. This present study evaluated the capital structure ratios and the relationship between capital structure and profitability of firms. The study reveals that the companies are financially leveraged with a large percentage of total debt being short term. The higher D/E ratio implies higher portion of outsider's claim in total assets of the banks as compared to the owner's claim. However, banks with lower leverage have higher operating income ratios. The reason for this is that banks with higher equity need to borrow less to support a given level of assets and thus have lower interest expenses, which results in higher net interest and net income. On the contrary, HBL though is less leveraged is reporting less net interest income as compared to high leveraged bank like NABIL. The main reason behind this is the lower interest rate charged by HBL.

The study reveals that all the sample banks have complied with the rules and regulations set by the regulatory body, Nepal Rastra Bank. The profitability of NABIL is better as

compared to other sample bank. It is exhibited by the interest coverage ratio which is much greater than HBL. As the banks being highly leveraged, in fact their interest coverage ratio must be higher. This also implies that the debt servicing capacity of NABIL is well. With reference to the profitability and 28 years of establishment NABIL is providing higher dividend and EPS to its shareholders than other bank.

5.3 Recommendations

The sound capital structure enhances the profitability and growth of any company and it also indicates sound financial position of the company. The capital structure of banking is very much different from other industry. Bank benefit by using outsider's funds by various measures in variety of assets in order to provide good return to their shareholders. As the outsider's fund is very higher than owner's fund, financial manager must be very much sensible in each step of investing and lending the fund in various assets.

This section of the study endeavors to recommend few points that can be helpful to stakeholders as well as to the company. The recommendations are based upon above analysis and drawn conclusions can be considered as guidelines which would be helpful in taking prompt and appropriate decision regarding capital structure.

5.3.1 Recommendation to NABIL Bank Limited

- The earnings of NABIL is decreasing. However, it is recommended to formulate and implement sound and effective financial and non-financial strategies to minimize their operational expenses to meet the required level of profitability.

- Return on equity ratio of NABIL is in fluctuating trend over the study period which is not a good financial indicator. It indicates that the bank is not properly managed and hence it should find out the reasons behind it.

- NABIL has used maximum long term debt. Although debt creates tax benefit but it should use the optimal level of long term debts.

- Although NBL has consistent return on total assets but it should also focus on optimal capital structure. Increase in profitability and value of the firm depends upon the optimal capital structure rather than increasing debt portion or equity.

5.3.2 Recommendation to Himalayan Bank Limited

- The ROS, ROA and EPS of HBL are low in comparison to NABIL. So HBL need to seek more profitable area in order to increase profit of the bank. And they also need to maintain optimal capital structure considering cost of capital so that it helps to enhance the ROS and profitability of banks.

- The earnings of HBL are fluctuating. This may be due to economic or political condition of the country. So, HBL need to enhance their profitability by increasing efficiency in their productivity and decreasing cost.

- Dividend per share should be determined considering the shareholder's expectation and growth requirements of banks. The higher payment attracts both the existing and potential investors leading to increase in market price of the share, which consequently leads to the strength of financial capacity. Hence, HBL is recommended to maintain consistent dividend per share.

- HBL has used less long term debt in comparison to NABIL. So it is recommended to analyze the cost and benefit before raising the fund from different source of capital.

- HBL should focus on utilization of total assets to generate higher return on total assets and generate higher profit to shareholder's equity.

5.3.2 Recommendation to the government

It is the ability to manage the current assets properly and efficiently for the efficient utilization of current assets. The government should identify the strength and weak points of financial institutions. To develop the managerial ability, there should be

adequate training facility for the managerial level employees, management participation in conferences, etc.

Overall, following are some of the recommendations:

- Low debt to total assets ratio indicate that a firm has greater amount of equity in comparison to debt. From the creditor's point of view, it is considered good as they receive a protection against possible losses at the time of liquidation. However, from the firm's management point of view, the firm with low debt ratio is unable to take leverage advantage.

