

**A STUDY OF
THE CAPITAL STRUCTURE MANAGEMENT
OF
SELECTED JOINT VENTURE BANKS**

A Thesis Submitted to
Office of the Dean
Faculty of Management
Tribhuvan University

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TU Regd. No.: 7-2-400-26-2004

Central Department of Management,

Tribhuvan University, Kirtipur

For Partial Fulfillment of the Requirement
for the Degree of Masters in Business Studies

Kirtipur, Kathmandu

November, 2011

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CENTRAL DEPARTMENT OF MANAGEMENT

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A Study of the Capital Structure Management of Selected Joint Venture Banks has been prepared as approved by this Department in the prescribed format of the faculty of Management. This thesis is forwarded for examination.

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We have conducted the viva-voce examination of the thesis presented by **Prity Mishra** entitled **A Study of the Capital Structure Management of Selected Joint Venture Banks** and found the thesis to be the original work of the student written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of Master's Degree in Business Studies (MBS)

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DECLARATION

I hereby declare that the work reported in this thesis entitled **A Study of the Capital Structure Management of Selected Joint Venture Banks** submitted to Central Department of Management, Tribhuvan University is my original work. It is done in the form of partial fulfillment of the requirement for the Master's of Business Studies (MBS) under the supervision and guidance of Mr Sanjay Kumar Shrestha, Reader, Central Department of Management, Tribhuvan University.

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ACKNOWLEDGEMENTS

I would like to express my most sincere thanks to Mr Sanjay Kumar Shrestha, Reader, Central Department of Management (CDM), Tribhuvan University, for supervising me in this research titled “ A Study of the Capital Structure Management of Selected Joint Venture Banks”. I shall remain indebted to him for his invaluable guidance and moral support.

I am also grateful to Prof. Dr. Dev Raj Adhikari, Head of Department, CDM, Mr Mukunda Rimal, Assistant Administrator, CDM, Ms Rupa Adhikari, CDM, and all the teachers and staff of the Central Department who have provided support and encouragement throughout the research.

I cannot remain without expressing my heartfelt gratitude to my husband Shamik Mishra, my father and mother-in-laws who have always supported me throughout, my parents whose blessings have got me this far, my sister-in-law, and especially her husband Mr Neeraj Gopal Jha who has provided valuable guidance, my three sisters and a brother who have always wished best for me, and my little one who I hope will be glad about this someday.

Prity Mishra

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November, 2011

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LIST OF ABBREVIATIONS AND SYMBOLS

CDM	Central Department of Management
e.g.	For example
Etc.	Etcetera
F/Y, FY	Fiscal Year
HBL	Himalayan Bank
i.e.	That is
Ltd	Limited
MM	Modigliani and Miller
NEPSE	Nepal Stock Exchange
No.	Number
NSBL	Nepal SBI Bank Ltd
Pvt.	Private
Vol.	Volume

CHAPTER - I

INTRODUCTION

1.1 Background

A firm fulfills its financial needs by using different sources of financing. These sources of financing may be short-term, and long-term. Short-term sources of financing mature within one year or less whereas fund raised from long-term sources of financing can be used for several years. When a firm expands its business, it needs capital. The term capital denotes the long-term funds of the firm. The total capital can be divided into two components i.e. debt capital and equity capital. Debt capital includes all long-term borrowing incurred by the firm. Debenture, bonds, long-term loan etc are major sources of debt or borrowed capital. A firm employs substantial amount of debt capital because of tax deductibility of interest payment, flexibility, and lower cost. However excess amount of debt exposes high risk. Equity capital consists of the long-term fund provided by the firm's owners, the stakeholders. In other words, equity capital includes common stock, paid in capital (or share premium), reserve and surplus, and retained earning.

Capital structure refers to the combination of long-sources of funds, such as debentures, long-term debts, preference share capital and equity share capital 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. 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 loan 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. Thus, a firm's capital structure is only a part of its financial structure. An optimal capital structure, which consists of reasonable proportion of debt and equity, can help to maximize the value of the firm and ultimately maximizing the shareholders wealth.

The firm's mix of different securities is known as capital structure. The choice of capital structure is fundamentally a marketing problem. The firm can issue dozens of distinct securities in countless combinations but it attempts to find the particular combination that maximizes its overall market value. The capital structure is one of the most complex areas of financial decision making due to its relationship with other financial variables (Gitman, 2001) and is crucial for any organization because of the need to maximize return to various organizational claimants, and also because of the impact of such a decision has on a firm's ability to deal with its competitive environment. The capital structure is important in maximizing the wealth of the shareholders. This study is directed toward analyzing management of capital structure in the context of selected joint-venture bank of Nepal.

1.2 A Brief Overview of the Sampled Joint-Venture Banks

Himalayan Bank Ltd (HBL)

Himalayan Bank was established in 1993 in joint-venture with Habib Bank Limited of Pakistan. The bank's vision is to "become a leading bank of the country by gaining substantial business growth through provision of premium products and services to customers, ensuring attractive and substantial returns to stakeholders".

Products and services of the HBL include deposit, loans, international banking, remittance, safe deposit locker, card services, sms banking and internet banking.

Currently, the bank with the total staff count of 577 is providing services through 34 branches covering 19 districts, and 56 ATM outlets of which 23 are located outside the Kathmandu Valley.

Its listed share is 16,000,000 at the rate of Rs. 600 trading price and its earning per share is Rs.9.46m and market price per share is Rs.1495.

The loan portfolio of HBL as of FY 2009/10 includes the maximum percentage on working capital loans (48.93 %), followed by import export loan (17.19 %), term loan (15.42 %), real estate loan (5%), among others.

The deposit portfolio of the bank as of FY 2009/10 includes maximum percentage on savings (57.84%), followed by fixed deposit (18.39%), call deposit (12.5%), current deposit (9.2%), and others (1.92%).

The maximum percentage more than 80 % of HBL's income comes from interest from loans, as against commission and discount (7.28 %) and exchange rate fluctuation (4.86 %).

Regarding the corporate social responsibility, HBL has contributed to education, healthcare, sport, culture, aid of victims of natural disasters, among others.

Nepal SBI Bank Ltd (NSBL)

Nepal SBI Bank (NSBL) started its operations in 1993 as the first Indo-Nepal joint-venture in the financial sector sponsored by three institutional promoters, namely, State Bank of India (SBI), Employees Provident Fund (EPF) and Agricultural Development Bank Ltd.(ADBL). ADBL divested its stake in the Bank by selling its entire 5% promoter shares to SBI on 14th June, 2009. Consequently, the Bank's corporate status has undergone change from its previous status as a Joint-venture Bank to a Foreign Subsidiary Bank of SBI. Presently fifty five percent of the total share capital of the Bank is held by the

SBI, fifteen percent is held by the EPF and thirty percent is held by the general public.

With the motto of “Reaching out to Opportunity, advancing our values of pure banking”, currently, the bank is operating through 465 fulltime staff managing 49 branches and 66 ATM outlets in Nepal (with 28 of them outside Kathmandu valley), covering a total of 23 districts of the country.

NSBL running in its 18th year of operations has the strategic goal “to build an open and honest corporate culture and to develop mutually beneficial relationship with all our stakeholders and value for them”. The services of the bank includes e-banking, safe deposit lockers, utility bill payment service, extra hours banking service, connection service, and technology based remittance facilities.

The loan portfolio of NSBL as of fiscal year 2009/10 includes maximum percentage in wholesaler and retailer (27%), followed by manufacturing (24 %), transport, communication and public utilities (19%), and construction (14 %), among others.

The deposit portfolio of the bank as of FY 2009/10 includes highest percentage in fixed deposits (64 %), as against 21 % saving deposits, 8 % current deposits and 7 % call deposits.

NSBL has taken on a host of corporate social responsibilities, and assisted in social service, sport and environment conservation.

1.3 Statement of the Problem

Capital structure concept is not taken seriously in the Nepalese business scenario. Therefore, optimal capital structure does not exist at all. Generally, every financial institution has its own policy in determining capital structure for operating business activities. Some of the business organizations use only equity capital, some use only debt capital, and some combine both equity and debt capital. Therefore determination of capital structure largely depends upon the institution's policy and cost of capital. Most of the institutions make low cost capital structures.

Unfortunately, there is no model for determining capital structure in the Nepalese business organizations. In the initial period of any financial institution, they want to use only equity capital and do not want to include debt in their capital due to high interest charges.

Indisputably, balanced capital is one of the important factors for a successful organization, financial institution or a company. But unfortunately, they do not pay attention for the balanced capital, and there is no similarity in determining capital structure. In that situation, different questions may arise. The following are the research question

- (1) Why the companies are using existing capital structure ineffectively?
- (2) Whether the change in capital structure can be effective?
- (3) Whether the cost of capital declines with leverage?
- (4) Whether the other factors except capital structure affect the cost of capital?
- (5) How the leverage affect the cost of equity and debt in the listed banks etc?

To solve such problems, the management of the financial institution should be aware of importance of capital structure management. The purpose of this small study is to analyze, examine & make aware of the importance of the capital structure management for their firm.

1.4 Objectives of the Study

The main objective of this study is to analyze, evaluate, and interpret their capital structure employed by the selected organizations. The specific objectives of the study are pointed out as follows:

- To examine the capital structure of the selected joint-venture banks
- To examine the existing financing position regarding capital structure
- To analyze cost of capital and return on capital in relation to the capital employed
- To assess the debt servicing capacity of the selected bank
- To provide recommendations to the management of the banks, that will be helpful to strengthen their capital structure position

1.5 Significance of the Study

The banking sector of Nepal is expanding every day. In the recent days, as the nation is facing lots of hurdles, the situation of the banking sector is also facing numerous challenges. In this situation, this study will be helpful to the banking industry to overview their capital structure management and to formulate future strategies for better performance in the future. Apart from the sampled banks, this study will also be beneficial to the other banks in the country.

Furthermore, the concerned scholars, academicians, investors, professionals may also benefit from this study. This study will also help to inform the decision makers about the importance of capital structure management for their further success.

1.6 Limitations of the Study

This research has the following limitations:

- This study is being conducted to fulfill the requirement of Master's Degree in Business Studies (MBS) so the study is not much extensive.
- Due to the lack of time and financial resource, only two joint-venture banks have been selected as sample for the study.
- This study is based mainly on the secondary data of the five years period.
- The consistency of the result is strictly based on the information provided to us.
- Capital structure is influenced by various factors, but this study does not include every one of them.

1.7 Organization of the Study

This study has been divided into five chapters. These are as follows.

- 1 Introduction: The first chapter deals with background, a brief overview of selected joint-venture banks, the focus of the study, statement of the problems, objectives of the study, significance of the study, limitation of the study and organization of the study.
- 2 Review of literature: The second chapter has two parts. The first part deals with the conceptual framework which includes concept, types, policy, determinants, and the second part reviews relevant research studies and related dissertations.

- 3** **Research Methodology:** The third chapter contains research methodology employed in the study. It includes research design, nature and sources of data, tools of analysis and definition of key terms.
- 4** **Presentation and Analysis of Data:** The fourth chapter presents and analyzes the relevant data. In this chapter, relevant data collected from balance sheet and profit & loss account have been presented in tables. Analysis and interpretation of data have been done.
- 5** **Summary, Conclusion and Recommendations:** The fifth chapter contains summary and conclusion of the study. After that, all necessary recommendations have been presented.

A bibliography and necessary appendices have been annexed in the end.

CHAPTER – II

REVIEW OF LITERATURE

This chapter gives information and description of the related relevant theoretical aspects. The Chapter has been grouped into three sections: 2.1 Conceptual Framework, 2.2 Review of Related Theses, and 2.3 Research Gap.

2.1 Conceptual Framework

The term ‘capital structure’ means the financial planning according to which the assets of an industry are furnished. According to Lawrence D. Schell and Charles W. Haley, “The term ‘capital structure’ means the proportion of different types of securities issued by a firm.” The optimal capital structure is the set of proportion that maximized the total value of the firm (Schall and Haley, 1983: 339).

Financial structure refers to the way the firm’s assets are financed; it is the entire right-hand side of the balance sheet. Capital structure is the permanent financing of the firm, represented primarily by long-term debt, preference stock and common stock, but excluding all short-term credit. Thus a firm’s capital structure is only a part of its financial structure (Weston, Brigham, 1978: 663). According to S.C. Kuchhal, “Within this framework of equating the rate of return and the cost of capital, capital structure is sought by using a proportion of debt such that the correct degree of trading on equity leading to financial leverage will cause the highest market value of the ordinary shares.” (Kuchhal, 1977: 388). Capital structure policy involves a choice between risk and expected returns.” (Brigham, n d : 452)

Capital structure of a financial institution consists of debts and equity securities, which provide funds for a firm. “Capital structure is made up of debt and equity securities which comprise a firm’s finance of its assets. It is the permanent financing of a firm, represented by long-term debt plus preferred stock plus net worth.” (Kulkarni, 1983 : 363). “Apart from short-term finance from creditors and banks, companies are usually financed either by long term loans (debentures) carrying a fixed rate of interest on capital or by ordinary shares carrying membership of the bank and dividends at rates which depend upon profits.” (Francis, 1980 : 192).

