

CHAPTER – 1

INTRODUCTION

1.1 General Background

Industrialization is considered to be an essential factor for the economic development of a country. The overall development of the country depends on the economic sector but is more influenced by the political and social environment of the country. The developing country like Nepal is emphasizing more on industrialization as it has to raise the standards of Nepali people living in poverty, scarcity and backwardness, encourage and promote trade; increase foreign exchange earnings through export promotion; minimize dependency on imports, create more employment opportunities.

The industrial revolution in Nepal can be seen since 1936 B.S. with the establishment of Biratnagar Jute Mill. Following this trend, some other firms were established in collaboration with the Indian companies. The Government introduced the planned development in 1956 with the first five-year plan. Nepal has been moving forward with economic reforms particularly those that encourage trade and boost industrialization. Some efforts have been made toward development of policy and regulatory frames related to trade and commerce. Since the introduction of Industrial Policy in 1992, the Government has provided some forms of concession to the industrial sector. Section 15 of the industrial enterprises act has provided number of facilities and concessions to encourage the entrepreneurs. The motive behind it is to encourage the private sector a wider chance of involvement in the industrial sector. Since then lot of industries have been established in the public sector.

Nepal entered to the World Trade Organization and adopted liberal economy trade policy to promote and open up trade. It has also introduced macro-economic

stabilization in its Eighth five years plan. So far, many business firms and enterprises have been established in the country in the form of public corporation and private firm. Public enterprises are established with the objective of promoting and facilitating trade and ensure rapid development of business, socio-economic sectors.

Apart from the industrial sector, trading companies also play a vital role in the day-to-day life of the people of the country. Trading company plays a vital role for the overall development of the country. It supplies the necessary items like raw materials, advanced technology and many more things to the industries and distributes the product items to the required consumers in the appropriate markets.

To run any business firm, an appropriate mix of capital structure should be adopted by the firm. Many firms of Nepal are facing many problems like high cost of capital, low value of the firm, high capitalization rate and more due to unbalanced and inappropriate mix of capital structure. A clear understanding of capital structure is most essential to protect the firm from internal problems.

To describe about the capital structure of any firm, it is necessary to know about the long term source of fund. The term capital structure is known as composition of long term debt, preferred stock and common stock. The mix of the capital structure which maximizes the value of the firm and earning per share and minimizes the cost of capital is the optimal capital structure. If the firm does not have proper combination of debt and equity capital, the firm may fail to earn the expected profit or fail to achieve the targeted objectives.

So, the work is based on the study of capital structure management of the Salt Trading Corporation Limited. This study uses some financial and some statistical tools to evaluate the capital structure of the firm.

1.2 Focus of the Study

The focus of the study is mainly on the Capital Structure management of the Salt Trading Corporation Ltd. Any firms' success depends on the proper management of capital structure. Capital structure refers to the mix or combination of long term funds such as; debentures, long term debt, preference share capital and equity share capital. Optimal capital structure refers to the combination of debt, preferred stock and equity that maximizes the total value of the firm, earning per share and minimizes the cost of capital. The capital structure affects the overall cost of capital, total value of the firm and earning per share but does not affect the total operating earnings of the firm. This study examines the capital structure with the help of various variables relating to the balance sheet, income statement and other related variables. Various financial tools are used to evaluate the appropriateness of optimal capital structure used by the firm.

1.3 Profile of Salt Trading Corporation Limited

Salt Trading Corporation Limited (STCL) was established on 27 Bhadra 2020 B.S. (1963 A.D) through the joint effort of Government of Nepal and the private sector to ensure proper supply and distribution of essential consumer items throughout the country.

The primary task of STCL was to make edible salt readily available. As the salt trade then was disordered and unreliable. The irregularities in the distribution of the salt; shortages of salt and unnecessary increment in prices of salt were major problems faced by the consumers then. Such deviations had to be corrected through organized supply and delivery system for which STCL has been established. STCL has been serving to its customer's very honestly and continuously right after its establishment.

The quality and price of salt is also very much good even to poor income group. Moreover the corporation has also assured to its customers about the quality supply of its products with reasonable price. The main objective of the corporation is to import and distribute salt and other consumable goods within the kingdom of Nepal, as an agent of the national and international companies and to establish the industry.

The God Bhimsen, a symbol of power and integrity, the corporation has established his mace as its logo. Under the mace, the ideal sentence or Motto is 'SATYA MEWA PARAM DHANAM' which means 'Honesty is the greatest wealth'. It was this principal the corporation was founded with and still rests on and will never move away from it.

Maintaining high quality, reasonable price, easily available system in the Kingdom throughout the year and preventing the dealings of the goods affecting public health is the characteristics and commitment of the Salt Trading Corporation Limited.

The organization began its trading activities by dealing in salt and now imports, exports, produces and supplies goods of vast diversities. The success in supply management led to the addition of essential commodities such as sugar, food grains and processed eatables into its distribution network. Industrial products, agricultural products and industrial raw materials are the major components of its trade. The organization also conducts triangular trade dedicated to the task of promoting more exports for the benefit of exporters and importers alike.

Services provided by the Corporation

1. Edible Products: Salt, Ghee, Oil, Sugar, Wheat, Rice
2. Other Products:
 - Agricultural Ingredients
 - Fuel, Coal, Lubricants and Tyre & Tubes
 - Construction Materials

- Machinery & Tools
 - Paper Products
 - Surgical Equipments
 - Real Estate
3. Mixture of Nutrition: To avoid the badness seen in public health, corporation has mixed as follows:
- Iodine in salt
 - Vitamin A and D in plant ghee, and mustard oil
 - Iron in Flour
4. Corporation has already formed 25 district level agro farm in order to provide well facilities to the ultimate users such as to provide fertilizer, fresh and proceed fruits etc. It has also taken an objective of serving 25% farmers after establishing the agricultural development center in different part of the country.

STCL operates industries that totally depend on local raw materials as well as industries that import raw materials. STCL has been playing a very significant role in procuring goods from different parts of the kingdom and supplying them in areas where they derive optimum value.

From its infancy as a trading house, STCL has matured into a diversified conglomerate with unmatched distribution network all over the Kingdom. Corporation has already established more than 92 branches and sub branches in 75 districts and about 6000 dealers in Nepal. It has also set up liaison and overseas offices in New Delhi, India and Doha, Qatar. The employment opportunities that arise through the activities of the organization are hard to quantify as they also provide plenty of self-employment opportunities and has boost the Nepalese entrepreneurial abilities. The STCL directly employees about 400 individuals.

STCL has equity in many pioneering and leading industries in the Kingdom such as Khadya Udyog Limited, Nepal Vegetable Ghee Udyog Limited, Butwal Spinning Mills Limited, Gorakhkali Rubber Udyog Limited, Morang Sugar Mills Limited and Gharelu Hastakala Udyog Pvt. The corporation has also promoted and managed different finance and insurance companies like Sagarmatha Insurance Company and National Finance Company Limited. It shoulders management responsibilities of many more industries.

Forty years of dedication and service to the nation and her people has today made STCL a major catalyst in bringing about the desired economic changes and growth in Nepal. The organization has also been assigned the responsibility of implementing the Nepal – India Goiter Control Project. Beyond business, the corporation is also contributing to the social sector by honoring people and institutions involved in different sectors with awards, rewards and different prizes. STCL provides scholarships and welfare prizes to deserving students, employees as well as candidates every year.

1.4 Statement of the Problem

The capital structure decision initially affects the overall cost of capital, total value of the firm, and earning per share. In the long run, it affects profitability, control position, management attitude, tax liability, financial flexibility, cash flow and sales stability. The main problem of the study lies on the issue of capital structure used by the STCL.

This study tries to show the existing capital structure of the firm and examine the appropriateness of the capital structure used by the firm. It tries to evaluate whether

the company is getting the significant return in context to its level of risk. It also tries to locate the obstacles faced by the corporation in maintaining the optimal capital structure. This study tries to find out the answer of the following question:-

- ▶ What is the position of the Salt Trading Corporation Limited in respect of its Capital Structure?
- ▶ Is there a rational debt service status of the company?
- ▶ Whether or not return on equity of the company is affected by the use of leverage?

1.5 Objectives of the Study

The main objective of this study is to analyze Capital Structure Management of Salt Trading Corporation Limited. The specific objectives of this study are as follows:

1. To observe the capital structure position of the STCL.
2. To evaluate the capacity of the debt service of the STCL.
3. To analyze the effect of leverage on return to the equity holders.

1.6 Need, Scope & Significance of the Study

The capital structure plays major role in controlling the overall cost of capital in order and ultimately to improve the earnings per share of share holders. In context of Nepal, companies do not prioritize the decision relating to the capital structure as a result of which, some firms have failed in achieving their desired profit and even collapsed. The study provides suggestive framework to STCL about the ways to

determining optimal capital structure that will be beneficial to the firm in the long run. The study evaluates the financial performance of the firm that might help the firm to formulate strategies and to achieve the targeted objectives. This study will also highlight the importance of capital structure to policy makers and overall shareholders of the firm. This study will provide guidelines or be helpful to future researcher of the concerned field.

1.7 Limitation of the Study

This study is not an inclusive and comprehensive study. The study is conducted for the partial fulfillment of the degree of MBS. Due to various constraints, there may be many deficiencies in this study. Some to the limitations are as follows:

- ▶ The study covers the time period of only seven years. i.e. the fiscal year 2057/58 to 2063/64 B.S.
- ▶ The study is based on secondary data provided by the corporation. Due to use of secondary data the reliability of study partly depends on the reliability of the data source.
- ▶ The whole study is concentrated in Capital Structure less than other aspects of the financial analysis.
- ▶ Other limitations of this study are time constraints, limited budget / financial resources, lack of experience and up to date information.

1.8 Organization of the Study

Chapter 1	Introduction
Chapter 2	Review of Literature
Chapter 3	Research Methodology
Chapter 4	Data Presentation and analysis
Chapter 5	Summary, Conclusion and Recommendations.

Besides these chapter bibliography and appendix will be includes in this research Paper.

CHAPTER -2

LITERATURE REVIEW

2.1 Introduction

Research must be based on the past knowledge and studies. There should be continuity in research by linking the past knowledge to the present study. This chapter reviews the previous researches done in the field of capital structure analysis, reviews the concerned books related with capital structure analysis. The purpose of the literature review is to find out what research studies have been done in the chosen field and what more has to be done.

Related books by different authors and articles, previous research works such as dissertations, thesis, and reports have been consulted in this study. This chapter tries to clarify the conceptual and theoretical concepts regarding the definition of capital structure and theory of capital structure. This chapter has been divided into the following two sections.

- Theoretical review
- Review of related studies.

2.2 Theoretical Review

In this section, various books written by different writers are well reviewed. This makes clear about the conceptual foundation of this study. The concept of capital structure, assumptions & definitions, theories of capital structure has been reviewed in this section.

2.2.1 Concept of Capital Structure

Capital is an important factor of production. Every new business requires capital and still more capital is needed if the firm is to expand. It is a source of financing investment. In financial terminology the term 'capital' includes equity as well as debt capital. Equity capital contains capital generated from issuing common stocks, preferred stocks, and retained earnings. Debt capital may be the composition of payable bearing no interests rate, short term bonds, long term bonds, debentures and term loans. However all capital can be classified into two basic types – debt and equity as classified by E. F. Bringham, L. C. Gapenski and M. C. Ehrhardt, (1998).

Capital is considered as the mix of long term source of funds as debt, preference share, and equity. Firm can raise funds either by debt capital or by share capital. Debt holders also known as creditors, they receive interest as their return from the company where they invested capital. Interest is tax deductible which lower the effective cost of debt. Debentures holders, who are limited to the fixed return, do not have voting right. So stockholders can control the business with less money than would otherwise require. The higher the debt ratio, the greater the risk and thus, higher the interest rate. Shareholders are the actual owners of the firm. But preference shareholders have preference right to get return from the company than the equity shareholders. So equity shareholders receive the remaining portion of net return after paying the preference dividend to preference shareholders, which is pre-determined.

According to I. Mathur, (1979), the capital structure plays a vital role in the theory of financial management. The capital structure is a combination of long-term debt and equity; it is a part of financial structure i.e. comprised to the total combination of preferred stock, common stock, long term debt and current liabilities. If current liabilities are removed from it we get capital structure.

A. Barges (1963) stated that – A firm's decision to use debt capital to finance its projects not only adversely affects its potential for using debt in future by

proportionately lowering its equity base, but also creates financial risk to the shareholders such risks in turn will influence the cost of equity which moves upward. Similarly, a firm's decision to use equity capital for financing its projects would enlarge its potential for borrowing in the future. Because of this connection between the method of financing and their cost, it has been now agreed the term cost of capital should be used in the composite sense i.e. weighted average cost of capital.

In the words of the J. F. Weston and E. F. Brigham (1996), Capital structure is the permanent financing of the firm, represented primarily by long term debt, preferred stock and common stock, but excluding all short term credit. Thus a firm's capital structure, common stocks, capital surplus and accumulated retained earning.

E. Solomon (1969), Capital structure is the combination of the long term source of fund i.e. debt, preferred stock, common stock that are use to finance the firm. Optimum capital structure can be defined as that mix of debt and equity which will maximize the market value of a company, i.e. aggregate value of the claims an ownership interest represented as the credit side of the balance sheet. Further, the advantage of having an optimum financial structure, if such an optimum does exist is tab-fold, it maximizes the value of the company and hence the wealth turn increases its ability to find new wealth creating investment opportunities. Also by increasing the firms' opportunity to engage in future wealth creating investment increases the economy's rate of investment and growth.

The optimum capital structure is that capital structure or combination of debt and equity that leads to the maximum value of the firm. Optimum capital structure maximizes the value of the company or shareholders' wealth and minimizes the company's cost of capital.

R. L. Johnson (1973), a sound or appropriate capital structure should have the following features.

- **Return** - The capital structure of the company should be most advantageous. Subject to other considerations, it should generate maximum returns to the shareholders without additional cost to them.
- **Risk** - Optimal capital structure should be less risky. The use of excessive debt threatens the solvency of the company. Company should use debt to that extent up to which debt does not add significant risk, otherwise its use should be avoided.
- **Flexibility** - The capital structure should be flexible. Flexibility in capital structure helps to grab market opportunity as company can raise required funds whenever it is needed for profitable investment opportunities. It also helps to reduce costs (cost of debt and preferred stock) when funds rose from debt and preferred stock are no more required in the business.
- **Capacity** - The capital structure should be determined within the debt capacity of the company, and this capacity should not be exceeded. The debt capacity of a company depends on its ability to generate future cash flows. It should have enough cash to pay creditors' fixed charges and principal sum.
- **Control** - The management always wants to maintain control over the firm. The capital structure should involve minimum risk of loss of control of the company. Issue of excess equity shares to new investors may bring threats to the control by existing manager.

2.2.2 Assumptions and Definitions

According to J. C. Van Horne (2002), to have better understanding of capital structure theory, the following assumptions are made:

1. There are no corporate or personal tax and no bankruptcy costs. (Later we shall remove these assumptions.)
2. The operating earnings of the firm are not expected to grow the expected value of the probability distribution of expected earnings for all future periods are same as present operating earnings.
3. The firm has policy of paying 100 percent of its earning in dividends. Thus we abstract from the dividend decision.
4. The ratio of debt to equity for a firm is changed by issuing debt to repurchase stock to issuing stock play off debt. In other words, a change in capital structure is effected immediately. In this regard, we assume to transaction costs.
5. The expected value of the subjective probability distributions of expected future operating earnings for each company are the same for all investors in the market.
6. Two types of capital are employed: long term debt and share holders' equity.
7. The firm is expected to continue indefinitely.

The cost of capital and their respected values can be calculated by using following formula:

$$\text{Cost of Debt (K}_d\text{)} = \frac{\text{INT}}{\text{D}}$$

Where as,

EBIT = Earning before Interest & Taxes

EBT = Earning before Taxes

S = Market Value of Stock.

D = Market Value of Debt.

V = Value of the Company.

$$\text{Cost of Equity (K}_e\text{)} = \frac{\text{EBIT} - \text{INT}}{\text{V} - \text{D}} = \frac{\text{EBT}}{\text{S}}$$

$$\text{Value of Debt (D)} = \frac{\text{INT}}{\text{K}_d}$$

$$\text{Overall Cost of Capital (K}_o\text{)} = \frac{\text{EBIT}}{\text{V}}$$

The overall cost of capital is the weighted average cost of equity and cost of debt.

$$\text{Thus, } K_o = K_d (D/V) + K_e (S/V)$$

The value of the firm is combined value of debt capital and share capital. So,

$$\text{V} = \text{D} + \text{S} \text{ or } \frac{\text{EBIT}}{\text{K}_o}$$

2.2.3 Theories of Capital Structure

Capital structure refers to the mix of long-term sources of funds, such as debenture, long term debt, preference share capital and equity share capital. The capital structure decision affects the overall cost of capital, total value of the firm and earnings per share. The capital structure concept plays an important place in the theory of financial management. The term, capital structure, also known as financial structure or financial plan or leverage. The financing decision of the firm is one of the tools for achieving firm's objectives of shareholders wealth maximization. Thus, the financial decision of a firm relates to choice of proportion of debt and equity to finance the investment requirement a proper balance between risk and return to the shareholders.