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

- Banks should be aware that the debt financing results in tax saving on interest charges that would help to maximize profit. The cost of capital should be considered while taking financing decision by the commercial banks. It is recommended that capital structure decision of commercial banks should be based on different factors like the agency cost, cost of capital and value of the firm. Optimal capital structure minimizes agency cost, cost of capital and maximizes value of the firm.

- The overall capitalization rate is a critical component in evaluating income producing assets. To derive a reasonable and supportive overall rate, banks must consider several ways to develop it. By using all available market data and considering its proper application, the selected rate will result in a reasonable estimated value. Estimating capitalization rate as a measure of pricing the assets requires good judgment and keen knowledge of markets. The firm can lower its cost of capital and raise its total market value through the addition of debt capital.

- The use of less costly debt funds increases the risk of shareholders. This causes the equity capitalization rate to increase. The advantage of debt is balanced exactly by the increase in the equity capitalization rate. Hence, the bank can increase the less costly debt to increase the equity capitalization rate.

- As bank liquidity depends upon the level of liquidity of the overall system, it is important to monitor measures of market liquidity.

- All selected banks need to adopt the guidance of the central bank to maintain appropriate capital structure to safeguard the depositor's money.

- The selected banks need to review and monitor leverage ratio regularly so that the risk to the bank may not increase which may effect in efficient operation of the banks and it is basically not concerned to mobilizing their deposit fund to productive areas. So they are proposed to come forward to match government obligation by financing the priority sector development program.

- Banks are recommended to keep sound debt policy.

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APPENDIX

APPENDIX I

NABIL			
	Long term debt	**Shareholder's Equity**	**Share Capital**
2006/07	882,572,500.00	2,057,049,715.00	491,654,400.00
2007/08	1,600,000,000.00	2,437,198,989.00	689,216,000.00
2008/09	1,981,305,000.00	2,647,367,137.00	965,747,000.00
2009/10	374,900,000.00	3,255,104,925.00	1,449,124,000.00
2010/11	1,950,599,178.00	4,566,517,021.00	2,029,769,400.00

NABIL			
	Capital employed/ Permanent capital	**Total Debt**	**Total Assets (Balance Sheet)**
2006/07	3,352,009,858.00	24,783,955,650.00	27,253,393,008.00
2007/08	4,513,348,862.00	34,219,410,287.00	37,132,759,149.00
2008/09	5,553,103,115.00	40,295,599,389.00	43,867,397,504.00
2009/10	4,669,296,130.00	47,855,841,213.00	52,150,237,343.00
2010/11	7,170,151,090.00	52,921,885,489.00	58,141,437,401.00

NABIL			
	Earning Per Share (EPS)	**No. of outstanding shares**	**Dividend**
2006/07	137.08	4,916,544.00	491,654,400.00
2007/08	108.31	6,892,160.00	413,529,600.00
2008/09	106.76	9,657,470.00	338,011,450.00
2009/10	78.61	14,491,240.00	434,737,200.00
2010/11	65.91	20,297,694.00	608,930,820.00
NABIL			

	Retained Earning	Total Loans	Total Deposits
2006/07	1,565,395,315.00	15,903,023,765.00	23,342,285,327.00
2007/08	1,747,982,989.00	21,759,460,334.00	31,915,047,467.00
2008/09	1,681,620,137.00	27,999,012,071.00	37,348,255,840.00
2009/10	1,805,980,925.00	33,030,968,688.00	46,410,700,628.00
2010/11	2,536,747,621.00	38,905,487,889.00	49,696,112,934.00

NABIL			
	EBIT	**EBT**	**NPAT**
2006/07	1,650,260,666.00	1,094,550,557.00	673,959,698.00
2007/08	1,956,325,216.00	1,197,889,004.00	746,468,394.00
2008/09	2,779,814,533.00	1,626,534,481.00	1,031,053,098.00
2009/10	3,747,808,958.00	1,787,701,056.00	1,139,099,399.00
2010/11	5,053,851,924.00	2,098,421,178.00	1,337,745,485.00