The basic pattern of capital structure can be simple or complex. A simple capital structure consists of equity shares and preference shares. But a complex capital structure consists of multi securities as equity shares, preference shares, debentures, bonds etc.

The capital structure has many relevant dimensions. The financing mix is one of them. Other dimensions involve the investment decisions of the firm and the optimal use of leverage, within the constraints imposed by the internal and external environmental conditions. These conditions, in turn, affect the decision of the firm with respect to the timing of investment and financing transactions as well as the acceptable levels of risk and liquidity.

2.1.1 Definition of Bank

It is very difficult to give a precise definition of a bank, because a modern bank performs a number of functions. However, a commonly accepted definition is as follows:

“A bank is a business organization that receives and holds deposits of funds from other, makes loans or extends credit and transfers funds by written order of depositors.”

2.1.2 Development of Banking in Nepal

The word 'bank' may be a modern term but the banking business is very old. However, banks have existed in various forms throughout history. In the modern day Nepal, in 1993 B.S in the initiation of Sardar Gunjaman Singh and Singh Shumsher Rana Nepal Bank Limited (NBL) was established. A semi-government organization, it became a unanimous leader in banking industry for about two decades.

Nepal Rastra Bank (NRB), the Central Bank of Nepal, was established in 1956 under the Nepal Rastra Bank Act, 1955, to discharge the central banking responsibilities including guiding the development of the embryonic domestic financial sector. Since inception, there has been a significant growth in both the number and the activities of the domestic financial institutions. Rastriya Banijya Bank (RBB) was established in 1966. Similarly, Agriculture Development Bank (ADBN) was established in 1968 under ADBN Act 1967.

After sometime Nepali government adopted liberal economic policy and allowed to establish banks from private sector and jointly with foreign or local partner. In 1984 Nepal Arab bank Ltd was established. After that, Nepal Investment Bank Limited (previously Nepal Indosuez Bank Ltd) and Standard Chartered Bank Nepal (previously Grindlays Bank Ltd) were established in 1986 and 1987 respectively. Now there are more than two dozen banks in Nepal, more than hundred finance companies and hundreds of co-operatives.

2.1.3 Factors affecting Capital Structure

Some of the important factors that affect the capital structure of any organization are as follows:

1. **Market Conditions:** Conditions in the stock and bonds market undergo both long and short-term changes, which can have an important bearing on a firm's optimum capital structure.
2. **Cost of Capital:** Debt is usually least expensive because there is tax shielded savings on interest whereas the use of common stock is the most expensive.
3. **Firms Internal Conditions:** The internal condition of the bank also plays an important role in capital structure.
4. **Growth Rate:** Faster growing firms must rely more heavily on external capital. Rapidly growing firms tend to use somewhat more debt than companies of slower growth.
5. **Stability of Sales:** Stability, adequacy, volume and predictability of earnings determine the capital structure. The firms with stable sales would have high ratio of funded debt because they will not face difficulty in meeting their fixed commitments. The companies with declining sales would not employ debt or preference share capital, because they would not like to be burdened with fixed changes.
6. **Cash Flow Ability of Bank:** "To determine the debt capacity of a firm, the cash flow of the firm under very adverse conditions, should be examined." A firm is conservatively financed if it is able to serve its fixed charges under any

reasonably predictable adverse conditions. “It is not the average cash inflow but the yearly cash inflow which is important to determine the debt capacity of a bank. Fixed financial obligations must be met when due, not on an average and not in most years but always.”(Johnson, 1973).

7.Floatation Cost: Floatation costs are incurred only when the funds are raised. The cost of floating a debt is less than cost of floating an equity issue. This may encourage a financial institution to use debt than issue equity shares.

8. Assets Structure: Firms whose assets are suitable as securities for loans tend to use debt heavily. According to J. Batty, “Borrowed capital should not exceed a reasonable percentage of fixed assets.” (Batty, 1963 : 159). “Generally fixed assets are associated with long-term debts while current assets with short-term debts.”(Chudson, 1965 : 103).

9.Interest Rate Level: This affects choice of securities to be offered investors; high interest rate makes financing costly. When funds are obtained easily and cheaply, there is greater choice of type of security to be used.

10.Nature of Industry and Capital Requirements: The pattern of capital structure of the industry of which the firm is a part also a very important factor in determining the capital structure of the firm. The needs and financial conditions of a bank have to be considered. If growth is only moderate, a re-investment of earnings will serve the purpose.

11.Control: If management has voting control over the company and is not in a position to buy any more stock, debt may be a choice for new financing. On the other hand, management group that is not concerned about voting control may decide to use equity rather than debt. An

excessive amount of debt can also cause bankruptcy, which will mean a complete loss of control.

12. Profitability: The firms with very high rates of return of investment use relatively little debt. Their high rates of return enable them to do most of their financing with retained earnings.

13. Taxes: Interest is deductible expense while dividends are not deductible. Hence the higher a firm's tax rate, the greater is the advantage in using debt.

2.1.4 Ratio Analysis of Capital Structure

The important ratios pertaining to capital structure may be studied under the following heads: (1) Debt to Equity Ratio (2) Debt Ratio (3) Debt to Total Capital Ratio (4) Net Worth to Total Assets Ratio (5) Interest Coverage Ratio.

Debt to Equity Ratio

This ratio is a measure of the relative amount provided by lenders and owners. It is also known as "External Internal Equity Ratio". It is calculated according to the following formula: -

$$\text{Debt to Equity Ratio} = \frac{\text{Amount of Debt}}{\text{Amount of Equity}}$$

This ratio indicates the cushion of ownership funds available to debt holders. It gives an idea of the amount of capital supplied to a firm by internal funds or owners. An average debt to equity ratio of 1:1 is acceptable.

The controller of capital issues prescribed that the debt-equity ratio of a firm should not exceed 2:1 (i.e. maximum percentage of debt in the total capital allowed is 66.66).

Debt Ratio

The debt ratio is defined as total debt divided by total assets. It indicates the percentage of assets that are financed through debt. It is calculated as under:

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

This ratio should be 1:2 or 0.5:1. A ratio above 1:2 or 0.5:1 implies that lenders and creditors were providing more finance than ordinary shareholders and that too without expectation of a share in any surplus as compensation for this risk bearing. A low ratio represents security to creditors in extending credit. A very low ratio can cause worry to shareholders as it means the financial institution is not using debt to best advantage.

Debt to Capital Ratio

This ratio is variation of the debt-equity ratio and gives similar indications as the debt-equity ratio. An arbitrary rule is that long-term debt should not be more than 67 percent of the permanent capital i.e. the long-term debt to total permanent capital ratio should be 2 to 3 or 0.67:1. It is calculated as under: -

$$\text{Debt to Capital Ratio} = \frac{\text{Long - Term Debt}}{\text{Permanent Capital}}$$

Net Worth to Total Assets Ratio

The ratio of net worth to total assets is also called Proprietary Ratio. It is the ratio of funds belonging to shareholders to the total assets of the bank. Funds belonging to shareholders include share capital plus reserves and surplus. It is the sum of net worth divided by assets, i.e.

$$\text{Net Worth to Total Assets Ratio} = \frac{\text{Net worth}}{\text{Total Assets}}$$

It focuses attention on the percentage of assets supplied by shareholders. A relatively high proprietary ratio reflects less likelihood of financial difficulty resulting from heavy fixed interest charges and liability to meet maturing debt obligation. A low proprietary ratio indicates a more speculative situation because of the possibility of high profits or losses. Analysts are of the opinion that normally the proportion of net worth to total assets should be 20 percent to 40 percent.

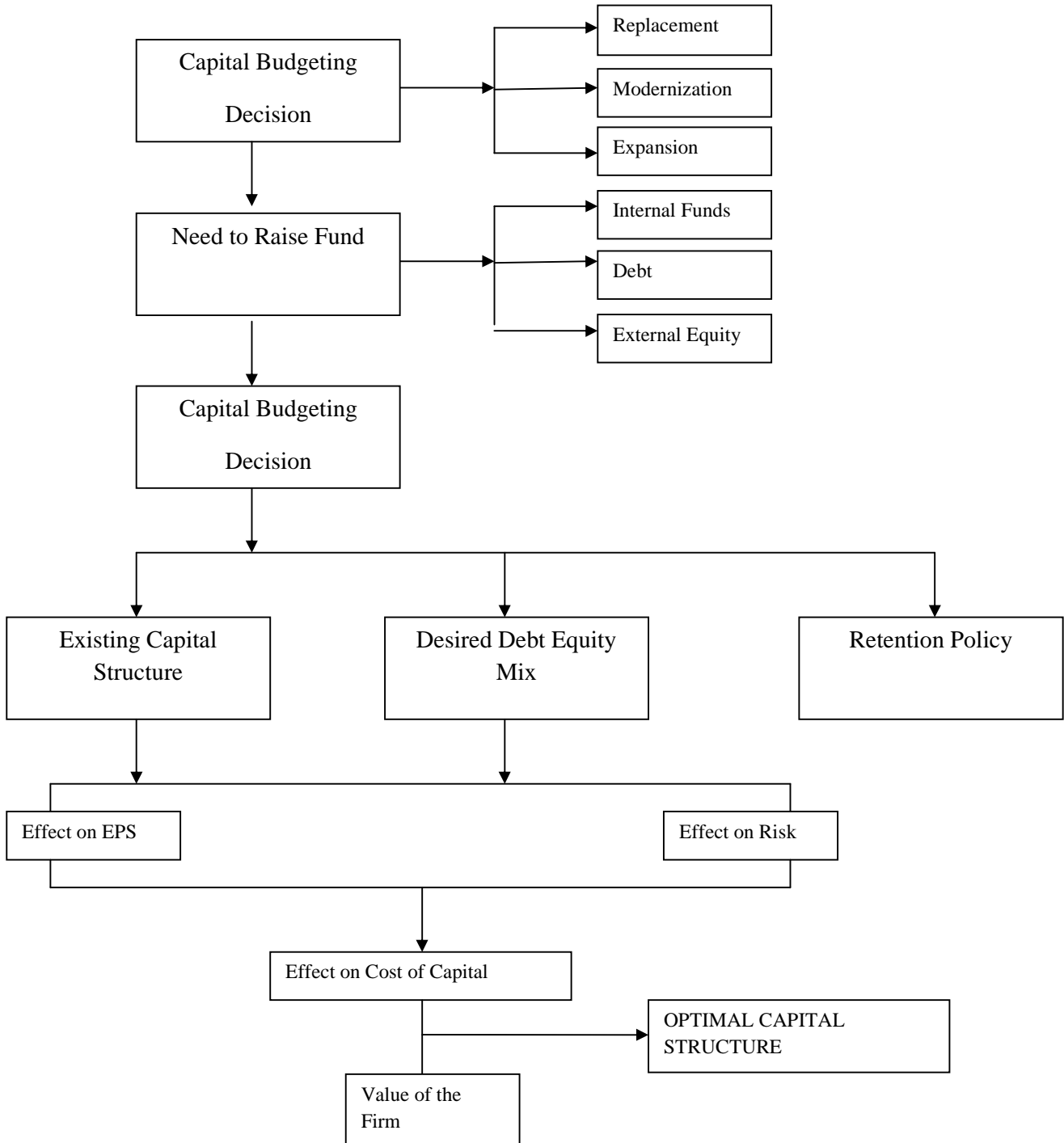
Interest Coverage Ratio

It is also known as 'Time Interest Earned Ratio.' This ratio measures the debt servicing capacity of a firm in so far as fixed interest on long-term loan is concerned. The interest coverage ratio is the sum of net profit before interest and taxes divided by interest charges.

$$\text{Interest Coverage Ratio} = \frac{\text{Net profit before Interest and taxes}}{\text{Interest Charges}}$$

This ratio shows how much time the interest charges are covered by funds that are ordinarily available to pay the interest charges. A higher ratio is desirable, but too high a ratio indicates that the firm is very conservative in using debt. A lower ratio indicates excessive use of debt or inefficient operations.

2.1.5 The Capital Structure Decision



The capital structure decision affects the overall cost of capital, total value of the firm and earning per share. Therefore it should be well planned. It aims to maximize value of firm and earning per share by minimizing cost of capital without effecting operating earning of the firm.

