

**COST VOLUME PROFIT ANALYSIS AS A TOOL OF PROFIT
PLANNING AND CONTROL
(A Case Study of Salt Trading Corporation Limited)**

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RECOMMENDATION

This is to certify that the Thesis

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Entitled:

**COST VOLUME PROFIT ANALYSIS AS A TOOL OF PROFIT
PLANNING AND CONTROL
(A Case Study of Salt Trading Corporation Limited)**

*has been prepared as approved by this Department in the prescribed format of
the Faculty of Management. This thesis is forwarded for examination.*

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VIVA-VOCE SHEET

We have conducted the viva-voce of the thesis presented
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Entitled:

**COST VOLUME PROFIT ANALYSIS AS A TOOL OF PROFIT
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And found the thesis to be the original work of the student and written
according to the prescribed format. We recommend the thesis to be accepted as
partial fulfillment of the requirement for the
Degree of Master's in Business studies (M.B.S.)

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DECLARATION

I, hereby, declare that the work reported in this thesis entitled “**Cost Volume Profit Analysis as a Tool of Profit Planning and Control: A Case Study of Salt Trading Corporation Limited**” submitted to office of the Dean, Faculty of Management, Tribhuvan University, is my original work done for the partial fulfillment of the requirement for the Masters of Business Studies (MBS) under the supervision of Mr. Joginder Goet, Lecturer, Shanker Dev Campus.

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Date:- December, 2011

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ABBREVIATIONS

AD	:	Anno Domini
BEP	:	Break Even Point
CM	:	Contribution Margin
CMPU	:	Contribution Margin Per Unit
CMR	:	Contribution Margin Ratio
CV	:	Coefficient of Variation
CVP	:	Cost-Volume-Profit
DDC	:	Dairy Development Corporation
DOL	:	Degree of Operating Leverage
FC	:	Fixed Cost
FY	:	Fiscal Year
GDP	:	Gross Domestic Product
GP	:	Gross Profit
HPPCL	:	Herbs Production and Processing Company Limited
i.e.	:	That is
Ltd.	:	Limited
MOS	:	Margin of Safety
NP	:	Net Profit
NRB	:	Nepal Rastra Bank
NTL	:	National Trading Limited
P/L Account	:	Profit/Loss Account
P/V Ratio	:	Profit Volume Ratio
PE	:	Public Enterprises
PPC	:	Profit Planning and Control
r	:	Correlation Coefficient
S.N.	:	Serial Number
SPPU	:	Selling Price Per Unit
STCL	:	Salt Trading Corporation Limited
TFC	:	Total Fix Cost
TP	:	Total Profit
V/V	:	Variable Cost to Volume
VCPU	:	Variable Cost Per Unit

CHAPTER– I

INTRODUCTION

1.1 Background of the Study

Every business organization has limited resources the main problem lies in better utilization of available resources so that competitive advantages can be achieved. Among the various tools and techniques, management accounting tools have proved beneficial in every aspect of management activities from planning to decision making. Cost-Volume-Profit analysis is a most important management accounting tool of profit planning and decision making means of predicting the effects of changes in cost and sales level on the income of business. In this simplest form, it involves the determination of sales level at which a company neither earns profit nor incurs a loss, or in the other words the point at which it breaks even. Break-even point is only a special case of CVP analysis. However, CVP analysis included to find out sales volume to earn zero profit or desire profit, to affect income by changes in selling price, to check income if new machine will be installed, to examine operating profit if fixed cost as well as unit variable cost will be changes etc.

Cost-volume-profit (CVP) analysis examines the revenues, total costs and operating income as changes occur in the output level. The selling price, the variable cost per unit and/or fixed costs of a product (Horngreen et al., 1998: 135).

CVP analysis simplifies the real world conditions that a firm will face. Like most models, which are abstractions from reality. CVP analysis is subject to a number of underlying assumptions and limitations. Nevertheless, it is a powerful tool for decision-making in certain situations (Drury, 2000: 136).

CVP analysis is an analytical tool for studying the relationship between volume, cost and profit. There are three factors of CVP analysis which are

interconnected and dependent on one another CVP analysis examines the behavior of total revenues, total cost and operating income as changes occurs in the output level, the selling price, the variable cost per unit and fixed cost of a product. CVP also helps to make or buy decision on sub-assemble or part.

Cost volume profit analysis is a management accounting tool to show the relationship between the ingredients of profit planning. Profit planning is function of selling price of the product, the variable costs and volume to be sold. The scope of profit planning associated with CVP relationship is break-even analysis. Break even analysis is concerned with the study of revenues and costs in relation to sales at which the firm's revenue and total cost will be exactly equal (or net income is zero). Thus the break even point (BEP) may be defined a point at which the firm's total revenues are exactly equal to total costs, yielding zero income. The "no profit no loss" is a break-even point or a point at which losses cease and profit begins.

CVP analysis is a systematic method of examining the relationship between changes in activity (i.e. output) and changes in total sales revenue, expenses and net profit. As a model of these relationships CVP analysis simplifies the real world conditions that a firm will face. Like most models, which are abstractions from reality, CVP analysis is subject to a number of underlying assumptions and limitations. Nevertheless, it is a powerful tool for decision making, in certain situations (Drury, 2000: 235).

Hence, a company may use CVP analysis, as a planning and decision making tool when the sales volume is known and management need to find out how much profit will result. Another way of planning is to begin with a target profit. Then through the CVP analysis a company can decide the level of sales needs to reach that profit. Similarly, for the cost control purpose, CVP analysis is a way to measure how well different departments in the company are doing. At the end of a period, the company analyzes sales volume and related actual costs to find out the actual profit. It measures performance by comparing actual cost

with expected cost. These expected costs are computed by applying CVP analysis to the actual sales volume. The result is a performance report on which management can base the control of operations.

Decision making is a fundamental part of management. Decision about the acquisition of equipment, mix of product, method of production, and pricing of product and services confronts manager in all types of organizations (Hilton 2002: 602)

Decision making is one of the most crucial task of management. Manger is constantly failed with problems of deciding what products to sell, what production methods to use, whether to make or buy component, parts what prices to charge, what channels of distribution is to use, whether to accept special orders at special prices and so forth. In decision making, cost is always a key factor. The cost of one alternatives must be compared against the cost of other alternatives as one step in the decision making process. To be successful decision making, manager must have tools at their disposal to assist them. (Garrison, 1985:539).

1.2 Profile of Salt Trading Corporation Limited:

Salt Trading Corporation Ltd. was in incorporated in the year 2020 B.S. to regular supply of salt with the collaboration of government, National Trading Limited (NTL). The investments made by government, NTL and common people were Rs. 2,02,000; 1,00,000 and Rs. 10,00,000 respectively. STCL has been progressing rapidly. It has authorized capital of Rs. 1,00,00,00,000, issued capital Rs. 10,00,00,000 and paid up capital of Rs. 2,47,77,700.

Presently, STCL has many branch offices across the country. Its main office is situated in Kalimati of Kathmandu. The establishment of STCL regulated the distribution of qualitative salt at proper price to its customers all over the country. Especially Salt Trading Corporation Limited is working for edible salt. It provides salt containing iodine, oil, ghee, sugar, flour item, tyre, tube, fertilizer, rice, cement, dal, tea, wheat, coal and other product in Nepal.

1.3 Statement of the Problem

The industrialization process in Nepal is being developed very slowly. In Spite of various attractive policies of the government in respect of industrialization, new investment made on industrial sector is not satisfactory. The financial performance of established corporation is also not good. Most of the corporation are operating in losses in such condition of the established industries discourages the new investment both in manufacturing and non-manufacturing sector. There may be different reasons for the poor performance of corporation. Such reasons should be investigated and should be taken the corrective measures for the improvement of their performance. Salt Trading Corporation Limited was established under the joint public and private ownership as a service oriented trading business. A huge amount of investment was made but the performance of the company was not fully satisfactory.

Cost-volume- profit analysis provides the technique of profit planning framework based on the annual report published. Performance of Nepalese industries cannot be considered as satisfactory. Poor performance is the outcome of poor planning, controlling and decision-making. Despite the various attractive and liberal policies of the government of Nepal for public corporation, new public corporations were not satisfactory. The financial performance of established corporation were not profitable. Such conditions of established corporations are not acceptable for their betterment. There may be various and different reasons for the poor performance of public corporations. Such reasons should be investigated for the corrective action for improvement in their performance.

Profit is an accounting measure. It may not reflect economic reality of business enterprise because of various problems like, labour strike, political situation of the country. So, the study is basically needed to find out the problems faced by STCL with the help of CVP tools to comment on the justification of financial results.

CVP analysis provides the technique of profit planning based on annual report performance of the Nepalese industry is not satisfactory. Poor performance is the outcomes of poor planning controlling, decision making. CVP analysis tool facilitates to carry planning decision making and controlling function? The following research question will help to study the application of CVP analysis to make STCL successfully:

-) Whether the Salt Trading Corporation has been getting profit or bearing loss?
-) What is the relationship between the cost volume and profit?
-) Is there positive impact of cost-volume-profit in STCL?
-) Is any difficulties have been identified for further improvement?

1.4 Objectives of the Study

The main objective of this study is to examine "cost-volume-profit analysis" as a tool to measure effectiveness of PPC of "Salt Trading Corporation ".To achieve this objective the following sub-objectives were set.

-) To analyze the cost, profit and loss of STCL.
-) To study the relationship of cost, volume and profit.
-) To analyze the impact of cost-volume-profit of the company on productivity.
-) To provide appropriate suggestions and recommendations.

1.5 Significance of the Study

Because of globalization, today's market has become very competitive. A few studies has been made in relation to the tools of profit planning in Nepalese context and most of the studies are related to the profit planning and control of the public enterprises where CVP as one of the tools of PPC is hardly studied. This study is significant in the sense that it has treated to study the CVP analysis of the Salt Trading Corporation, which is one of the most important tools of PPC and decision making.

The present research work is the study of the practice of cost-volume-profit analysis in Salt Trading Corporation. This study will be significant in the following ways.

-) This study provides information on the application of the tools for profit planning in different circumstances.
-) This study will be useful to the potential managers, accountants, policy makers and planners etc.
-) This study is also directed towards providing necessary recommendations to the related department of the company.
-) This study provides literature to the researchers who want to carry further research on the similar issue.

1.6 Limitations of the Study

The study is concerned with cost-volume profit analysis as a tool of profit planning and control of Salt Trading Corporation. So, this study is not free from limitations. The limitations of the study are as follows:

-) This study covers five years period (2062/63 to 2066/67) only.
-) The study was fully based on secondary data, no any primary data has been used in this study.
-) The accuracy of this study is based on the available data provided by STCL.

1.7 Organization of the Study

The whole study has been categorized into five chapters. Each chapter gives the clear picture or road map of the study. Which are as follows:

Chapter I: Introduction

First chapter is the introductory part of the thesis which comprises general background, focus of the study, statement of the problem, objective of the study, importance of the study and limitation of the study.

Chapter II: Review of Literature

Second chapter provides the review of literature of related studies, conceptual review and major studies related with this research.

Chapter III: Research Methodology

Third chapter contains research design, population and sampling of data collection technique, data analysis method, tools research variable and general introduction of tools used in the study.

Chapter IV: Data Presentation and Analysis

Fourth chapter includes the presentation of various data related to study and analysis as requirement of objectives as well as major findings of the study.

Chapter V: Summary, Conclusion and Recommendation

Fifth chapter provides summary and conclusion of the study and suitable recommendations for further improvement.

Besides this, bibliography and appendices have been incorporated at the end of the chapters.

CHAPTER – II

REVIEW OF LITERATURE

In this chapter the researcher has been reviewed the related literature from different books, journals, previous studies and other reliable sources. As per this study concern, journals of account, previous thesis, related books, reports and related research works has been reviewed briefly.