To understand about the capital structure decision and concept under different theories, it is important to have some idea of major capital structure theories. Many theories about capital structure have been developed in the field of financial management. The following theories have been described in this study.

- ▶ Net Income (NI) Approach
- ▶ Net Operating Income (NOI) Approach
- ▶ Traditional Theory
- ▶ Modigliani and Miller (M-M) Model
- ▶ The Miller Model (MM)

2.2.3.1 Net Income (NI) Approach

According to NI approach, total value of firm and the overall costs of capital are changed while decision about capital structure of financial leverage is taken. Under this approach, value of the firm and market price per share will increase and weighted average cost of capital will decline with the increased degree of financial leverage measured by debt to equity ratio and vice-versa.

‘The essence of net income approach is that the firm can increase its value or lower the overall cost of capital by increasing the proportion of debt in the capital structure’ - I.M. Pandey (*op. cit* P.678).

J. C. Van Horne (2002), stated that the use of additional debt is causes of increment of total value of the firm and decreased of cost of capital. The crucial assumptions of this approach are:

- The use of debt does not change the risk perception of investors; as a result the equity capitalization rate and the debt capitalization rate remain with changes in leverage.
- The debt capitalization rate is less than equity capitalization rate.
- The corporate income taxes do not exist.

Under this approach, as a firm increases its leverage by increasing its level of debt relative to equity the overall cost of capital declines. The importance of this levered overall cost of capital is that it increases the value of the firm.

According to the first assumption, equity capitalization rate (K_e) and debt capitalization rate (K_d) are constant. Increased use of debt will result in the higher value of the firm via higher value of equity. Consequently, the overall cost of capital, K_o , will decrease. The overall cost of capital is measured by following formula:

$$\text{Overall Cost of Capital } (K_o) = \frac{\text{Net Operating Income}}{\text{Total Value of Firm}}$$

$$\text{Symbolically, } K_o = \frac{\text{EBIT}}{V}$$

The overall cost of capital can also be measure by using the following equation:

$$K_o = K_e - (K_e - K_d) D/V$$

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 Market Value of Debt to Value of the company (D/V) increases. It also implies that the overall cost of capital, K_o will be equal to K_e if the firm does not employ any debt.

The effect of leverage on the cost of capital under NI approach can be shown by the following figures:

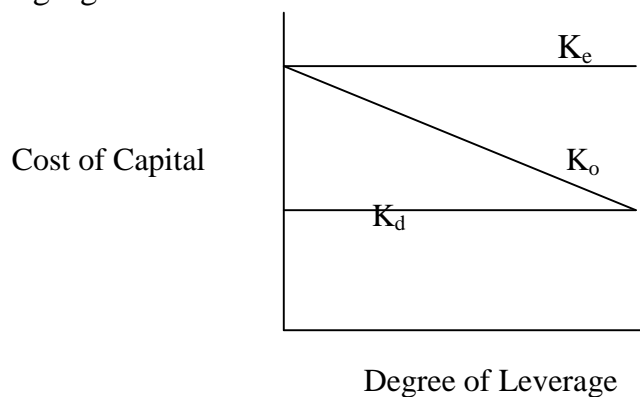


Figure: 2.1 Effect of Leverage on the Cost of Capital under NI Approach

In the above figure, the degree of financial leverage is shown in the horizontal axis and Cost of Capital (K_e , K_o , & K_d) in the vertical axis. Under NI approach K_e and K_d

are assumed not to change with leverage. As the portion of debt is increased in the capital structure, it causes weighted average cost of capital to decrease and approach to cost of debt. The optimal capital structure would occur at the point where the value of the firm maximized and overall cost of capital is minimized. Under this approach, the firm will have a maximum value and lower cost of capital when it is almost debt financing.

2.2.3.2 Net Operating Income (NOI) Approach

Another approach to valuation of firm is Net Operating Income Approach. With this approach net operating income is capitalized at an overall capitalization rate to obtain the total market value of the firm. The market value of the debt then is deducted from the total market value to obtain the market value of the stock. Note that with this approach the overall capitalization rate (K_o) as well as the cost of debt funds (K_d), stay the same regardless of the degree of leverage. The required return on equity however, increases linearly with leverage - J.C. Van Horne (2002).

The net operating income approach is dramatically opposite to the net income approach. The essence of this approach is that the leverage or capital structure decision of the firm is irrelevant. Any changes in the total value of the firm and market price of the share as the overall cost of capital are independent of the degree of leverage.

According to J. C. Van Horne (2002), the important assumptions of NOI approach are: K_o is constant, regardless of the degree of leverage. The market capitalizes the value of the firm as a whole; as a result, the breakdown between debt and equity is unimportant. An increase in the use of supposedly 'cheaper' debt funds is offset exactly by the increase in the required equity return (K_e). Thus the weighted average of K_e and K_d remains unchanged for all degrees of leverage. As the firm increases its degree of leverage, it becomes increasingly more risky. Investors penalize the stock by raising the required equity return directly in keeping with the increase in the debt

to equity ratio. As long as K_d remains constant, K_e is a constant linear function of debt to equity ratio. Because the cost of capital of the firm, K_o cannot be altered through leverage, the net operating income approach implies that there is no one optimal capital structure.

Under this approach, the total value of the firm is calculated by dividing the net operating profit by overall cost of capital, K_o . The market value of equity (S) can be determined by subtracting the value of the debt, (D) from the total market value of firm (V), (i.e $S= V-D$). The cost of equity (K_e) will be measured as follows:

$$\text{Equity Capitalization Rate } (K_e) = \frac{\text{EBIT} - \text{INT}}{V - D} \quad \text{or} \quad \frac{\text{EBT}}{S}$$

$$\text{Alternatively,} \quad K_e = K_o + (K_o - K_d) D/S$$

Graphic presentation of this theory is shown in the following figure:

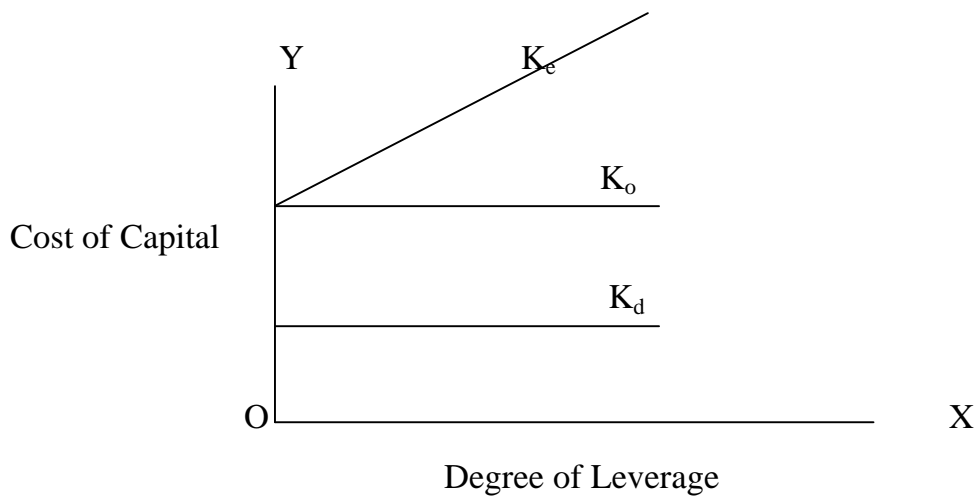


Figure: 2.2 Effect of Leverage on Cost of Capital under Net Operating Income Approach

From the above figure, we can found that the K_o and K_d is constant and K_e increase with leverage continuously. As the cost of capital K_o , is constant, this approach implies that there is not any unique optimal capital structure. In other words, as the

cost of capital is the same at all level of leverage, so every capital structure is optimum.

The NOI approach also assumes a constant rate of K_d , which means that the debt holders do not demand high rate of interest for high level of leverage risk.

Any changes do not change the total value and overall capitalization rate as well as market price of share. The overall capitalization rate and debt capitalization rate remains constant but the equity capitalization rate increases linearly with leverage.

2.2.3.3 Traditional Theory

This approach is mid way of the net income approach and net operating income approach. This approach assumes that there is an optimal capital structure that the firm can increase the total value of the firm through the judicious use of leverage. The approach suggests that the firm initially can low its cost of capital and raise its total value through leverage. Although investors raise the required rate of return on equity (K_e), the increase in K_e does not offset entirely the benefit of using cheaper debt funds. As more leverage occurs, investors increasingly penalize the firm's required equity return until eventually this effect more than offsets the use of cheaper debt fund - J. C. Van Horne, (2002).

This approach implies that the cost of capital is not independent of the capital structure of the firm and that there is an optimal capital structure.

The main assumptions of the traditional approach are:

- a. The cost of debt (K_d) remains more or less constant up to a certain degree of leverage but rises thereafter at an increasing rate.

- b. The cost of equity (K_e) remains more or less constant or rises only gradually up to a certain degree of leverage and rises sharply there after.
- c. The average cost of capital ' K_o ' as a consequence of above behavior or ' K_e ' and ' K_d ' (i) decreases up to a certain point (ii) remains more or less unchanged for moderate increase in leverage thereafter and rises beyond a certain point.

In the words of E. Solomon (09 cit. page 94) 'According to traditional position, the manner in which the overall cost of the capital reacts in changes to capital structure can be divided into three stages.'

First Stage: Increasing Value

The rate at which the shareholders capitalize their net income, i.e. the cost of equity remains constant or rises slightly with debt in this state. But when it increases, it does not increase fast enough to offset the advantage of low-cost debt. During this stage, the cost of debt, remains constant or rises negligibly since the market views use of debt as a reasonable policy. As a result the value of the firm increases or the overall cost of capital falls with increasing leverage.

Second Stage: Optimal Value

Once the firm has reached a certain degree of leverage, increase in leverage have a negligible effect on the value, or the cost of capital of the firm in this stage. This is so because the increase in the cost of equity due to added financial risk offsets the advantage of low cost debt. Within that range or at a specific point, the value of the firm will be maximum or cost of capital will be minimum.

Third Stage: Declining Value

Beyond the accepted limit of leverage, the value of the firm decreases with leverage or cost of capital increases with leverage. This happens because investors perceive a

high degree of financial risk and increases equity capitalization rate by more than to offset the advantage of low cost of debt.

The overall effect of these three stages is to suggest that the cost of capital is the function of leverage. It declines with leverage and after reaching a minimum point or range starts rising.

The relationship between cost of capital and leverage can be graphically shown as under.

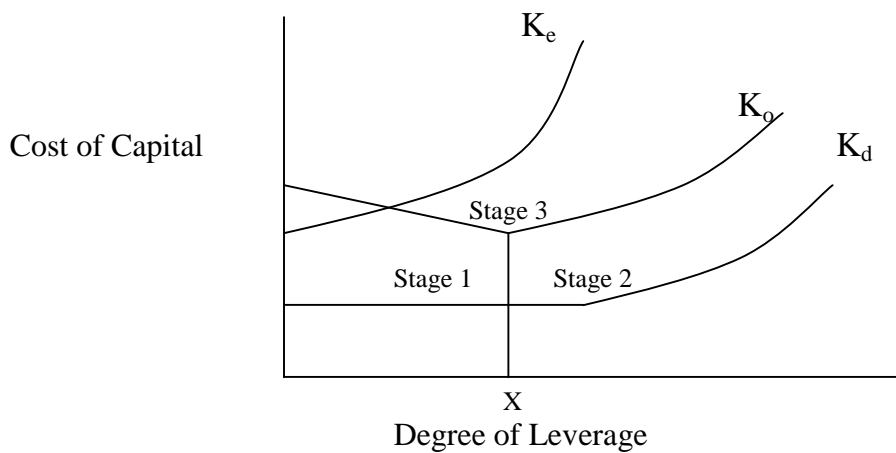


Figure: 2.3 Effect of Leverage on Cost of Capital under Traditional Theory

In the above figure, it is assumed that cost of equity (K_e) rises at an increasing rate with leverage, whereas cost of debt (K_d) assumed to rise only after significant leverage has occurred. At first, the weighted cost of capital, (K_o) declines with leverage because the rise in K_e does not entirely offset the use of leverage. After a point, however, the increase in K_e more than offset rises. The rise in K_o is supported further once K_d begins to rise. The optimal capital structure is point X. Thus the traditional position implies that the cost of capital is not independent of capital structure of the firm and that there is an optimal capital structure.

2.2.3.4 Modigliani and Miller (M-M) Model

Until 1958, capital structure theory considered the loose assertions about investors rather than carefully constructed model, which could test by formal statistical

analysis. In what has been called the most influential set off financial paper ever published, Franco Modigliani and Merton Miller (MM) addressed capital structure in a rigorous, scientific fashion, and they set off a chain of research that continuous to this day.

Modigliani – Miller (M-M) in their original position advocate the relationship between leverage and the cost of capital, which is explained by the net operating approach. They make the formidable attack on the traditional position by offering behavioral justification for having the cost of capital (K_o) remain constant throughout all degree of leverage.

According to J. C. Van Horne, ‘The M-M theory is identical with a net operating income approach. They argue that, in an absence of taxes, a firm’s market value and cost of capital remain invariant to the capital structure changes. In their 1958 article, they provide analytically sound and logically consistent behavioral justification in favor of their hypothesis, and reject any other capital structure theory as incorrect.’

M-M explains their theory based on the following important assumptions:

- a. Capital market is perfect. Information is costless and readily available to all investors. There are no transactions costs and all securities are infinitely divisible. Investors are summed to be rational and to behave accordingly.
- b. The average future operating earnings of firms are represented by subjective random variables. It is assumed that the expected values of probability distribution of all investors are same. The M-M illustration implies that the expected value of the probability distribution of expected operation earnings for all the future periods are same as present operating earnings.
- c. Firms can be categorized into ‘equivalent return’ classes. All firms within a class have the same degree of business risk. As we shall see later, this assumption is not essential for their proof.

- d. The absence of corporate taxes is assumed. M- M removes this assumption later.

The M-M position is based on the idea that no matter how we can divide the capital structure of a firm among debt, equity and other claims, there is a conservation of investment value. M-M in 1958 proposed that the theory without taxes and they relaxed the theory with tax consideration. So, we can study M-M theory under two headings:

- M-M Theory Without Taxes
- M-M Theory With Taxes

M-M Theory Without Taxes

M-M first analyzed leverage under the assumption that there are no corporate or personal income taxes.

Proposition – I

The market value of the firm is independent of its capital structure under this assumption. In other words, M-M argue that for firms in the same risk class, the total market value is independent of the debt equity mix and is given by the rate appropriate to that risk class. This can be expressed as follows:

Value of Firm = Market Value of Debt + Market Value of Equity or,

$$= \frac{\text{Expected Net Operating Income}}{\text{Expected Overall Capitalization Rate}}$$

Symbolically,
$$= \frac{\text{EBIT}}{K_0}$$

For an Unlevered firm,
$$V_u = \frac{\text{EBIT}}{K_e}$$

Where, $K_0 = K_e$ in case of unlevered firm.

According to Brigham E. F., Gapenski L. C. and Ehrhardt M. C. (1998), since value of the firm is a constant, then under the M-M model, when there are no taxes, the value of firm is independent of its leverage. This also implies that:

- ▶ The weighted average cost of capital to the firm is completely independent of its capital structure.
- ▶ The weighted average cost of capital for the firm, regardless of the amount of debt is used, is equal to the cost of equity it would have if it uses no debt.

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

Proposition – II

The cost of equity (K_e) is a linear function of leverage, measured by the market value of debt to equity (D/S) under this assumption. Thus leverage will result not only in more earning per share to shareholders, but also increase cost of equity.

The cost of equity to a levered firm (K_{eL}) is equal to the cost of equity to an unlevered firm (K_{eU}), in the same risk class plus risk premium where size depends on both differential between unlevered firm's cost of debt and equity and the amount of debt used.

$$K_{eL} = K_{eU} + \text{Risk premium}$$

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

Where,
 K_{eU} = Cost of Equity of Unlevered Firm
 K_{eL} = Cost of Equity of Levered Firm
 K_d = Cost of Debt
 D = Market Value of the firm's Debt
 S = Market Value of firm's Stock

According to the above equation, as the firm's use of debt increases, cost of equity also rises. Due to increase in leverage, 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 the shareholders, against an increase in financial risk.

The two M-M propositions imply that the inclusion of more debt in the capital structure will not, increase the value of the firm. Thus M-M argues that in the world without taxes, both the value of the firm and the weighted average cost of capital would be unaffected by its capital structure.