According to I.M Pandey "An optimum capital structure would be obtained at the combination of debt and equity that maximizes the total value of the firm or minimizes the weighted average cost of capital" (Pandey, 1995 : 11).

2.1.6 Assumptions Of Capital Structure

These assumptions are for the sake of simplicity in explanation of the theories of capital structure.

These are (Brigham, n d : 611-612).

- 1 Firms employ only two types of capital: Debt & Equity.
- 2 The firm's total assets are fixed. But its capital structure can be changed immediately by selling debt to repurchase common stock or issuing common stock to pay off debt.
- 3 Investors have the same subjective probability distributions of expected future operating earning for a given firm.
- 4 The firm has pa policy of paying 100 percent dividends.
- 5 The operating earnings of the firm are not expected to grow.
- 6 The business risk is assumed to be constant and independent of capital structure and financial risk.
- 7 The corporate and personal income taxes do not exist.

In the theoretical analysis of capital structure, the following basic symbols have been used:

- a. B= Total market value of debt.
- b. S= Total market value of stock.
- c. V= Total market value of firm (B+S)
- d. Ke= equity capitalization rate.
- e. Kd= Cost of debt/Yield on the debt.
- f. Ko=Overall capitalization rate.
- g. I= Total amount of annual interest.
- h. EBIT= Earning before interest & taxes.
- a) Cost of debt i.e. $K_d = I/B$
- b) Cost Of equity= $\frac{EBIT - I}{S}$ or $\frac{NOI - I}{S}$
- c Overall cost of capital i.e. $K_o = \frac{NOI}{V}$

Or

$$K_o = K_d (B/V) + K_e (S/V)$$

- d) Value of the firm i.e. $V = B + S$

2.1.7 Theories of Capital Structure

The theory of capital structure is closely related to the firm's cost of capital. Many debates over whether an optimal capital structure exists are found in the financial literature. So, in order to understand how firms should adhere to the target capital structure decision, it is important to have some idea of major elements of capital structure theory.

The history presents several theories on capital structure management. In order to analyze the capital structure of any business organization four theories are considered

These theories are:

1. Net income (NI) approach.
2. Net operating income (NOI) approach.
3. Traditional approach; and
4. Modigliani-Miller (M-M) theory
 - a. With out taxes;
 - b. With taxes.

2.1.8 Net Income (Ni) Approach

This theory is propounded by David Durand "The essence of the net income theory is that the firm can increase its value or lower the overall cost of capital by increasing the portion of debt in the capital structure." (Brigham, n d : 614).

"The crucial assumptions of this approach are"(Shrestha, 1981 : 615).

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

Overall cost of capital can be expressed by following formula.

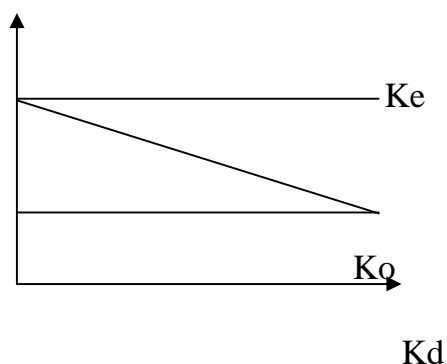
$$\text{Overall cost of capital (} K_o \text{)} = \frac{\text{Net Operating Income}}{\text{Total value of the firm}}$$

Or $EBIT/V$

As per assumptions of NI approach, K_e and K_d are constant and K_d is less than K_e . Therefore, K_o will decrease as B/V increases. Also, ' K_e '= K_o when $B/V=0$.

This approach is graphically shown in the following figure,

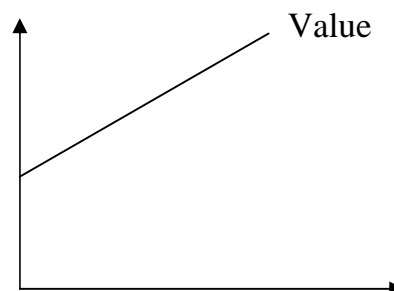
NI approach (Cost)



Financial Leverage

(100% Equity D/E ratio 100% Debt)

NI approach (Value)



Financial Leverage

(100% Equity D/E ratio 100% Debt)

From the above figure, ' K_d ' is constant but ' K_o ' is declining. So, under the NI approach the cost of capital will decline and value of the firm will increase with leverage. The optimal structure would occur at the point where the value of the firm is maximized and overall cost of capital is minimum. That will have the maximum value at the lowest cost of capital since it is all debt financed or has as much as debt as possible.

2.1.9 Net Operating Income (Noi) Approach

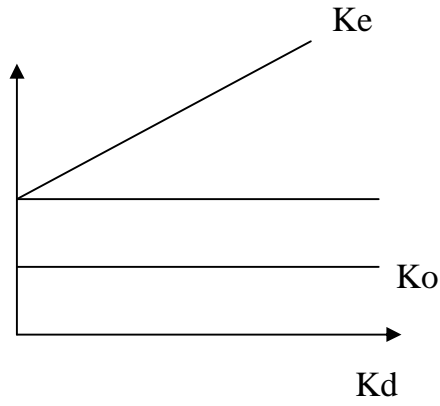
The NOI approach was proposed by David Durand and is also known as modern theory or an independent hypothesis of capital structure. This theory does not agree with NI approach and assumes that the cost of debt and overall cost of capital remains constant with the firm's financial leverage.

The assumption here is that the overall capitalization rate of the firm is constant for all degrees of leverages.

Assumptions of NOI Approach (Shrivastav, 1984).

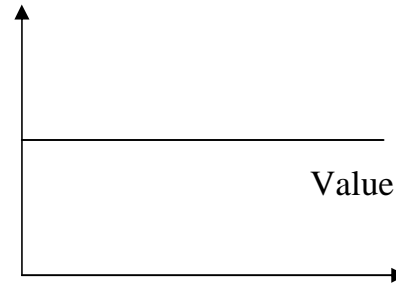
1. The market capitalizes the value of the firm as a whole. Thus, the split between debt and equity is not important.
2. The market uses an overall capitalization rate K_o , to capitalize the net operating income. K_o , depends upon the business risk. If the business risk is assumed to remain unchanged, K_e is constant.
3. The use of less costly debt fund increases the risk to the shareholders; this causes the equity capitalization rate to increase. Thus, the advantage of debt is offset exactly by the increase in the equity capitalization rate, K_e .
4. The debt capitalization rate, K_d , is a constant.
5. The corporate income taxes do not exist.

NOI approach (Cost)



Debt - Equity Ratio

NOI approach (Value)



Debt - Equity Ratio

(100% Equity D/E ratio 100% Debt) (100% Equity D/E ratio 100% Debt)

The above figures show that 'Ko' and 'Kd' are constant and 'Ke' increases with leverage. As 'Ko' is constant, leverage is optimal. "At the extreme degree of financial leverage hidden cost becomes very high hence, the firms cost of capital and its market value are not influenced by the use of additional cheap debt fund." (Gitman and Pinches, P.791.)

Which can be expressed as:

$$K_e = \frac{K_o + (K_o - K_d)}{B/S}$$

or

$$K_e = \frac{K_d + K_o - K_d}{S/V}$$

"Like NI approach, the NOI also assumes a constant rate of Kd which means that the debt holders do not demand higher rate of interest for higher level of

leverage risk. But, equity holders do react to higher leverage risk and demand higher rate of return for higher equity debt equity ratio". (Shrivastav, 1984 : 618).

It is therefore reverse to NI approach. Any changes in leverage will not lead to any changes in the total value of the firm and the market price of a share as well as the overall cost of capital remain constant. The overall cost of capitalization rate and cost of debt remains constant but the cost of equity increases linearly with leverage.

Thus, this approach suggests that there is not any optimum capital structure. As the overall cost of capital is the same at all capital structure, every capital structure is optimal.

2.1.10 Traditional Approach

The traditional approach to valuation and leverage is moderate to that of NI and NOI approaches and hence is also known as intermediate approach. This theory assumes that there is an optimal capital structure and that the firm can increase the total value of the firm through the judicious use of leverage. This approach encompasses all the ground between the NI approach and NOI approach. The traditional view on the relationship between capital structure and the cost of capital is that the firm's cost of capital can be reducing by judicious mix of debt and equity capital and then an optimal capital structure exists for every firm.

The main propositions of the traditional theory are: (Prasanna, n d).

STAGE-1

In this first stage, the cost of debt (K_d) remains more or less constant up to a certain degrees of leverage but rises thereafter at an increasing rate.

It means that cost of equity (K_e) remains constant or rises slightly with debt. But it does not increase fast enough offsets the advantage of low cost of debt. During this stage, the cost of debt (K_d) remains constant or rises negligibly. Since the market views the use of debt as a reasonable policy.

Thus, so long as debt is within acceptable limit and ' K_e ' and ' K_i ' remains constant, the value of the firm increases at a constant rate.

STAGE-2

In this stage, once the firm has reached a certain degree of leverage, increases in it have a negligible effect on the value of the firm. This is so because the increase in the cost of equity offsets the advantages of low cost of debt within that range or specific points, the value of the firm will be maximized or the cost of capital will be minimum.

STAGE-3

The overall cost of capital K_o as a consequence of the above behavior of K_e and K_d .

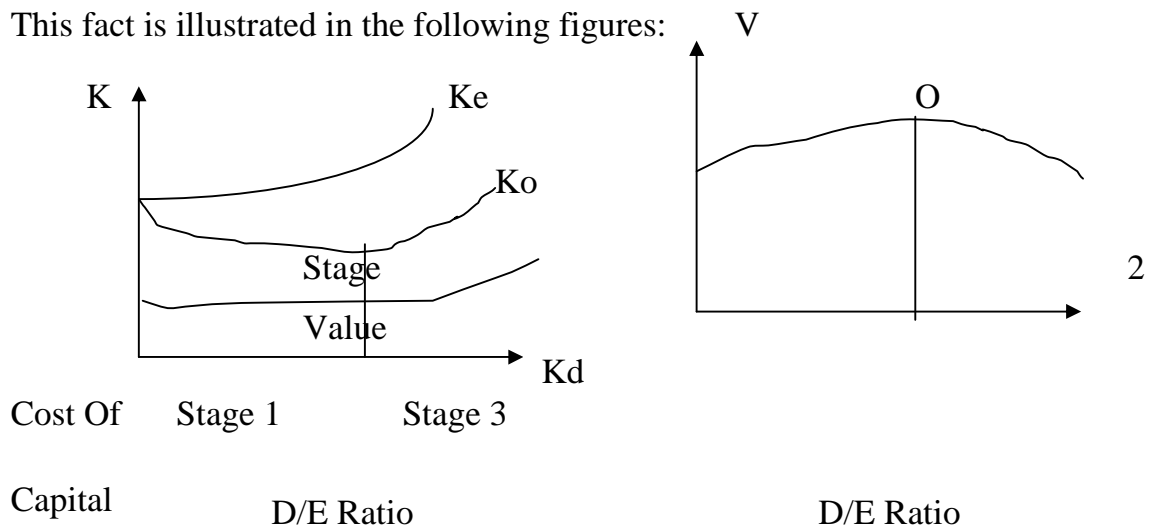
1. Decrease up to a certain point.
2. Remain more or less unchanged for moderate increase in leverage there after, and
3. Rises beyond a certain point.

After the certain level of leverage, the value of the firm increases with leverage or the overall cost of capital increases with leverage.

The cost of debt and equity will tend to rise as a result of increasing the degree of financial risks that will make to increase in the overall cost of capital.

The earning of the business organization will be faster from the use of additional debt. The overall effect of these three stages is to suggest that the cost of capital is a function of leverage. It declines with leverage and after reaching a minimum point or it would start rising under such a situation there is a precise point defines the optimum capital structure.

This fact is illustrated in the following figures:



"According to this approach, there exists a particular capital structure that is better than any other for the firm. In the above figures, the debt equity ratio at the point 'p' results the overall cost of capital, which consequently maximizes the value of the firm. Therefore, the debt equity ratio is relevant and optimal capital structure exists for the firm." (Prasanna, n d : 361).

2.1.11 Modigliani-Miller (M-M) Theory

Till 1950s, it was believed that judicious mix of debt and equity capital i. e. financial leverage in the capital structure decreases the overall cost of capital, increases the value of the firm and helps in determining an optimal capital structure.

But in 1958, Franco Modigliani and Metron H Miller published a research paper, "The cost of capital, corporation Finance and the Theory of Investment" and added another milestone on the theory of capital structure.

This theory propounded by those two researchers later came to be known as M-M theory. The M-M theory is based on some assumptions, which are mentioned below: (Pandey, 1999 : 687).