NABIL			
	Short term liabilities	**Liquid Assets**	**Fixed Assets**
2006/07	23,901,383,150.00	2,475,408,487.00	24,777,984,521.00
2007/08	32,619,410,287.00	5,229,895,405.00	31,902,863,744.00
2008/09	38,314,294,389.00	4,790,096,476.00	39,077,301,028.00
2009/10	47,480,941,213.00	5,430,907,688.00	46,719,329,655.00
2010/11	50,971,286,311.00	6,091,045,653.00	52,050,391,748.00

NABIL

	Market Price Per Share (Po)	Market Value of Stock (S)
2006/07	5,050	24,828,5472,00
2007/08	5,275	36,356,144,000
2008/09	4,899	47,311,945,530
2009/10	2,384	34,547,116,160
2010/11	1,252	25,412,712,888

HBL			
	Long term debt	**Shareholder's Equity**	**Share Capital**
2006/07	595,967,811.00	2,146,499,655.00	810,810,000.00
2007/08	943,177,973.00	2,512,991,602.00	1,013,512,500.00
2008/09	500,000,000.00	2,736,095,537.00	1,216,215,000.00
2009/10	500,000,000.00	3,039,205,130.00	1,600,000,000.00
2010/11	510,000,000.00	3,595,478,273.00	2,400,000,000.00

HBL			
	Capital employed/ Permanent capital	**Total Loans**	**Total Deposits**
2006/07	2,885,320,690.00	31,229,788,232.00	33,519,141,111.00
2007/08	3,738,379,930.00	33,380,329,680.00	36,175,531,637.00
2008/09	3,800,988,676.00	36,029,143,147.00	39,330,131,823.00
2009/10	4,128,678,730.00	39,088,445,883.00	42,717,124,613.00
2010/11	4,842,320,273.00	42,403,883,611.00	46,736,203,884.00

HBL

	Earning Per Share (EPS)	No. of outstanding shares	Dividend
2006/07	60.66	8,108,100.00	121,621,500.00
2007/08	62.74	10,135,125.00	253,378,125.00
2008/09	61.90	12,162,150.00	145,945,800.00
2009/10	31.80	16,000,000.00	189,473,600.00
2010/11	44.66	20,000,000.00	336,842,000.00

HBL			
	Retained Earning	**Total Loans**	**Total Deposits**
2006/07	1,335,689,655.00	17,793,723,863.00	30,048,417,756.00
2007/08	1,499,479,102.00	20,179,613,169.00	31,842,789,356.00
2008/09	1,519,880,537.00	25,519,519,081.00	34,682,306,863.00
2009/10	1,439,205,130.00	29,123,754,889.00	37,611,202,274.00
2010/11	1,595,478,273.00	32,968,270,298.00	40,920,627,030.00

HBL			
	EBIT	**EBT**	**NPAT**
2006/07	1,033,653,998.00	266,242,751.00	491,822,905.00
2007/08	1,146,643,025.00	322,898,187.00	635,868,519.00
2008/09	1,373,841,492.00	439,063,477.00	752,834,735.00
2009/10	1,815,399,789.00	261,869,102.00	508,798,193.00
2010/11	2,963,303,874.00	548,496,631.00	893,115,143.00

HBL

	Interest Income	Interest Expenses	Cash
2006/07	1,775,582,617.00	767,411,247.00	3,467,365,111.00
2007/08	1,963,647,472.00	823,744,838.00	1,966,672,390.00
2008/09	2,342,198,179.00	934,778,015.00	4,219,320,438.00
2009/10	3,148,605,196.00	1,553,530,687.00	4,175,330,684.00
2010/11	4,326,140,588.00	2,414,807,243.00	3,698,651,321.00