The Arbitrage Proof:

Arbitrage is the movement of shareholders from one firm to another to acquire equal return at relatively less investment outlay. This will cease when the value of both levered and unlevered firm is equal to each other.

M-M did not accept NI approach as valid. M-M opinion is that if two identical firms, except for the degree of leverage, have different market values, arbitrage will take place to enable investors to engage personal or home-made leverage as against the corporate leverage restore equilibrium in the market.

On the basis of the arbitrage process, M-M concluded that the market value of a firm is not affected by leverage. Thus the capital structure decision is irrelevant. It does not have any impact on the maximization of market price per share. This implies that one capital structure desirable as much as the other.

M-M Theory with Taxes

The 1963 M-M article incorporated corporate taxes but the 1958 article did not include. Under M-M theory without taxes, the value of the firm is independent of its capital structure. But in reality, the corporate income taxes exist and interest paid to

the debt holders is treated as a deductible expenses. So, debt financing is advantageous.

‘In the 1963 article, M-M proved that the value of the firm will increase with debt due to the deductibility of the interest charges for tax computation, and the value of levered firm will be higher than of the unlevered firm.’ - I. M. Pandey (*op. cit.* page – 694)

Proposition – I

The value of levered firm must exceed the value of unlevered firm by the amount of the debt tax shield provided by the government as the subsidy for assuming the higher degree of risk. The gain from leverage is the value of tax saving.

Value of Levered Firm = Value of Unlevered Firm + Debt Tax Shield

Symbolically, $V_L = V_u + T.D$

Here the important point is that when corporate tax introduced, the value of levered firm exceed that of the unlevered firm by the amount of tax shield. Since the gain from leverage as debt increases, in theory a firm’s value is maximized at 100 percent debt financing. With zero debt, the value of firm is equal to the firm’s value of equity. The value of unlevered firm can be found by using the following equation:

$$V_u = S = \frac{EBIT(1-T)}{K_{eU}}$$

Where,

V_L = Value of the levered firm

V_u = Value of the unlevered firm

T = Corporate tax rate

K_{eU} = Cost of equity of unlevered

Proposition – II

The more use of financial leverage causes residual claims of owners become more variable under this proposition. As a result they demand higher required rate of return on equity to compensate the risk assumed. Thus cost of equity still must

increase mainly with a reduce proposition. The cost of equity of levered firm is equal to the cost of equity of an unlevered firm in the same risk class plus a risk premium whose size depends on the differential between the cost of equity and debt to an unlevered firm, the amount of financial leverage used, and the corporate tax rate.

$$K_{eL} = K_{eU} + (K_{eU} - K_d) (1-T) (D/S)$$

The M-M's 'tax corrected' view suggested that, because of tax deductibility of interest charges, a firm can increase its value or lower its cost of capital continuously with leverage. Thus the optimal capital structure is reached when the firms employ 100 percent debt in its capital structure. But the observed experience is contrary to this view. In practice firm do not employ large amount of debt, nor are lenders ready to lend beyond certain limits. M-M suggests that firms would adopt a target debt ratio so as not to violate the limit of debt level imposed by the lenders.

According to I. M.Pandey, 'The companies do not employ extreme level of debt in practice due to the following reason. Firstly, there is need to consider the impact of both corporate and personal tax for corporate borrowing. Personal tax may offset the advantage of the interest tax shield. Secondly, borrowing may involves extra costs-cost of financial distress which may also offset the advantage of interest shield.'

2.2.3.5 The Miller Model (MM)

Although, M-M introduced corporate taxes in the revised version of their model, they did not extend the model to include personal taxes. The changes in the capital structure have no effect on the firms' total valuation as per Miller argument. This position is the same as M-M's original proposition in the world of no taxes, but it contrasts sharply with their corporate adjustment article, in which they found that debt has substantial advantage.

'Miller Model suggests that in market equilibrium personal and corporate tax effects cancel out. He assumes that the personal tax on stock income (t_{ps}) i.e. zero.

Accordingly, his model implies that at the margin, the personal tax rate on debt income (t_{pd}) must equal to the corporate tax rate (t_c). When $t_{pd} = t_c$, changes in proportion of debt in the capital structure do not change in the total after tax income to investors. As a result capital structure decisions by the corporation would be irrelevant.' - J. C. Van Horne, (2002).

With personal taxes included, and under the same set of assumptions used in the M-M model, the value of an unlevered firm is found as follows:

$$V_u = \frac{EBIT(1-t_c)(1-t_{ps})}{K_{eU}}$$

Where, EBIT = Earning before Interest and Taxes

t_c = Corporate Tax Rate

t_{ps} = Personal Tax Rate on Income from Stock

K_{eU} = Equity Capitalization Rate of Unlevered Firm.

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

$$V_L = V_u + \text{Tax Shield}$$

$$\text{or, } V_L = V_u + \left[\frac{1 - \frac{(1-t_c)(1-t_{ps})}{(1-t_{pd})}} \right]$$

Where, t_{pd} = Personal Tax on Income from Debt

The Miller Model has two important implications:

- a. There is an optimum amount of debt in the economy, which is determined by the corporate and personal tax rates. In other words, there is an optimum debt equity ratio for all firms in the economy.
- b. There is no optimal debt – equity ratio for a single firm. There are hundreds of firms, which have already induced tax exempt and low tax

racket investors. Therefore a single firm cannot gain or loss by borrowing more or less.

J. C. Van Horne expressed the reaction of this model as:

‘The personal tax effect doesn’t entirely offset the corporate tax effect and that there is a tax advantage to borrow for the typical corporation. This particularly true for companies having only moderate amount of debt where tax shield uncertainly is not grate. Still, there would appear to be some lessening of the corporate tax effect wing to personal taxes.’

Miller’s Model is based on same controversial assumptions, and therefore, most people still believe that in balance there is a tax advantage of corporate borrowing.

2.2.4 Factors Affecting a Target Capital Structure:

Capital structure decision is the most important aspect of financial management. Optimal capital structure is the mix of debt and equity that maximizes the value of the firm and earning per share and minimizes the overall cost of capital of the firm. According to I. M. Pandey, firm should consider many factors that affect the optimal capital structure. Some of those important factors, which affect the target capital structure, are as follows:

1. Management Attitude: A firm’s capital structure depends upon the attitudes of management towards the handling of risk and return. Risk taking management is capable of handling risk and uses more debt whereas the conservative management uses more equity.

2. Control:

Capital structure decision depends upon the control position of the management. If the management has voting control and not in position to buy any more stock, it may use the debt capital. However, a management group may employ more equity than

debt in a situation of weak financial position if the group is not concerned with voting control.

3. Assets Structure:

Firms whose assets are suitable security for loans tend to employ more debt than the firms having no suitable assets for necessary pledging as security for loan. Thus real estate companies are highly levered, whereas firms engaged in technological research employ less debt.

4. Sales Stability:

A firm whose sales are relatively stable can employ more debt and incur higher fixed charges than a company with unstable sales. For instance, utilities companies whose sales are historically stable can employ more debt or higher financial leverage than the industrial and manufacturing firms.

5. Operating leverage:

A firm with less operating leverage can employ more debt than the firm with higher operating leverage. In a way, the interaction of the operating leverage and financial leverage determine the overall impact of a decline in sales on operating and net cash flow.

6. Cash Flow: The key concern of firm when considering capital structure must centre up on its ability to generate the necessary cash flows to meet obligations. Sale of stock can improve the firm's cash flow hence using more equity funds in capital structure.

7. Profitability:

The other factor determining the capital structure of the firm is the ability to achieve a higher rate of return on investment. Little debt is employed if the firm can achieve higher return on investment, although there is no theoretical justification to it. But, higher rate of return enables the firm to do most of their financing with retained earnings.

8. Growth Rate:

Faster growing firms must rely heavily on external capital. Further, the floating costs involved in selling stock exceed those incurred when selling debt. Thus rapidly growing firms tend to use somewhat more debt than slower growing companies.

9. Taxes:

Interest is deductible expenses and deductions are most valued by firm with high tax rates. Hence, the higher a firm's corporate tax rate, the great the advantage of using debt.

The factors explained above are the main ones affecting the target capital. Flotation costs, contractual obligation, timing, solvency should also be considered while making capital structure decision.

2.3 Review of Related Studies

In this section, the previous studies related to the capital structure management and financial analyses are reviewed. It consists of thesis and dissertation done by previous Master's Level Student as well as other research works and article written by different writers related to the capital structure of the firm. In this section, the following research studies have been reviewed.

Acharya B.R (1998), in his work on **“An Analysis of Capital Structure Position of Arihantha Multifibres Limited”**

Objective.

- 1.To observe the the capital structure position.
2. To evaluate the capacity of the debt service .
- 3.To analyze the effect of leverage on return to the equity holders.

Findings

- 1.He concluded that the long term financial position of the company is not favorable. The company has long term debt and short term debt financing to acquire assets.
- 2.The interest on capital employed ratio seems to be low as it fails to pay off interest. The return on owners' equity is negative, which indicate that the debt capability to generate income is not favorable.
- 3.Debt to equity ratio is high which shows that outsiders claim on return is greater than that of equity holders. Finally, he traced out that the financial risk of the company is high.

. Dhungana C (2000), conducted the research on **“Capital Structure of Nepalese Hotels”**

Objective.

- 1.To observe the the capital structure position of the hotels.
2. To evaluate the capacity of the debt service of the hotels.
- 3.To analyze the effect of leverage on return to the equity holders.

Findings

- 1.He found out that due to less developed capital market the interest rates were

fluctuation within large range.

- 2.The fluctuation of interest rate has posed a difficulty in determining firms' optimal capital structure which obliged Nepalese hotels to face uncertain effects of using debt fund.
- 3.The correlation between debt-equity ratio and return on equity nearly irrespective of EBIT amount generated by the firms were negative. He felt the need of further empirical study for proper planning of capital structure in different sectors.

Devkota M. (2002), conducted her study “**An Analysis of Capital Structure of Necon Air Ltd**”.

Objective.

- 1.To observe the the capital structure position of the Necon Air ltd.
- 2.To analyze the capacity of the debt service of the Necon Air ltd.
- 3.To analyze the effect of leverage on return to the equity holders

Findings

- 1.She concluded her study that debt service capital of the company is highly positive position of debt is higher so most of the assets were financed by the debt capital.
- 2.The company is operating in risky condition, its EPS is fluctuating and revenue generation is normal.
- 3.She suggested maintaining well planned capital structure, to have control over total expenses and improve in debt serving capacity.

Bahadur J. (2004), studied “**An Analysis of Capital Structure of Salt Trading Corporation Limited**”.

Objective.

- 1.To observe the the capital structure position of the STCL
- 2.To analyze the capacity of the debt service of the STCL
- 3.To analyze the effect of leverage on return to the equity holders

Findings

- 1.He analyzed that the debt serving capacity of company is low and it posses higher debt to equity ratio with higher burden of expenses.

2. He further analyzed that the company lacks the well planned structure of capital and weak in considering theoretical aspects of the capital structure.
3. He recommended the company to maintain well planned structure of capital to improve debt serving capacity, reduce expenses, maintain proper debt ratio to strengthen debt removing capacity of the company and to be more conscious with the theoretical aspects.

Awale S. (2005), conducted a study on “**Comparative Evaluation of Capital Structure between Salt Trading Corporation Limited and National Trading Limited**”.

Objective.

1. To observe the the capital structure position of the STCL and NTL.
2. To analyze the capacity of the debt service of the STCL and NTL.
3. To analyze the effect of leverage on return to the equity holders

Findings

1. He concluded on that a highly levered company - STCL bore much risk of long term debt than of National Trading Limited (NTL).
2. Both companies had failed to maintain appropriate ratio of long term debt to capital employed and the interest burden of the companies are very high.
3. However the operating efficiency of NTL is better than that of STCL. He recommended to both companies to plan their capital structure by analyzing the possible alternative financial plans and to maintain sound debt capacity, minimize interest expenses by using cheaper debt and to be conscious over the theoretical aspects of capital structure management and maintain proper records accordingly.

Rajopadhyay P. (2007), has conducted a study on “**An Investigation into Capital Structure Issues: A Case of Nepal**” as a M. Phil Thesis.

Objective.

1. To observe the the capital structure management of the enterprises
2. To analyze the effect of leverage on return to the equity holders

Findings

1. He concluded that the determinants of capital structure, growth rate, liquidity and

other variables were found to be negatively correlated with the leverage, profitability and collateral value of assets were found to be positively related to leverage in private sector.

2. The result observed in public sectors firms in respect to profitability; growth rate and other variables vary from the private sectors. He observed positive relation between leverage and shareholders return in both sectors but found negative relation among leverage and cost of capital.

3. He further concluded the capital structure management in Nepalese firm, both private and public sector seems to be very poor and the skillful use of leverage is yet to be explored.

Research Gap

This study attempts to analyze and explain the capital structure management of the Salt Trading Corporation Limited. The study tries to address the issues related to capital structure of the STCL mainly relating to level of debt used by the firm, significant return in context to its level of risk set and the capital structure position of the STCL. The study has set out specific objectives as:

- ▶ To observe the capital structure position of the STCL.
- ▶ To evaluate the capacity of the debt service of the STCL.
- ▶ To analyze the effect of leverage on return to the equity holders.

For the fulfillment of the stated objectives, the study has used various financial related - capital structure and statistical tools. The entire study has been divided into five major divisions. The chapter one briefs on the background of the study and highlights the objectives of the study. The chapter also briefs on the profile of the STCL along with the scope, significance and the limitations of the study. The second chapter deals with the conceptual and theoretical review of the study. In the third chapter the methodologies undertaken to conduct the study has been elaborated. The fourth part deals with the analysis of the data undertaken for the study and graphs/figures are used to support the clear presentation of data. The last chapter summarizes and concludes the study.

CHAPTER-3

RESEARCH METHODOLOGY

3.1 Introduction

The research work is based on analytical and exploratory methods. Research methodology is the process of arriving to the solution of the problem through planned and systematic dealing with the collection, analysis, and interpretation of facts and figures. In this chapter, the methodologies to be used during the study are presented under different titles such as Research Design, Sources and Nature of Data, and Analytical Tools.

3.2 Research Design

The specific procedure and techniques which guides in studying profound ways required for research viability is known as research design. Research design is a plan of action to be carried out in connection with a research project. Selection of appropriate research designing is necessary to meet objectives of the study. This study highlights on descriptive and analytical study of the collected data as of financial statement; Profit and Loss Account and Balance Sheet over a period of time.

3.3 Population and Sample

Population refers to any collection of specified group that have been chosen for study. Population is also called universe. A small portion chose from the population for studying its properties is called a sample.

Under this study, the financial statements published by the concerned company from the beginning till the period of this study are taken as the population of the study and the particular statement taken to analyze on the company is considered as the sample of the study. So the entire operating periods of the company from its establishment till date are the population of the study and the period of seven years covered (2057/58 – 2062/63 B.S.) by this study is the sample.

3.4 Sources and Nature of Data

The data used in this study are basically based on secondary data constitutes mostly the annual reports comprised of all the financial statements, balance sheet and profit and loss account of the company. Some of the helpful information were collected from the personnel of the company and through official and other related website of the company.

3.5 Data Analysis Tools

The major tool used for analyzing the collected data of this study is the ratio analysis that establishes the quantitative or numerical relationship between two variables of the financial statements. Some of the statistical tools have also been used during the study. The tools used in this study are elaborated in detail below under separate headings:

3.5.1 Financial Ratio Analysis Tools

Financial tools play vital role in analyzing the capital structure of any firm. The financial tools that are directly concerned with the study of the capital structure are taken into consideration in this study.

Ratio analysis is a powerful tool of financial analysis. It establishes the quantitative or numerical relationship between two variables of the financial statements. Following are the capital structure ratios, interest coverage ratios, profitability ratios analyzed during this study.

► **Total Debt to Total Asset (D/A) Ratio:**

The total debt to asset ratio shows the proportion of a company's assets which are financed through debt. It shows apportion of debt in the purchase of assets. The total debt of the firm comprises long term debt and current liabilities whereas the total asset consists of current and long term asset. The total debt to total asset can be calculated by using following formula:-

$$\text{D/A Ratio} = \frac{\text{Total Debt}}{\text{Total Asset}}$$

If the ratio is less than one, most of the company's assets are financed through equity. If the ratio is greater than one, most of the company's assets are financed through debt. Companies with high debt to asset ratios are said to be highly leveraged.

► **Debt to Equity (D/E) Ratio:**

Debt to Equity (D/E) ratio is a financial ratio which indicates the relative proportion of equity and debt used to finance a company's assets. It measures to what extent a firm is financially sound or solvent in terms of long term obligation. It shows the relationship between outside and owner's claim against the company's assets. This ratio is also known as debt to net worth ratio. It is calculated as follows:

$$\text{D/E Ratio} = \frac{\text{Long Term Debt}}{\text{Shareholder's Equity}} \times 100$$

It can be calculated in terms of total debt and shareholders' equity:

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

A high debt to equity ratio generally means that a company has been aggressive in financing its growth with debt. The higher debt to equity ratio indicates that the higher claim of the creditors or outsider's than that of the owners.