- **Perfect Capital Market:** This specifically means that (a) investors are free to buy or sell securities; (b) they can borrow without restriction at the same terms as the firms do; (c) they behave rationally. It is also implied that the transaction costs i. e. the cost of buying and selling securities do no exist.
- **Homogeneous risk classes:** Firms can be grouped into homogeneous risk classes. Firms would be considered to belong to a homogeneous risk class if their expected earnings have identical risk characteristics. It is implied under the M-M hypothesis that firms within same industry constitute a homogeneous class.
- **Risk:** The risk of investors is defined in terms of the variability of the net operating income (NOI).
- **No Taxes:** M-M assumes that no corporate income taxes exist. This assumption is relaxed later on.

- Full pay out: Firms distribute all net earnings to the shareholders i. e. a 100% pay out. M-M, in 1958 proposed that the theory without taxes and later, they relaxed the theory with tax considerations. So
 - a. M-M theory without taxes.
 - b. M-M theory with taxes.

The following terminologies and notations are used in M-M theory.

- Levered firm. A firm that uses some percentage of debt in its capital structure.
- Unlevered firm. All equity-financed firms are known as unlevered firm.
- Risk Premium. Risk premium is that expected additional return by the equity holders for making a risky investment. In other words, it is the additional return demanded for the equity holder due to the inclusion of debt capital in firm's capital structure.

Notation:

- 1 K_eU = The equity capitalization rate of an unlevered firm.
- 2 K_eL = The equity capitalization rate of a levered firm.
- 3 K_d = The debt capitalization rate.
- 4 K_oU = The overall capitalization rate of an unlevered firm.
- 5 K_oL = The overall capitalization rate of a levered firm.
- 6 V_u = Value of an unlevered firm.
- 7 V_L = Value of a levered firm.
- 8 T = Corporate tax-rate.

a. M-M THEORY (WITHOUT TAXES)

This theory can be expressed in terms of the propositions I and II.

PROPOSITION-1

This proposition states that the market value of a firm is independent of its capital structure. M-M argue that, for firms in the same risk class, the total market value is independent of debt-equity mix and is given by capitalizing the net operating income (NOI) by the rate, appropriate to that risk class. This is their proposition I which is expressed as follows.

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

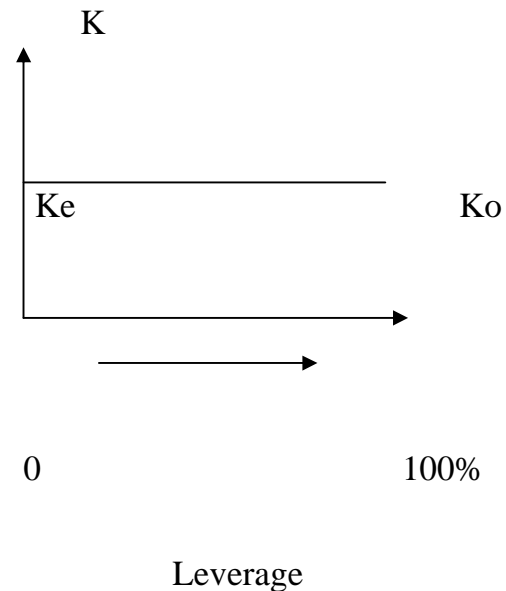
For an unlevered firm, $K_o = K_e$, so

$$V_{uL} = \frac{\text{NOI}}{K_{ou}} = \frac{\text{NOI}}{K_{eu}}$$

K_o

And for a levered firm,

$$V_L = \frac{\text{NOI}}{K_{oI}}$$



According to this proposition, there is no relationship between the value of a firm and the way its capital structure is made up, nor there is any relationship between the overall cost of capital and the capital structure.

If there are rational investors, this proposition is correct because investors are willing to substitute personal or homemade leverage for corporate leverage, i. e.,

arbitrage (or switching) will take place to restore equilibrium in the market place.

PROPOSITION-2

This theory states that the cost of equity rises proportionately with the increase in the leverage in order to compensate in the form of premium for bearing additional risk arising from the increase in leverage. It assumes that only the equity holders adjust the capitalization rate for the degree of financial leverage risk. It means that K_e increases as debt-equity ratio increases. The K_d doesn't respond to changes in debt-equity ratio and it remains constant.

The cost of equity capital for a levered firm (K_{eL}) is equal to the cost of equity of an unlevered firm (K_{eU}) plus a risk premium equal to the difference between K_{eU} and K_u multiplied by the debt-equity ratio.

$$K_{eL} = K_{eU} + (K_{eU} - K_d) B/S$$

Since, $K_{eU} = K_u$. So,

$$K_{eL} = K_u = (K_u - K_d) B/S$$

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

b. MM THEORY (WITH TAXES)

Under MM theory, the value of a firm is independent of its debt policy is based on the critical assumption that the corporate income tax does not exist. But in reality, the corporate income taxes exist. But in reality, the corporate income taxes exist, and interest paid to debt holders is treated as a deductible expense. This makes debt financing advantageous. "In their 1963 article, M-M shows that the value of the firm will increase with debt due to the deductibility of interest

charges for tax computation and the value of the levered firm will be higher than of the unlevered firm'. " (Pandey, 1999 : 694). Thus, the value of a levered firm is equal to the value of unlevered firm plus the present value of interest tax-shield as shown below.

Value of a levered firm = Value of an unlevered firm + PV of interest tax shield.

Symbolically,

$$V_L = V_U + \text{PV of interest tax shield}$$

The value of unlevered firm when corporate taxes exist is,

$$V_U = \frac{\text{NOI} (1-T)}{K_U} = \frac{\text{NOI}}{K_U}$$

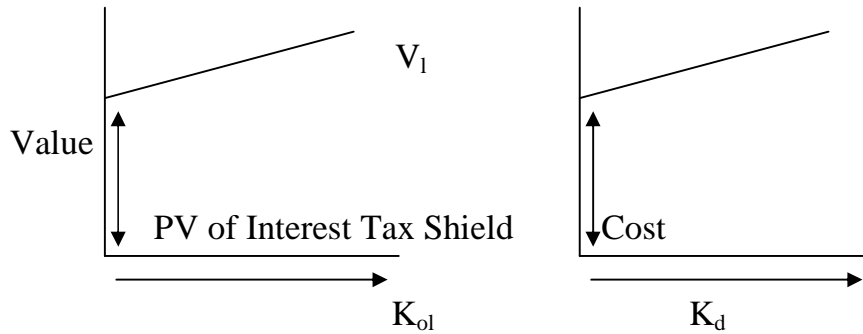
Where,

NI = Net income after tax

Also, when a firm is unlevered, $K_U = K_E$. Thus,

$$V_U = \frac{\text{NI}}{K_E} + D_t$$

The above equation implies that, when corporate tax exists, the value of levered firm will increase continuously with debt. Thus, theoretically the value of the firm will be maximum when it employs 100% debt. This can be shown as follows:



V_u

0 Leverage 100 % 0 Leverage 100

%

$$K_{eu} = K_{ou}$$

Because of the tax deductibility of interest charges, a firm can increase its value or lower overall cost of capital by using cheaper debt funds. Thus, the optimal capital structure is attained when employs 100 percent debt. But in practice firm doesn't employ large amount of debt, nor are the lenders ready to lend beyond the certain limit.

Why companies do not employ extreme level of debt or the lenders are ready to lend beyond the certain limit. Why companies do not employ extreme level of debt in practice? The reason behind it is that, the borrowing may involve extra costs (in addition to fixed interest cost) like cost of financial distress, which may offset the advantage of using debt. Another reason may be the personal taxes involved for lenders.

2.2 Review of Related Theses

Mishra (2006) worked on the study of Capital Structure Management of manufacturing companies listed in the NEPSE. The companies selected for the work are Jyoti Spinning Mills Pvt Ltd, Bottlers Nepal Ltd, and Nepal Lever Ltd.

The objectives of thesis:

- To show the trend of composition of assets and capital structure
- To analyze the return on equity and assets
- To analyze the value of the firm
- To analyze the aggregate liability bearing capacity of the selected organization
- To analyze the relationship between liability and assets of the selected organizations
- To analyze the profitability of the selected organizations

The methodological tools used in this work are Analytical Tools, Financial Tools(Leverage Ratio, Profit Margin, Price Earning Ratio), Statistical Tools (Standard Deviation, Coefficient of Correlation, Probable Error).

This research found that companies were using debt more than equity, hence going for loss. It was also found that they paid high amount of tax. The Correlation Coefficient was not significant, and the organization policy to increase current liabilities by replacing long-term loan is not according to the principle of capital structure management. The study showed that the manufacturing companies had positive DFL and a positive change in EPS.

Sainju (2008) worked on capital structure management of selected manufacturing companies listed in Nepal. The companies selected for the work are Unilever Nepal Limited (UNL) and Bottlers Nepal Limited (BNL).

Objectives of the study:

- To examine and evaluate capital structure of UNL and BNL
- To analyze the cost of capital and return on capital in relation to capital employed
- To assess the debt servicing capacity of the selected companies

Research Problems:

- How capital structure is managed in above all
- What is the debt servicing capacity of selected companies?
- What is the trend of composition or assets of capital structure?

The methodological tools used are Financial (DOL, DFL) and Analytical. The work has used the secondary data from the past six years.

The research found that DOL for BNL is quite good. The higher DOL indicates richness of the institution. BNL shows unlevered condition, whereas UNL shows highly levered condition. The average relation between shareholder's equity and total assets for the BNL is too much. The UNL has ration below 50 which indicates that more than 50 % assets are financed through outsiders' fund. Profit margin of UNL is higher than that of BNL.

Malik (2009) worked on the study of capital structure management of Nabil Bank (Nabil), Nepal Investment Bank Limited (NIBL), Nepal Electricity

Authority (NEA), Nepal Telecom (NT), and Himalayan General Insurance Company (HGIC).

Objectives of the work:

- To analyze the return on equity and assets
- To analyze the value of the firm
- To analyze the aggregate liability bearing capacity of the selected organization and the relationship between liability and assets of the selected organizations
- To analyze the profitability of the selected organizations

Research problems:

- What is the debt servicing capacity of selected organizations?
- What is the trend of composition of assets and capital structure?

The methodological tools used in this work are Financial (Ratio Analysis, Trend Analyziz), and Statistical (Correlation, Regression). The study used secondary data because of which the accuracy of the calculation is fully dependent on the accuracy of data provided by the organizations. SPSS software is used for quantitative analysys. So the limitations of the particular program are also inherent.

The research found that total debt to total assets ratio of NIBL is highest, followed by Nabil, NEA, HGICL, and NTC respectively. The study also found that NEA has higher value of firm than NTC, similarly Nabil has higher position than NIBL but lower than that of NTC and NEA.

Bista (2009) worked on the Capital Structure and Cost of Capital of selected manufacturing companies listed in the NEPSE. The work undertook the study of Nepal Lube Oil Limited (NLOL) and Bottlers' Nepal Limited (BNL).

Objectives of the study:

- To examine the capital structure of selected companies
- To assess the debt servicing capacity of selected companies
- To analyze the relationship between capital structure and cost of capital of the selected companies

Research Problems:

- How are the companies managing their financing needs?
- Are they having optimal capital structure management?
- Does the relationship between cost of capital and return on capital affect the capital structure management?

Methodological tools used in this work are Financial (ratio analysis, leverage, EBIT, EPS) and Statistical (Mean, Regression, Correlation, Standard Deviation, and Coefficient of Variation).

The research found that manufacturing company has low debt equity ratio, it implies greater claims of owners than creditors. NLOL has more debt ratio than BNL. NLOL has high long-term debt to earn maximum profit in future. NLOL has very low interest coverage ratio, so unable to pay its interest from EBIT. ROA of NLOL is low, indicating that assets of this company are generating low profit. ROA of BNL is higher than that of NLOL, due to which investors in BNL are getting more returns.

Timilsina (2010) worked on the Capital Structure and Cost of Capital of Nepalese enterprises. This work explores altogether 17 Nepalese enterprises that

includes nine manufacturing companies and eight non-manufacturing companies.

Objectives of the thesis:

- To test the relationship between capital structure and cost of capital in selected listed Nepalese companies
- To assess the relationship between capital structure and cost of equity
- To determine the average size of leverage and cost of capital for the selected listed Nepalese companies
- To conduct survey on capital structure and cost of capital

Research Problems:

- Whether the cost of capital declines with leverage or not in Nepalese firms.
- Whether or not manufacturing and non-manufacturing sector enterprises different in leverage and cost of capital
- How the cost of capital is affected by leverage, size of capital employed, dividend payout ration and earning variability?
- Whether the cost of capital varies across different industries.