2.1 Conceptual Framework

2.1.1 CVP Analysis

Cost volume profit analysis is a management accounting tool to show the relationship between the ingredients of profit planning. Profit planning is the function of selling price of the product, the variable costs and the volume to be sold. The entire scope of profit planning associated with CVP interrelationships. A wisely used technique to study CVP relationship is break-even analysis. Breakeven analysis is concerned with the study of revenues and costs in relation to sales at which the firm's revenue and total costs will be exactly equal or net income is zero. Thus the break-even-point (BEP) may be defined a point at which the firm's total revenues are exactly equal to total costs, yielding zero income. The 'no profit no loss' is a break-even point or a point at which losses cease and profit begins (Khan and Jain, 2008).

In dictionary we find that cost is price paid to acquire, produce, accomplish or maintain anything volume in mass or quantity of something or amount, profit is the ratio of such pecuniary gain to the amount of capital invested and analysis is resolution, separation or breaking into parts. In facts, CVP analysis is an analytical tool for studying the relationship between volume, cost, price, and profit. Basically CVP analysis is the technique involves finding the most favorable combination of different types of costs. CVP analysis provides the managers with a powerful tool for identifying those courses of action that will

or will not increase profitability. CVP analysis is the technique that explores the relationship, which exists, between cost, revenue, output level and resulting profit. CVP analysis can be extended to cover the effects on profit of changes in the selling prices or service fees, cost, income tax rate, total cost, total revenue, and profit at various sales volumes. CVP analysis provides the management with a comprehensive overview of the effects on revenue and costs of all kinds of short-run financial changes. It is related to profit, sales volume and cost. CVP analysis provides information regarding (Munankarmi, 2003:4.01).

People invest huge amount of money in the business to earn profit. But to make profit is not a joke. Profit planning is the function of the selling price of product and units sold. The entire amount of profit planning is associated with CVP interrelationships. CVP analysis is the technique that explores the relationship which exist between costs, revenue and output by showing the effects on profit of changes in selling price or services fees, costs, income tax rate and product mix. CVP analysis provides the management with a comprehensive overview of the effect on revenue and costs of all kind of short-term financial changes.

CVP analysis is a systematic method of examining the relationship between changes in activity and change in total sales revenue, expenses and net profit. As a model of this relationship. CVP is powerful and helpful tool for managerial decision making cost control and profit planning in certain situation. Profit planning is the function of selling price of product, demand, variable cost, fixed cost, taxes. Management plans future operation by using CVP analysis for estimation of selling price per unit, variable cost, fixed cost and sales volume. CVP analysis helps manager to see in advance to set different strategies and decision of business activities. The aim of CVP analysis is to have correct estimate of fixed cost, total revenue and profit.

CVP analysis helps manager to understand the interrelationship between cost, volume and profit in an organizations by focusing the following four elements.

-) Price of a product.
-) Volume or level of activity.
-) Per unit variable cost.
-) Total fixed cost mixed product sold.

Generally CVP analysis provides the answer to the question such as:

-) What sales volume needed avoid losses ?
-) What sales volume needed to earn desired profit ?
-) What will be the effect of change in price ?
-) Which product or operation of a plant should be discontinued as soon?
-) CVP analysis seeks to estimate the profit or loss at different activity level.

The aim of CVP analysis is to have correct estimate of.

-) Total cost.
-) Total revenue.
-) Profit at various sales volume.

2.1.2 Importance of CVP Analysis

Planning, controlling and decision making are the essential management functions CVP Analysis helps managers to prepare plan for profit to control cost and make decision. It helps (Munankarmi, 2003: 401-402).

-) To determine the BEP in terms of units or sales value.
-) To ascertain the margin of safety.
-) To estimate the profit or loss at various level of output.
-) To assess the likely effect of management decisions such as an increase or decrease in selling price adoption of new method of production to reduce direct labour cost and increase output.
-) To help the management to find the most profitable combination of cost and volume.
-) To determine the optimum selling price.

-) To determine the sales volume of which the profit goal of the firm will be achieved.
-) To determine the maximum sale volume to avoid losses.
-) To determine most profitable and least profitable product.

2.1.3 Purpose of CVP Analysis

Cost volume profit analysis helps management in a number of ways. The following purposes are served by it (Dangol, 2004: 416).

-) Calculation of profit resulting from a budgeted sales volume.
-) Calculation of sales volume to break even.
-) Calculation of sales volume to produce desired profit.
-) Effect or changes on price, costs and profits.
-) Determination of new break-even point for changes in cost and selling price.
-) Measurement of effect of changes in profit factors.
-) Choosing the most profitable alternatives.
-) Determining the optimum sales mix.
-) Determination of capacity and equipment selection.
-) Long term decision on continuance of product.
-) Make or buy decision on sub-assemble or part.
-) To contemplate the increase or decrease in profit due to change in method of production etc.

2.1.4 Assumptions of CVP Analysis

CVP analysis is a vital technique that provides supplementary information for profit planning. Every business starts with the target of break even and that it aims to earn profit over its life. But the business firm passes through many ups and downs. CVP analysis helps to plan for every set of goal in short run. But CVP analysis encompasses the following assumptions (Bajracharya, et al., 2004: 258-260).

a. Classification of all Costs as Variable and Fixed

While developing and applying CVP analysis including BEP analysis, it assumes that all cost can be classified into fixed and variable costs. In fact, it is extremely difficult to identify each and every cost into fixed and variable. Costs are recorded in traditional types in developing countries thus it makes very hard to segregate costs into fixed and variable. Moreover flexible policy of company also makes to more difficult to exactly identify the costs as fixed and variable. If one fails to identify the cost as fixed and variable, the application of CVP analysis become almost impossible.

b. Linear Behaviour of Cost within the Relevant Range

CVP analysis assumes that the total fixed costs do not change in short run within relevant range. Total variable costs are exactly proportionate to sales volume. But in reality cost behaviour may not remain same with the change in the volume of output because of change in production set up with more or less purchase material cost per unit change due to quantity discount. Costs change over time due to inflation. BEP units and other variables of profit function do not remain constant over time. Therefore, BEP and other variables do not remain at every movement valid the changed situation.

c. Treatment of Step Fixed Cost

The relevant range for many costs is very short. In that case it becomes very difficult to compute the required volume, because it becomes difficult to identify the relevant range volume.

d. Constant Selling Price for any Volume in the Short Run

The selling price per unit remain constant it does not change with volume or because of other factors. Indeed, selling price per unit is affected by quantity discount for different lots of production. This makes it difficult to determine the CMPU and CM ratio.

e. No Effects of Size of Inventory on Net Income

The application of CVP analysis is possible only under variable costing because inventorial product cost on all production and sold volume remain the same. CVP analysis does not work under full costing method where inventory changes affect inventory value because of allocation of fixed manufacturing overhead.

f. Single Product or Constant Sales Mix

CVP analysis assumes that either a single product is sold or, if more product are sold where the ratio of each product on total sales will be in accordance with a predetermined sales mix. But in real situation sales mix does not remain constant. This makes the application of CVP analysis impossible in case of multi Product Company.

g. Short Term Time Horizon

CVP analysis is a short term planning tool because nothing remains stable in the long term. In the condition of changing conditions the ratio of CVP variables may differ. It is essential that anyone preparing or interpreting CVP results should be aware of the underlying assumptions. If these assumptions are not recognized, serious error may result and incorrect conclusions may be drawn from the analysis.

2.1.5 Application of CVP Analysis in Profit Planning and Control

Cost volume profit analysis is an important tool for profit planning. It has been defined as a managerial tool showing the relationship among cost, selling price, profit and volume of activity. CVP analysis can be applied for the following purposes (Dangol, et al., 2004: 416).

-) It helps in fixation of selling price.
-) It is helpful in cost control.
-) It also assists the management in understanding the behaviours of cost and help in budgetary control.

-) It helps in determining the level of output where all the cost can be met.
-) It assists the management in profit planning.
-) It also assists the management in performance evaluation for the purpose of management control.
-) It helps very much in making managerial decisions such as make or buy a part, drop or continue a department or product line, accept or reject a special orders, selection of a profitable product mix.

2.1.6 Special Problem in CVP Analysis

Cost volume profit analysis is applied to individual product or part of a business and all the products or activities combined. In latter case three problems can be encountered which is as follows (Welsch, et al., 2000: 513-518).

1. Activity Based

When two or more product or activities are combined for break even analysis, the activity baser is usually net sales dollars. Product units are preferable if the analysis is applied to one product. For multiple product products the activity base must be in additive units using common denominator of volume or output. Therefore, for the company as a whole, net sales dollar are usually the only satisfactory common denominator because manufacturing, selling and administrative activities are expressed in combination.

It flexible expenses budget are used, they can be summed for cost volume profit purposes. This process may cause some complications because the different departmental flexible budget is related to different activity base. For example, selling expenses, may be related to sales dollars, factory over head related to direct labour or machine hour. To add the flexible expenses budget amounts, it must be assumed that the departmental activity factor correlate reasonably well with the overall activity base selected for break even purposes. The usual procedure in developing break even analysis based on flexible

expenses budget is to add the fixed cost components shown in flexible budget amounts and to treat the remaining cost as variable.

2. Inventory Change

Usually the budget change in inventories (that is finished goods and work in process) are immaterial in amount and thus may be disregarded in cost volume profit analysis. On the other hand when the change in budgeted inventory is significant it should be included in the analysis.

Including the effects of cost volume profit analysis required subjective judgment about the effect of change is,

-) What management might do (about to making inventory changes) at different volume level and
-) The conceptual precision that is desired.
-) We will consider two practical approaches other used:
 -) Disregard the inventory change.
 -) Include the inventory change.

3. Non Operating Income and Expenses

Non operating income (gains) and expenses (losses) and extraordinary gain and losses, is material in amount cause another problem in cost volume profit analysis. The basic issue is whether they should be included or excluded. Extraordinary gains and losses are nonrecurring and unusual therefore they should be excluded. Non operating incomes (and gains) and expenses (and losses) are recurring but they are not related to ongoing operations. Normally they are excluded from CVP analysis. However, if they are included it is preferable to include the net of other income and other expenses if the excess is expenses, it should be added to fixed expenses, where as if the excess is income, it should be deducted from the fixed expenses.

4. Margin of Safety

The soundness of business is medicated by margin of safety. The difference between total sales and break even sales is identified as margin of safety. The high margin of safety is good for business. It indicates that there can be substantial falling of sale and yet profit can still be made on the other hand if the margin of safety is small. It indicate the weak position of business. The small margin of safety shows that even small reduction in sales or production will adversely affect the profit position of business (Dangol, and Jeetendra, 2002: 168).

If margin of safety is unsatisfactory, the following steps can be taken:

-) increase the sales and production volume.
-) increase the sub selling price.
-) decrease the fixed cost.
-) increase the variable cost.
-) increase the sales or product mix ratio.

Margin of safety is ascertained by using the following formula:

$$\text{Margin of Safety (in \%)} = \frac{\text{Actual sales} - \text{ZBE sales}}{\text{Actual sales}}$$

$$\text{Margin of safety (in units)} = \frac{\text{Profit}}{\text{Contribution margin}}$$

$$\text{Margin of safety (in Rs.)} = \frac{\text{Profit}}{\text{PV ratio}}$$

2.1.7 Approaches to Cost Volume Profit Analysis

The CVP relationships can be analyzed through different approaches which are:

-) Contribution margin approach.
-) Formula (equation) approach.
-) The graphic (break even chart) approach.

i. Contribution Margin Approach:

Contribution margin is different between the Sales and the variable cost of production. Contribution margin consists the fixed cost and profit i.e. contribution margin is the amount that contributes to recover of all fixed costs and to the generation of profit.