► **Long Term Debt to Capital Employed (LTD/CE) Ratio:**

This ratio shows the relationship between the long term debt and capital employed by the firm. It shows similar indications as of the debt to equity ratio. It tells about the proportion of long term debt and shareholder's fund in the capital structure. In terms of formula, this ratio can be expressed as below:

$$\text{LTD/CE Ratio} = \frac{\text{Long Term Debt}}{\text{Capital Employed}} \times 100$$

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

► **Interest Coverage (I/C) Ratio:**

Interest Coverage ratio is a ratio used to measure a company's ability to honor its debt payments or to determine how easily a company can pay interest on outstanding debt. It is also known as time interest earned ratio. Interest coverage ratio can be calculated in two ways.

The ratio can be calculated by dividing company's earnings before interest and taxes (EBIT) of one period by the company's interest expenses of the

same period. The formula for calculating interest coverage ratio is as follows:

$$\text{I/C Ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

The another way of analyzing interest coverage ratio is in terms of Earnings before depreciation, interest and taxes (EBDIT) to interest. Depreciation is a non cash item. Therefore funds equal to depreciation are also available to pay interest charges. The formula to calculate the ratio is:

$$\text{I/C Ratio} = \frac{\text{EBDIT}}{\text{Interest}}$$

This ratio indicates the extent to which the earnings may fall without causing any embarrassment to the firm regarding the payment of the interest charges.

The lower the ratio, the more the company is burdened by debt expenses. Higher interest coverage ratio indicates higher the company's strong debt servicing capacity.

► **Net Profit Ratio:**

Net Profit Ratio refers to a measure of operating efficiency of the firm. It is also known as Profit margin or Net Margin. It is an indicator of a company's pricing policies and its ability to control costs. It is calculated by using following formula:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Net Sales}}$$

Higher the ratio, higher the operating efficiency of the company and vice versa.

► **Return on Shareholders' Equity (ROSHE):**

The profitability ratio based on shareholders' equity is called return on shareholders' equity. This ratio measures the return earned by the shareholders on the invested capital. It analyses whether the company is able to provide higher return on investment to the owners or not.

$$\text{ROSHE} = \frac{\text{Net Profit After Tax}}{\text{Shareholders' Equity}}$$

The higher ratio is desirable from the point of view of the owners of the firm.

► **Analysis of Financial Leverage:**

Financial leverage is the use of debt to magnify the rate of return on shareholders' equity. It describes the ratio between an investor's market exposures to borrowed fund. The degree of financial leverage analyzes the burden of interest expenses and financial risk of the company.

It can be calculated by using either EBIT and EBT or EBIT and EPS. Here the first aspect is considered for the analysis.

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

The higher the degree of financial leverage, the higher will be the financial risk as well as the fixed charges of the company and vice versa.

3.5.2 Statistical Tools

In this study, the following statistical tools are used.

3.5.2.1 Correlation Co-efficient (r):

The Correlation Co-efficient denoted by (r) indicates the direction of relationship between two variables. It measures the strength and the direction of a linear relationship between two variables. The Correlation Coefficient is sometimes referred to as the Pearson Product Moment Correlation Coefficient in honor of its developer Karl Pearson.

The mathematical formula for computing 'r' is:

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

Where,

n = Number of observations;

X and Y are variables;

The value of r lies between -1 to 1:

- ▶ If $r = 0$ (There is a random, nonlinear relationship between the two variables.)
- ▶ If $r = 1$ (There is perfect positive relationship such that as value for X increases, value for Y also increases.)
- ▶ If $r = -1$ (There is perfect negative relationship such that as value for X increases, values for Y decreases.)

3.5.2.2 Probable Error (P.E):

The probable error is an old measure of ascertaining the reliability of the value of the coefficient of correlation. It is used to test whether the calculated value of sample correlation coefficient is significant or not.

The mathematical formula for computing probable error is following:

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

Where,

r = Correlation Coefficient.

n = Number of Pairs of observation.

- ▶ If $r < P.E$ (The value of r is not significant i.e. there is no evidence of correlation.)
- ▶ If $r > 6 P.E$ (The value of r is significant i.e. practically the correlation is certain.)
- ▶ In other situations, nothing can be calculated with certainty.

3.5.2.3 Simple Regression Analysis:

Regression analysis is the technique of studying how the variations in one series are related to variations in another series. It shows how the variables are related and determines the nature and the strength of relationship between two variables. Thus regression is the estimation of unknown values or prediction of one variable from known values of other variables.

Regression analysis is a mathematical measure of the average relationship between two or more variables in terms of the original units of the data. The regression analysis confined to the study of only two variables at a time is called Simple

Regression. The known value which is used for prediction is called independent variable and the unknown value which is to be estimated by known value is called dependent.

A line fitted to a set of data pointing to estimate the relationship between two variables is called regression line. A line of regression gives the best estimate of one unknown variable for any given value of the other variable. Simple Regression consists two variables only, there are always two lines of regression, one of Y on X and the other X on Y. The line of regression of Y on X is used to estimate the value of dependent variable (Y) for any given value of independent variable (X) and vice versa.

Regression lines are expressed algebraically by means of equation called regression equations. The regression equation Y on X is used to describe the change in the value of Y for change in the value of X.

Regression Equation of Y on X:

The equation of regression line where the dependent variable Y is determined by the independent variable X is

$$Y = a + bX$$

Where, $a = Y - \text{intercept}$

$b = \text{slope of the regression line (it measures the change in Y per unit change in X)}$

The two normal equations for estimating two numerical constants 'a' and 'b' as per the principle of least squares are given by

$$Y = na + b \sum X$$

$$\sum XY = a \sum X + b \sum X^2$$

Where, $n = \text{number of pair observations}$

To examine the relationship between Leverage (LEV) and Return on Equity (ROE) the theoretical statement is framed as:

$$\text{ROE} = f(\text{LEV})$$

The return on equity may be regarded as subject to leverages. Thus for the analysis, ROE is treated as a dependent or response variable and leverages are considered as an explanatory or independent variable. Theoretically there should exist positive relationship between ROE and leverages. Accordingly the simple linear regression model is used to estimate the linear regression equation:

$$Y_t = \alpha_0 + \alpha_1 X_t + \mu_t$$

$$\text{ROE}_t = \alpha_0 + \alpha_1 (\text{LEV}_1) + \mu_t$$

$$\text{ROE}_t = \alpha_0 + \alpha_1 (\text{LEV}_2) + \mu_t$$

$$\text{ROE}_t = \alpha_0 + \alpha_1 (\text{LEV}_3) + \mu_t$$

Where, Y_t = ROE = Return on Equity, the response variable
 X_t = LEV=Various Leverages, the explanatory variables
 LEV_1 = Short Term Debt to Total Asset Ratio
 LEV_2 = Long Term Debt to Total Asset Ratio
 LEV_3 = Total Debt to Total Asset Ratio
 α_0 = Regression coefficient, the sample Y intercept
 α_1 = Regression coefficient, the sample slope
 μ_t = The Error term

3.5.2.4 Testing of Hypothesis:

Testing of hypothesis is one of the most important aspects of the theory of decision making. Generally two complementary hypotheses are set up at one time. If one of the hypothesis is accepted then the other hypothesis is rejected and vice versa. The two complementary hypotheses that are set up in the testing of hypothesis are the

null hypothesis and the alternative hypothesis. To determine the existence of a significant linear relationship between leverages and ROE as aforesaid theoretical statement null and alternative hypothesis has been formulated as mentioned below:

Under Null Hypothesis:

$H_0: \beta_1 = 0$ (There is no significant relationship between leverages and return on equity)

Under Alternative Hypothesis:

$H_1: \beta_1 \neq 0$ (There is a significant relationship between leverage and return on equity)

The test hypothesis is conducted using 5% level of significance and (n-2) degree of freedom using t-stat along with P-values.

Where, n = Number of Observations.

3.5.2.5 Trend Analysis:

Trend analysis measures the financial performance of the firm over a period of time. The analyses of the ratios indicate the direction of change. Trend analysis only detects the improving or deteriorating movement of financial performance of a firm over the years.

In the words of I.M. Pandey, the trend analysis of the ratios add considerable significance to the financial analysis because it studies ratios of several years and isolates the exceptional instances occurring in one or two periods.

Trend analysis is done when a financial analyst measures a performance over a time. Comparison of current to past performance, utilizing ratio analysis allows the firm to determine whether it is progressing as planned.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Data Analysis is the process to change the raw data from an unprocessed form to an understandable presentation. The analysis of data consists of organizing, tabulating and performing statistical analysis and also presenting the data in a meaningful way. The main objective of this study is to analyze the capital structure management of Salt Trading Corporation Ltd.

To attain the study objectives, this chapter has been divided into four major sections. Section 1 deals with the capital structure ratio, Section 2 is concerned with interest coverage and earning status. Section 3 describes effect of financial leverage on return to the stock holders. Above sections are concentrated with the relevant financial ratios and analyzed with descriptive statistics. In this section correlation and regression analysis tools has been used to examine the effect. Finally Section 4 presents major findings of the study.

In financial analysis, a ratio is used as a benchmark for evaluating the financial position and performance of the firm. It involves comparison for a useful interpretation of the financial statements.

4.1 Analysis of the Capital Structure Ratios

To judge the financial position of the firm, financial leverage or capital structure ratios are needed to be analyzed. These ratios indicate mix of funds provided by owners and lenders. Below mentioned are the some of the major capital structure ratios used during the study:

4.1.1 Analysis of Total Debt to Total Asset Ratio

The ratio of total debt to total asset, generally called the debt ratio, measures the percentage of total funds provided by creditors. It shows apportion of debt in the purchase of assets. This ratio also gives similar indication as the debt equity ratio. The total debt of the firm comprises long term debt and current liabilities whereas a total asset consists of current and fixed asset.

If the ratio is less than one, most of the company's assets are financed through equity. If the ratio is greater than one, most of the company's assets are financed through debt. Companies with high debt to asset ratio are said to be highly leveraged. The higher ratio indicates that the creditors claim in the total asset of the company is higher than the owner's claim.

Table: 4.1
Total Debt (TD) to Total Asset (TA) Ratio of STCL

Year	TD in '000'	TA in '000'	Ratio	% Change
2057/58	1,100,773	1,189,295	0.93:1	
2058/59	1,147,290	1,240,059	0.93:1	0%
2059/60	1,200,995	1,699,616	0.71:1	-24%
2060/61	1,740,348	2,282,845	0.76:1	7%
2061/62	1,606,352	2,215,335	0.72:1	-5%
2062/63	2,016,996	3,587,774	0.56:1	-23%
2063/64	2,170,598	3,719,540	0.58:1	4%
Average Ratio			0.74:1	

Source: Appendix –3

Table 4.1 presents the total debt to asset ratio of the STCL and percentage change of the periods of seven years. The table shows the fluctuating trend of the ratio with constant for first two years. The total debt to asset ratio of first two year 2057/58 and 2058/59 is 0.93:1 which explains that the claims of the creditors in the assets of

the corporation is 93% and the remaining 7% is that of shareholders. The ratio has gone down to 0.71:1 in the year 2059/60 but again increased to 0.76:1 in year 2060/61 which is greater than the average ratio of the corporation. The ratios of the remaining years 2061/62, 2062/63, 2063/64 has gone down to 0.72:1, 0.56:1, 0.58:1 respectively by increasing the ratio of 2063/64 comparatively the preceding year.

STCL has very high ratio of total debt to total asset in the first two year comparing to the following year. In an average the STCL bears high ratio of total debt to total assets. This shows that the share of total asset financed by the outsiders fund is very high.

According to J.F. Weston and T.E Copeland, this ratio should be about 33%. So we can assume this 33% ratio as standard ratio while analyzing. The ratios of the STCL are much higher than the standard ratio in all seven years. So it can be concluded that this higher ratio could create a danger situation in the interest of the company as a result its interest expenses could be high. The STCL is highly dependant upon the creditor's fund. The analysis of the debt ratio of the STCL has been clearly presented by the following graph:

Figure : 4.1
Position of the Debt Ratio of the STCL

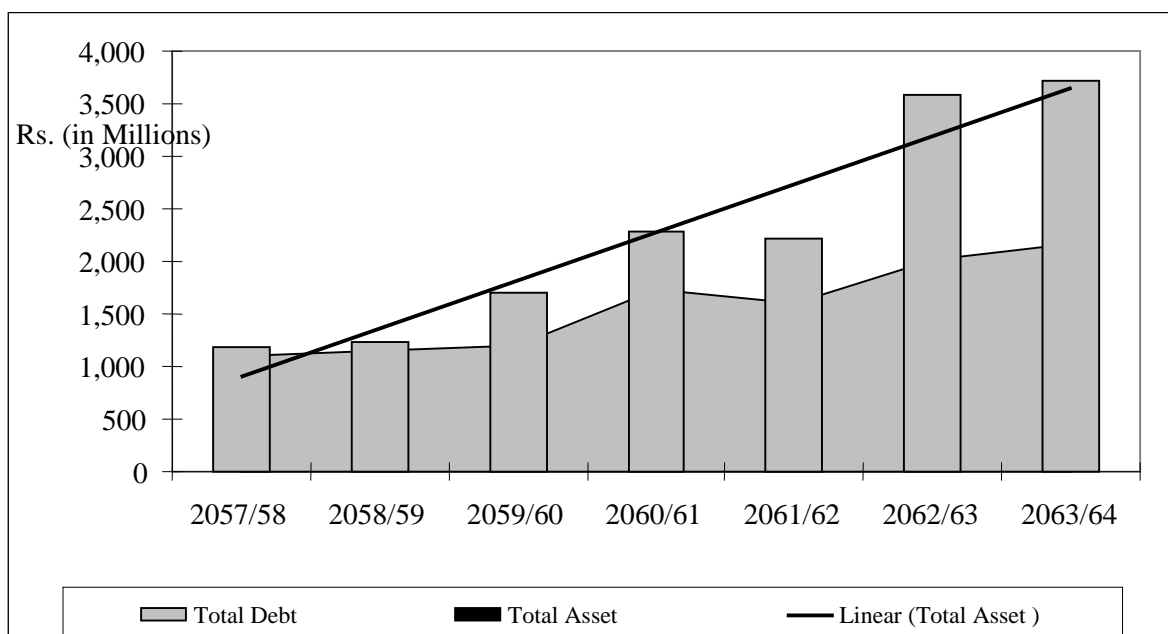


Figure 4.1 clearly shows the increasing trend of the total debt and the total assets of the STCL during the period of seven years. The background portion in grey indicates the position of the total debt used by the STCL and the dotted blocks shows the position of the total asset of the STCL. The linear trend line of the total asset is in increasing position. The figure clearly shows the excessive use of the debt to finance the total asset of the STCL.

Reviewing the Figure 4.1 it could be concluded that STCL has used more of the debt to purchase its assets which means higher claim of outsiders to the asset of STCL more than that of owners.

4.1.2 Analysis of Debt to Equity Ratio

The debt to equity ratio is a financial ratio which indicates the relative proportion of equity and debt used to finance a company's assets. The ratio measures to what extent a firm is financially sound or solvent in terms of long term obligation. It shows the relationship between outsider's and owner's claim against the company's assets. It is used as a measure of debt exposure of the firm. Debt to equity ratio is calculated on the basis of long term debt and shareholders' equity.

A high debt to equity ratio generally shows that a company has been aggressive in financing its growth with debt and indicates that the claim of the creditors or outsider's than that of the owners. On the other hand low debt ratio represents high credit rating of the company.

Table: 4.2
Long Term Debt (LTD) to Share Holders' Equity (SHE) Ratio of the STCL

Year	LTD in '000'	SHE in '000'	Ratio	% Change
2057/58	791,043	88,521	8.94:1	-
2058/59	874,763	92,768	9.43:1	5%
2059/60	902,800	498,620	1.81:1	-81%
2060/61	1,359,592	542,497	2.51:1	39%
2061/62	1,184,072	608,982	1.94:1	-23%
2062/63	362,889	1,570,778	0.23:1	-88%
2063/64	305,668	1,548,941	0.20:1	-13%
Average Ratio			3.58:1	

Source: Appendix- 3

Table 4.2 shows the long term debt and equity ratio and change in percentage of the Salt Trading Corporation Limited during 7 years of the study period.

The table shows the fluctuating trend of the D/E ratio of the Salt Trading Corporation. The D/E ratio for the year 2057/58 is 8.94:1 which implies the use of debt is Rs.8.94 for each one rupee of owner' capital. The ratio has gone up in year 2058/59 to 9.43:1. Again, the ratio has significantly gone down in the year 2059/60 to 1.81:1. The average D/E ratio of the corporation is 3.58:1, which is higher than the ratios 2.51:1, 1.94:1, 0.23:1, 0.20:1 of the respective years 2060/61, 2061/62, 2062/63, 2063/64.