The method of data collection is primary as well as secondary and the years of observation is 5-10. Methods & Tools used in the study are Econometric Modes, Statistical Test, Coefficient of Determination, Regression, SD, SE and Correlation. The result of this study does not support the MM hypothesis. The thesis claims that the cost of capital is affected by the use of debt in Capital Structure. Furthermore, the work states that both Dividend Payout Ratio as well as the size of Capital Employed is negative. The study found that negative

coefficient of Payout Ratio suggests that the investors have preference for current dividend.

Paudel (2010) worked on the Capital Structure and its impact on Cost of Capital. The work studies eight manufacturing companies listed in NEPSE (Gorakhkali Rubber Udyog Ltd, Nepal Khadya Udyog Ltd, Ragupati Jute Mills, Jyoti Spinning Mills Ltd, Unilever Nepal Ltd, Bottlers Nepal (Tarai) Ltd, Bottlers Nepal (Balaju) Ltd, and Arun Banaspati Udyog) and four non-manufacturing companies (Nepal Trading Ltd, Nepal Welfare Company, Salt Trading Corporation, and Soaltee Hotel).

Objectives of the thesis:

- To analyze the effect of capital structure on leverage and cost of capital
- To examine the relationship between leverage and cost of capital in Nepalese enterprises
- To explore the relationship of leverage and cost of equity in manufacturing and non-manufacturing sector enterprises of Nepal

Research Problems:

- Whether or not the manufacturing and non-manufacturing enterprises have the similar leverage and cost of capital?
- What are the relationships among leverage, cost of capital, size of capital employed, growth in total assets, dividend pay out ration, liquidity ratio and earning variability of manufacturing and non-manufacturing sector enterprises of Nepal?
- What is the relationship between capital structure or leverage and cost of capital?

The methodological tools used in study are: Econometric Analysis, Statistical Tools (Coefficient of Multiple Determination, Regression Coefficient, Standard Error of Estimate, and Leverage). The research states that Dividend Payout Ratio, Cost of Equity, and Quick Ratio of non-manufacturing companies are lower than that of manufacturing companies. Cost of Capital is negatively related to Leverage and Size of Capital Employed, whereas positively related to growth in total assets. Cost of Capital is positively related to Dividend Payout Ratio for manufacturing companies, and negatively related for non-manufacturing companies. Negative relation of Cost of Capital with Leverage for both types of companies indicates that the result support the Traditional Proposition. The results of this work are not concurrent to MM Tax Corrected Hypothesis.

2.3 Research Gap

In an ideal world capital structures should not matter. Value of the firm does not depend on the way it is financed. Rather it depends on the value of the assets in which the firm invests (Huertas, 2010). Since the famous proposition of Modigliani and Miller in 1958 that, in perfect capital markets, capital structure choice is irrelevant to firm value, considerable research has been undertaken to identify the nature of market frictions likely to affect firm value. However, such research has been largely restricted to non-banks.

The regulatory constraints on the banking system have created the impression that there is no need as well as scope of doing research on the capital structure management of banks, as if the regulatory capital requirements were the only determinants in the capital structure. This has further excluded banks from the empirical studies vis-à-vis capital structure.

Similar is the case in Nepal as is also clear from the literature review above. Out of the six research works reviewed, five dealt with manufacturing companies, whereas only one work was on the banks. However, the tools used for the research on manufacturing companies and banks were not entirely similar.

The present study has been undertaken as a humble step toward bridging this huge research gap. Further, the research on this field is necessary to minimize the various unexpected risks a bank has to take to buffer insolvency, unexpected withdrawals etc through optimal capital structure (Raghavan 2004, Cebenoyan 2001).

The outputs of such research will further throw light on how different or similar the capital structures of banks and non-banks actually are and how far the determinants of one field are similar to the other.

CHAPTER-III

RESEARCH METHODOLOGY

This chapter deals about research methodology which is used for research purpose. Research is a system enquiry for seeking facts and methodology is the method of doing research in well manner. So, research methodology means the analysis of specific topic by using proper method.

It is significant to have appropriate choice of research methodology that helps to make this research study meaningful and more scientific. Therefore, appropriate methodology has been followed to accomplish the objectives of the study. So, the methodologies of this research include the research design, period covered, selection of banks, types and sources of data, data processing procedures, presentation of data and method of analysis.

3.1 Research Design

The main objective of this study is to analyze the relationship between debt and shareholders' equity of joint-venture banks and provide suggestion on the basis of findings. To fulfill this purpose, the study follows the analytical and descriptive research design. This study attempts critical analyses of manufacturing companies. It also analyses the debt and equity positions in capital investments of related companies.

In order to achieve the predetermined objectives of the study, secondary data have been used. In some cases, opinion survey methods are also used. This study tries to make comparison and establish relationship between two or more

variables. So the research design of this study is based on descriptive and analytical study.

3.2 Nature and Sources of Data

The data used in this study are basically secondary in nature but the required information has been collected through discussion and personal interview with the key personnel. The secondary data have been collected from financial statements, and annual reports from official websites of the related financial organizations. All the collected data and information have been properly synthesized, arranged, tabulated and calculated to reach at the realistic analytical synthesized.

3.3 Population and Sample

To get the information about capital structure management, more representative and comprehensive sample are needed for wide coverage of population. There are seven joint-venture banks listed in Nepal Stock Exchange Ltd. Out of them two banks have been chosen for this study on the basis of purposive sampling method.

The financial institutions selected are Himalayan Bank Limited (HBL) & Nepal SBI Bank Limited (NSBL)

3.4 Analytical Tools Used

Financial as well as statistical tools have been used for analyzing capital structure management in Nepalese manufacturing companies.

3.4.1 Financial Tool

The measuring instrument, which can be used in financial analyses, is known as financial tool. It helps to calculate the relationship between two financial variables on ratio and percentage basis. Under these analyses, the following calculations are made:

Degree of Leverage:

1. Degree of Operating Leverage = $\frac{\text{Percentage change in EBIT}}{\text{Percentage change in sales}}$
2. Degree of Financial Leverage = $\frac{\text{Percentage Change in EPS}}{\text{Percentage Change in EBIT}}$

Ratio analysis

1. Long-term Debt as a percentage of Total Debt = $\frac{\text{Long-term Debt}}{\text{Total Debt}} \times 100$
2. Long-term Debt to Shareholders Equity = $\frac{\text{Long-term Debt}}{\text{Shareholders Equity}} \times 100$
3. Debt to Total Asset Ratio = $\frac{\text{Total Debt}}{\text{Total Asset}} \times 100$
4. Interest Coverage Ratio = $\frac{\text{Earning Before Interest and Tax}}{\text{Interest Charge}}$

$$5. \text{ Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}} \times 100$$

$$6. \text{ Earning Per Share} = \frac{\text{Earning After Tax}}{\text{Number of Share}}$$

$$7. \text{ Price Earning Ratio} = \frac{\text{Market Price Per Share}}{\text{Earning Per Share}}$$

$$8. \text{ Book Value per Share (BVPS)} = \frac{\text{Net Worth}}{\text{No. of Share}}$$

DU-Pont Analysis

$$1. \text{ Return on Equity} = \text{Profit Margin} \times \text{Total Assets Turnover} \times \text{Equity multiplier}$$

or

$$\frac{\text{Net Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Equity}}$$

$$2. \text{ Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}} \times 100$$

All the necessary calculations and analysis have been made to arrive to the conclusion of the study.

3.4.2 Statistical Tools

In this research, the following statistical tools are used

Average

Average is defined as sum of observations divided by their number in the selected sample.

$$\text{Average (mean)} = \frac{\text{Sum of observations}}{\text{Number of values}}$$

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

Standard Deviation (S.D.)

The measurement of the scatterness of the mass of figures in a series about an average is known as dispersion. The standard deviation measures the absolute dispersion. The greater the amount of dispersion greater the standard deviation. A small standard deviation means a high degree of uniformity of the observation as well as homogeneity of a series; a large standard deviation means just the opposite.

In symbol

$$\text{S.D.} = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

Coefficient of Variation (C.V.)

The coefficient of variations the relative measure of dispersion, comparable across distribution, which is defined as the ration of the standard deviation to mean expressed in percent. In symbol,

$$\begin{aligned}\text{C.V.} &= \frac{\text{S.D.}}{\bar{X}} \times 100 \\ &= \frac{\sigma}{\bar{X}} \times 100\end{aligned}$$

Coefficient of Correlation (r)

The correlation coefficient indicates the linear relationship between two or more variables. The measures of correlation called the “correlation coefficient” can be summarized in one figure, the degree and direction of movement. It can be calculated by using the method of Karl Person’s correlation coefficient, because it is one of the widely used mathematical methods of calculation, the correlation coefficient between two variables. In symbolically, it is defined as:

$$r = \frac{\sum dx \cdot dy - \frac{\sum dx \cdot \sum dy}{n}}{\sqrt{\sum dx^2 - \frac{(\sum dx)^2}{n}} \sqrt{\sum dy^2 - \frac{(\sum dy)^2}{n}}}$$

Where, dx^2 = deviation in x = X-A

dy^2 = deviation in y = Y-B

Assumptions

If $r = 1$, there is positively perfect correlation between the two variables.

If $r = -1$, there is negatively perfect correlation between the two variables.

If $r = 0$, the variables are uncorrelated.

The nearer the value of r to $+1$, the closer will be the relationship between two variables and the nearer the value of r , the lesser will be the relation.

Probable error (P.E)

The probable error of the correlation coefficient helps to interpret its value. P.E., which is the measure of testing the reliability of correlation coefficient, denotes it. If r be the calculated value of r from a sample of n pair of observation the P.E. is denoted by

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

It can be interpreted to know whether its calculated value of r is significant or not in the following ways.

If $r < PE$, it is Insignificant perhaps there is no evidence of correlation

If $r > 6PE$, it is significant. In other cases, nothing can be concluded. The probable error of correlation may be used to determine the limits within which the population correlation coefficient lies. The limits for population correlation are $r \pm PE$.

CHAPTER-IV

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents the following calculations of different ratios and their application in analyzing the capital structure of two joint-venture banks of Nepal.

First series of the calculations involve the Leverage Analysis tools representing Operating and Financial Leverages, like Degree of Operating Leverage (DOL), and Degree of Financial Leverage (DFL). Leverage is an important technique, helps the management to take sound, prudent, financial and investment decisions. It also helps to evaluate business, financial, total risk of any organization. The task of choosing most suitable combination of different techniques in the light of the firm's anticipated securities for financing fund requirements earnings is facilitated by it.

Likewise, another series of calculations involve Ratio Calculations like Long-term Debt as % of Total Debt, Debt Equity ratio, Debts to Total Assets Ratio, Profit Margin, Interest Coverage Ratio, Earning per Share (EPS), Price Earning Ratio (P/E Ratio), Book Value per Share (BVPS), Du-Pont System of Ratio Analysis, Return on Equity (ROE), Return on Asset (ROA), Correlation Coefficient between Total Debt and Shareholders' Equity, Correlation Coefficient between EBIT and Interest, Correlation Coefficient between Net Profit and Shareholder's Equity.

The ratio analyses help to trace particular financial characteristics of a company, for instance to work out profitability, financial positions, understand financial statements, help in forecasting, among others.

4.2 Analysis and Interpretation of Leverage

The financial institution needs a lot of funds to operate business activities smoothly and 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 are considered. Generally, there are two types of leverages

- a) Operating leverage
- b) Financial leverage

The operating leverage refers to the use of fixed costs for operating of the firm while the financial leverage measures the responsiveness of EPS to the change in EBIT and the combined leverage is the potential use of fixed costs both operating and financial to magnify the effort of change in sales on the firm's EPS.

4.2.1. Degree of Operating Leverage (DOL):

Operating leverage is a way of measuring the business risk of the company. Operating leverage causes in sales volume to have a magnified effect on EBIT. The operating leverage can be measured more precisely in terms of degree of operating leverage (DOL) as shown in table 1 below. It can be calculated as follows:

$$\text{DOL} = \frac{\text{Percentage change in EBIT}}{\text{Percentage change in sales}}$$

Table-1**Calculation of Degree of Operating Leverage for HBL & NSBL**

Rupees in Million

F/Y	EBIT	Change in EBIT	% change	Sales	Change in sale	% change	DOL
HBL							
2005/06	457.45			977.63			
2006/07	491.82	34.37	7.51	1008.17	30.54	3.12	2.41
2007/08	635.87	144.05	29.29	1139.9	131.73	13.07	2.24
2008/09	752.83	116.96	18.39	1407.42	267.52	23.47	0.78
2009/10	508.79	(244.04)	(32.42)	1595.07	187.65	13.33	(2.43)
Average							0.75
STDEV							2.24
CV							298.67 %
NSBL							
2005/06	117.01			373.95			
2006/07	254.91	137.9	117.85	418.86	44.91	12.01	9.81
2007/08	247.77	(7.14)	(2.80)	515.59	96.73	23.09	(0.12)
2008/09	316.37	68.6	27.69	635.75	120.16	23.31	1.19
2009/10	391.74	75.37	23.82	826.01	190.26	29.93	0.80
Average							2.92
STDEV							4.63
CV							158.56 %

The table 1 shows that EBIT of HBL has adopted an increasing trend except the last year over the study period. The rate of change in EBIT has ranged between (32.42)% and 29.29%. The sale of HBL has also shown an increasing trend. The growth rate of sales has ranged between 3.12% and 23.47%. The DOL of HBL has adopted a decreasing trend. The growth ration has ranged between (2.43) % and 2.41%. Its average DOL is 0.75.