The contribution margin income statement approach to cost volume profit analysis allows the preparation of pro-forma statement from the available information. BEP and other required CVP relationship can be explained through a contribution margin statement whose philosophy is all fixed costs are period costs that should be deducted from the contribution margin of the same period only the variable cost vary proportionally to the level of output or sales.

It can be expressed as :

$$\text{Contribution margin} = \text{Sales} - \text{Variable Cost}$$

or

$$\text{Contribution margin} = \text{Fixed cost} + \text{profit}$$

Contribution margin is usually expressed as a percentage sales which is known as contribution margin ratio or profit volume ratios. That is :

ii. Formula Approach:

The most popularly practiced approach to the break-even point and cost volume profit analysis is the formula, also known as the equation. It is particularly because the equation provides the most general and easiest to remember and uses because the equation provides the most general and easiest to remember and uses solving the equation may sometimes, need to be rounded to whole numbers of units or lots sizes. The rounding of break even points is always done upward because this will provide a small profit rather than the small loss that would be shown from rounding downward (Dangol, et al., 2062: 422).

$$\text{CM ratio of PV ratio} = \frac{\text{Contribution margin}}{\text{Selling price}}$$

$$\text{BE Sales Value} = \text{FC} + \text{VC} \pm \text{Profit}$$

The Calculation in the equation approach is similar to that of contribution margin statement approach. The equation is merely a restatement of the other.

$$\text{BE Sales Unit} \times \text{SPPU} = \text{FC} + (\text{BE Sales Unit} \times \text{VCPU}) \pm \text{O}$$

Contribution Margin Approach	Symbol or Equation
Sales volume (units)	Q
Selling Price per Unit	P
Selling Revenue(Rs.)	$Q \times P$
Less: Variable Cost	$Q \times \text{VCPU}$
Contribution Margin	$Q \times P - Q \times \text{VCPU}$
Less: Fixed Cost	FC
Net Profit	$Q \times P - Q \times \text{VCPU} - \text{FC}$

$$\text{Therefore, BE Sales Value} = \text{FC} + \text{VC} \pm \text{Profit}$$

$$\text{BE Sales Unit} \times \text{SPPU} = \text{FC} + (\text{BE Sales Unit} \times \text{VCPU}) \pm \text{Profit}$$

iii. The Graphical Approach to CVP Analysis:

A Breakeven chart is used to used to graphically depict the relationships among revenue, Variable Cost and profit (or losses). The no profit, no loss point (the break even point) is located at the point where the total cost and total revenue lines cross. Below this point, the firm losses, and above this point the firm earns profit (Bajaracharya, et. al., 2004: 231-232).

In the graph given below the fixed costs remain constant within the relevant range, the fixed cost line is parallel to 'OX' axis. Variable cost slope downward from the origin to right but the slope depends on variable cost ratio. The total cost curve parallels the variable cost curve. So the angle 'O' equals the angle 'V',

it is because total cost = total fixed costs plus total variable cost at volume Q.

$$\text{Total cost} = \text{TFC} + Q \times \text{VCPU}$$

At volume 'Q' + 'n'

$$\text{Total costs} = \text{TFC} + (Q + n) \times \text{VCPU}$$

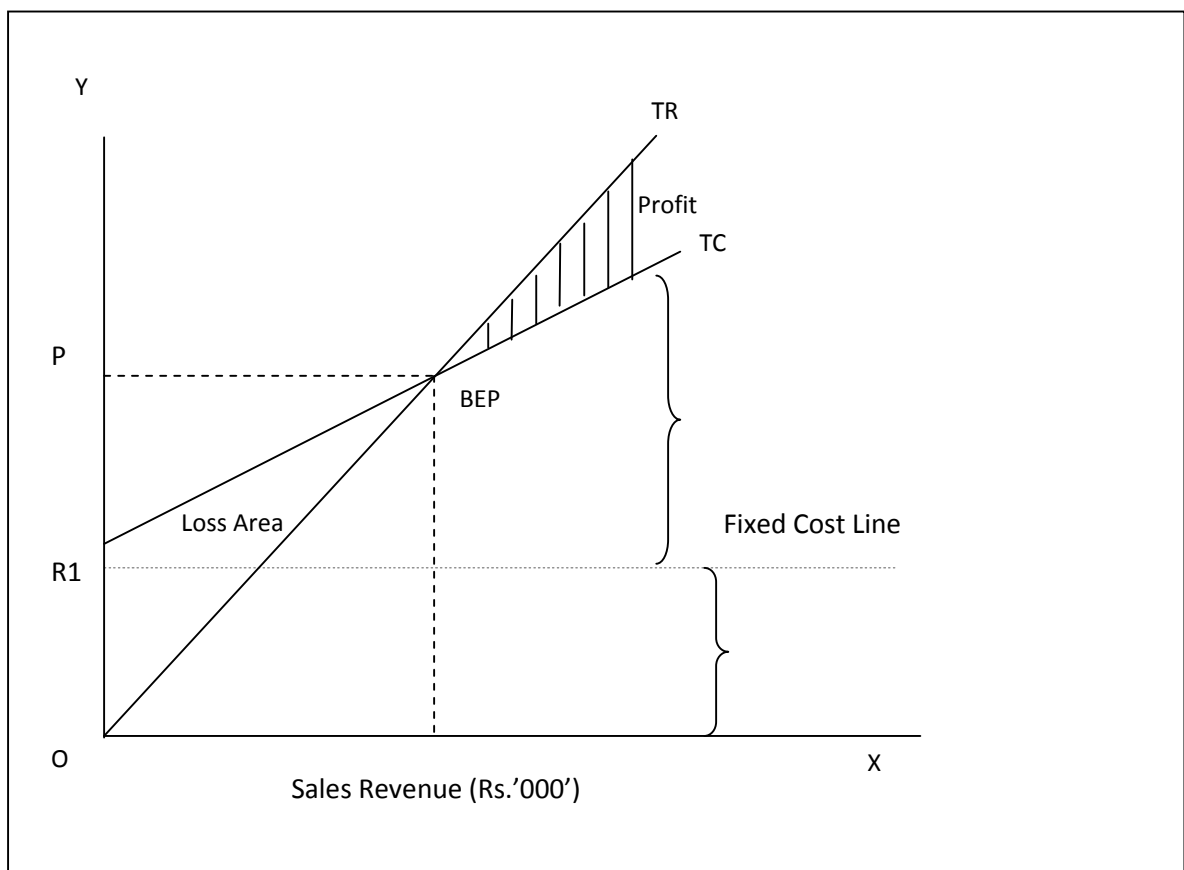
$$\text{Total cost} = O + n \times \text{VCPU}$$

$$\text{Total cost} = \text{variable costs}$$

That's why the slope of the total cost curve equals the slope of variable cost

That's why the slope of the total cost curve equals the slope of variable cost curve.

Graphical Approach to CVP



The above graph clearly shows that if the company can reach the point of BEP it can generate sufficient revenues to cover all its operating expenses. At this

point, the total revenues equal the total cost. Here, the revenue curve breaks up (intersects) the total cost curve, that's why this point is called break even point. In short, break even point is that point, where, total sales revenue = total costs.

2.1.8 Break-Even Analysis

Break even analysis is widely used technique to study cost volume profit relationship. The narrower-interpretation of the term break even analysis refers to a system of determination of that level of activity where total cost equals total selling price. The broader interpretation refers to that system of analysis which determines probable profit at any level of activity. It portrays the relationship between cost of production, volume of production and the sales value. CVP analysis includes the entire gamut of profit planning, while break even analysis is one of the techniques used in this process. However is so popular for studying CVP analysis that the two terms are used as synonymous terms (Maheshari, 2000, 175-181).

a. Applications of Break-Even Analysis

Break even concept can be used to formulate different policies in a business enterprise. Some of these applications are (Maheshwar, 2000: 182).

-) Determination of Profit of different levels of Sales and margin of safety.
-) To find the level of output to get the desired profit.
-) Effect of price reduction on sales volume and changes in sales mix.
-) Effect of fixed cost or variable cost changes on sales volume.
-) Selection of most profitable alternative and make or buy decisions and drop and/or add decisions.

b. Assumptions of Break Even Point :

The assumptions underlying the construction of a break even chart are as follows.

-) All costs can be classified into fixed and variable cost. There is no other

cost other than fixed and variable.

-) Fixed cost will remain constant and variable cost varies proportionately with activity.
-) Selling price per unit remains constant. It is not affected by sales volume.

c. Limitations of Break Even Analysis

Break even analysis in many business situations can be used for effective decision making, but there are many short coming limitations in its analysis and interpretations. Some of these can be listed as (Maheshwari, 2000: 189-184).

-) The assumption of producer's market phenomenon may not hold good for all types of commodities.
-) The fixed cost may not remain constant as well as the variable cost may not vary in fixed proportions at levels of output.
-) With variation in the prices of the items or services which also depend on the factors affecting its demand and supply will certainly affect the demand of the commodity. This phenomenon is not covered in break even analysis.
-) Identification of fixed and variable costs involved in production process is very complicated. A shift in production mix may change the break even point.
-) Consumers may be given certain discount on purchases to promote sales. This revenue may not be perfectly variable with level of sales output.

d. Cash Break Even Point

The BEP tells what volume of sales which is necessary to cover all operating expenses. If sales are maintained at the BEP then the company will neither earn profit nor will suffer from losses. What happens if company cannot achieve the

BEP ? Of courses, the company suffer from losses. If the company suffers from the loss, does it mean that the company is facising the difficulties in paying its monthly bills for rent. Salary, suppliers and labours? Not necessary. It because all fixed cost is kept in numerator while computing BEP. Fixed cost include certain non-cash expenses like depreciation and amortization, for which no cash needed in short run. Therefore Therefore company can exclude depreciation and other non cash expenses in the short run. Only cash costs are included in fixed costs to calculate cash BEP.

$$\text{Cash BEP} = \frac{\text{FC} - \text{Non cash expenses}}{\text{SPPU} - \text{VCPU}}$$

Or

$$\text{Cash break even point} = \frac{\text{Cash fixed cost}}{\text{Contribution margin or PV ratio}}$$

e. Profit Volume Analysis

The analysis of relationship between profit and volume is known as profit volume analysis. The two factors profit and volume are interconnected and dependent with each other profit depends upon sales, selling price to a greater extent will depend upon the volume of production. Thus, the entire amount of profit planning is associated with cost volume profit interrelationship.

f. Profit/Volume Ratio

This term is important for studying the profitability of operations of a business. Profit/volume ratio (i.e. P/V ratio) establishes a relationship between the contribution and the sales value. The ratio can be shown in the form of a be known by comparing the change in contribution to change in sales or change in percentage also. The formula can be expressed by (Maheshwari, 2000: 184)

$$\text{P/V ratio} = \frac{\text{Contribution}}{\text{Sales}} \times \frac{\text{SVC}}{\text{S}} \times \frac{\text{VC}}{\text{S}}$$

The ratio can also be called as contribution margin ratio. This ratio can also

profit to change in sales. Any increase in contribution would mean increase in profit only because fixed costs are assumed to be constant at all levels of production (Maheshwari, 2000, 185).

$$\text{P/V ratio} = \frac{\text{Change in Contribution}}{\text{Change in sales}} \times \frac{\text{Change in profit}}{\text{Change in sales}}$$

This ratio would remain constant at different levels of production since variable costs as a proportion to sales remain constant at various levels. This ratio is useful for determination of the desired level of output or profit and for the calculation of variable costs for any value sales. The variable cost can be expressed as follows.

$$\text{VC} = \text{Sales} (1 - \text{P/V ratio})$$

Comparison of different P/V ratios is usually made by the management to find out which product is more profitable. Management tries to increase the value of the ratio by reducing the variable cost or by increasing the selling prices.