Analyzing the result of the Table 4.2, it is found out that the STCL is significantly cutting off the debt in year 2062/63, 2063/64. However the company failed to maintain satisfactory level of D/E ratio in remaining years. There is lacking of proper balance between debt and equity ratio. The position of the long term debt and share holders' equity of the STCL has been clearly shown in the below graph:

Figure : 4.2

Position of the Long Term Debt to Share Holders' Equity of STCL

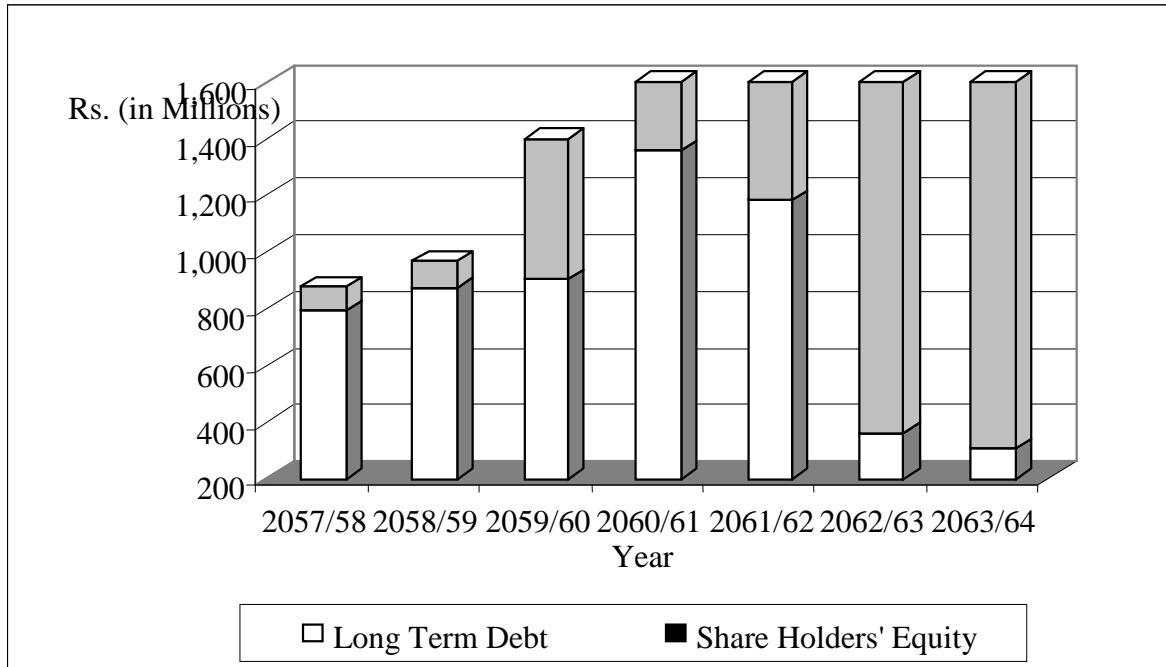


Figure 4.2 clearly shows the fluctuating trend of the position of the long term debt and share holders' equity during the period of seven years. It shows the drastically decrease of the long term debt in some recent years and excessive use of share holders' equity.

Analyzing the Figure 4.2 it could be concluded that the STCL has been cutting down its long term debt in recent years and utilizing more of the shareholders' equity to finance its asset.

4.1.3 Analysis of Long Term Debt to Total Capital Employed Ratio

The ratio of long term debt and capital employed measures the relative share of the debt in total capital of the company indicating the long term solvency. This ratio shows the relationship between the long term debt and capital employed by the firm.

This ratio plays crucial role as it tells about the proportion of long term debt and shareholder's fund in the capital structure.

The long term debt denotes all the debts, which matures more than one year where as capital employed represents all long term debt and shareholders' fund of the company. Again shareholders' fund is composed of share capital, reserve and accumulated profit of the firm. This ratio is also known as debt to permanent capital ratio.

Higher the ratio implies the higher contribution of long term debt to the capital structure and lower the ratio indicates the lower proportion of long term debt in the capital employed. Conventionally a ratio of 1:2 is considered to be satisfactory.

Table: 4.3
Long Term Debt (LTD) to Capital Employed (CE) Ratio of STCL

Year	LTD in '000'	CE in '000'	Ratio	% Change
2057/58	791,043	879,565	0.90:1	-
2058/59	874,763	967,531	0.90:1	0%
2059/60	902,800	1,401,420	0.64:1	-29%
2060/61	1,359,592	1,902,090	0.71:1	11%
2061/62	1,184,072	1,793,055	0.66:1	-7%
2062/63	362,889	1,933,667	0.19:1	-71%
2063/64	305,668	1,854,610	0.16:1	-16%
Average Ratio			0.60:1	

Source: Appendix - 3

Table 4.3 shows the ratio of the long term debt to capital employed and its change in percentage of the Salt Trading Corporation during the seven years of study period. The Table 4.3 reveals that the fluctuating trend of the ratio. The long term debt to capital employed ratio of the STCL in year 2057/58 is 0.90:1. It means the

contribution of the long term debt in the capital employed is about 90% and remaining 10% is contributed by the shareholders' fund. Similarly in the year 2058/59 the ratio remained constant but the ratio decreased to 0.64:1 in the year 2059/60. Again in the year 2060/61 the ratio increased to 0.71:1 after wards the ratio is in declining trend keeping the ratio 0.66:1 in the year 2061/62. The average ratio of the corporation is 0.60:1. In the year 2062/63, the ratio has decreased dramatically far below the average ratio to 0.19:1 and 0.16:1 in the following year.

To conclude it can be said that the STCL does not maintain the appropriate ratio of long term debt to capital employed. The use of long term debt is very higher in two years (2057/58 & 2058/59) and higher than the average in 3 years (2059/60, 2060/61, 2061/62) which should be decreased to appropriate level and where as the ratios of the remaining years is too low which is again bad signal for the equity holders as it reduces the net earnings.

Figure: 4.3
Position of Long Term Debt to Capital Employed of the STCL

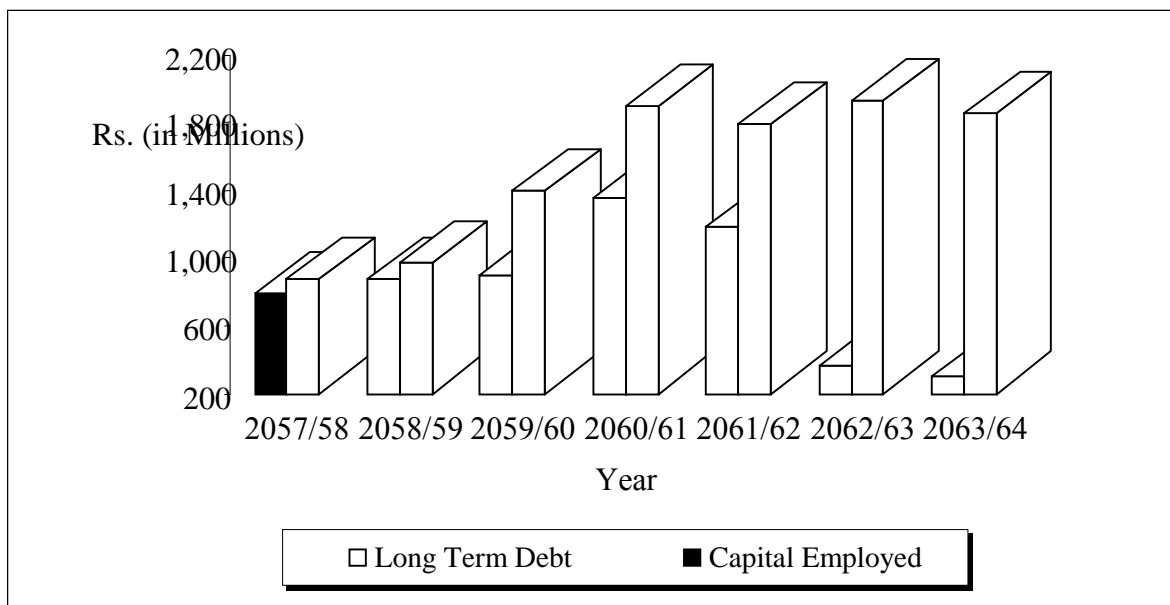


Figure 4.3 clearly shows the relation ship between long term debt and total capital employed by the STCL during the period of seven years. The figure clearly shows

the decreasing contribution of the long term debt in the formation of the capital structure of the STCL in some recent years. Thus analyzing the figure 4.3, it could be concluded that use of the long term debt in the total capital employed by the STCL is in drastically decreasing trend.

4.2 Analysis of the Interest Coverage and Earning Ratios

The capital structure ratios described above are static in nature and fail to indicate the firm's ability to meet interest obligations. The interest coverage ratio is one of the most conventional coverage ratios used to test the firm's debt-servicing capacity. The coverage ratios which are used in this study are mentioned below:

4.2.1 Analysis of Interest Coverage Ratio in terms of Earning Before Interest and Tax (EBIT) to Interest

Interest coverage ratio in terms of EBIT to interest measures that how many times interest charges are covered by the funds that are available ordinarily to pay the interest charges. This ratio indicates a company's ability to honor its debt payments. It is also known as time interest earned ratio. This ratio uses concept of net profit before tax because interest is tax deductible so the tax is calculated after paying interest on loan.

The lower the ratio, more the company is burdened by debt expenses. Higher ratio indicates higher the company's strong debt servicing capacity. However, too higher ratio may imply unused debt capacity. A low ratio is danger signal that the firm is using excessive debt and does not have the ability to offer assured payment of interest to the creditors.

Table: 4.4
Interest Coverage Ratio in terms of EBIT to Interest (INT) of STCL

Year	EBIT in '000'	INT in '000'	Ratio	% Change
2057/58	66,770	82,003	0.81 times	-
2058/59	107,244	93,352	1.15 times	42%
2059/60	141,561	105,032	1.35 times	17%
2060/61	178,016	111,425	1.60 times	19%
2061/62	213,846	115,686	1.85 times	16%
2062/63	190,406	119,994	1.59 times	-14%
2063/64	195,374	154,015	1.27 times	-20%
Average Ratio			1.37 times	

Source: Appendix- 3

Table 4.4 shows the interest coverage ratio in terms of EBIT to Interest of STCL and the change in percentage during the seven years period. The interest coverage ratio of the STCL of the year 2057/58 is 0.81 times which is very low in comparison to the remaining year. The interest coverage ratio of STCL shows increasing trend from year 2058/59 till 2061/62 but after wards the trend is declining. The ratio of year 2060/61, 2061/62, 2062/63 is higher than its average ratio 1:37 times but the ratio of following year 2063/64 is below the average ratio.

In the words of J. F. Weston, and T.E. Copeland, the interest coverage ratio of about 8 times can be assumed as a good and standard.

Considering the Table 4.4, the average ratio of STCL is only 1.37 times which indicates the poor debt serving capacity of the corporation. The interest charges of the STCL are high because of high debt to equity ratio. The STCL does not have the ability to offer assured payment of interest to the creditors.

4.2.2 Analysis of Interest Coverage Ratio in terms of Earnings Before Depreciation, Interest and Tax (EBDIT) to Interest

The another way of analyzing the firms' debt serving capacity is interest coverage ratio in terms of EBDIT to interest. It also clearly indicates firm's ability to meet interest obligations. Depreciation is a non cash item. Therefore funds equal to depreciation are also available to pay interest charges.

This ratio indicates the extent to which the earnings may fall without causing any embarrassment to the firm regarding the payment of the interest charges.

A higher ratio is desirable, but too high ratio indicates that the firm is very conservative in using debt and that it is not using credit to the best advantage of shareholders. A lower ratio indicates the excessive use of debt, or inefficient operations. The firm should make efforts to improve the operating efficiency, or to retire debt to have a comfortable coverage ratio.

Table 4.5
Interest Coverage Ratio in terms of EBDIT and Interest (INT) of STCL

Year	EBDIT in '000'	INT in '000'	Ratio	% Change
2057/58	69,144	82,003	0.84 times	-
2058/59	109,354	93,352	1.17 times	39%
2059/60	143,641	105,032	1.37 times	17%
2060/61	180,553	111,425	1.62 times	18%
2061/62	217,475	115,686	1.88 times	16%
2062/63	194,280	119,994	1.62 times	-14%
2063/64	200,107	154,015	1.30 times	-20%
Average Ratio			1.40 times	

Source: Appendix - 3

Table 4.5 shows the interest coverage ratio in terms of EBDIT and interest of STCL during the period of seven years. The EBDIT to interest ratio is 0.84 times in the year 2057/58 which is less in comparison to the remaining years. Afterwards, the ratio tends to follow the increasing trend till the year 2061/62 and increased up to 1.88 times in the year 2061/62. Again the ratio has gone down to 1.62 times in the year 2062/63 which is higher than the average ratio of the STCL i.e. 1.40 times. In the year 2063/64 the ratio has gone down to 1.30 times which is less than the average ratio of the STCL. Therefore the Table 4.5 shows the fluctuating trend.

Observing the Table 4.5, we can conclude that STCL has low ratio which indicates excessive use of debt, in general a higher ratio is desirable. Therefore the STCL should retire debt to have a comfortable coverage ratio.

4.3 Analysis of Profitability Ratios and Financial Leverage

The primary motive of a company in using financial leverage is to magnify the shareholders' return under favorable economic conditions. The role of financial leverage in magnifying the return of the shareholders is based on the assumptions that the fixed charges funds can be obtained at a cost lower than the firm's rate of return on net assets or investment. Thus, when the difference between the earnings generated by assets financed by the fixed charges funds and costs of these funds is distributed to the shareholders, the earnings per share (EPS) or return on equity (ROE) increases. However EPS or ROE will fall if the company obtains the fixed charges funds at a cost higher than the rate of return on the firm's assets. Under this section, various profitability ratios such as net profit and return on shareholder's equity, financial leverage and correlation and regression analysis tools has been used to examine the effect which are stated here below:

4.3.1 Analysis of Net Profit Ratio

A firm must earn reasonable gross profit in order to earn satisfactory net profit. All the indirect expenses, income taxes and interest are deducted from the gross profit to get the net profit. Net profit ratio refers to a measure of operating efficiency of management. This ratio establishes a relationship between net profit and sales. The ratio is overall measure of the firm's ability to turn each rupee of sales into net profit. If the net profit margin is inadequate, the firm will fail to achieve satisfactory return to owner's equity. Higher the ratio refers higher the operating efficiency of the company where as lower ratio is considered unfavorable.

Table : 4.6
Net Profit (NP) to Net Sales (NS) Ratio of STCL

Year	NP in '000'	NS in '000'	Ratio	% Change
2057/58	-15,232	1,580,455	-1%	
2058/59	10,545	1,743,145	1%	200%
2059/60	26,657	1,875,868	1%	0%
2060/61	50,250	2,461,000	2%	104%
2061/62	73,024	3,898,942	2%	0%
2062/63	49,807	2,193,935	2%	0%
2063/64	29,052	1,850,551	2%	0%
Average Ratio			1%	

Source: Appendix - 3

Table 4.6 shows the net profit margin ratio of the STCL and the change in percentage during periods of seven years. The net profit ratio of STCL in the year 2057/58 has negative range but the ratio has increased afterwards in year 2058/59 by 1% which remained same in the year 2059/60. The higher net profit margin of STCL is 2% which remained constant thereafter for the following years, which is greater

than the average ratio of 1%. It could be concluded that the net profit margin ratio of the STCL is in increasing trend which has remained constant for 4 years. In an average STCL is able to turn 1% of sales into net profit, which is not adequate. It might affect the operating efficiency of the corporation.

4.3.2 Analysis of Return on Shareholders' Equity (ROSHE)

ROSHE is the most common measure of profitability of any firm as viewed with the eyes of shareholders. This shows the relationship of the earnings of the firm after allocating for interest and taxes with the equity funds invested by its shareholders. This ratio measures the return earned by the shareholders on the invested capital and also analyses whether the company is able to provide higher return on investment to the owners or not. Higher ROSHE represents the higher profitability of the firm and the lower ROSHE the lower profitability. The more the percentage ROSHE the firm can obtain the better the equity holders' view about the firm.

Table: 4.7
Net Profit (NP) to Share Holders' Equity Ratio (SHE) of STCL

Year	NP in '000'	SHE in '000'	Ratio	% Change
2057/58	-15,232	88,521	-17%	-
2058/59	10,545	92,768	11%	165%
2059/60	26,657	498,620	5%	-55%
2060/61	50,250	542,497	9%	85%
2061/62	73,024	608,982	12%	30%
2062/63	49,807	1,570,778	3%	-75%
2063/64	29,052	1,548,941	2%	-33%
Average Ratio			4%	

Source : Appendix - 3

Table 4.7 shows the return on share holders' equity of STCL and change in percentage during the period of seven years. The ratio is calculated on the basis of net profit after tax to share holders' equity for the respective years. The Table 4.7 shows the fluctuating trend of the return on share holders' equity ratio of the corporation. The year 2057/58 has negative ROSHE i.e. -17% after wards the ROSHE has increased to 11% in the year 2058/59. The ROSHE has again gone down to 5 % in the following year 2059/60. Again the ratio increased to 9% in the year 2060/61. The higher ROSHE of STCL is observed 12% in the year 2061/62. The ROSHE of the year 2062/63 and 2063/64 is observed less than 4%, the average ROSHE of the STCL.