HBL			
	Short Term Liabilities	**Liquid Assets**	**Fixed Assets**
2006/07	30,633,820,421.00	4,111,333,017.00	29,407,808,094.00
2007/08	32,437,151,707.00	2,601,459,225.00	33,574,072,412.00
2008/09	35,529,143,147.00	4,851,394,825.00	34,478,736,998.00
2009/10	38,588,445,883.00	5,229,714,931.00	37,487,409,682.00
2010/11	41,893,883,611.00	5,111,795,409.00	41,624,408,475.00

HBL		
	Market Price Per Share (Po)	**Market Value of Stock (S)**
2006/07	1,760	14,270,256,000
2007/08	1,970	19,966,196,250
2008/09	1,760	21,405,384,000
2009/10	816	13,056,000,000
2010/11	575	11,500,000,000

APPENDIX II

NABIL				
	Debt Equity	**Debt to Total Capital**	**Debt to Total Assets**	**LTD to Total Debt**
2006/07	12.05	0.26	0.91	0.04
2007/08	14.04	0.35	0.92	0.05
2008/09	15.22	0.36	0.92	0.05
2009/10	14.70	0.08	0.92	0.01
2010/11	11.59	0.27	0.91	0.04
Formula	$\frac{\text{Total Debt}}{\text{Total Equity}}$	$\frac{\text{Long Term Debt}}{\text{Permanent Capital}}$	$\frac{\text{Total Debt}}{\text{Total Assets}}$	$\frac{\text{Long Term Debt}}{\text{Total Debt}}$

NABIL				
	Interest Coverage	**Return on Shareholder's Equity**	**Return on Total Assets**	**EPS**
2006/07	2.97	0.33	0.02	137.08
2007/08	2.58	0.31	0.02	108.31
2008/09	2.41	0.39	0.02	106.76
2009/10	1.91	0.35	0.02	78.61
2010/11	1.71	0.29	0.02	65.91
Formula	$\frac{\text{Earning before interest and tax}}{\text{Interest expenses}}$	$\frac{\text{Net Profit after tax}}{\text{Shareholder's equity}}$	$\frac{\text{Net Profit after tax}}{\text{Total Assets}}$	$\frac{\text{Net Profit after tax}}{\text{No. of o/s shares}}$

NABIL				
	DPS	**Retained Earnings to Capital**	**Cash Ratio**	**Liquid Assets to Total Assets**
2006/07	100.00	0.76	0.08	9.08
2007/08	60.00	0.72	0.14	14.08
2008/09	35.00	0.64	0.10	10.92
2009/10	30.00	0.55	0.10	10.41
2010/11	30.00	0.56	0.10	10.48
Formula	$\frac{\text{Dividend}}{\text{No. of o/s shares}}$	$\frac{\text{Retained Earning}}{\text{Shareholder's equity}}$	$\frac{\text{Cash}}{\text{Short term liabilities}}$	$\frac{\text{Liquid Assets}}{\text{Total Assets}}$

NABIL				
	Quick Ratio	**Long term debt to Total assets**	**Short Term debt toTotal assets**	**Fixed Assets to Total Assets**
2006/07	0.10	0.03	0.88	0.91
2007/08	0.16	0.04	0.88	0.86
2008/09	0.13	0.05	0.87	0.89
2009/10	0.11	0.01	0.91	0.90
2010/11	0.12	0.03	0.88	0.90
Formula	$\frac{\text{Liquid Assets}}{\text{Short term liabilities}}$	$\frac{\text{Long Term Debt}}{\text{Total Assets}}$	$\frac{\text{Short Term Debt}}{\text{Total Assets}}$	$\frac{\text{Fixed Assets}}{\text{Total Assets}}$