2.1.9 Managerial Uses of CVP Analysis

Planning, controlling and decision making are the essential managerial functions. CVP analysis helps the manager to plan for profit, to control cost and make decisions. It is necessary to describe in greater details about its usefulness to management.

a. Management Plan Further Operation with CVP Analysis

Profit does not just happen; they must be managed and planned. By estimating the SP, VCPU, total FC and sales volume, management can estimate profit. The estimated net profit can be examined by estimating SP, VCPU, Total FC and sales volume. If management believes profits are too low or too high, then CVP analysis can be used to determine the likely effects of changes it may wish to make in any of the variables. CVP analysis can be used as a starting point and

as a quick and easy way to determine the likely effects of management policy changes.

b. Management uses the Budgeted Amounts to Control Operations throughout the Certain Period

Management should not now just sit back and wait until the end of period to see if it was right or wrong. During the period, sales and cost figures actually incurred should compare with those expected to see if additional action should be taken. Management should then use CVP analysis to determine the probable

c. Management Use CVP Analysis to Analyze Past Performance

Management should determine the reason for difference or variance between budgeted and actual results. CVP analysis can make an important contribution in planning, organizing and controlling. It provides a framework for planning future operation and means for determining the likely effect of various ways of organizing those operations CVP can be used to control current operation by comparing actual results with planned result.

d. Management use CVP Analysis to Know how much Business Safe

The higher the safety margin the safer is the business and lower the safety margin the risk is the business. So margin of safety is analysis is possible through CVP analysis.

e. Determination of Selling Price

Selling price has a most sensitive effects in demand, profit and break even. A SP of product covers all costs plus a required margin. Normally business firm have a goal of charging certain percent of profit margin of SP. The profit margin and SP depend on any factors including the nature of item, competition and the required return on investment.

f. Profit Pick up in Incremental Sales

Up to BEP, the company earn nothing, profit begins only after the BEP. Each unit sold beyond the BEP contributes towards profit. Therefore, each unit sold beyond BEP gives profit equal to CM/PU.

2.1.10 Cost Volume Profit Analysis for a Multi-Product Firm

The relative proportion of sales of product is called the sales mix or the product mix. In the case of multi-product firm, the contribution for each product can be found out by deducting its variable costs from sales revenue. The break even point for each product can be calculated only if the total fixed costs of the firm are distributed and fixed cost for each product is known. The firm's overall break even point can be calculated by dividing the total fixed costs by the contribution ratio for the firm. The multi-production firm's P/V ratio will be the weighted average of the P/V ratios for all the product sales. The P/V ratio for the multi-product firm can also be calculated by dividing the total contribution from all products by total sales.

A change in the product mix will not affect the firm's break even point and profit if each product has the same P/V ratio. However, a change in the product mix will change the break even point and profit when products have unequal P/V ratio (Maheshwari, 2000, 187).

2.1.11 BEP for Sales Mix/Multi-Product

In multi-product firm, BEP is calculated in aggregate. The sales mix is used to compute a weighted average unit contribution. This is the average of the several products unit contribution margin weighted by the relative sales proportion of each product. The following procedures are followed to calculate BEP for sales mix/multi-product.

-) Calculate CM/PV ratio for each product.
-) Calculate proportion of sales mix in units and values as follows:

$$\text{In units} = \frac{\text{Individual product's sales units}}{\text{Total of all products sales units}}$$

$$\text{In amount} = \frac{\text{Individual product's sales amount}}{\text{Total of all products sales amount}}$$

Calculated weighted average for all product as follows:

$$= \text{Sales mix (units)} \times \text{Units contribution margin}$$

Or

$$\text{Sales mix (units)} \times \text{PV ratio}$$

$$\text{Calculate BEP} = \frac{FC}{\text{Weighted average CM / PV ratio}}$$

2.1.12 Method of Segregating Mixed or Semi Variable Cost

CVP analysis requires the segregation of all cost into fixed and variables. So, the semi-variable cost should also be segregated into fixed and variable accordingly. The segregation of the semi-variable cost is done through one of the following methods (Maheshwar, 2000, 162-165).

a. Level of Output Compared to Levels of Expenses Methods

According to this method, the output at two different level in compared with corresponding level of expenses. Since, fixed cost remain constant, the variable overheads are arrived at by the ratio of change in expenses to changes in output.

$$\text{Variable element} = \frac{\text{Change in amount of expenses}}{\text{Change in activity or quality}}$$

b. Range Method

This method is similar to levels of output compared to level of expenses expect that only the highest and lowest point of output are considered out of various levels. This method is also called "High 'and low' method".

Procedure,

-) Select the highest pair and the lowest pair.
-) Compute the variable ratio "b" using the formula.

$$\text{Variable rate} = \frac{\text{Difference in cost 'Y'}}{\text{Difference in activity 'X'}}$$

) Compute the fixed cost as :

$$\text{Fixed cost portion} = \text{Total semi-variable cost} - \text{variable cost}$$

c. Degree of Variability Method (DUV)

In this method, the degree of variability is noted for each item of semi- variable expenses. Some may have 70% variability while others may have 30% variability. The method is easy to apply but difficult is faced in determining the degree if variability.

d. Scatter Group Method

In this method, the given data are plotted on graph paper and line of best fit is drawn, whereas semi-variable expenses is plotted on the vertical axis (y axis) and activity measure is plotted on the horizontal axis (x axis).

Procedure

-) The volume of production is plotted on the horizontal axis and the cost are plotted on the vertical axis.
-) Corresponding to each volume of production costs is then plotted on the paper thus, several points are shown on it.
-) A straight line of best fit is then drawn through the points plotted. This is the total cost line. The point where this line intersects the vertical axis is taken to be the amount of fixed elements.
-) A line parallel to the horizontal axis is drawn from the point where the line of best fit intersects the vertical axis. This is the fixed cost line.
-) The variable cost of any level can be known by nothing difference between fixed cost and total cost line.

The scatter-graph method is relatively easy to use and simple to understand. However, it should be used with extreme caution, because it does not provide an objective test for assuring that the regression line drawn is the most accurate fit for the underlying assumptions.

e. Least Squares Method

Regression analysis is a statistical procedure for estimating mathematically, the average relationship between the dependent variable (y) and the independent variable (x). The regression method does include all the observed data and attempts to find a line of best fit. To find the line of best fit, a technique called least square method is used.

It is based on the mathematical technique of fitting an equation with the help of a number of observations. The linear equation can be assumed as:

$y = a + bx$ and the various sub-equations shall be,

$$\sum y = na + b \sum x$$

$$\sum xy = a \sum x + b \sum x^2$$

Similarly, the equation can be fitted for any number of order or degree depending upon the number of observations available and the accuracy desired. Unit variable cost and fixed cost can be computed by using the following formula.

$$b = \frac{N \sum xy - \sum x \cdot \sum y}{N \sum x^2 - (\sum x)^2}$$

$$a = \frac{\sum y - b \sum x}{N}$$

Where,

a = Fixed cost

b = Unit variable cost

N = No of series

x = Production units

= Sum of variables

2.1.13 Economic Characteristics of CVP Analysis

"Where cost volume profit analysis are reasonably accurate, they can help management decision making. Essentially, cost-volume profit analysis offers greater insight into the economic characteristics of a company and may be used to determine the approximate effect of various alternatives. CVP analysis is based on estimates, however, and the arithmetical manipulations generally involved average. Hence the result should never be interpreted as precise. Rather, analysis may be characterized appropriately as a "slide-rule" approach that may be used to developed and test with a minimum of effort, the approximate effect on costs and Profit of Servable types of management decision" (Welsch, 1979; 467-468).

2.1.14 Cost Volume Profit Analysis and Limiting Factors

CVP analysis is helpful in profit planning and expects that a company will be able to produce any number of output of its choices (desire). But in real world it is not possible, because of some critical factors like finishing machine or raw material or labour. These critical factors in the CVP analysis are known as constraints.

a. CVP Analysis with a Single Constraint

Scarce resources should be efficiently allocated in order to maximize the contribution margin. A particular simple and instructive situation arises when there is only one constraining resources. This can occur if the firm products are all produced on a single machine and output is limited by hours available on this machine. In the same way, single resources constraint arises, if the firm's products are all produced with only one material and output is limited by

quantity available for that materials. When there is a constraint for a scarce resources to have alternative uses, the contribution per unit should be calculated for each of these uses. Then, the available capacity for such scarce resources should be allocated to the alternative uses on the basis of contribution per scarce resources (Munnakurmi, 2003, 146).

b. CVP Analysis with a Multiple Constraints

Where more than one scarce resources exists, the optimum production program can not easily be established by the simple process applied in single resources constraint. Under the circumstances simple allocation of resources on the basis of contribution margin per unit is neither feasible nor desirable. Contribution margin per unit of scarce resources may be different for different scarce resources. In such situation, linear programming technique may be used to optimize product mix. The linear programming formulation is required to determine a production plan that maximizes contribution from the product mix. Linear programming is a mathematical technique which shows how to arrive at the optimum results, by allocating available resources in a meaningful manner. It is basically concerned with the problem of allocating limited resources among competitive activities in an optimal manner. It is a technique to optimize the allocation of scarce resources in product mix problem which provides a valuable extension to cost-volume profit analysis (Munnakurmi, 2003: 148).

2.1.15 CVP Analysis Under Condition of Uncertainty

CVP analysis can be used for various purposes. Such as choosing between machine and products, planning of profit and most significantly fixing up of selling price. Management has used this as a convenient tool of profit planning without giving consideration of risk and uncertainty involved in it. Although, margin of safety ratio explains the degree of sensitivity of the product and product in general but it fails to explain among of uncertainty in the product and

also between the alternatives. To cover come such a difficulty, risk and uncertainty analysis can also be used in CVP analysis.

Probability distribution approach is a simple statistical tools which may be used to measure the risk and uncertainty involved in CVP analysis. A probability distribution of happening of the event in consideration is used. This may be done either taking into consideration of the experience in the past or may be done by considering the personal intuition of the persons doing so. In business, references of past experience are hardly available therefore a person is likely to behave in the same manner in the similar situation in different time. Personal judgement plays significant role in the management decision making. The condition thus, postulated are assigned probability (i.e. ones judgement towards likeliness of happening of the condition forecasted). It must be understood here that probability assigned here is a subjective probability based in, personal judgement of the man making such a analysis (Pandey, 2003: 17).