In the same way, EBIT of NSBL has adopted an increasing trend and the growth rate of EBIT for NSBL has ranged between (2.80) % and 117.85%. Sales of NSBL over the study period are also in increasing trend and its growth rate lies between 12.01% and 29.93%. During the study period, the DOL of the bank has ranged between (0.12) and 9.81 and its average DOL is 2.92

The average DOL of NSBL (i.e. 2.92) is greater than that of HBL that is 0.75. This indicates good performance of NSBL because greater DOL decreases the operating loss. And the coefficient of variation of DOL is better of NSBL (i.e. 158 %) than that of HBL (i.e. 298.67 %). This shows from all respects the performance of NSBL is better than that of HBL.

4.2.2 Degree of Financial Leverage (DFL)

Degree of financial leverage measures a proportionate change in EPS as a result of given change in EBIT. The financial leverage exists when the company has 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 which is calculated as follows in Table 2

$$\text{DFL} = \frac{\text{Percentage change in EPS}}{\text{Percentage change in EBIT}}$$

Table-2**Calculation of Degree of financial leverage for HBL & NSBL**

Rupees in Million

F/Y	EPS	Change in EPS	% change	EBIT	change in EBIT	% change	DFL
HBL							
2005/06	59.24			457.45			
2006/07	60.66	1.42	2.40	491.82	34.37	7.51	0.32
2007/08	62.74	2.08	3.43	635.87	144.05	29.29	0.12
2008/09	61.9	(0.84)	(1.34)	752.83	116.96	18.3937	(0.073)
2009/10	31.8	(30.1)	(48.63)	508.79	(244.04)	(32.42)	1.50
Average							0.47
STDEV							0.71
CV							151.06 %
NSBL							
2005/06	18.27			117.01			
2006/07	39.35	21.08	115.38	254.91	137.9	117.85	0.98
2007/08	28.33	(11.02)	(28.00)	247.77	(7.14)	(2.80)	8.0
2008/09	36.18	7.85	27.70	316.37	68.6	27.69	1.00
2009/10	23.69	(12.49)	(34.52)	391.74	75.37	23.82	(1.45)
Average							2.63
STDEV							5.04
CV							191.63 %

The degree of financial leverage can be measured as percentage change in EPS with respect to percentage change in EBIT. In table-2 EPS of HBL is in increasing trend except in the last two years. Over the study period its growth rate has ranged between (48.63) % and 2.40 %. In the same way, EBIT has also adopted an increasing trend except last year over the study period and its rate of change lies between (32.42) % and 29.29 %.The average DFL of HBL is 0.47 where it has ranged between (0.073) and 1.50. There is increasing trend in EPS of NSBL for first two years and then it has decreased in third year and again adopted increasing trend in fourth year over the study period. Its growth rate has ranged between (34.52) % and 115.38 % which indicates too much fluctuation. EBIT has also adopted an increasing trend over the study period. The DFL is in increasing trend except last year during the study period and average DFL is 2.63.

The average DFL of NSBL (i.e. 2.63) is greater than that of HBL which is (0.47). The CV of DFL of HBL (i.e. 151.06 %) is lower than CV of NSBL (i.e. 191.63 %). In this way the average DFL of NSBL is greater but CV of HBL is lower, which shows good performance by HBL.

4.2.3 Long Term Debt as a percentage of Total Debt

It is measured by dividing the long Term Debt (LTD) by Total debt (TD).The Long-Term debt of the manufacturing companies is sum of the secured loan and unsecured loan provided by the various institutions. Total debt comprises to Long-term loan, short-term loan, current liabilities and provisions. The calculation of LTD as a percentage of TD is presented in the following table no. 3:

$$\text{LTD as \% of TD} = \frac{\text{Long-term debt}}{\text{Total debt}}$$

Table-3
Calculation of Long-term Debt as a % of Total Debt for HBL & NSBL

Rupees in Million

F/Y	Long-term debt	Total debt	LTD as a% of TD
HBL			
2005/06	504.62	612.4	82.40
2006/07	595.97	725.5	82.15
2007/08	943.18	1,025.17	92.00
2008/09	5	50	10
2009/10	5	56	8.93
Average			55.1
STDEV			41.85
CV			75.95%
NSBL			
2005/06	812.43	904.5	89.82
2006/07	1,015.36	1,125.17	90.24
2007/08	740.12	865.3	85.53
2008/09	1,038.08	1,200.4	86.48
2009/10	200	415	48.19
Average			80.05
STDEV			17.93
CV			22.39%

Table-3 shows, that in most of the years in the study period, the long-term debt of the HBL has been more than 50% of its total debt. The long-term debt has adopted an increasing trend for first three years and then it has decreased and remained constant over the study period. Total debt has also increased for first three years and then started to decrease during study period. The long-term debt of the HBL consists of loan provided by various financial institutions. Total debt is the sum of long-term debt, current liabilities and provisions. There the trend of long-term debt as a percentage of total debt has adopted a fluctuating trend, and has ranged between 8.93% and 92%. Average long-term debt as a percentage of total debt is 55.1% which is good because it is more than 50%.

Long-term debt of NSBL has adopted fluctuating trend because it has increased for the first two years, decreased in the third year, and again increased in the fourth year, while decreased in the fifth year of the study period .In the same way total debt is also in fluctuating trend and lies between 415 and 1200.4. Long-term debt of NSBL is more than 75% of its total debt in most of the fiscal years. Long-term debt as a percentage of total debt has ranged between 48.19% and 90.24%. And average is 80.05% which is more than 75%.

The average long-term debt as a percentage of total debt of HBL is 55.1 % whereas 80.05% for NSBL. Hence, NSBL is in better financial condition than HBL. CV of HBL is 75.95% and for NSBL it is 22.39% which shows less consistency in the use of long-term debt by HBL.

4.2.4 Debt Equity Ratio in terms of long term Debt and shareholders Equity

This ratio is obtained by dividing the long-term debt by shareholders equity, which can be used to analyze the DE ratio of the firm. The following table shows calculation of Debt Equity Ratio in terms of long-term debt and shareholders.

$$\text{Debt Equity Ratio} = \frac{\text{Long-term debt}}{\text{Shareholder's Equity}}$$

Table-4

Calculation of Debt Equity Ratio in terms of Long-Term Debt and Shareholder Equity for HBL & NSBL

Rupees in Million

F/Y	Long-term debt	Shareholder's equity	LTD as a % of shareholder's equity
HBL			
2005/06	504.62	1,766.17	28.57
2006/07	595.97	2,146.54	27.76
2007/08	943.18	2,513	37.53
2008/09	5	3,119.83	0.16
2009/10	5	3,628.64	0.138
Average			18.83
STDEV			17.48
CV			92.83%

NSBL			
2005/06	812.43	97,175.03	0.84
2006/07	1,015.36	11,533.4	8.80
2007/08	740.12	14,042.2	5.27
2008/09	1,038.08	1,702.53	60.97
2009/10	200	2,440.91	8.19
Average			16.82
STDEV			24.88
CV			147.99%

Table-4 shows that the debt equity ratio in terms of long-term debt and shareholder's equity of HBL is positive for all the years. The reason behind is that the company is gaining profit every year. Due to positive shareholder's equity, its debt equity ratio is also positive in every year. Shareholders equity has adopted an increasing trend over the study period. Debt to equity ratio is increasing for the first three years and then it has decreased for later two years over the study period. It lies between 0.138% and 37.53%.

Similarly, the long-term debt for NSBL is in fluctuating trend. For first two years it has increased, in the third year it has decreased, again increased in fourth year and decreased in fifth year over the study period. Shareholders equity for NSBL has adopted a decreasing trend in the second year and increased in the third but it has decreased thereafter. The debt to equity ratio has ranged between 0.84% and 60.97% and its average ratio is 16.82.

The average debt to equity ratio is 18.83 of HBL and 16.82 of NSBL. CV is 92.83% and 147.99% respectively for HBL and NSBL which indicates there is less consistency in ratio of NSBL. So both the average ratio and CV indicates

HBL is in better condition than NSBL because higher average ratio indicates more use of debt amount than equity which causes small amount of tax payment and provides chance to increase their profit. And more consistency means increased reliability.

4.2.5 Debt to Total Assets Ratio

The amount of debt used for financing the assets of the company is measured by the Debt to total asset ratio. Debt capacity for financing the assets can be measured from this calculation. The total debt consists of permanent capital plus current liabilities. It is calculated as below

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

Table - 5**Calculation of Debt to Total Assets Ratio for HBL, NSBL**

Rupees in Million

F/Y	Total Debt	Total assets	Total debt/Total assets
HBL			
2005/06	612.4	29,460.39	0.020
2006/07	725.5	33,519.14	0.02
2007/08	1,025.17	36,175.53	0.03
2008/09	50	39,320.32	0.001
2009/10	56	42,717.12	0.001
Average			0.015
STDEV			0.013
CV			85.60%
NSBL			
2005/06	904.5	13,035.84	0.07
2006/07	1,125.17	13,901.2	0.08
2007/08	865.3	17,187.45	0.05
2008/09	1,200.4	30,916.68	0.05
2009/10	415	38,047.68	0.01
Average			0.05
STDEV			0.027
CV			54.56%

From table-5, we can see that the total debt of HBL has adopted an increasing trend for the first three years and thereafter started to decrease over the study period. But the total assets have adopted an increasing trend over the study period. Total debt to total assets ratio during the study period has ranged between 0.001 and 0.03, showing that the bank uses more share capital than debt capital, to fulfill its financing needs, and its average ratio is 0.015.

Similarly, table-5 shows that NSBL has adopted a fluctuating trend over the study period. It has ranged from 415m to 1200.4m. The total asset of NSBL over the study period is in increasing trend. Total debt to total assets ratio has ranged between 0.01 and 0.08 and the average ratio is 0.05

The average total debt to total assets ratio is 0.015 and 0.05 respectively for HBL and NSBL which shows in average the NSBL uses more debt capital to fulfill its financing needs in comparison with HBL. CV of the ratio is of HBL (i.e. 85.60%) is greater than that of NSBL (i.e. 54.56%). It indicates better performance by NSBL as it uses more debt capital than HBL while maintaining a lower CV.

4.2.6 Profit Margin

Every business organization's aim is how to maximized profit from their investment. The bank can find out its profitability with the help of profit margin ratio. The profitability is directly related to the sales revenue of the financial institution; therefore, it is clearly known that the only way of increasing profit is the increase in sales volume .The following table illustrates the profit margin ratios for the joint venture banks selected for research. It can be calculated as

follow

$$\text{Profit margin} = \frac{\text{Net profit}}{\text{Sales}} \times 100$$

Table – 6**Calculation of Profit Margin for HBL & NSBL**

F/Y	Net profit	Sales	Net profit/Sales
HBL			
2005/06	457,457,696	1,301,074,221	35.16
2006/07	491,822,905	1,409,234,685	34.9
2007/08	635,868,519	1,529,265,317	41.58
2008/09	752,834,735	1,883,907,808	39.96
2009/10	508,798,193	2,299,133,272	22.13
Average			34.75
STDEV			7.63
CV			21.98%
NSBL			
2005/06	117,001,973	799,740,075.2	14.63
2006/07	254,908,844	945,858,419.3	26.95
2007/08	247,770,758	1,092,945,558	22.67
2008/09	316,373,495	1,652,944,070	19.14
2009/10	391,742,119	2,550,404,421	15.36
Average			19.75
STDEV			5.15
CV			26.09%

Table-6 shows that the HBL has adopted an increasing trend of net profit and sales for the first four years but it has declined in the fifth year over the study period. But net profit margin has decreased in the second year and increased in the third, but then afterwards it has adopted a decreasing trend over the study period. Net profit margin of HBL has ranged between 22.13% and 41.58%. The average net profit margin ratio is only 34.75% which is low.