NABIL			
	Value of firm	**Overall capitalization rate**	**Equity capitalization rate**
2006/07	49,612,502,850	3.33	4.41
2007/08	70,575,554,287	2.77	3.29
2008/09	87,607,544,919	3.17	3.44
2009/10	82,402,957,373	4.55	5.17
2010/11	78,334,598,377	6.45	8.26
Formula	Value of debt + value of stock	$\frac{\text{EBIT}}{\text{Value of firm}}$	$\frac{\text{EBIT - I}}{\text{Value of stock}}$

HBL				
	Debt Equity	**Debt to Total Capital**	**Debt to Total Assets**	**LTD to Total Debt**
2006/07	14.55	0.21	0.93	0.02
2007/08	13.28	0.25	0.92	0.03
2008/09	13.17	0.13	0.92	0.01
2009/10	12.86	0.12	0.92	0.01
2010/11	11.79	0.11	0.91	0.01
Formula	$\frac{\text{Total Debt}}{\text{Total Equity}}$	$\frac{\text{Long Term Debt}}{\text{Permanent Capital}}$	$\frac{\text{Total Debt}}{\text{Total Assets}}$	$\frac{\text{Long Term Debt}}{\text{Total Debt}}$

HBL				
	Interest Coverage	**Return on Shareholder's Equity**	**Return on Total Assets**	**EPS**
2006/07	1.35	0.23	0.01	60.66
2007/08	1.39	0.25	0.02	62.74
2008/09	1.47	0.28	0.02	61.90
2009/10	1.17	0.17	0.01	31.80
2010/11	1.23	0.25	0.02	44.66
Formula	$\frac{\text{Earning before interest and tax}}{\text{Interest expenses}}$	$\frac{\text{Net Profit after tax}}{\text{Shareholder's equity}}$	$\frac{\text{Net Profit after tax}}{\text{Total Assets}}$	$\frac{\text{Net Profit after tax}}{\text{No. of o/s shares}}$

HBL				
	DPS	**Retained Earnings to Capital**	**Cash Ratio**	**Liquid Assets to Total Assets**
2006/07	15.00	0.62	0.11	12.27
2007/08	25.00	0.60	0.06	7.19
2008/09	12.00	0.56	0.12	12.34
2009/10	11.84	0.47	0.11	12.24
2010/11	16.84	0.44	0.09	10.94
Formula	$\frac{\text{Dividend}}{\text{No. of o/s shares}}$	$\frac{\text{Retained Earning}}{\text{Shareholder's equity}}$	$\frac{\text{Cash}}{\text{Short term liabilities}}$	$\frac{\text{Liquid Assets}}{\text{Total Assets}}$

HBL				
	Quick Ratio	**Long term debt to Total assets**	**Short Term debt toTotal assets**	**Fixed Assets to Total Assets**
2006/07	0.13	0.02	0.91	0.88
2007/08	0.08	0.03	0.90	0.93
2008/09	0.14	0.01	0.90	0.88
2009/10	0.14	0.01	0.90	0.88
2010/11	0.12	0.01	0.90	0.89
Formula	$\frac{\text{Liquid Assets}}{\text{Short term liabilities}}$	$\frac{\text{Long Term Debt}}{\text{Total Assets}}$	$\frac{\text{Short Term Debt}}{\text{Total Assets}}$	$\frac{\text{Fixed Assets}}{\text{Total Assets}}$

HBL			
	Value of firm	**Overall capitalization rate**	**Equity capitalization rate**
2006/07	45,500,044,232	2.27	1.87
2007/08	53,346,525,930	2.15	1.62
2008/09	57,434,527,147	2.39	2.05
2009/10	52,144,445,883	3.48	2.01
2010/11	53,903,883,611	5.50	4.77
Formula	Value of debt + value of stock	$\frac{\text{EBIT}}{\text{Value of firm}}$	$\frac{\text{EBIT - I}}{\text{Value of stock}}$