From the analysis we could concluded that the overall ROSHE of the STCL of 4% on return from one year investment is not so encouraging. The fluctuating trend of the ROSHE of the corporation is not a good signal for the company. The corporation might face difficult time in future if the declining trend continues.

4.3.3 Analysis of Financial Leverage

Financial leverage is the use of debt to magnify the rate of return on shareholders' equity. It describes the ratio between an investor's market exposures to borrowed fund. It refers to the use of fixed charges source of funds such as debt and preference capital along with the owners' equity in the capital structure. Financial leverage exists when the firm uses debt or funds from other sources carrying fixed charges like interest, in its capital structure.

The degree of financial leverage analyzes the burden of interest expenses and financial risk of the company and explains the relationship between earning before interest and taxes and the net profit of the company. The higher the degree of financial leverage, the higher will be the financial risk as well as the fixed charges of the company and lower the degree of financial leverage lower will be the financial burden of the company.

Table: 4.8
Degree of Financial Leverage of STCL

Year	EBIT in '000'	EBT in '000'	Ratio	% Change
2057/58	66,770	-15,232	-4.38	-
2058/59	107,244	13,891	7.72	276%
2059/60	141,561	36,528	3.88	-50%
2060/61	178,016	66,590	2.67	-31%
2061/62	213,846	98,160	2.18	-18%
2062/63	190,406	70,412	2.70	24%
2063/64	195,374	41,359	4.72	75%
Average Ratio			2.78	

Source: Appendix – 3

Table 4.8 shows the degree of the financial leverage of the STCL during the periods of seven years. The DFL of STCL seems fluctuating, creating negative range in the year 2057/58 then after increasing to 7.72 times in the following year. Again in the year 2059/60 the DFL decreases to 3.88 times and keep declining till year 2062/63 to 2.70 times. The DFL goes up in year 2063/64 to 4.72 times which is greater than the average DFL ratio of 2.78 times. Thus the analysis shows that the corporation used more debt in its capital structure. It could be concluded that the financial risk is higher to the shareholders but could expect more return at the other end.

4.4 Descriptive Statistics Analysis

Since the descriptive statistics are powerful tools to have ideas of distributions of the variables, some of the most frequently used statistics like minimum values, maximum values, mean, standard deviation, for the ratios chosen in this study have been analyzed and presented in the Table No 4.9.

Table: 4.9
Descriptive Statistics of Various Ratios of the STCL

Ratios	TD to TA	Debt to Equity	LTD to CE	EBIT to INT	EBDIT to INT	NPM	ROSHE
Mean	0.74	3.58	0.60	1.37	1.40	0.01	0.04
SD	0.15	3.93	0.31	0.34	0.34	0.01	0.10
CV	0.20	1.10	0.51	0.25	0.24	0.89	2.72
Min	0.56	0.20	0.16	0.81	0.84	-0.01	-0.17
Max	0.93	9.43	0.90	1.85	1.88	0.02	0.12

Whereas,

SD stands for Standard Deviation,

CV stands for Coefficient of Variation,

LTD stands for Long Term Debt,

CE stands for Capital Employed,

Min stands for Minimum Value,

ROSHE stands for Return on Share Holders' Equity.

TD stands for Total Debt,

TA stands for Total Asset,

INT stands for Interest,

NPM stands for Net Profit Margin,

Max stands for Maximum Value,

Table 4.9 presents descriptive statistics for the various ratios of the STCL used in the study. The table provides average value that is mean of the various listed ratios along with the minimum and maximum values of the ratios. In addition, the table also contains the values of the standard deviation and the coefficient of variation of the ratios.

Considering the capital structure ratios of the STCL that is debt ratio(total debt to total asset ratio), debt to equity ratio and long term debt to capital employed ratio,

the average value of the debt to equity ratio (i.e. 3.58) is higher than the rest. It implies that the average use of long debt of the firm is higher as its debt to equity has higher value which also means the STCL is using more long term debt than it should use. The average debt of the STCL is 74%; the average use of long term debt of the STCL is 358% to finance the total assets of the STCL; the ratio of the long term debt in total capital employed by the STCL is 60%. The coefficient of the variation of the debt to equity ratio is higher than the rest of the two ratios, which is 1.10 times. The ratio of total debt to total asset is the lowest that is 0.20. It shows that the ratio of debt to equity is more volatile in compare of the two ratios. This can be observed with the value of the standard deviation of the ratios of the STCL. The standard deviation of the total debt to equity ratio and the long term debt to capital employed ratio is 0.15 & 0.31 where as of the debt to equity ratio is higher than the rest, i.e. 3.93, which also implies inconsistency of the ratio. The variation of the values of the debt to equity is much higher than that of debt ratio and long term debt to capital employed ratio. The minimum value of debt to equity ratio is 0.20 and the maximum value is 9.43.

Examining the interest coverage ratios of the STCL, the average EBIT is 1.37 which is less than that of EBDIT i.e. 1.40 times. It shows the average debt serving capacity of the STCL concerning EBIT is 1.37 times and EBDIT is 1.40 times. The standard deviation of both ratios are same i.e. 34%. The coefficient variation of the EBIT i.e. (0.25) is little bit higher than that of EBDIT i.e.(0.24). The ratio of EBDIT is little more consistent than that of EBIT. The minimum value of the EBIT is 0.81 and maximum is 1.85, where as the minimum value of EBDIT is 0.84 and maximum is 1.88.

Considering the profitability ratios of the STCL, the average return on share holders' equity is higher than the average profit margin ratio. The average net profit margin of the STCL is 1% and the average return to share holders of the STCL is 4%. The coefficient variation of the net profit margin (0.89) is less than that of return on share holders' equity (2.72), it shows the ratio of the net profit margin is consistent than that of return on share holders' equity. The variation among the minimum and

maximum values of the return on share holders' equity is higher than that of net profit margin of the STCL. The minimum value of the net profit margin is -0.01 and maximum of 0.02. This shows that the STCL has bore loss in some period of the time and the maximum net profit margin it has maintained is of 2%. The minimum and maximum value of the return on share holders equity of STCL are -0.17 and 0.12, which means the STCL has failed to provide return to the shareholders in some point of the operating periods and it has provided higher return to share holders is of 12%.

4.5. Analysis of Effect of Financial Leverage on Return to the Shareholders

4.5.1 Correlation Analysis

Correlation is defined as the relationship among the one dependent variable and (one or more than one) independent variables. Correlation Co-efficient denoted by (r) indicates the direction of relationship between two variables. Correlation analysis is defined as the statistical technique that measures the degree of relation associated between the variables but does not explain about the cause and the effect. The Correlation Coefficient is sometimes referred to as the Pearson Product Moment Correlation Coefficient in honor of its developer Karl Pearson.

Correlation is of three types: simple, partial and multiple. But our concern is only the simple correlation. A method of measuring correlation is called 'Pearson's Coefficient of Correlation'. In this analysis, the correlation co-efficient between return on equity and various leverages are calculated and analyzed:-

- ▶ Return on Equity and LEV_1 (Ratio of Short Term Debt to Total Asset)
- ▶ Return on Equity and LEV_2 (Ratio of Long Term Debt to Total Asset)
- ▶ Return on Equity and LEV_3 (Ratio of Total Debt to Total Asset)

4.5.1.1 Correlation Coefficient between Return on Equity and Various Leverages (LEV_1 , LEV_2 , and LEV_3):

Return on Equity is measured as the net income to equity or the return earned by the shareholders on the invested capital. Where as LEV_1 stands for the ratio of short term debt to total asset shows the proportion of the company's assets which are financed through short term debt, LEV_2 stands for the ratio of long term debt to total asset which indicates the portion of long term debt in the asset possessed by the firm and LEV_3 stands for the ratio of total debt to total asset which shows apportion of debt in the purchase of assets.

The relationship between return on equity and various leverages has been analyzed by the Karl Pearson's correlation coefficient formula. In order to find out the relationship between these two variables the correlation coefficient has been calculated of the STCL. The calculated correlation coefficients and their respective probable error have been shown in the following table. The coefficient correlation between the ROE and various leverage of the STCL has been calculated using the Data Analysis tools under the Tools of the Microsoft Excel 2003.

Table: 4.10
Correlation Coefficient between Return on Equity and the Various Leverage
and their respective Probable Error

Variables	Correlation Coefficient	Probable Error
ROE and LEV_1	-0.24	0.18
ROE and LEV_2	-0.01	0.19
ROE and LEV_3	-0.25	0.18

Source: Appendix - 5

Table 4.10 shows the Karl Pearson's Correlation Coefficient between the return on equity and the various leverages (LEV_1 , LEV_2 and LEV_3). The correlation between

return on equity and LEV_1 (short term debt to total asset ratio) is -0.24, which means there is negative relation between return on equity and the ratio of short term debt to total asset. This means if the value of LEV_1 increased by certain % then the value of ROE will be decreased by same level of %. The probable error is 0.18, which is greater than the correlation coefficient which shows that the relationship is insignificant.

The correlation between return on equity and LEV_2 (ratio of the long term debt to total asset) is -0.01, which also shows that there is negative correlation between these variables. The probable error is 0.19, which is again greater than the correlation coefficient that means there is insignificant relation ship between ROE and the long term debt to total asset ratio.

The correlation between return on equity and LEV_3 (the ratio of total debt to total asset) is -0.25 which means there exists negative relation between the return on equity and the ratio of total debt to total asset. The probable error is 0.18, which shows the insignificant relation ship between the two variables ROE and the total debt to total asset ratio.

Hence we can conclude that the relationship between the return on equity and the various leverage ratio of the STCL is not significant.

4.5.2 Regression Analysis

Regression analysis is the technique of studying how the variations in one series are related to variations in another series. It shows how the variables are related and determines the nature and the strength of relationship between two variables. Thus regression is the estimation of unknown values or prediction of one variable from known values of other variables.

The regression analysis is of two types: simple and multiple. The regression analysis confined to the study of only two variables at a time is called Simple Regression. The known value which is used for prediction is called independent variable and the unknown value which is to be estimated by known value is called dependent. Multiple regression analysis is a logical extension of the simple linear regression analysis. In this study our concern is about simple regression analysis.

The regression analysis of the following terms has been presented below:

- ▶ Short Term Debt to Total Asset Ratio (LEV_1) on Return on Equity (ROE)
- ▶ Long Term Debt to Total Asset Ratio (LEV_2) on ROE
- ▶ Total Debt to Total Asset Ratio (LEV_3) on ROE

4.5.2.1 Effect of Leverage (LEV_1 , LEV_2 , LEV_3) on Return on Equity:

One of the objectives of using leverage by the firms is to magnify the ultimate return to the common shareholders i.e. return on equity. In addition, the decision to use leverage in the financial structure of the firms means that those who own the common shares of the firms are exposed to financial risk.

To assess the sensitivity of various leverages (LEV_1 , LEV_2 , and LEV_3) on the Return on Equity of STCL, regression analysis has been used. Regression analysis is used primarily to examine the relationship between leverages (LEV_1 , LEV_2 , and LEV_3) to return on equity of STCL. Thus for the analysis, Return on Equity is treated as a dependent or response variable and the ratio of leverages (LEV_1 , LEV_2 , LEV_3) are treated as explanatory or independent variables. Theoretically, there should exist positive relationship between leverage and the Return on Equity. Because higher the leverage, higher should be the return to the shareholders.

To develop statistical model, the theoretical statement is that ‘the Return on Equity may be regarded as subject to various Leverages (LEV_1 , LEV_2 , and LEV_3) ratios’.

Thus the theoretical statement may be framed as:

$$\text{ROE} = f(\text{LEV})$$

Where, LEV stands for various leverages.

To examine the relationship among the variables and to analyze the performances relatively for the STCL, the least square method has been adopted. Accordingly, the simple linear regression model is used to estimate the linear regression equation:

$$Y_t = \alpha_0 + \alpha_1 X_t + \mu_t$$

or, $\text{ROE}_t = \alpha_0 + \alpha_1 (\text{LEV}_t) + \mu_t$

Where,

$Y_t = \text{ROE} = \text{Return on Equity}$, the response variable

$X_t = \text{LEV} = \text{Various Leverages (LEV}_1, \text{LEV}_2, \text{LEV}_3)$, the explanatory variable

$\alpha_0 = \text{Regression coefficient, the sample Y intercept}$

$\alpha_1 = \text{Regression coefficient, the sample slope}$

$\mu_t = \text{The Error term}$

Table: 4.11
Return on Equity (ROE) and Various Leverages of STCL

Year	ROE	Leverages		
		LEV ₁	LEV ₂	LEV ₃
2057/58	-17%	26%	67%	93%
2058/59	11%	22%	71%	93%
2059/60	5%	18%	53%	71%
2060/61	9%	17%	59%	76%
2061/62	12%	19%	53%	72%
2062/63	3%	46%	10%	56%
2063/64	2%	50%	8%	58%

Source : Appendix – 4

Table 4.11 presents relative data of response variable and explanatory variables of the STCL. The table expresses the fluctuating trend of ROE during the study period of 7 years. The LEV₁ (short term debt to total asset ratio) is fluctuating but extremely increasing in the recent years. The LEV₂ (long term debt to total asset ratio) is also fluctuating during the study periods but the STCL is cutting off its debt significantly in the recent years. The LEV₃ (total debt to total asset Ratio) is fluctuating during the study period of 7 years.

Table 4.12 shows the coefficients of the regression equations measuring the sensitivity of various leverages on return on equity in Salt Trading Corporation Limited. The data are from income statement and balance sheet of STCL for the periods of 7 years from the fiscal year 2057/58 to 2063/64. In the table ROE stands for return on equity which is measured as net income to equity, LEV₁ stands for the leverage measured as the ratio of short term sources of financing to total asset, LEV₂ stand for the leverage measured at the ratio of the long term debt to total asset and LEV₃ stands for the leverage measured as the ratio of total debt to total asset. The regression has been calculated with the Data Analysis Tool Pack under the Tools of the Microsoft Excel 2003.

Table: 4.12

Estimation of Sensitivity of Various Leverages on Return on Equity

The estimation is based on the following regression model

$$ROE_t = \alpha_0 + \alpha_1 (LEV_t) + \mu_t$$

Variable's Sensitivity	Intercept (α_0)	Slope (α_1)	r²	t-Stat	P -value
LEV₁ on ROE	0.08	-0.17	0.06	-0.56	0.60
LEV₂ on ROE	0.04	-0.01	0.0003	-0.04	0.97
LEV₃ on ROE	0.16	-0.17	0.07	-0.59	0.58

Source: Appendix - 6

As theory indicates, the more leverage a firm uses the greater will be its risk and expected return. So the return on equity of the firms are expected to increase with the level of leverage the firms imply.

Results:

Table 4.12 presents the results of the regression equation of return on equity on all the three leverage ratios, where various leverages are taken as independent variables and the same are regressed on dependent variable return on equity. The table reveals the effect of leverage on return on equity in the STCL. The intercept of the LEV_1 on ROE is observed as 0.08. It simply indicates the average figure of ROE when LEV_1 equals zero. Similarly the intercept of LEV_2 on ROE and LEV_3 on ROE is observed 0.04 and 0.16 respectively.

The slope β_1 of the leverages (LEV_1 , LEV_2 & LEV_3), is observed as -0.17, -0.01 and -0.17 respectively. Based on observed values of the slope of various leverages it can be said that there is negative relationship between return on equity to the leverages. The slope of LEV_1 (short term debt to total asset ratio) is observed - 0.17, which indicates that the increase of 1% in the LEV_1 will lead the decrease in ROE by 0.17%. In the same way the increase in 1% of the LEV_2 will lead the decrease in ROE by 0.01% and the increase in 1% of the LEV_3 will lead the decrease in ROE by 0.17%.

The R-bar square of LEV_1 on ROE is 0.06, indicating that 6% of the variation in the return on equity can be explained by variation in the LEV_1 . Similarly the R-bar square of LEV_2 on ROE and LEV_3 on ROE is 0.0003 and 0.07 respectively. Hence it could be concluded that the R-bar squares of all the three regression equations are very low which indicates the variations in returns on equity are not significantly explained by the changes in leverages.

To determine the existence of a significant linear relationship and strength of the relationship between the Leverages (LEV_1 , LEV_2 , LEV_3) and Return on Equity. The

correlation coefficients can be used to determine whether there is any evidence of statistically significant association between the variables.