Similarly, net profit for NSBL has increased for first two years but has decreased in the third and thereafter it has adopted an increasing trend over the study period. But the sales has adopted only increasing trend during the study period. Due to fluctuation in net profit, net profit margin has also fluctuated. It has ranged between 14.63% and 26.95%. Average net profit margin ratio is only 19.75%

Here the average net profit margin ratio of HBL (i.e. 34.75%) is greater than that of NSBL (i.e. 19.75%). In the same way CV for that ratio of HBL (i.e. 21.98%) is lower than CV of NSBL which is 26.09 % . As we know less CV means more consistency, hence the above figure presents net profit margin ratio of HBL as good indicating the highest operating efficiency for working profit of the bank. Therefore, NSBL would also do well by adopting such a policy to earn high amount of profit from the sales revenue by increasing operating efficiency.

4.2.7 Interest Coverage Ratio

In order to analyse the debt capacity of the company, the interest coverage ratio is calculated by dividing net operating profit before interest and taxes (EBIT) by interest charge of the company. Coverage ratio is one of the parts of capital structure and leverage ratio. It is concerned with the firm's ability to pay fixed charge securities that may be either debt or preference share. Generally it can be calculated with the help of profit and loss account of the company, by which the company can analyse its own capacity for the payment of fixed charges.

Interest coverage ratio is a part of coverage ratio, which is calculated and presented in the following table:

$$\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest charge}}$$

Table-7**Calculation of Interest Coverage Ratio for HBL & NSBL**

Rupees in Million

F/Y	EBIT	Interest charge	EBIT/Int charge(in time)
HBL			
2005/06	457.45	648.84	0.71
2006/07	491.82	767.41	0.64
2007/08	635.87	823.74	0.77
2008/09	752.83	934.78	0.81
2009/10	508.79	1,553.53	0.33
Average			0.65
STDEV			0.19
CV			29.39%
NSBL			
2005/06	117.01	334.77	0.34
2006/07	254.91	412.26	0.62
2007/08	247.77	454.92	0.54
2008/09	316.37	824.7	0.38
2009/10	391.74	1,443.69	0.27
Average			0.43
STDEV			0.14
CV			33.09%

Table-7 shows increasing trend of EBIT for HBL except for the last year. The Interest Charge over the study period has adopted an increasing trend. The interest coverage ratio has ranged between 0.33 and 0.81.

Similarly, the trend of EBIT of NSBL has adopted an increasing trend except in the third year. However, the Interest Charge over the study period shows increasing trend. Also, Average Ratio of HBL is 0.65 times which is greater than that of SBI (i.e. 0.43). CV of this ratio is 29.39 % and 33.09 % respectively for HBL and NSBL, which shows HBL in better condition.

4.2.8 Earning Per Share

EPS is the ratio by which one can understand the return available for the shareholders from their investment, because EPS measures the earning available to shareholders on per share basis. As a commonly used ratio for the study of capital structure it is used in the calculations, which have been done for the two joint venture banks selected for the research. The following table shows the EPS for the selected companies for the study.

$$\text{Earning per share} = \frac{\text{Net profit}}{\text{No. of share}}$$

Table-8**Calculation of Earning Per Share of HBL & NSBL**

F/Y	Net profit	No. of share	Net profit/No. of share
HBL			
2005/06	457,457,696	7,722,000	59.24
2006/07	491,822,905	8,108,100	60.66
2007/08	635,868,519	10,135,125	62.74
2008/09	752,834,735	12,162,150	61.9
2009/10	508,798,193	16,000,000	31.8
Average			55.27
STDEV			13.19
CV			23.86%
NSBL			
2005/06	117,001,973	6,402,361	18.27
2006/07	254,908,844	6,477,984	39.35
2007/08	247,770,758	8,745,278	28.33
2008/09	316,373,495	8,745,278	36.18
2009/10	391,742,119	16,536,239	23.69
Average			29.16
STDEV			8.69
CV			29.81%

Table-8 shows that HBL has adopted an increasing trend of net profit except in the last year over the study period. The number of shares is also in increasing

trend over the study period. The earning per share of the bank is in increasing trend for first three years but then after it has decrease during the study period. The EPS of HBL has ranged between 31.8 and 62.74.

In the same way, NSBL has also adopted an increasing trend in its net profit and number of shares over the study period. The earning per share has shown a fluctuating trend over the study period. The EPS of NSBL has ranged between 18.27 and 39.35.

The average EPS of HBL is Rs. 55.27 and of NSBL is only Rs.29.16 which shows in average the HBL is in better condition than NSBL because its average EPS is less than Rs. 50.

We know that less CV means more consistency. Here CV of HBL is 23.86% and that of NSBL is 29.81% which indicates HBL is in better condition. The EPS is directly proportional to the net profit of the bank, as the EPS also rises as the net profit increases. Therefore, the banks should pay appropriate attention towards their operation to earn adequate amount of profit.

4.2.9 Price Earning Ratio (P/E Ratio)

The market value of shares has been analyzed below by calculating the price earning ratio (P/E). This reflects the price being paid by the market for each rupee of earning per share. Higher P/E ratio is often taken to mean that the firm has significant prospect of future growth. The calculation of P/E ratio for two banks is shown below in t

$$\text{Price Earning Ratio} = \frac{\text{MPS}}{\text{EPS}}$$

Table-9
Calculation of Price Earning (P/E) Ratio for HBL & NSBL

F/Y	Market price per share (in Rs)	Earning per share (in Rs)	P/E ratio
HBL			
2005/06	1,100	59.24	18.56
2006/07	1,740	60.66	28.69
2007/08	1,980	62.74	31.56
2008/09	1,760	61.9	28.43
2009/10	816	31.8	25.66
Average			26.58
STDEV			4.95
CV			18.61%
NSBL			
2005/06	612	18.27	33.49
2006/07	1,176	39.35	29.89
2007/08	1,511	28.33	53.34
2008/09	1,900	36.18	52.52
2009/10	741	23.69	31.28
Average			40.1
STDEV			11.78
CV			29.38%

Table-9 shows that the market price per share of HBL has adopted an increasing trend for first three years and then after it has started to decrease. In the same way EPS has also increased for the first three years and then decreased for two years over the study period. The P/E ratio has also increased in first three years and decreased in last two years, which has ranged between 18.56 and 31.56, indicating that investors are willing to pay 18.56 to 31.56 times more money than the actual price for one share.

Similarly, table -9 also shows the market price per share for NSBL in an increasing trend except in the last year over the study period. But the EPS is in fluctuating trend and it has ranged between Rs.18.27 and Rs.39.35 resulting in fluctuation in P/E ratio of the bank. The P/E ratio has adopted an increasing trend for the starting three years and then has started to decrease. It has ranged between 29.89 and 53.34 times.

Similarly, the average P/E ratios are 26.58 and 40.01 times respectively for HBL and NSBL. It indicates that in average NSBL is better than HBL. The CV of NSBL (i.e. 29.38%) is greater than that of HBL (i.e. 18.61%). Despite the greater average P/E ratio of NSBL it is not in good financial condition with regards to its higher CV.

4.2.10 Book Value Per Share (BVPS)

Book value of a share can be determined by dividing the net worth of the financial institution by number of shares. The calculation of BVPS for the selected joint venture banks is shown in the following table no 10 below:

$$\text{Book value per share} = \frac{\text{Net worth}}{\text{No. of share}}$$

Table-10**Calculation of Book Value Per Share (BVPS) for HBL and NSBL**

F/Y	Net worth	No. of share	book value per share
HBL			
2005/06	176,617,5840	7,722,000	228.72
2006/07	2,146,538,394	8,108,100	264.74
2007/08	2,513,004,244	10,135,125	247.95
2008/09	3,119,834,718	12,162,150	256.52
2009/10	3,628,640,000	16,000,000	226.79
Average			244.94
STDEV			16.79
CV			6.85%
NSBL			
2005/06	971,750,352.6	6,402,361	151.78
2006/07	1,153,340,271	6,477,984	178.04
2007/08	1,404,229,288	8,745,278	160.57
2008/09	1,702,530,721	8,745,278	194.68
2009/10	2,440,914,239	16,536,239	147.61
Average			166.54
STDEV			19.61
CV			11.77%

Table-10 shows the increasing trend of net worth of HBL over the study period. And in the same way number of shares has also increased every year over the

study period. But the table shows fluctuation over the study period. It has ranged between Rs. 228.72 and Rs. 264.74.

Similarly, net worth for NSBL is also in the increasing trend over the study period. Number of shares has also increased for first two years but remained constant for later two years and has then increased in the last year of the study period. The BVPS has ranged between Rs.147.61 and Rs.194.68.

The average BVPS is Rs. 244.94 and 166.54 for HBL and NSBL respectively. CV of NSBL (i.e. 11.77 %) is greater than that of HBL which is 6.85%. Here in both parameters HBL is better than NSBL because its average BVPS is greater and the CV lower indicating more consistency.

4.3 DU- Pont System of ratio analyses

The DU- Pont system is used in the financial analyses for the first time by DU- Pont Corporation, USA. It has also been popularly used by the financial manager to make classified assessment of firm's financial margin total asset turnover ratio and equity multiplier. It also show different activities, by which these ratios interact to determine profitability .It must be, said the DU- Pont system helps to find out the causes of changing ROE, ROA and profit margin.

4.3.1 Return on Equity (ROE)

The profit of shareholders from their investment is calculated by return on equity. It can be calculated by using the following formula.

ROE = Profit margin X Total assets X Equity multiplier

$$= \frac{\text{Netprofit}^{\wedge}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Asset}}{\text{Equity}}$$

Table - 11

Calculation of ROE for HBL & NSBL

F/Y	Profit margin in%	Total assets turnover	Equity multiplier	RoE in %
HBL				
2005/06	35.16	0.04	16.68	25.90
2006/07	34.9	0.042	15.62	22.91
2007/08	41.58	0.042	14.40	25.30
2008/09	39.96	0.048	12.60	24.13
2009/10	22.13	0.054	11.77	14.02
Average				22.45
STDEV				4.85
CV				21.6%
NSBL				
2005/06	14.63	0.061	13.41	12.04
2006/07	26.95	0.068	12.05	22.10
2007/08	22.67	0.064	12.24	17.64
2008/09	19.14	0.053	18.16	18.58
2009/10	15.36	0.07	15.59	16.05
Average				17.28
STDEV				3.68
CV				21.27%

Table-11 shows the decreasing trend in net profit margin of HBL except 2007/08. It has increased in third year but has then decreased over the study period. The total assets turnover ratio has remained almost constant over the study period. The HBL has adopted a decreasing trend in equity multiplier over the study period. The ROE for HBL has adopted a fluctuating trend and has ranged between 14.02% and 25.5%

Similarly, table-11 shows a fluctuating trend of profit margin for NSBL over the study period. Similarly, total assets turn over ratio has also adopted a fluctuating trend. It has ranged between 0.053 and 0.07 times. The ROE for NSBL has ranged between 12.04% and 22.10%

The average ROE of HBL is 22.45% whereas it is only 17.28% for NSBL. It indicates that NSBL has been losing its earning capacity to assets, and indicates the good capacity of the bank in utilizing the assets for sale purpose in case of HBL. This is also proved by the CV of both banks because NSBL shows higher CV than HBL which is not a positive indicator.

4.3.2 Return on Asset (ROA)

Return on assets is a measure of profit per rupee of its assets. ROA reflects efficient use of assets for any firm. It measures the profitability as well as production power of assets in terms of generating sales revenue, returns on assets for two commercial banks.

$$\text{ROA} = \frac{\text{Net profit}}{\text{Total assets}}$$

Table - 12**Calculation of Return on Asset (ROA) for HBL, NSBL**

F/Y	Net Profit	Total assets	Net profit to total assets in %
HBL			
2005/06	457,457,696	29,460,389,672	1.55
2006/07	491,822,905	33,519,141,111	1.47
2007/08	635,868,519	36,175,531,637	1.76
2008/09	752,834,735	39,320,322,069	1.91
2009/10	508,798,193	42,717,124,613	1.19
Average			1.58
STDEV			0.28
CV			17.61%
NSBL			
2005/06	117,001,973	13,035,839,124	0.90
2006/07	254,908,844	13,901,200,559	1.83
2007/08	247,770,758	17,187,446,174	1.44
2008/09	316,373,495	30916,681,796	1.02
2009/10	391,742,119	38,047,679,465	1.03
Average			1.25
STDEV			0.39
CV			31.14%

Table-12 shows the trend of net profit in HBL adopting an increasing trend, except in the last year over the study period. In case of total assets, the trend is only increasing. The ROA however is slightly fluctuating, for instance, 1.55 in the first year and 1.19 in the last.

For NSBL, the trend of net profit is increasing over the study period. Similarly, total assets has also adopted an increasing trend. As with the case of HBL, the ROA is slightly fluctuating, from 0.90 in the first year, to 1.03 in the last year.