APPENDIX III

Calculation of Correlation Coefficient between EBIT and Interest Expenses

In Billion

NABIL					
FY	**X (EBIT)**	**Y (Interest Expenses)**	**XY**	**X^2**	**Y^2**
2006/07	1.65	0.56	0.92	2.72	0.31
2007/08	1.96	0.76	1.49	3.84	0.58
2008/09	2.78	1.15	3.20	7.73	1.32
2009/10	3.75	1.96	7.35	14.06	3.84
2010/11	5.05	2.96	14.95	25.50	8.76
TOTAL	**$\sum X = 15.19$**	**$\sum Y = 7.39$**	**$\sum XY = 27.91$**	**$\sum X^2 = 53.85$**	**$\sum Y^2 = 14.81$**

For NBL,

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

$$r = 0.996$$

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

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

$$P.E. = 0.002$$

$$6\ P.E. = 0.014$$

In Billion

HBL					
FY	**X (EBIT)**	**Y (Interest Expenses)**	**XY**	**X^2**	**Y^2**
2006/07	1.03	0.77	0.79	1.06	0.59
2007/08	1.15	0.82	0.94	1.32	0.67
2008/09	1.37	0.93	1.27	1.88	0.86
2009/10	1.82	1.55	2.82	3.31	2.40
2010/11	2.96	2.41	7.13	8.76	5.81
TOTAL	**$\sum X = 8.33$**	**$\sum Y = 6.48$**	**$\sum XY = 12.95$**	**$\sum X^2 = 16.33$**	**$\sum Y^2 = 10.33$**

For HBL,

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

$$r = 0.993$$

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

$$P.E. = 0.6745 \times \frac{1-(0.99)^2}{\sqrt{5}}$$

$$P.E. = 0.004$$

$$6\ P.E. = 0.025$$

Calculation of Correlation Coefficient between Total Debt and Total Assets

In Billion

NABIL					
FY	**X (Long term Debt)**	**Y (Shareholder's equity)**	**XY**	**X^2**	**Y^2**
2006/07	24.78	27.25	675.26	614.05	742.56
2007/08	34.22	37.13	1,270.59	1,171.01	1,378.64
2008/09	40.30	43.87	1,767.96	1,624.09	1,924.58
2009/10	47.86	52.15	2,495.90	2,290.58	2,719.62
2010/11	52.92	58.14	3,076.77	2,800.53	3,380.26
TOTAL	**$\sum X$ = 200.08**	**$\sum Y$ = 218.54**	**$\sum XY$ = 9286.48**	**$\sum X^2$ = 8500.26**	**$\sum Y^2$ = 10145.66**

For NBL,

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

$$r = 0.001$$

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

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

$$P.E. = 0.30$$

$$6\ P.E. = 1.81$$

In Billion

HBL

FY	X (Long term Debt)	Y (Shareholder's equity)	XY	X^2	Y^2
2006/07	31.23	33.52	1,046.83	975.31	1,123.59
2007/08	33.38	36.18	1,207.69	1,114.22	1,308.99
2008/09	36.03	39.33	1,417.06	1,298.16	1,546.85
2009/10	39.09	42.72	1,669.92	1,528.03	1,825.00
2010/11	42.40	46.74	1,981.78	1,797.76	2,184.63
TOTAL	**$\sum X$ = 182.13**	**$\sum Y$ = 198.49**	**$\sum XY$ = 7323.28**	**$\sum X^2$ = 6713.48**	**$\sum Y^2$ = 7989.06**

For HBL,

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

$$r = 0.002$$

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

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

$$P.E. = 0.30$$

$$6\ P.E. = 1.81$$

Calculation of Correlation Coefficient between Debt Equity Ratio and

Return on Shareholder's Equity

NABIL					
FY	**X (Debt Equity)**	**Y (Return On Shareholder's Equity)**	**XY**	**X^2**	**Y^2**
2006/07	12.05	0.33	3.98	145.20	0.11
2007/08	14.04	0.31	4.35	197.12	0.10
2008/09	15.22	0.39	5.94	231.65	0.15
2009/10	14.70	0.35	5.15	216.09	0.12
2010/11	11.59	0.29	3.36	134.33	0.08
TOTAL	**$\sum X = 67.60$**	**$\sum Y = 1.67$**	**$\sum XY = 22.78$**	**$\sum X^2 = 924.39$**	**$\sum Y^2 = 0.56$**