2.1.16 Cost Structure and Operating Leverage

a. Cost Structure

Cost structure refers to the relative proportion of fixed and variable cost in an organization. The relationship of variable and fixed cost is reflected in its operating leverage. The highly labour intensive organization has high variable cost and low fixed cost and thus makes low operating leverage and relatively low break even point. Conversely, organization that is highly capital intensive has a cost structure that include low variable and high fixed costs. Such a structure reflects high operating leverage and relatively high break even point. Company with lower fixed costs and higher variable costs will enjoy greater stability in net income and will be more protected from losses during bad years but at the cost of lower net income in good years.

b. Operating Leverage

Operating leverage is a measure of the extent to which fixed costs are being used in organization. The relationship of a company's variable and fixed costs

is reflected in its operating leverage. Generally, highly labour intensive organization has high variable costs and low fixed costs and this makes low operating leverage and a relatively low break even point. Conversely, organization that is highly capital intensive may have a cost structure that includes low variable and high fixed costs which reflects high operating leverage with high break even point. It shows that fixed costs and operating leverage have direct relationship. Higher the amount of fixed costs higher the operating leverage and break even point and vice versa. In other words the firm with relatively high operating leverage has proportionally high fixed expenses, the firms break even point will be relatively high. The operating leverage, factory is determine as under (Munakarmi, 2003:145).

$$\text{Degree of operating leverage} = \frac{\text{Contribution margin}}{\text{Net income}}$$

2.1.17 Sensitivity Analysis

Sensitivity analysis is the measurement of elasticity of the change in cost, volume and profit factors or break even point or given profit. The strategist should focus more on the factors, which is more sensitive or responsive for profit. To measure the sensitivity of cost volume profit factors one can see the impact of certain percentage or amount of change in volume, price or cost factors on net profit. In other words, sensitivity analysis is the measurement of responsiveness in outcome with the changes in determinate variables. The goal of business enterprise is to maximize profit which occurs on account of excess of revenues over the total costs.

$$\begin{aligned} \text{Net profit} &= \text{Total sales revenue} - \text{Total cost} \\ &= \text{Sales units SPPU} - \text{Sales Units} \times \text{VCPU} - \text{Fixed cost} - \text{Taxes} \end{aligned}$$

But one of the factors remain unchanged, sometimes the manager can intentionally change the price and cost factors as a part of strategic decisions. But the strategy should focus more on the factor, which is more sensitive or

responsive for profit. Therefore, to measure the sensitivity of cost volume profit factors, we can see the impact of certain percentage or amount change in volume, price or cost factors on net profit (Bajracharya, et. al., 2004: 245). Profit is the function of a various of factors. It is affected by change in volume, cost and prices. Profit may be affected by the changes, (increase or decreases), in the following factors (Pandey, 1999: 203-208).

-) Effect of price changes : An increase in the selling price will the increase P/V ratio and as a result will lower the break even point. On the contrary, a decrease in selling price will reduce the P/V ratio and therefore, result in a higher break even point.
-) Effect of volume changes : A changes in volume, not accompanied with a change in the selling price and/or costs, will not affect P/V ratio. As a result, the break even point remains unchanged. Profit will increase with an increase in volume and will reduce with a decrease in volume.
-) Effect of price and volume changes : A change in price invariably affects volume. A price reduction increases demand of the product and consequently, may result in increased volume. On the other hand, increase in price may adversely affect the demand and thus, reduce volume. The impact on profits under these circumstances is not obvious. Profit may increase with a price reduction if volume increases substantially. Similarly, a price rise may reduce profits if there is material fall in volume.
-) Effect of change in variable costs : The impact of the changes in variable costs on profits is straight forward it does not cause any change in selling price and/or volume. An increase in variable costs will lower P/V ratio, and push up the BEP and reduce profits. On the other hand, if the variable costs decline, P/V ratio will increase, BEP will be lowered and profit would rise.
-) Effect of changes in fixed costs : A change in fixed cost does not influence P/V ratio. Other factors remaining unchanged, a fall in the

fixed cost will, lower the BEP and raise profits. An increase in fixed costs, caused either due to some external factors or due to some changes in the management policy, will raise the BEP. Increase in factory rent or insurance and taxes are examples of external factors, while increased depreciation or salaries of managers may be the result of management decisions.

-) Effect of changes in combination of factors : The financial manager of the management, evaluating profit plans or budgets, must realize that a change in one factor leads to a change in other factors. Therefore, all such changes should be carefully visualized and their net impact on profit must be seen.

2.2 Review of the Previous Research Works

The research topic cost volume profit analysis as a tool to measure effectiveness of PPC/budgeting of a company, in Nepalese context. But many researches have been made in the area of profit planning and control and management accounting in Nepalese context. As profit planning and control and management accounting cover major aspects of cost volume profit analysis, researches made on these areas are taken into consideration for the sake of review to examine how profit planning and control and management accounting practices in Nepalese companies. An attempt is made here to review some of the researches, which have been submitted on profit planning and control and management accounting in the context of Nepal.

Rijal (2005) has conducted a research entitled *CVP Analysis of a Tool to Measure Effectiveness of Profit Planning and Control: A Case Study of Nebico Private Limited*. His research is based on primary data as well as on secondary data and information's. Stratified questionnaire method is used to collect primary and raw data. His study has made a great impact in Nepalese organizations, whether Nepalese organizations can practice CVP analysis and make improvement through it or not. CVP analysis tool is effective for profit planning can be figured out. Through his outstanding research we can find out

some recommendable findings and suggestion. Some of the remarkable findings were as follows:

The main objective of his study was to examine CVP analysis to measure effectiveness of TPC of profit planning of STCL. To achieve the main objective, following sub-objectives were set.

His specific objectives:

-) To study interrelationship of cost, volume and profit.
-) To evaluate the profitability, financial position and sensitivity cost of STCL.
-) To analyze the impact of CVP on profit planning.

His major findings:

-) No clear and defined guideline for objectives, responsibility and duties.
-) No classifications of items are done as fixed and variable.
-) Lack of decision making power at middle and lower level.
-) Lack of effective inventory policy.
-) Lack of effective controlling tools to reduce unnecessary costs.
-) Need to establish a separate research and development department for better result in future.
-) Need of a systematic approach towards, comprehensive profit planning.

Aryal (2006) has conducted a research entitled *CVP analysis as a tool to measures effectiveness of PPC (A Case Study of Herbs Production and Processing Co. Ltd.)*. He used primary and secondary sources to data collected and used seven years data from FY 2056/57 to FY 2062/63 for analysis.

His objectives :

-) To analyze the variance between target and actual sales of HPPCL.
-) To evaluate the profitability financial position HPPCL.

-) To provide suitable suggestions and recommendations based on the analysis for improving of HPPCL's condition etc.

His major findings:

-) Budgets were prepared on traditional method.
-) HPPCL has burden of management and administration expenses and interest on loan which is directly influencing the profitability.
-) HPPCL adopted traditional pricing method to determine price, which may not be appropriate in today's competitive market.
-) There was not practices to separating cost in to fixed and variable. The costs are roughly classified and that classification is not scientific and appropriate. Thus it is difficult to use financial tools, like as flexible budget, CVP, cost of good sold and degree of operating leverage and profit margin ratio.
-) HPPCL is suffering from huge losses; so in every year has negative net profit margin ratio.
-) Profit volume ratio of the company is in fluctuated trend, which effects on BEP of the company.
-) Margin of safety of the company is negative trend. So company could not sold properly and suffering from losses.
-) BEP of the company is analysis higher than Actual sales. So the company should not maintain its expenses.

Sharma (2006) has conducted the research on the topic of *Profit Planning in Commercial Bank: A Case Study of Nepal Bangladesh Bank*. He covered 5 years data fiscal years 2058/059 to 2062/063. His study mostly based upon secondary data. His basic objective of the research was to appraise Nepal Bangladesh Bank, appropriately for the application of comprehensive PPC system.

Other Objectives:

-) To highlight the current profit planning premises adopted and its effectiveness in NB Bank.
-) To observe NB Bank's profit planning on the basis of overall managerial budget developed by the bank.
-) To analysis the variance of budget and actual achievement.
-) To study the growth of the business of the Bank over the period.

His major findings:

-) Objectives of the bank are expressed in literary from and not specified clearly, therefore there is a danger of it being misinterpreted in the ways of one's benefits by the concerned.
-) Major concentration of resources mobilization of NB Bank is at deposit mobilization. In this respect they are increasing higher cost toward deposit mobilization.
-) This finding shows the actual deposit is more variable than the budget one.
-) Deposit mobilization by the bank is found to be considerable growing every year.
-) Interest expenses as well as other expenses found in increasing trend each year corresponding to the increase in deposit. The interest expenses are perfectly and positively correlated with deposit.

Bhushal (2006) has conducted a research entitled *Use of cost volume profit analysis to plan the profit in Nepalese manufacturing companies: A case study of Bottlers Nepal Ltd.* The main objective of his study is to examine the use of CVP analysis to plan the profit in bottlers Nepal limited.

His specific objectives:

-) To study the present application of CVP analysis in Bottlers Nepal Limited.

-) To study the profitability and financial position of Bottler Nepal Limited.
-) To analyze the CVP and its impact in profitability of Bottler Nepal Limited.

His major findings:

-) The company has not maintained the broad and long range objectives and periodic report and objectives are limited to the high ranking official only.
-) Sales and production target are not achieving because there is not an effective forecasting system.
-) There is no any effective plan for cost reduction and control. And lack of effective cost control programmed.
-) The profit trend of the company is not satisfactory.
-) The company has no details and systematic expenses plans. The fixed, variable and mixed expenses plan is the necessary elements for profit planning and control.
-) BNL has not proper practice of segregating the costs into fixed and variable or controllable and non-controllable.

Namdak (2007) has submitted the thesis on the topic *CVP analysis of Dairy Development Corporation*. The main objective of this thesis is to determine the relationship between cost, volume and profit and profitability of the DDC. His research covered the time period of five years from 2058/59 to 2063/64. Research methodology was through primary as well as secondary sources.

His objectives:

-) To study the relationship between cost volume and profit as a tool of budgeting.
-) To evaluate the profitability and sensitivity of DDC in relation to sales.

-) To analyze the productivity of the labour by using different productivity ratios.
-) To analyze the CVP of the corporation and its impact on its profit planning.
-) To provide necessary suggestions and recommendations, wherever necessary, based on findings.

His major findings:

-) DDC has been planning only on short term basis.
-) The practice of CVP analysis has not been used yet.
-) There is no practice of segregating cost into fixed and variable.
-) Over utilization of capacity resulting in increasing operation and Maintenance cost every year.
-) DDC has low contribution margin with high variable cost.
-) DDC has also high fixed cost with high low contribution margin, resulting in high BEP sales.
-) The profitability of the DDC is also very poor.
-) All the levels of management are not involved in profit planning and decision making of the corporation.

Adhikari (2007) has presented a Dissertation on the topic of *Cost Volume Profit Analysis of Nepal Lube Oil Limited*. The main objective of his study is to examine the use of CVP analysis to plan the profit in Nepal Lube Oil Limited.

His specific objectives:

-) To produce and refine oil and chemicals in the country itself, substitute import of refined goods and purchase necessary new materials from other countries.
-) To make necessary contract and agreement with different national and international governments departments, office and bodies to increase production, capabilities and improve quality.

-) To study the relationship between cost volume and profit as a tool of budgeting.
-) To manage the non-technical and technical manpower from outside or inside the company and give necessary training inside or outside the company.
-) To sell the product in direct part of the country.
-) To provide necessary suggestion and recommendation wherever necessary based on finding.

His major findings:

-) Company has usually very low margin at safety and also negative in some fiscal year.
-) Sales amount of the company are fluctuating and in increasing trend.
-) They budgeted sales are more than actual sales inequality.
-) Correlation coefficient between budgeted sales quantity and actual sales quantity is negative, this shows that there is moderate degree of negative correlation coefficient.
-) In flexible budget the company suffers from losses below 100% capacity utilization. Here 100% capacity indicates current utilized capacity is average.
-) BEP is in increasing trend due to decrease in (cm) PV ratio.

Sijakhwo (2009) has submitted his thesis entitled *CVP analysis as a Managerial Tool in Bhaktapur Craft Paper Limited*. His research was submitted to Shanker Dev Campus, T.U. in partial fulfillment of Master's Degree in the year 2008.

His objectives:

-) To study the relationship of cost volume and profit BCP Ltd.
-) To analyze the impact of CVP of the company productivity.

-) To calculate BEP, MOS, CM etc. and its impact on the profitability.
-) To make suggestions for future prospects, problems and promotion of the Bhaktapur Craft Paper Ltd. through this study.