The average ROA for HBL is 1.58 % and the CV is 17.61 %. Likewise, the average ROA for NSBL is 1.25 % and CV is 31.14 %. In both the above cases, HBL has shown more consistency in banking than NSBL.

4.4 Coefficient of correlation (r)

The correlation coefficient indicates the linear relationship between two or more variables. The measures of correlation called the “correlation coefficient” can be summarized in one figure, the degree and direction of movement. It can be calculated by using the method of Karl Person’s correlation coefficient, because it is one of the widely used mathematical methods of calculation, the correlation coefficient between two variables. In symbolically, it is defined as:

$$r = \frac{\sum dx.dy - \frac{\sum dx.\sum dy}{n}}{\sqrt{\sum dx^2 - \frac{(\sum dx)^2}{n}} \sqrt{\sum dy^2 - \frac{(\sum dy)^2}{n}}}$$

Where, dx² = deviation in x = X-A

dy² = deviation in y = Y-B

Assumptions

If $r = 1$, there is positively perfect correlation between the two variables.

If $r = -1$, there is negatively perfect correlation between the two variables.

If $r = 0$, the variables are uncorrelated.

The nearer the value of r to $+1$, the closer will be the relationship between two variables and the nearer the value of r , the lesser will be the relation.

Probable error (P.E):

The probable error of the correlation coefficient helps to interpret its value. P.E., which is the measure of testing the reliability of correlation coefficient, denotes it. If r be the calculated value of r from a sample of n pair of observation the P.E. is denoted by

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

It can be interpreted to know whether its calculated value of r is significant or not in the following ways.

If $r < \text{PE}$, it is Insignificant perhaps there is no evidence of correlation

If $r > 6\text{PE}$, it is significant. In other cases, nothing can be concluded. The probable error of correlation may be used to determine the limits within which the population correlation coefficient lies. The limits for population correlation are $r \pm \text{PE}$.

Table – 13

Calculation of correlation coefficient between total debt and shareholder's equity for HBL & NSBL

Name of the company	Correlation Coefficient (r)	Probable Error (PE)	6xPE	Significant/ Insignificant
HBL	(0.725)	0.143	0.858	Insignificant
NSBL	(0.668)	0.167	1.002	Insignificant

The calculation of correlation coefficient between the total debt and shareholders equity in table-13 shows the negative correlation for HBL and the calculated correlation is not significant because value of 'r' is less than six times the value of PE. NSBL also has shown negative correlation between total debt and shareholder equity and the calculated correlation is not significant.

Table - 14

Calculation of correlation coefficient between EBIT and Interest for HBL & NSBL

Name of the company	Correlation coefficient (r)	Probable Error (PE)	6XPE	Significant/ Insignificant
HBL	0.0006	0.302	1.812	Insignificant
NSBL	0.869	0.074	0.044	significant

Table-14 shows the correlation coefficient between EBIT and Interest payment of HBL as positive correlation, while calculated correlation as not significant because 'r' being less than six times the value of PE. Similarly, NSBL has shown moderate positive correlation between EBIT and Interest payment and the calculated correlation is significant.

Table - 15

Calculation of correlation coefficient between EPS and net profit for HBL & NSBL

Name of the company	Correlation coefficient (r)	Probable Error (PE)	6XPE	Significant/ Insignificant
HBL	0.351	0.264	1.586	Insignificant
NSBL	0.338	0.267	1.603	Insignificant

The calculation of correlation coefficient between EPS and net profit, in the above table 15 show positive correlation for HBL and NSBL and the calculated correlation is not significant because value of 'r' is less than six times than the value of PE.

Table- 16

Calculation of correlation coefficient between Net profit and shareholder equity for HBL & NSBL

Name of the company	Correlation coefficient (r)	Probable Error (PE)	6XPE	Significant/ Insignificant
HBL	0.425	0.247	1.483	Insignificant
NSBL	0.912	0.507	3.042	Insignificant

Table-16 shows correlation coefficient between net profit and shareholder equity for HBL as positive, while the calculated correlated as not significant, because the value or 'r' is less than the six times the value of PE. NSBL also shows positive correlation and the calculated correlation is not significant.

4.5 Major Findings

The average DOL of NSBL is greater than that of HBL which indicates good performance of NSBL.

The average DFL of NSBL is greater than that of HBL. However, the CV of NSBL is higher than that of HBL. So HBL shows good performance in this regard.

The average long-term debt as % of total debt of HBL is 55.1%, but is 80.05% for NSBL. The CV of NSBL is 22.39 %, which is lower than that of HBL (i.e. 75.95%). Hence, the performance of NSBL is better in this regard.

The average debt equity ratio is 18.83 for HBL and 16.82 for NSBL. The CV of NSBL (i.e. 247.99 %) is greater than that of HBL (92.83%). Hence, the average ratio and CV indicates better performance by HBL.

The average ratio between total debt to total assets is 0.015 and 0.005 respectively for HBL and NSBL. Hence, in this case, NSBL has performed better as it uses more debt than HBL.

The profit margin for banks does not show satisfactory picture over the study period. Both banks have less than 50% profit margin. However, HBL has higher profit margin than that of NSBL. Since, the CV of HBL is less than that of NSBL, the figures of HBL indicates a better earning capacity than NSBL.

The average EPS of HBL appears higher than that of NSBL and the CV of HBL is also lower. So, there is a possibility of investors being drawn by the products and proposals of HBL.

The NSBL has higher value of P/E ratio than HBL over the study period. However, since the CV of NSBL is more than that of HBL, despite having higher P/E ratio and indicating greater confidence, the overall performance of HBL can be considered better.

The average BVPS is 244.94 and 166.54 for HBL and NSBL respectively. Similarly CV of HBL is 6.85 and that of NSBL is 11.77. Hence, the performance of HBL is better than that of NSBL.

The average ROE for HBL and NSBL is 22.45 % and 17.28 % respectively. This indicates the investors of HBL are getting more returns from their investment than that of NSBL.

The average ROA of HBL is 1.58 % and that of NSBL is 1.25 %. The average ROA is higher for the HBL indicating the good production power of assets.

The correlation between Total Debt and Shareholder's Equity is insignificant for both banks.

The calculation shows insignificant correlation between EBIT and Interest Payment for HBL, but significant for NSBL.

The correlation between EPS and Net Profit for both banks is found to be insignificant.

There is an insignificant correlation between Net Profit and Shareholders' Equity for both banks.

Chapter V

Summary, Conclusion and Recommendations

5.1 Summary

This chapter includes the summary of the previous chapter and recommend for the betterment to the respective institutions. This study is based upon the capital structure management of two selected joint-venture banks of Nepal. It covers the period of five years from 2005 to 2010.

The brief introduction of this study has already been presented in the first chapter. In the second chapter the available literature about the capital structure management has been reviewed. Research methodology has been outlined explained in the third chapter. And the available data have been presented and analyzed in the fourth chapter.

This is the last chapter of the study. This chapter summarizes the whole study. The main objective of the study is to draw the major findings and conclusions and forward the recommendation for the better capital structure management of the selected joint-venture banks. The joint-venture banks in this case are Himalayan Bank limited and Nepal SBI Bank limited.

As per the objective of this study, this research work tries to analyze the relationship between debt and shareholder's equity of joint-venture banks to provide suggestion based on findings. To fulfill this purpose, the study follows the analytical and descriptive research design. The research has been divided into five chapters as Introduction, Review of literature, Research Methodology, Presentation & Analysis of Data, and Summary, Conclusion & Recommendations. The first chapter comprises the

statement of the problem, objectives of the study, significance of the study, limitation of the study and organization of the study.

The second chapter includes review of literature and present concept, types, policy, determinants and review of relevant research studies and related dissertations, as well as the research gap.

Research Methodology is studied in third chapter. It has included the research design. It presents nature and source of data, population and sample of the study, and describes procedure followed in the data processing. Tools and techniques are also described. For the purpose of the study secondary data has been used.

Being the main chapter of the study chapter four consists of various calculations in altogether 15 tables, their presentation followed by analysis.

5.2 Conclusion

This research is concerned with the study of capital structure management of two selected joint-venture banks i.e. Himalayan Bank limited and Nepal SBI Bank limited. The term capital structure refers to the long-term funds like debt and equity.

The average DOL of NSBL (i.e. 2.92) is greater than that of HBL i.e. (0.75) which indicates good performance of NSBL.

The average DFL (i.e. 2.63) of NSBL is higher than that of HBL i.e.(0.47). But the CV of HBL is lower so HBL is in better condition.

The NSBL uses more than 80% long-term debt where it is only 55% for HBL. NSBL shows more consistency in use of long-term debt because its CV is lower than that of HBL.

The average ratio of debt to equity is 18.83 for HBL and 16.82 for NSBL. In this regard HBL shows better performance because its CV is lower than that of NSBL.

The average ratio of total debt to total assets of HBL (i.e.0.015) is greater than that of NSBL (i.e. 0.005) which indicates HBL use more debt in their financing than NSBL. The average ratio of profit margin for HBL is 34.75 % and that for NSBL 19.75%. It shows both bank have less than 50% profit margin. So both banks should formulate policy to earn high amount of profit from the sales by increasing operating efficiency.

In order to analyze the debt capacity of the bank, the interest coverage ratio is calculated. The average interest coverage ratio is 0.65 times for HBL and 0.43 times for NSBL. It shows HBL can pay its fixed charges 0.65 times which is greater than that of NSBL

The average EPS of HBL appears higher than that of NSBL which indicates there is a possibility of investors being drawn by the proposals of HBL.

For any institution, the higher P/E ratio indicates the greater confidence of investors with its future. The NSBL has higher P/E ratio than HBL. However, the CV of HBL is lower which indicates more consistency. So HBL can be considered better in this regard.

The average BVPS of HBL (i.e. Rs.244.94) is higher than that of NSBL (i.e. Rs.166.54)

The ROE Of HBL is higher than that of NSBL. The investors of HBL are getting more return from their investment.

The average ROA is higher for HBL than NSBL indicating the good production power of assets.

The correlation between total debt and shareholder's equity is insignificant for both banks. There is insignificant correlation between EBIT and interest payment for HBL however it is significant for NSBL. So NSBL shows good performance. The correlation between EPS and Net profit for both banks is found to be insignificant. Again there is an insignificant correlation between net profit and shareholder's equity for HBL & NSBL.

In the conclusion, we can see that all the above calculations in different parameters indicate HBL is better in eight parameters. While NSBL shows its good performance in only four calculations in comparisons to HBL. So we can say that HBL utilize its capital structure optimally than NSBL.

5.3 Recommendations

Finally after having an overall analysis of capital structure management of HBL and NSBL the following recommendations are made for future improvement of the banks.

- HBL appears to use less long-term debt. So HBL should increase its long-term debt in their financing. But NSBL has maximum long-term debt by which financial risk might be created. Therefore NSBL has to reduce its long-term debt.
- Both banks should try to increase their yearly sales.

- As per the increase in sales the profit for both banks has not been increasing. So from the sales revenue, the banks should make such a policy as to earn high amount of profit by increasing operating efficiency.
- The debt capacities of both banks are lower. So they should try to increase their EBIT.
- HBL should try to make significant the relation between EBIT and interest payment. And both banks must try to establish significant correlation between net profit and shareholder's equity. It will help increase the return of investors.
- Due to high operating cost some of the banks are incurring loss. The management should give emphasis towards the minimization of administrative and operating expenses. The unskilled manpower, overstaffing, misuse of facilities, heavy expenses on overhead are the major causes that should be eradicated by the management of bank.

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APPENDIX

Calculation of probable error between Total Debt and Shareholders
Equity for HBL & NSBL

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(0.72)^2)}{\sqrt{5}} \\ &= 0.143\end{aligned}$$

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(-0.668)^2)}{\sqrt{5}} \\ &= 0.167\end{aligned}$$

Calculation of probable error between EBIT and Interest
for HBL & NSBL

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(0.0006)^2)}{\sqrt{5}} \\ &= 0.302\end{aligned}$$

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(0.869)^2)}{\sqrt{5}} \\ &= 0.074\end{aligned}$$

Calculation of probable error between EPS and Net Profit
for HBL & NSBL

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(0.351)^2)}{\sqrt{5}} \\ &= 0.264\end{aligned}$$

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(0.338)^2)}{\sqrt{5}} \\ &= 0.267\end{aligned}$$

Calculation of probable error between Net Profit &
Shareholders' Equity for HBL & NSBL

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(0.425)^2)}{\sqrt{5}} \\ &= 0.247\end{aligned}$$

$$\begin{aligned}\text{Probable error (P.E.)} &= \frac{0.6745(1-r^2)}{\sqrt{n}} \\ &= \frac{0.6745(1-(0.912)^2)}{\sqrt{5}} \\ &= 0.507\end{aligned}$$