For NBL,

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

$$r = 0.77$$

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

$$P.E. = 0.6745 \times \frac{1-(0.77)^2}{\sqrt{5}}$$

$$P.E. = 0.12$$

$$6\ P.E. = 0.74$$

HBL

FY	X (Debt Equity)	Y (Ret. On Shareholder's Equity)	XY	X^2	Y^2
2006/07	14.55	0.23	3.35	211.70	0.05
2007/08	13.28	0.25	3.32	176.36	0.06
2008/09	13.17	0.28	3.69	173.45	0.08
2009/10	12.86	0.17	2.19	165.38	0.03
2010/11	11.79	0.25	2.95	139.00	0.06
TOTAL	**$\sum X$ = 65.65**	**$\sum Y$ = 1.18**	**$\sum XY$ = 15.50**	**$\sum X^2$ = 865.89**	**$\sum Y^2$ = 0.28**

For HBL,

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

$$r = (0.03)$$

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

$$P.E. = 0.6745 \times \frac{1-(-0.03)^2}{\sqrt{5}}$$

$$P.E. = 0.30$$

$$6\ P.E. = 1.81$$

Calculation of Correlation Coefficient between Debt Equity Ratio and Return on Total Assets

NABIL					
FY	**X (Debt Equity)**	**Y (Return On Total Assets)**	**XY**	**X^2**	**Y^2**
2006/07	12.05	0.025	0.30	145.20	0.0006
2007/08	14.04	0.020	0.28	197.12	0.0004
2008/09	15.22	0.024	0.37	231.65	0.0006
2009/10	14.70	0.022	0.32	216.09	0.0005
2010/11	11.59	0.023	0.27	134.33	0.0005
TOTAL	**$\sum X = 67.60$**	**$\sum Y = 0.114$**	**$\sum XY = 1.54$**	**$\sum X^2 = 924.39$**	**$\sum Y^2 = 0.0026$**

For NBL,

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

$$r = (0.32)$$

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

$$P.E. = 0.6745 \times \frac{1-(-0.32)^2}{\sqrt{5}}$$

$$P.E. = 0.27$$

$$6\ P.E. = 1.62$$

HBL					
FY	**X (Debt Equity)**	**Y (Return On Total Assets)**	**XY**	**X^2**	**Y^2**
2006/07	14.55	0.01	0.21	211.70	0.0002
2007/08	13.28	0.02	0.23	176.36	0.0003
2008/09	13.17	0.02	0.25	173.45	0.0004
2009/10	12.86	0.01	0.15	165.38	0.0001
2010/11	11.79	0.02	0.23	139.00	0.0004
TOTAL	**$\sum X = 65.65$**	**$\sum Y = 0.8$**	**$\sum XY = 1.07$**	**$\sum X^2 = 865.89$**	**$\sum Y^2 = 0.0014$**

For HBL,

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

$$r = (0.37)$$

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

$$P.E. = 0.6745 \times \frac{1-(-0.37)^2}{\sqrt{5}}$$

$$P.E. = 0.26$$

$$6\ P.E. = 1.56$$

Calculation of Regression Coefficient between Debt Equity Ratio and Return on Shareholder's Equity