As result presented in the Table 4.12, using the 0.05 level of significance with 5 degree of freedom, the critical value of t is 2.570, $t_5 = 2.570 > t_{LEV_1} = 0.56$, which means the null hypothesis is accepted. Hence it is concluded that there is no evidence of an association between the return on equity and LEV_1 . Since the t value of the LEV_2 on ROE and LEV_3 on ROE are 0.04 and -0.59 respectively, which is also less than t_5 critical value 2.570. Hence, these results also shows that there is no significant relationship between the long term debt to total asset ratio as well as total debt to total asset ratio and the return on equity of the STCL. The result is also supported by the P Value test.

Since P - value of LEV_1 , LEV_2 , LEV_3 on ROE i.e. 0.60, 0.97, 0.58 $> = 0.05$, hence H_0 is accepted that means there is no significant relation ship among the LEV_1 on LEV_2 and LEV_3 on ROE respectively.

4.6 Major Findings of the Study:

The study presents the result of the capital structure management and analysis of the Salt Trading Corporation Limited with special emphasis on the determinants of the capital structure. The study is based on data from the periodic publication of the Salt Trading corporation for 7 years from 2058/59 – 2063/64 B.S and data collected through the official website of the STCL. The study mainly deals with capital structure position of the STCL, debt serving capacity of the STCL, effect of leverage on returns to shareholders. The major findings of the study may be summarized as follows:

The result shows that the STCL is highly leveraged company. In an average the STCL bears high debt ratio, which means higher claim of outsiders to the asset of

STCL more than that of owners. The STCL has failed to maintain satisfactory level of debt to equity ratio. There is lacking of proper balance between debt and equity. But in recent years the company has cut off the use of long term debt and excessively used share holders' equity. The fluctuation and variation in the level of debt/long term debt used during the sampled period of 7 years is too high. The use of long term debt in the total capital employed by the STCL is in drastically decreasing trend, which is also bad signal for the equity holders as it reduces the net earnings for them.

The net profit margin of the STCL is inadequate and very low i.e. only 1% of the sales which shows the operating inefficiency of the corporation. The STCL has fluctuating trend of the return to shareholders which is not a good signal, the average return to share holders' is only 4%. The analysis shows the STCL uses more debt in capital structure and its financial risk to the shareholders is higher.

Regarding the examination of debt serving capacity of the STCL, it is found that in an average the STCL has poor debt serving capacity of 1.37 times. The interest charges of the STCL are high which indicates excessive use of debt by the firm. The firm is not been able to offer assured payment of the interest to the creditors.

Regarding the effect of leverage on the return on equity, it is found that there is negative relation between leverage and return on equity of the STCL. The variations in return on equity are not significantly explained by the changes in leverages. The results of the STCL are not statistically significant at 5 percent level of significance.

CHAPTER 5

SUMMARY AND CONCLUSION

5.1 Summary:

This study attempts to analyze and explain the capital structure management of the Salt Trading Corporation Limited. The study tries to address the issues related to capital structure of the STCL mainly relating to level of debt used by the firm, significant return in context to its level of risk set and the capital structure position of the STCL. The study has set out specific objectives as:

- ▶ To observe the capital structure position of the STCL.
- ▶ To evaluate the capacity of the debt service of the STCL.
- ▶ To analyze the effect of leverage on return to the equity holders.

For the fulfillment of the stated objectives, the study has used various financial related - capital structure and statistical tools. The entire study has been divided into five major divisions. The chapter one briefs on the background of the study and highlights the objectives of the study. The chapter also briefs on the profile of the STCL along with the scope, significance and the limitations of the study. The second chapter deals with the conceptual and theoretical review of the study. In the third chapter the methodologies undertaken to conduct the study has been elaborated. The fourth part deals with the analysis of the data undertaken for the study and graphs/figures are used to support the clear presentation of data. The last chapter summarizes and concludes the study.

The major findings of the study are summarized here below:

1. For the purpose of this study, the data has been collected for 7 years from 2057/58 B.S. till 2063/64 B.S. with the help of the annual financial reports published by the Salt Trading Corporation Limited and from the official website of the STCL.
2. Analyzing the debt ratio (in terms of total debt and total asset) of the Salt Trading Corporation Limited, it is found out that the average debt to ratio is 74%, which indicates higher claim of creditors than that of owners (26%). The debt ratio was very higher during the year 2057 and 2058 the ratio then was 93%; the STCL has been cutting off its debt in recent years. The debt ratio in the year 2064 is 58%.

Theoretically, the debt ratio is assumed to be standard at 33%, since the debt ratio of the STCL is higher than the standard ratio. It is concluded that in an average the STCL is highly dependant upon the creditor's fund. The higher ratio could create a danger situation in the interest of the company as a result its interest expenses could be high.

3. Examining the debt to equity ratio, in terms of long term debt and shareholders' equity, it is found that the average debt to equity ratio is 358%. The STCL has higher debt to equity ratio in year 2058 with 943%. But the firm is drastically decreasing its debt to equity ratio in the recent years; the firm debt to equity ratio in 2064 is only 20%.

The theoretical standard value of the debt to equity ratio of any firm should be 1:1 or 100%. Considering the results of the ratios of the STCL, it could be concluded that the STCL failed to maintain satisfactory level of debt to equity ratio; it lacks proper balance between its long term debt and equity. The

STCL is significantly cutting off its long term debt in recent years. The analysis shows the excessive use of the owners' equity in recent years. The less use of debt is also not a good signal as it reduces the return to the equity holders.

4. The analysis of Long Term Debt to Total Capital Employed Ratio of the STCL shows that the average long term debt to capital ratio of STCL is 60%, which means in an average the contribution of the long term debt in the total capital employed by the firm is about 60%. The long term debt to capital employed ratio of STCL was higher in the year 2057 and 2058 B.S. with 90%. Then the ratio follows the downward trend leading the ratio to 16% in recent year.

Reviewing the results, it could be concluded that the STCL does not maintain the appropriate ratio of long term debt to capital employed. The use of long term debt is very higher in two years (2057/58 & 2058/59) and higher than the average in 3 years (2059/60, 2060/61, 2061/62) which should be decreased to appropriate level and where as the ratios of the remaining years is too low which is again bad signal for the equity holders as it reduces the net earnings.

5. Analyzing the interest coverage ratio of STCL in terms of Earning Before Interest and Taxes (EBIT) to interest, it is found out that the average interest coverage ratio of STCL is 1.37 times. The STCL has lowest interest coverage ratio in year 2057 B.S. among the study periods which is 0.81 times. Then the ratio follows the increasing trend generating the highest ratio of 1.85 times in the year 2061, then again the ratio declines creating its value to 1.27 times in recent year 2063 B.S. It shows the interest coverage ratio is in fluctuating trend.

In theoretical terms, the coverage ratio of about 8 times is considered as a good and standard ratio. Comparing the STCL ratio with the standard ratio it could be concluded that the STCL has poor debt serving capacity. STCL does not have the ability to offer assured payment of interest to creditors. The reason behind the lower interest coverage ratio could be because of high debt to equity ratio.

6. The analysis of the interest coverage ratio of STCL in terms of Earning before depreciation, interest and tax (EBDIT) to Interest shows that the STCL has average interest coverage ratio of 1.40 times. During the study periods, the STCL lowest coverage ratio of 0.84 times in the year 2057 B.S. and highest ratio in the year 2061 with 1.88 times. The interest coverage ratio is fluctuating and the recent year's ratios are in decreasing trend. The ratio of STCL in recent year 2063 is 1.30 times.

Comparing to the standard ratio, it could be concluded the STCL is unable to meet its interest obligations. With this ratio, the STCL may face embarrassment concerning the payment of the interest charges. This lower ratio indicates operating inefficiency of STCL. It also indicates the excessive use of debt therefore STCL should retire debt to have a comfortable coverage ratio.

7. The analysis of net profit ratio of STCL in terms of net profit to net sales indicates that the STCL has average net profit ratio of 1%, which means in an average the STCL is able to turn only 1% of its sales into net profit. Considering the study periods, the STCL even bore loss by 1% in the year 2057 B.S. Then the profit margin of STCL increased till 2% in the year 2060 B.S. and afterwards the ratio remained constant thereafter for the following years.

In theoretical and practical terms, the higher net profit is desirable. The higher the net profit margin higher will be the firms operating efficiency and return to the owners. Reviewing the results, it could be concluded that the STCL has very low net profit ratio. The net profit ratio is not adequate enough to achieve the satisfactory return to the owners. Thus lower ratios affect the operating efficiency of the corporation badly.

8. Reviewing the analysis of Return on Shareholders' Equity in terms of net profit and share holders' equity it is found that the STCL has the average rate of return to the shareholders is about 4% from one years investment. The analysis also shows that the STCL has negative ratio in the year 2057 B.S. which means the STCL failed to provide any return to the shareholder during that year. After wards the return rate was inclined till 11% which then fluctuated and gone down till 5% in the year 2059 B.S and inclined to the maximum rate of 12% in the year 2061 B.S. then the rate was declined and reached upto 2% in the recent year 2063.

In general, the higher ROSHE is desirable by any firm. The higher rate represents the higher profitability of the firm and vice versa. The more the percentage ROSHE the firm can obtain, the better the equity holders' view about the firm.

Examining the analysis we could conclude that the overall ROSHE of the STCL is not so encouraging. The fluctuating trend of the ROSHE of the corporation is not a good signal for the company. The corporation might face difficult time in future if the declining trend continues.

9. Analyzing the degree of financial leverage (DFL) in terms of EBIT to EBT of STCL, it is found out that the average ratio of degree of financial leverage of STCL is 2.78 times. The STCL has negative DFL in the year 2057 B.S. of -

4.38. The DFL is in fluctuating trend. Among the study periods, the STCL has high DFL of 7.72 times in the year 2058 B.S.

Principally, the higher the degree of financial leverage, the higher will be the financial risk and vice versa. The analysis shows that the STCL used more debt in its capital structure. It could be concluded that the financial risk is higher to the shareholders but could expect more return at the other end.

10. Regarding the effect of financial leverage on return to the shareholders, it is found out that the correlation between return on equity and short term debt to total asset ratio is negative i.e., -0.24, and its probable error is 0.18, where as the correlation between return on equity and long term debt to total asset is -0.01 and its error value is 0.19. The correlation between return on equity and total debt of the STCL is -0.25 and its probable error is 0.18.

Theoretically, the correlation among the leverages and the return on equity should be positive. Higher the risk or the level of the leverages higher should be the return and vice versa. The owners of the company should be compensated with the considerable amount of return for taking the higher risk.

Reviewing the correlation analysis among the variables (return on equity and various leverages) of the STCL it could be concluded that against the principles, there is no significant relationship between the return on equity and the various leverages of the STCL. The values of the probable errors also support the results.

It means the level of return to equity is not determined by the level of leverages and risk taken by the owners or the firm. The firm and the equity holders will not get higher rate of return for using excessive debt from outside or taking higher risk.

11. The analysis of the sensitivity of various leverages (LEV1, LEV2, and LEV3) on the return on equity of STCL using the simple regression tool shows there is no significant positive relationship between return on equity to the various leverages of the STCL. The intercept of the LEV1, LEV2 and LEV3 on ROE are observed 0.08, 0.04 and 0.16 respectively. The slope of various leverages on ROE are observed -0.17, -0.01 and -0.17 respectively. The slope of all the leverages is negative which indicates the negative relationship between return on equity and the various leverages. The increase in the leverages will not create any increase to the ROE but will decline instead. The R- bar square of the various leverages on ROE is observed 0.06, 0.0003 and 0.07 respectively, are very low. It doesn't significantly indicate the variation in the ROE by the changes in the various leverages.

Comparing with the 0.05 level of significance with 5 degree of freedom, the critical t value, ($t_5 = 2.570$) with the observed t value of the various leverages on ROE (i.e. $t_{LEV1} = -0.56$, $t_{LEV2} = -0.04$ and $t_{LEV3} = -0.59$), it is found out that there is no evidence of an association between the ROE and various leverages. The P Value test results also supported that there is no significant relationship among the ROE and the various leverages of the STCL. The observed P-value of various leverages (LEV1, LEV2 and LEV3) on ROE is 0.60, 0.97 and 0.58.

5.2 Conclusion:

Observing all the analysis made for the study of the capital structure management of the STCL, it could be concluded that the STCL is a highly levered company, highly dependant upon the creditor's fund and has used more of the debt to purchase its assets as its debt ratio is higher. The STCL has been cutting down its long term debt significantly in the recent years, which means it is utilizing more of the shareholders' fund and short term debt to finance its assets. The STCL should maintain appropriate ratio of debt and equity to ensure maximum profits to the owners and minimize the operating costs.

The results also show that the STCL has poor debt serving capacity. As the STCL bore high debt to equity ratio and the use of debt is excessive. The net profit of the STCL is inadequate which might affect the operating efficiency of the corporation in the long run. The return to the share holders of STCL is not so encouraging. The STCL must boost up its net profit and return to share holders to run the firm smoothly in future and to maintain the high credit rating in the market.

The financial risk of STCL is higher to the shareholders which generally mean more return to the share holders at the other end. But against the theoretical aspect, the results show negative relationship between the return on equity and the various leverages. This shows insignificant association among the return on the equity and the leverages. The STCL should try to create significant relationship among the return on the equity and the various leverages by implementing well planned capital structure considering the theoretical aspect of the capital structure seriously.

5.3 Recommendations:

After deriving the major findings and conclusions on this study, some suggestions for the company has been jotted down. These suggestions would be best in the interest of the company in relation to capital structure management for the future.

The STCL is highly levered company and has failed to manage proper debt to equity ratio, so it is recommended to maintain appropriate debt and equity ratio in order to reduce the operating costs and maximize the earnings to the shareholders. The debt serving capacity of the STCL is very poor i.e only 1.37 times. Therefore the STCL should retire debt to have a comfortable coverage ratio.

Since, the overall net profit of the STCL is inadequate and its return to the share holders is also not so encouraging. It is suggested that the STCL must increase its net earnings in order to ensure smooth operation of the firm and to maintain the high credit rating in the market. The financial risk to the share holders of the STCL is higher, however the STCL should try to minimize the financial risk and maximize the return to the share holders.

The company seems to have ignored the theoretical aspects of the capital structure hence it is recommended to the STCL to use well planned capital structure and manage its capital structure by analyzing the possible alternatives of financial plans, in such a way that will help to minimize the cost and generate more return to the owners in proportion to the appropriate level of the risk. It would be helpful to the company if it would be more conscious into the theoretical aspects of the capital structure management in future.

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APPENDIX : 1

Balance sheets of the Salt Trading Corporation Limited of Seven Study Periods

Balancesheet as at 32nd Ashad 2058 (2057/058 B.S.)

Liabilities	Amount (Rs)	Assets	Amount (Rs)
Shareholders' Fund:		Fixed Assets	42,017,890
Share Capital 24,777,700		Current Assets	1,023,144,784
Reserve & Profit 63,744,135		Investment	123,151,278
	88,521,835	Preliminary Expenses	981,240
Debt Funds:			
Long Term Debt 791,043,909			
Current Liabilities 309,729,448			
	1,100,773,357		
Total Capital and Liabilities	1,189,295,192	Total Assets	1,189,295,192

Balancesheet as at 32nd Ashad 2059 (2058/059)

Liabilities	Amount (Rs)	Assets	Amount (Rs)
Shareholders' Fund:		Fixed Assets	42,782,690
Share Capital 24,777,700		Current Assets	1,068,440,043
Reserve & Profit 67,990,395		Investment	128,836,278
	92,768,095		
Debt Funds:			
Long Term Debt 874,763,893			
Current Liabilities 272,527,023			
	1,147,290,916		
Total Capital and Liabilities	1,240,059,011	Total Assets	1,240,059,011

Balance sheet as at 32nd Ashad 2060 (2059/060 B.S.)

Liabilities	Amount (Rs)	Assets	Amount (Rs)
Shareholders' Fund:		Fixed Assets	445,170,022
Share Capital 24,777,700		Current Assets	1,114,809,737
Reserve & Profit 473,842,404		Investment	139,636,278
	498,620,104		
Debt Funds:			
Long Term Debt 902,800,238			
Current Liabilities 298,195,695			
	1,200,995,933		
Total Capital and Liabilities	1,699,616,037	Total Assets	1,699,616,037

Balance Sheet as at 32nd Ashad 2061 (2060/061 B.S.)