His major findings:

-) Very high degree of correlation between sales and total costs showed that if total costs changed, it would affect the sales revenues of the company due to sales and total costs relation should be considered.
-) Company should attention to improve performance, using management principles like MBO, participating management activities etc.
-) Scientific costs segregation method (i.e. Least square method) should be used for costs segregation as mixed costs into fixed and variable cost that help to control cost minimize.
-) Research is focused immediately to improve cost analysis by using CVP analysis as tools of PPC.

Ghimire (2010) has submitted his thesis entitled *Analysis of CVP of manufacturing organization: A Case study of Dabur Nepal Pvt. Ltd.* Shanker Dev Campus, Kathmandu.

His objectives:

-) To evaluate the impact of the profit of Dabur Nepal Pvt. Ltd.
-) To show the relationship of cost, volume and profit between multi product of the organization.
-) Examine the variance between target and actual sales and production.
-) To provide appropriate suggestions on the basis of major finding of the study.

His major findings:

-) Management of the company is not taking interest for BEP analysis.
-) The company facing the political problem. So, government should take attention for the decision.

-) Management of the company is not in favour of segregation of cost in variable and fixed, mostly it used as variable and fixed cost whatever the nature of cost.
-) Net profit margin profitability ratio and other things were not satisfactory.
-) The total sales revenue of the company is less fluctuating.
-) Ghimire is focusing on his research for find out the position of total budgeted sales, actual sales, BEP, MOS, and CM of the Ltd, which is enable to show relationship between cost, volume and profit as much clearly.

2.3 Research Gap

All the previous research works were done on PPC of manufacturing company. The research studies have recommended an effective implementation of PCC. Some research was done on CVP analysis as an important tool of PPC.

One research conducted on practice of management accounting in listed companies of Nepal focusing on the overall aspect of management accounting but could not deal on specific tools like CVP. This is the age of specialization not generalization. It is realized that specific tool becomes more effective rather than using overall tools as a whole of once. This is the main weak point of the previous researches. One research on CVP analysis was made but failed deal on utilization of CVP. Thus to fill up these gap the current research was conducted. Mainly this research focused on operating position of the organization. Therefore, profit and loss account was the focal point of the study of this research. Profit and loss account fully provides the information of revenue and cost. Clear picture of CVP and its impact on productivity were made in this research. Probably this might be the first research study in the sense of providing multi product analysis carried on this topic in Nepal.

CHAPTER – III

RESEARCH METHODOLOGY

Research is the process of search of any particular topic or subject. It is a careful search of any subject matter. It may develop a hypothesis and test it by establishing relationship between different variables and identifying problem solving. Research methodology is a systematic way to solve the research problem. It helps to analyze, examine and interpret various aspects of research works such as sales, cost and other aspects of CVP analysis, related to effective tools of profit planning.

3.1 Research Design

Research design means defining procedures and techniques which guide to study and propound ways for research work. Descriptive research design has been utilized mainly for conceptualization of the problem. Analytical research design has been followed mainly to analyze the CVP and its impact on profitability and other variables.

3.2 Population and Sample

A large group about which the generalization is made is called the population under study, or the universe and small portion on which the study is made is called the sample of the study. Research population would be all corporation of Nepal. Due to various circumstances it would not be possible to attempt all the number of research population regarding in this research. Salt Trading Corporation is a sample and population in itself. This study is based on revenue planning and cost-volume-profit analysis of Salt Trading Corporation. Therefore, no specific production or branch was taken for analysis but the whole was considered for analysis through financial data available.

3.3 Nature of Data

Secondary information were collected from the concerned industry's personal and from available documents like publications books, booklets, magazine, newspaper, financial statements etc. have been taken into account while preparing the dissertation.

3.4 Sources of Data

The secondary levels of data were also analyzed using accounting, statistical and mathematical tool, charts and graphs as per need are demonstrated. Accounting tools like contribution margin and BEP were used, whereas statistical tools like average, mean and standard deviation were utilized.

3.5 Data Processing

Secondary data have been taken mainly from annual reports, auditors report, balance sheet. Profit and loss account, cost detail sheet. Previous thesis and all the relevant publication relating to company's performance were reviewed for achieving the desired result.

3.6 Tools Used

Both financial as well as statistical tools have been used in this research to make it fruitful and more relevant.

Financial Tools

a. Contribution Margin Approach:

Contribution margin is different between the Sales and the variable cost of production. Contribution margin consists the fixed cost and profit i.e. contribution margin is the amount that contributes to recover of all fixed costs and to the generation of profit.

It can be expressed as :

$$\text{Contribution margin} = \text{Sales} - \text{Variable Cost}$$

or

$$\text{Contribution margin} = \text{Fixed cost} + \text{profit}$$

Or

$$\text{CM ratio of PV ratio} = \frac{\text{Contribution margin}}{\text{Selling price}}$$

$$\text{BE Sales Value} = \text{FC} + \text{VC} \pm \text{Profit}$$

b. Profit/Volume Ratio

This term is important for studying the profitability of operations of a business. Profit/volume ratio (i.e. P/V ratio) establishes a relationship between the contribution and the sales value.

$$\text{P/V ratio} = \frac{\text{Contribution}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Sales}} \times \frac{\text{VC}}{\text{S}}$$

$$\text{P/V ratio} = \frac{\text{Change in Contribution}}{\text{Change in sales}} \times \frac{\text{Change in profit}}{\text{Change in sales}}$$

Statistical Tools

Statistical tools are the mathematical techniques used to facilitate the analysis and interpretation of numerical data. Following statistical tools have been used in this study.

a. Correlation Coefficient (r)

Correlation refers to the degree of relationship between two variables. Correlation coefficient determines the association between the dependent variable and independent variable. If between the variables, increase or decrease in one cause increase or decrease in another, then such variables are correlated variables. Among various techniques we have used Karl Pearson coefficient of correlation.

It is calculated as follows:

$$\text{Correlation Coefficient (r)} = \frac{N \sum xy - \sum x \sum y}{\sqrt{N \sum x^2 - (\sum x)^2} \sqrt{N \sum y^2 - (\sum y)^2}}$$

b. Probable Error

The reliability of the correlation coefficient is judged with the help of probable error (P.E). It is calculated as follows:

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

Where, r = correlation coefficient

N= No. of pairs of observation.

If $r > 6 \text{ P.E}$, then the correlation coefficient is significant and reliable.

If $r < \text{P.E}$, then the correlation coefficient is insignificant and there is no evidence of correlation.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

In order to fulfill the objectives of this study, presentation, analysis & interpretation of relevant data of Salt Trading Corporation Limited has been made in this chapter. To obtain best result, the data have been analyzed according to the research methodology as mentioned in third chapter. The purpose of this chapter is to introduce the mechanics of data analysis and interpretation. With the help of this analysis, efforts have been made to highlight the CVP analysis techniques used in Salt Trading Corporation Limited.

4.1 General Concept

Planning sets the proper objectives and goals for an organization and profit planning develops the specific action plans to achieve the pre-determined goals and objectives. CVP analysis can be used to plan the profit and it also measures the effectiveness of profit planning and control. CVP analysis analyses the relation among the cost, revenue and profits. It helps the management in cost control and profit planning.

The main purpose of this research is to examine CVP analysis as a tool to measure the effectiveness of profit planning and evaluate the present practice of CVP analysis could be applied to strong then manufacturing industries. For this reason, Salt Trading Corporation has been randomly selected for the study and data analysis purpose. To meet the said objectives, the secondary data were used for sales trend analysis, cost analysis, profitability analysis and cost volume-profit analysis etc. The secondary data were collected from annual report of the company.

This study has tried to cover the activities of the salt trading corporation for the last five year (i.e. from the fiscal year 2062/63 to fiscal year 2066/67). The

information, which has been collected from Salt Trading Corporation Limited has been systematically analyzed.

4.2 Sales Trend Analysis

4.2.1 Sales Revenue

It is the fundamental plan of overall profit planning. It provides basic management decision about marketing. It is an organized approach for developing comprehensive sales plan. Different important decisions such as production, purchase, expenses etc. are made on the basis of sales budget. STCL is the trading corporation. The sales are given below:

Table : 4.1
Overall Sales

(NRs. in Lakhs)

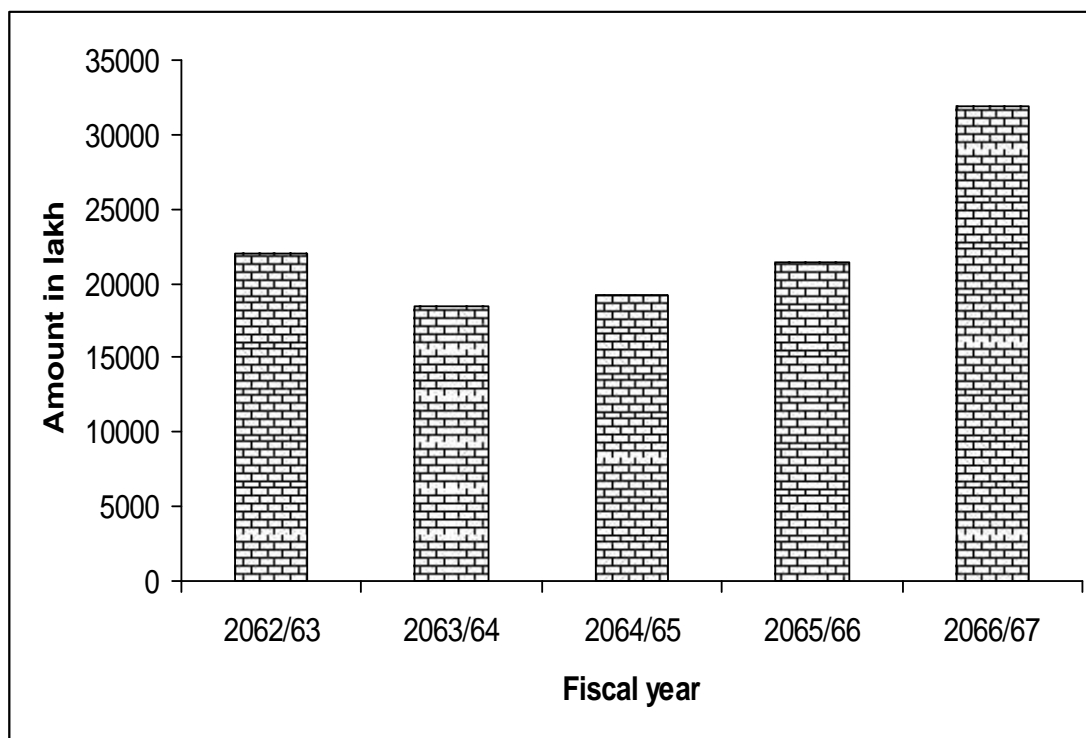
Fiscal Year	2062/63	2063/64	2064/65	2065/66	2066/67
Details					
Total Sales	21939	18505	19162	21389	31904
Changes in Sales	-	-15.65%	3.55%	11.62%	49.16%

Source: Annual report of STCL.

Above table 4.1 shows that overall sales of the Salt Trading Corporation from the FY 2062/63 to FY 2066/67. The total sales of the company is not seemed stable which is decreased by 15.65 percent in the FY 2063/64. The cause of decrease are the political situation of Nepal. In that time Nepalese Markets are suffering from the criminal activities. Those activities can easily distributed the corporation activities. So many times distributed the corporation activities. So many times corporation face strike and pressure of peace opposite groups. These causes as well as the quality of the product of the corporation is also the plus point to decrease the quality of sales units. The incremental percentage of total sales showed satisfactory in the FY 2064/65 to FY 3066/67 upto 49.16 percent.

It can be presented in following bar-diagram as follows:

Figure : 4.1
Position of Total Sales



Above simple bar-diagram 4.1 clearly presents the position of total sales of of different five years of Salt Trading Corporation Limited. Among them the highest bar is the year FY 2066/67 and lowest in FY 2063/64. The bar-diagram shows the sales is decreased slightly in FY 2063/64 and increased in others following years. It can clear that the sales trend is not constant. It is fluctuates in different year with different causes above mention.