NABIL				
FY	**X (Debt Equity Ratio)**	**Y (Return on Shareholder's Equity)**	**XY**	**X^2**
2006/07	12.05	0.33	3.98	145.20
2007/08	14.04	0.31	4.35	197.12
2008/09	15.22	0.39	5.94	231.65
2009/10	14.70	0.35	5.15	216.09
2010/11	11.59	0.29	3.36	134.33
TOTAL	**$\sum X = 67.60$**	**$\sum Y = 1.67$**	**$\sum XY = 22.78$**	**$\sum X^2 = 924.39$**

HBL				
FY	**X (Debt Equity Ratio)**	**Y (Return on Shareholder's Equity)**	**XY**	**X^2**
2006/07	14.55	0.23	3.35	211.70
2007/08	13.28	0.25	3.32	176.36
2008/09	13.17	0.28	3.69	173.45
2009/10	12.86	0.17	2.19	165.38
2010/11	11.79	0.25	2.95	139.00
TOTAL	**$\sum X = 65.65$**	**$\sum Y = 1.18$**	**$\sum XY = 15.50$**	**$\sum X^2 = 865.89$**

$Y = a + bX$ ……(i)
$\sum Y = na + b\sum X$…….(ii)
$\sum XY = a\sum X + b\sum X^2$…….(iii)

Calculation of Regression Coefficient between Total Debt to Total Assets and Long Term Debt to Total Assets

NABIL				
FY	**X (Total Debt to Total Assets)**	**Y (Interest Coverage Ratio)**	**XY**	**X^2**
2006/07	0.91	2.97	2.70	0.83
2007/08	0.92	2.58	2.38	0.85
2008/09	0.92	2.41	2.21	0.84
2009/10	0.92	1.91	1.75	0.84
2010/11	0.91	1.71	1.56	0.83
TOTAL	**$\sum X = 4.58$**	**$\sum Y = 11.58$**	**$\sum XY = 10.60$**	**$\sum X^2 = 4.19$**

HBL				
FY	**X (Total Debt to Total Assets)**	**Y (Interest Coverage Ratio)**	**XY**	**X^2**
2006/07	0.93	1.35	1.25	0.87
2007/08	0.92	1.39	1.28	0.85
2008/09	0.92	1.47	1.35	0.84
2009/10	0.92	1.17	1.07	0.84
2010/11	0.91	1.23	1.11	0.82
TOTAL	**$\sum X = 4.60$**	**$\sum Y = 6.61$**	**$\sum XY = 6.06$**	**$\sum X^2 = 4.22$**

$Y = a + bX$ ……(i)

$\sum Y = na + b\sum X$…….(ii)

$\sum XY = a\sum X + b\sum X^2$…….(iii)

Calculation of Regression Coefficient between EPS and Debt Equity Ratio

NABIL				
FY	**X (EPS)**	**Y (Debt Equity Ratio)**	**XY**	**X^2**
2006/07	137.08	12.05	1,651.81	18,790.92
2007/08	108.31	14.04	1,520.63	11,730.38
2008/09	106.76	15.22	1,624.92	11,398.18
2009/10	78.61	14.70	1,155.51	6,178.91
2010/11	65.91	11.59	763.85	4,343.64
TOTAL	**$\sum X$ = 496.67**	**$\sum Y$ = 67.60**	**$\sum XY$ = 6716.72**	**$\sum X^2$ = 52442.03**

HBL				
FY	**X (EPS)**	**Y (Debt equity ratio)**	**XY**	**X^2**
2006/07	60.66	14.55	882.58	3,679.42
2007/08	62.74	13.28	833.18	3,936.19
2008/09	61.90	13.17	815.22	3,831.59
2009/10	31.80	12.86	408.95	1,011.23
2010/11	44.66	11.79	526.49	1,994.14
TOTAL	**$\sum X$ = 261.76**	**$\sum Y$ = 65.65**	**$\sum XY$ = 3466.42**	**$\sum X^2$ = 14452.57**

$Y = a + bX$ ……(i)

$\sum Y = na + b\sum X$…….(ii)

$\sum XY = a\sum X + b\sum X^2$…….(iii)