Liabilities	Amount (Rs)	Assets	Amount (Rs)
Shareholders' Fund:		Fixed Assets	462,129,130
Share Capital 24,777,700		Current Assets	1,681,074,449
Reserve & Profit 517,719,525		Investment	139,642,278
	542,497,225		
Debt Funds:			
Long Term Debt 1,359,592,890			
Current Liabilities 380,755,742			
	1,740,348,632		
Total Capital and Liabilities	2,282,845,857	Total Assets	2,282,845,857

Balance Sheet as at 32nd Ashad 2062 (2061/062)

Liabilities	Amount (Rs)	Assets	Amount (Rs)
Shareholders' Fund:		Fixed Assets	465,991,989
Share Capital 24,777,700		Current Assets	1,597,561,896
Reserve & Profit 584,204,906		Investment	151,781,287
	608,982,606		
Debt Funds:			
Long Term Debt 1,184,072,447			
Current Liabilities 422,280,119			
	1,606,352,566		
Total Capital and Liabilities	2,215,335,172	Total Assets	2,215,335,172

Balance sheet as at 32nd Ashad 2063 (2062/063 B.S.)

Liabilities		Amount (Rs)	Assets		Amount (Rs)
Shareholders' Fund:			Fixed Assets	1,393,158,082	
Share Capital	24,777,700		Current Assets	1,752,856,957	
Reserve & Profit	1,546,000,307		Investment	441,759,529	
		1,570,778,007	Preliminary Expenses		
Debt Funds:					
Long Term Debt	362,889,233				
Current Liabilities	1,654,107,328				
		2,016,996,561			
Total Capital and Liabilities		3,587,774,568	Total Assets	3,587,774,568	

Balance sheet as at 32nd Ashad 2064 (2063/064 B.S.)

Liabilities		Amount (Rs)	Assets		Amount (Rs)
Shareholders' Fund:			Fixed Assets	1,379,608,052	
Share Capital	24,777,700		Current Assets	1,884,210,608	
Reserve & Profit	1,524,163,848		Investment	455,721,383	
		1,548,941,548	Preliminary Expenses		
Debt funds:					
Long Term Debt	305,668,706				
Current Liabilities	1,864,929,789				
		2,170,598,495			
Total Capital and Liabilities		3,719,540,043	Total Assets	3,719,540,043	

Source: Annual Report published by the STCL for the year 2057/58 – 2063/64 B.S.

APPENDIX : 2

Income Statements of Salt Trading Corporation Ltd. of Seven Study Periods

Income Statement at 32nd Ashad 2058 (2057/058 B.S.)

Particulars	Amount(NRs.)
Total Revenue	1,584,844,361
Less: Total Expenses	1,518,073,879
Earning Before Interest and Taxes (EBIT)	66,770,482
Less: Interest	82,003,067
Earning Before Taxes (EBT)	-15,232,585
Less: Tax	0
Earning after Taxes (EAT)	-15,232,585
Number of Shares Outstanding	247,777
Earning Per Share (EPS)	-61.48

At 32nd Ashad 2059 (2058/059 B.S.)

Particulars	Amount(NRs.)
Total Revenue	1,747,581,018
Less: Total Expenses	1,640,336,519
Earning Before Interest and Taxes (EBIT)	107,244,499
Less: Interest	93,352,837
Earning Before Taxes (EBT)	13,891,662
Less: Tax	3,346,419
Earning after Taxes (EAT)	10,545,243
Number of Shares Outstanding	247,777
Earning Per Share (EPS)	42.56

Income Statement at 32nd Ashad 2060 (2059/060 B.S.)

Particulars	Amount(NRs.)
Total Revenue	1,883,428,864
Less: Total Expenses	1,741,867,563
Earning Before Interest and Taxes (EBIT)	141,561,301
Less: Interest	105,032,677
Earning Before Taxes (EBT)	36,528,624
Less: Tax	9,870,735
Earning after Taxes (EAT)	26,657,889
Number of Shares Outstanding	247,777
Earning Per Share (EPS)	107.59

Income Statement at 32nd Ashad 2061 (2060/061 B.S.)

Particulars	Amount(NRs.)
Total Revenue	2,465,483,328
Less: Total Expenses	2,287,466,904
Earning Before Interest and Taxes (EBIT)	178,016,424
Less: Interest	111,425,761
Earning Before Taxes (EBT)	66,590,663
Less: Tax	16,340,415
Earning after Taxes (EAT)	50,250,248
Number of Shares Outstanding	247,777
Earning Per Share (EPS)	202.80

Income Statement at 32nd Ashad 2062 (2061/062 B.S.)

Particulars	Amount(NRs.)
Total Revenue	3,907,498,411
Less: Total Expenses	3,693,651,837
Earning Before Interest and Taxes (EBIT)	213,846,574
Less: Interest	115,686,298
Earning Before Taxes (EBT)	98,160,276
Less: Tax	25,135,625
Earning after Taxes (EAT)	73,024,651
Number of Shares Outstanding	247,777
Earning Per Share (EPS)	294.72

Income Statement at 32nd Ashad 2063 (2062/063 B.S.)

Particulars	Amount(NRs.)
Total Revenue	2,221,486,516
Less: Total Expenses	2,031,079,576
Earning Before Interest and Taxes (EBIT)	190,406,940
Less: Interest	119,994,903
Earning Before Taxes (EBT)	70,412,037
Less: Tax	20,604,056
Earning after Taxes (EAT)	49,807,981
Number of Shares Outstanding	247,777
Earning Per Share (EPS)	201.02

Income Statement at 32nd Ashad 2064 (2063/064 B.S.)

Particulars	Amount(NRs.)
Total Revenue	1,885,128,403
Less: Total Expenses	1,689,754,114
Earning Before Interest and Taxes (EBIT)	195,374,289
Less: Interest	154,015,234
Earning Before Taxes (EBT)	41,359,055
Less: Tax	12,306,070
Earning after Taxes (EAT)	29,052,985
Number of Shares Outstanding	247,777
Earning Per Share (EPS)	117.25

Source: Annual Reports published by the STCL for the year 2057/58 till 2063/64 B.S.

APPENDIX : 3

Calculation of the Total Debt (TD) to Total Asset (TA) Ratio of STCL

Year	TD in '000'	TA in '000'	TD/TA Ratio	TD as a % of TD
2057/58	1,100,773	1,189,295	0.93	93%
2058/59	1,147,290	1,240,059	0.93	93%
2059/60	1,200,995	1,699,616	0.71	71%
2060/61	1,740,348	2,282,845	0.76	76%
2061/62	1,606,352	2,215,335	0.72	72%
2062/63	2,016,996	3,587,774	0.56	56%
2063/64	2,170,598	3,719,540	0.58	58%
Average Ratio			0.74	

Calculation of the Long Term Debt (LTD) to Share Holders Equity (SHE) Ratio of STCL

Year	LTD in '000'	SHE in '000'	LTD/SHE Ratio	LTD as a % of SHE
2057/58	791,043	88,521	8.94	894%
2058/59	874,763	92,768	9.43	943%
2059/60	902,800	498,620	1.81	181%
2060/61	1,359,592	542,497	2.51	251%
2061/62	1,184,072	608,982	1.94	194%
2062/63	362,889	1,570,778	0.23	23%
2063/64	305,668	1,548,941	0.20	20%
Average Ratio			3.58	

Calculation of the Long Term Debt (LTD) to Capital Employed (CE) Ratio of STCL

Year	LTD in '000'	CE in '000'	LTD/CE Ratio	LTD as a % of CE
2057/58	791,043	879,565	0.90	90%
2058/59	874,763	967,531	0.90	90%
2059/60	902,800	1,401,420	0.64	64%
2060/61	1,359,592	1,902,090	0.71	71%
2061/62	1,184,072	1,793,055	0.66	66%
2062/63	362,889	1,933,667	0.19	19%
2063/64	305,668	1,854,610	0.16	16%
Average Ratio			0.60	

Calculation of the Interest Coverage Ratio in terms of EBIT to Interest (INT) of the STCL

Year	EBIT in '000'	INT in '000'	EBIT/INT. Ratio	EBIT as a% of Int.
2057/58	66,770	82,003	0.81	81%
2058/59	107,244	93,352	1.15	115%
2059/60	141,561	105,032	1.35	135%
2060/61	178,016	111,425	1.60	160%
2061/62	213,846	115,686	1.85	185%
2062/63	190,406	119,994	1.59	159%
2063/64	195,374	154,015	1.27	127%
Average Ratio			1.37	

Calculation of the Expenses before Debt, Interest and Taxes (EBDIT) of the STCL

Year	Total Income	Total Expenses Before Depreciation	EBDIT
2057/58	1,584,844,361	1,515,700,014	69,144,347
2058/59	1,747,581,018	1,638,226,737	109,354,281
2059/60	1,883,428,864	1,739,787,678	143,641,186
2060/61	2,465,483,328	2,284,930,039	180,553,289
2061/62	3,907,498,411	3,690,023,274	217,475,137
2062/63	2,221,486,516	2,027,206,446	194,280,070
2063/64	1,885,128,403	1,685,020,884	200,107,519

Calculation of the Interest Coverage Ratio in terms of EBDIT to Interest (INT) of the STCL

Year	EBDIT in '000'	INT in '000'	EBDIT/INT Ratio	EBDIT as a % of INT
2057/58	69,144	82,003	0.84	84%
2058/59	109,354	93,352	1.17	117%
2059/60	143,641	105,032	1.37	137%
2060/61	180,553	111,425	1.62	162%
2061/62	217,475	115,686	1.88	188%
2062/63	194,280	119,994	1.62	162%
2063/64	200,107	154,015	1.30	13%
Average Ratio			1.40	

Calculation of the Net Profit (NP) to Net Sales (NS) Ratio of the STCL

Year	NP in '000'	NS in '000'	NP/NS Ratio	NP as a % of NS
2057/58	-15,232	1,580,455	-0.01	- 1%
2058/59	10,545	1,743,145	0.01	1%
2059/60	26,657	1,875,868	0.01	1%
2060/61	50,250	2,461,000	0.02	2%
2061/62	73,024	3,898,942	0.02	2%
2062/63	49,807	2,193,935	0.02	2%
2063/64	29,052	1,850,551	0.02	2%
Average Ratio			0.01	

Calculation of the Net Profit (NP) to Share Holders' Equity (SHE)Ratio

Year	NP in '000'	SHE in '000'	NP / SHE Ratio	NP as a % of SHE
2057/58	-15,232	88,521	-0.17	-17%
2058/59	10,545	92,768	0.11	11%
2059/60	26,657	498,620	0.05	5%
2060/61	50,250	542,497	0.09	9%
2061/62	73,024	608,982	0.12	12%
2062/63	49,807	1,570,778	0.03	3%
2063/64	29,052	1,548,941	0.02	2%
Average Ratio			0.04	

Degree of Financial Leverage of STCL

Year	EBIT in '000'	EBT in '000'	EBIT/EBT Ratio	EBIT as a % of EBT
2057/58	66,770	-15,232	-4.38	-438%
2058/59	107,244	13,891	7.72	772%
2059/60	141,561	36,528	3.88	388%
2060/61	178,016	66,590	2.67	267%
2061/62	213,846	98,160	2.18	218%
2062/63	190,406	70,412	2.70	270%
2063/64	195,374	41,359	4.72	472%
Average Ratio			2.78	

Source: Annual Report Published by STCL for the year 2057/58 till 2063/64

APPENDIX: 4

Calculation of the Short Term Debt (STD) to Total Asset Ratio of the STCL denoted as the (LEV₁)

Year	STD	Total Asset	LEV ₁ (Ratio)	LEV ₁ (%)
2057/58	309,729,448	1,189,295,192	0.26	26%
2058/59	272,527,023	1,240,059,011	0.22	22%
2059/60	298,195,695	1,699,616,037	0.18	18%
2060/61	380,755,742	2,282,845,857	0.17	17%
2061/62	422,280,119	2,215,335,172	0.19	19%
2062/63	1,654,107,328	3,587,774,568	0.46	46%
2063/64	1,864,929,789	3,719,540,043	0.5	50%
Average Ratio			0.28	

Calculation of the Long Term Debt (LTD) to Total Asset Ratio of the STCL denoted as the (LEV₂)

Year	LTD	Total Asset	LEV ₂ (Ratio)	LEV ₂ (%)
2057/58	791,043,909	1,189,295,192	0.67	67%
2058/59	874,763,893	1,240,059,011	0.71	71%
2059/60	902,800,238	1,699,616,037	0.53	53%
2060/61	1,359,592,890	2,282,845,857	0.59	59%
2061/62	1,184,072,447	2,215,335,172	0.53	53%
2062/63	362,889,233	3,587,774,568	0.10	10%
2063/64	305,668,706	3,719,540,043	0.08	8%
Average Ratio			0.46	

Calculation of the Total Debt to Total Asset Ratio of the STCL denoted as the (LEV₃)

Year	Total Debt	Total Asset	LEV ₃ (Ratio)	LEV ₃ (%)
2057/58	1,100,773,357	1,189,295,192	0.93	93%
2058/59	1,147,290,916	1,240,059,011	0.93	93%
2059/60	1,200,995,933	1,699,616,037	0.71	71%
2060/61	1,740,348,632	2,282,845,857	0.76	76%
2061/62	1,606,352,566	2,215,335,172	0.72	72%
2062/63	2,016,996,561	3,587,774,568	0.56	56%
2063/64	2,170,598,495	3,719,540,043	0.58	58%
Average Ratio			0.74	

APPENDIX : 5

Calculation of the Correlation Coefficient (r) and the Probable Error (P.E.) of the Return on Equity with the various Leverages of the STCL

Year	ROE	LEV ₁	LEV ₂	LEV ₃
2057/58	-0.17	0.26	0.67	0.93
2058/59	0.11	0.22	0.71	0.93
2059/60	0.05	0.18	0.53	0.71
2060/61	0.09	0.17	0.59	0.76
2061/62	0.12	0.19	0.53	0.72
2062/63	0.03	0.46	0.10	0.56
2063/64	0.02	0.50	0.08	0.58

Where as, LEV₁ = Short term Debt to Total Asset Ratio
 LEV₂ = Long Term Debt to Total Asset Ratio
 LEV₃ = Total Debt to Total Asset Ratio

The Correlation Coefficient (r) has been calculated with the help of Statistical tools of the Microsoft Excel 2003. The correlation values are derived with the help of Correlation – Analysis Tools under Data Analysis of the Tools of the Microsoft Excel.

Variables	Correlation Coefficient (r)
ROE and LEV ₁	-0.24
ROE and LEV ₂	-0.01
ROE and LEV ₃	-0.25

Calculation of the Probable Error(P.E.) among the ROE and the various leverages of the STCL

Variables	r	(1-r ²)	n		0.6745 x
ROE and LEV ₁	-0.24	0.941	3.5	$\frac{1 - r^2}{\sqrt{269}}$	$0.18 \frac{1 - r^2}{\sqrt{n}}$
ROE and LEV ₂	-0.01	0.999	3.5	0.286	0.19
ROE and LEV ₃	-0.25	0.938	3.5	0.268	0.18

Where,

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

APPENDIX: 6

Calculation of the Regression among the Return on Equity and the various Leverages of the STCL

Year	ROE	LEV ₁	LEV ₂	LEV ₃
2057/58	-17%	26%	67%	93%
2058/59	11%	22%	71%	93%
2059/60	5%	18%	53%	71%
2060/61	9%	17%	59%	76%
2061/62	12%	19%	53%	72%
2062/63	3%	46%	10%	56%
2063/64	2%	50%	8%	58%

The regression has been calculated with the help of computerized statistical tools of the Microsoft Excel 2003. The results have been derived with the help of Regression (Analysis Tools) under the Tools of the Microsoft Excel Sheet.

Summary Output of LEV₁ on ROE:

<i>Regression Statistics</i>	
Multiple R	0.24
R Square	0.06
Adjusted R Square	-0.13
Standard Error	0.10
Observations	7.00

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.003	0.003	0.31	0.60
Residual	5	0.05	0.01		
Total	6	0.06			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.08	0.10	0.88	0.42	-0.16	0.33
LEV1	-0.17	0.31	-0.56	0.60	-0.97	0.62

Summary Output of LEV₂ on ROE:

<i>Regression Statistics</i>	
Multiple R	0.02
R Square	0.0003
Adjusted R Square	-0.20
Standard Error	0.11
Observations	7

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.00002	0.00002	0.0015	0.97
Residual	5	0.06	0.01		
Total	6	0.06			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.04	0.09	0.44	0.68	-0.19	0.26
LEV2	-0.01	0.17	-0.04	0.97	-0.44	0.43

Summary Output of LEV₃ on ROE:

<i>Regression Statistics</i>	
Multiple R	0.26
R Square	0.07
Adjusted R Square	-0.12
Standard Error	0.10
Observations	7.00

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	0.004	0.004	0.35	0.58
Residual	5	0.05	0.01		
Total	6	0.06			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.16	0.22	0.75	0.49	-0.40	0.72
LEV3	-0.17	0.29	-0.59	0.58	-0.91	0.57

Results:

Variable's Sensitivity	Intercept (β_0)	Slope (β_1)	r²	t-Stat	P –value
ROE to LEV1	0.08	-0.17	0.06	-0.56	0.60
ROE to LEV2	0.04	-0.01	0.0003	-0.04	0.97
ROE to LEV3	0.16	-0.17	0.07	-0.59	0.58