4.2.2 Productwise Sales

STCL has six different products ranging (1) Consumable material (2) agricultural material (3) Fuel, lubricant and tyre tubes (4) machine and equipment (5) construction material (6) other material. The sales values of each product are presented in the following table.

Table : 4.2
Product-wise Sales

(NRs. in Lakhs)

Year		2062/63	2063/64	2064/65	2065/66	2066/67
Products						
Consumable material	Amount (Rs.)	11762.9	12037.7	11818.0	14222.4	21672.06
	Change (%)	-	2.34	-1.83	20.35	52.38
Agricultural material	Amount (Rs.)	99.83	1.2212	173.44	773.94	1973.30
	Change (%)	-	-98.78	14102.42	346.23	1.55
Fuel, lubricant and tyre tubes	Amount (Rs.)	6651.8	4409.4	4310.2	3364.4	6243.30
	Change (%)	-	-33.71	-2.249	-21.94	85.57
Machine and equipments	Amount (Rs.)	69.35	33.29	26.90	19.73	-
	Change (%)	-	-51.99	-19.19	-26.65	-
Construction materials	Amount (Rs.)	815.29	560.56	1547.1	1625.83	546.53
	Change (%)	-	-31.24	175.99	5.089	-66.38
Other materials	Amount (Rs.)	2540.2	1463.33	1286.56	1383.31	1469.12
	Change (%)	-	-42.39	-12.08	7.52	6.20

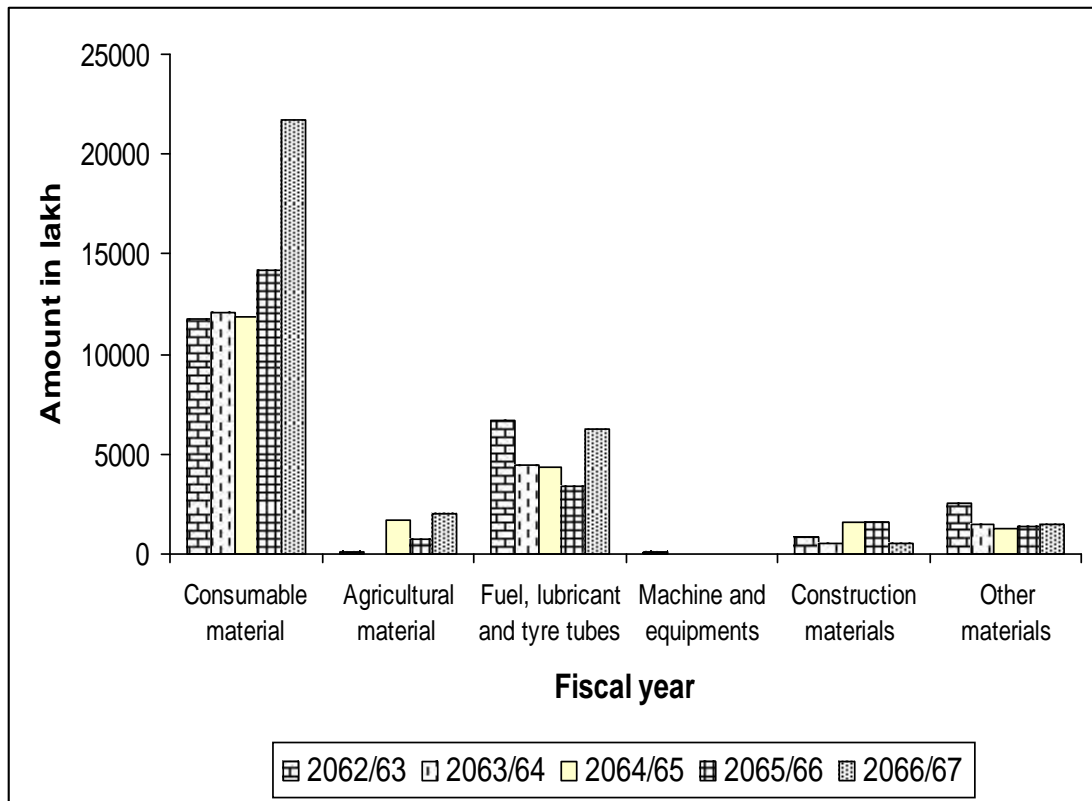
Source: Annual report of STCL.

The table No. 4.2 shows that total sales of products were in increasing trend during the fiscal year 2062/63 to 2063/64. After that those products sales trend slightly decreased in Fy 2064/65. Again sales of products are in increasing Fy 2065/66 and Fy 2066/67. The consumable material increased by 2.34 percent, 20.35 percent, 52.38 percent in the fiscal year 2063/64, 2065/66, and 2066/67 again decreased in the 1.83 percent in the fiscal year 2064/65. The sales of agricultural material in the Fy 2063/64 decreased by 98.78 after that increased in next two years. Again it went downward. Similarly, fuel, lubricant and tyres tubes sales shows similar fluctuations. The sales condition of machine and equipment decreasing trend in Fy 2063/64 to Fy 2066/67 and then it increased in Fy 2066/67. Construction materials and other materials sales shows similar fluctuations. Construction materials in the Fy 2066/67 was nil.

The sales trend of each product of the company can be seen from the following graphical presentation.

Figure : 4.2

Contribution of Each Product on Total Sales



Above multiple diagram clearly shows the contribution of each product in total sales. Multi bar diagram re useful for presenting several items of variables graphically. It also helps to study the relationship between each component. The figure 4.2 shows share of consumable material and agricultural material in total sales in each fiscal year. The share of fuel, lubricant and type tubes, machine and equipments, construction materials and other materials in total sales also found significant.

4.3 Variable Cost Analysis

There are mainly three types of cost i.e. fixed cost, semi-variable cost and variable cost. Among them, variable cost is that const which is changed with the change in production/sales units. In other words, variable cost varies in direct proportion to change in output or activities level, but per unit is constant

within one financial year. Variable cost per unit may vary for different financial years on account of internal and external environment of the company. According to the company's annual reports, variable cost is costs covering cost of sales were as follows:

Table : 4.3
Variable Cost of Sales

NRs. in lakhs

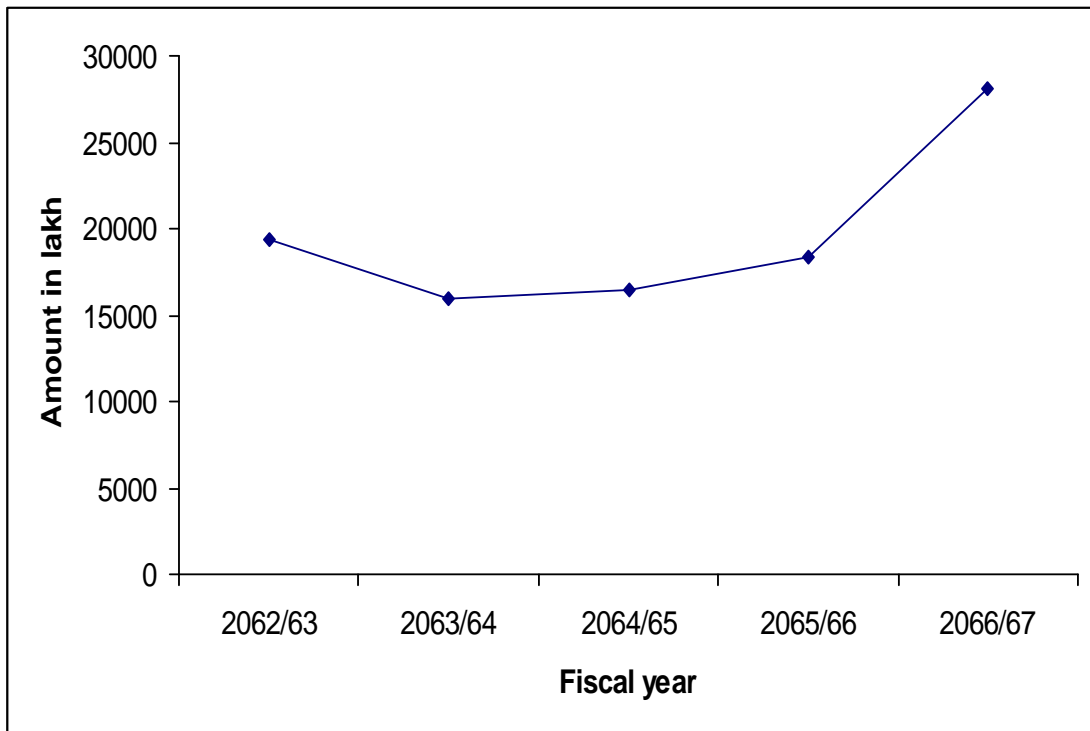
Year	2062/63	2063/64	2064/65	2065/66	2066/67
Purchases	17984	12797.15	10082.70	13172.36	25467.60
Add: Opening inventory	4706.69	7898.88	8765.78	7129.30	6101.69
Less: Closing inventory	7898.88	8765.78	7144.40	6116.21	10057.31
Add: Business expenses	4580.54	3990.36	4741.33	4190.86	6623.15
Total cost of sales	19372.35	15920.61	16445.41	18376.31	28135.13
Sales value	21939	18505	19162	21389	31904

Source: Annual report of STCL.

Above table no. 4.3 shows the fluctuating trend in the variable cost sheet. Variation in variable cost of sales, opening inventory, purchases and business expenses for different year is because of different external and internal factors. Purchase and business expenses has greater contribution towards increase in amount at cost of sales every year. In this corporation all of the variable cost are cost of sale. Because these types of corporation are not manufacturers, only one trading company. Those they have not specific manufacturing cost.

From the annual reports of Salt Trading Corporation, we can get only above mentionable cost i.e. cost of sales as a variable cost. The position of variable of the company can be clearly seen from the following graphic presentation.

Figure : 4.3
Trend of Variable Cost



The amount of variable cost can be clearly presented with the help of histograms. Here, in Histogram independent variable and variable cost as dependent variable. The figure No. 4.3 showed that the variable cost moved slightly downward and upward sloping due to change in sales.

4.4 Fixed Cost Analysis

Fixed cost remains constant in total amount despite the changes in the level of activity within a fiscal year. That is fixed cost remains unchanged in total as the output level varies within a year, but fixed cost per unit basis decrease as the level of activity increase and vice-versa. Fixed cost in total varies for different fiscal year may not remain stable because of internal and external factors of the company. According to the company is annual report, fixed cost was classified into following patterns.

Table : 4.4
STCL Fixed Cost Details

NRs. in Lakhs

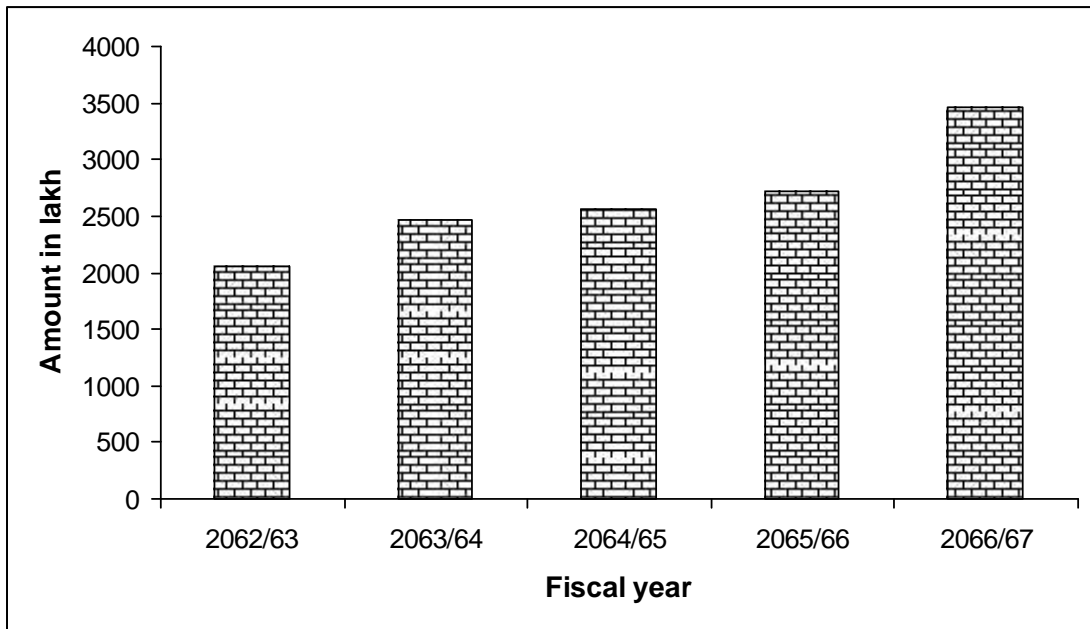
Details Year	Administrative cost		Interest expenses		Depreciation expenses		Total cost	
	Cost	% change	Cost	% change	Cost	% change	Cost	% change
2062/63	822.92	-	1199.95	-	38.73	-	2061.6	-
2063/64	883.65	7.38	1540.15	1528.35	47.33	22.21	2471.13	19.86
2064/65	904.79	2.39	1611.89	4.66	42.75	-9.68	2559.43	3.57
2065/66	1143.54	26.39	1529.56	-5.11	51.69	20.91	2724.79	6.46
2066/67	1424.64	24.58	1971.95	28.92	70.65	36.68	3467.24	27.25

Source: Annual report of STCL.

Above table No. 4.4 shows that administrative expenses, interest and depreciation expenses for different Fy. IN the Fy 2062/63 to 2066/67 the cost is increasing trend. The nature of fixed cost is remain constant in total amount despite the change in the level of activity with in a fiscal year. But in this corporation the trend of fixed cost was no remain constant. In every year, every cost of changed ratio was increasing trend. In administrative cost is increased by 7.38 percent, 2.39 percent, 26.39 percent and 24.58 percent in the year 2063/64, 2064/65, 2065/66, 2066/67 respectively. In this way the interest expenses are also increasing year after year. From 28.35 percent to 4.66 in the Fy 2061/62 to 2062/63 and than interest expenses were decreasing with 5.11 percent. Corporation has to pay more interest to the investors one after another fiscal year. Ultimately, those increases has portion of increase amount of total fixed cost. Except of 2064/65 the cost of depreciation expenses also increasing trend in every year. Corporation has buy new machine, new vehicle and other fixed nature goods. Therefore, the amount of charging depreciation is also increases. And finally all those total cost is increasing nature. The position of

the fixed cost of the corporation can be clearly seen from the following graphic presentation.

Figure : 4.4
Position of Fixed Cost



The amount of the fixed cost can be clearly presented with the help of simple bar diagram. Simple bar diagram is the simplest of the bar diagrams and is used frequently in practice for the comparative study of value of single variable. The figure 4.4 shows that the fixed cost is increased different fiscal year gradually.

4.5 Income Statement Analysis

Income is computed by deducting all expenditure form turnover. It is surplus of sales over expenditure. Income measures the real performance of the company. High income indicates good performance whereas low income threatens the company. Value of income is received by deducting fixed and variable cost form sales contribution margin is obtained by deducting variable cost form sales out of which fixed cost is deducted to get net profit. Much information can be presented with the help of the following income statement.

Table : 4.5
STCL Income Statement Details

(NRs. in Lakhs)

Year	2062/63	2063/64	2064/65	2065/66	2066/67
Details					
1. Sales	21939	18505	19162	21389	31904
2. Variable cost	19372.35	15920.61	16445.41	18376.31	28135.13
3. Contribution margin (1-2)	2566.65	2584.39	2716.59	3012.69	3768.87
4. Fixed cost	2061.6	2471.13	2559.43	2724.79	3467.24
5. Net income (3-4)	505.05	113.26	157.16	287.9	301.63
6. Net profit margin (5-4)	2.30	0.61	0.82	1.35	0.95
7. V/C ratio (2 1)	88.30	86.03	85.82	85.91	88.19
8. % of FFC on sales (4 1)	9.40	13.35	13.36	12.74	10.87
9. % of VC on total cost (2 2+4)	90.38	86.56	86.53	87.09	89.03
10. % of FC on total cost (4 2+4)	9.62	13.44	13.47	12.91	10.97
11. Operating leverage (3 5)	5.08	22.82	17.29	10.46	12.49

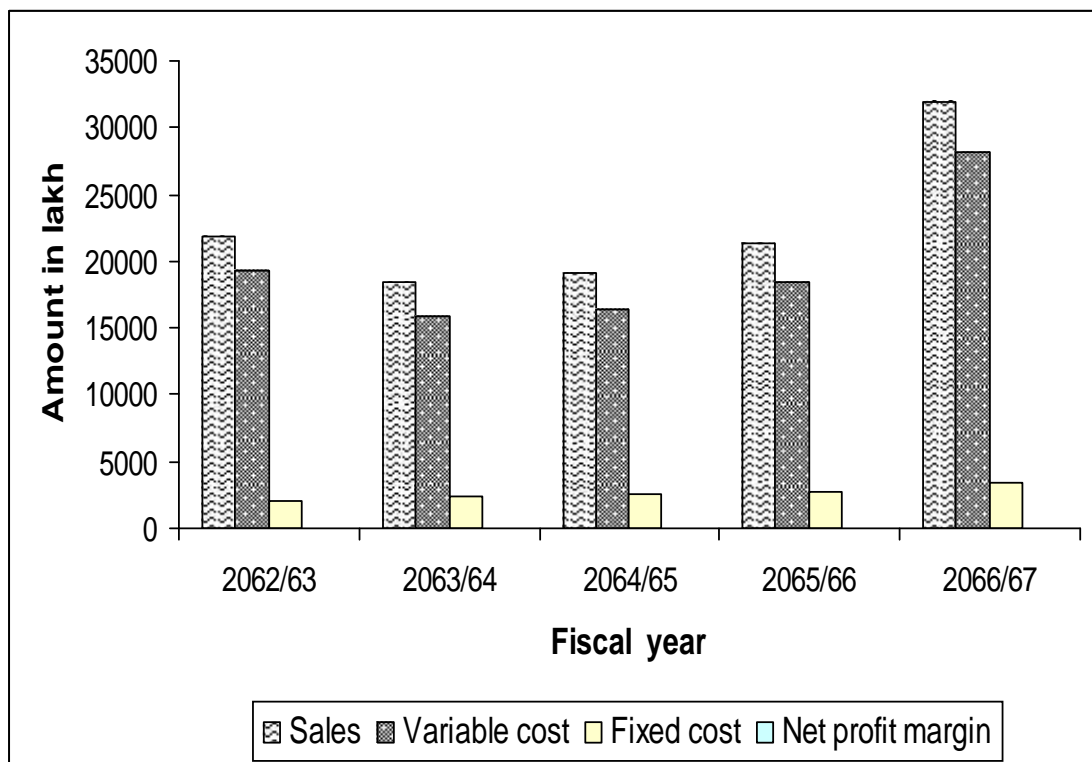
Here, net income represents operating income only. Non-operating income and non-operating expenses are not incorporated in this analysis. Net profit margin of the company are 2.30 percent, 0.61 percent, 0.82 percent, 1.35 percent, and 0.95 percent in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. It indicates that net profit of the company are in decreasing trend.

The variable cost ratio of the company are 88.30 percent, 86.03 percent, 85.82 percent, 85.91 percent and 88.19 percent in the Fy 206y2/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. The percentage of fixed cost on sales are 9.40 percent, 13.35 percent, 13.36 percent, 12.74 percent and 10.87 percent in the Fy 2062/63, 2063/64, 2064/65 and 2065/66 and 2066/67 respectively. The variable costs occupied higher portion in the total costs and the proportion of fixed cost on total cost is very low. This indicates that the company is non-

leverage organization. Variable cost changes with the change in activity level but the fixed cost remains constant upto the certain level of capacity. If the level of sales increases, variable cost also increases but the fixed cost remains same. That is why fixed cost is defined as leverage cost. Therefore, the company must maintain higher proportion of fixed cost units cost structure to increase more profit than increase in sales. The operating leverage of the company were 5.08, 22.82, 17.29, 10.46 and 12.49 in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. Operating leverage measures the operating risk of company. Lower value of operating leverage indicates lower amount of operating risk. The company uses low amount of fixed cost so it has lower value of operating leverage. Similarly, the company has lower amount of operating risk. Sales, variable costs, fixed cost and operating profit of the company can be clearly seen in the following graphical presentation.

Figure : 4.5

Sales, Variable Cost, Fixed and Profit



The figure No. 4.5 shows that sales, variable cost and fixed cost. Although the sales decreases during the period of the profit increased due to the reduction in fixed costs.

4.6 Analysis of Correlation between Sales and Net Profit

Two variables said to be correlated if change in the value of one variable appears to be related or linked with the change in other variable. Correlation is an analysis of the covariance between two or more variables. Correlation analysis deals with the degree of relationship between variables. The correlation analysis refers to the closeness of the relationship between the variables. The degree of correlation is measured by correlation coefficient. Here, Karl Pearson's coefficient of correlation, a most popular method, is used to determine the coefficient of correlation between sales and net profit.

Table : 4.6
Analysis of Correlation between Sales and Net Profit
(NRs. in lakhs)

Fy	Sales (x)	Profit (y)	xy	x ²	y ²
2062/63	21939	505	11079195	481319721	255025
2063/64	18505	113	2091065	342435025	12769
2064/65	19162	157	3008434	367182244	24649
2065/66	21389	288	6160032	457489321	82944
2066/67	31904	302	9635008	1017865216	91204
Total	x = 112899	y = 1365	xy = 31973734	x ² = 2666291527	y ² = 466591

Correlation Coefficient (r)

$$r = \frac{N \sum xy - \sum x \cdot \sum y}{\sqrt{N \sum x^2 - (\sum x)^2} \sqrt{N \sum y^2 - (\sum y)^2}}$$

$$\begin{aligned}
&= \frac{5 \mid 31973734 \mid Z112899 \mid 1365}{\sqrt{5 \mid 2666291527 \mid Z(112899)^2} \sqrt{5 \mid 466591 \mid Z(1365)^2}} \\
&= \frac{159868670 \mid Z154107135}{\sqrt{585273434} \sqrt{469730}} \\
&= \frac{5761535}{24192.425 \mid 685.369} \\
&= \frac{5761535}{16580738} \\
&= 0.35
\end{aligned}$$

$$\text{Probable Error (P.E.)} = 0.6745 \times \frac{1 Z r^2}{\sqrt{n}}$$

$$\begin{aligned}
&= 0.6745 \times \frac{1 Z 0.35^2}{\sqrt{5}} \\
&= 0.6745 \times \frac{0.8775}{2.2361} \\
&= 0.6745 \times 0.3924 \\
&= 0.2647
\end{aligned}$$

The value of correlation coefficient is 0.35. This indicates that there is positive correlation between sales and net profit. The value of correlation coefficient suggests that if sales increases, net profit also increases but not in same manner.

Since coefficient of correlation (r) is greater than 6 times greater than PE of r (0.35 > 6 x 0.2647). So it suggests, there is significant relationship between the net profit and sales and it shows better future of STCL.

4.7 Contribution Margin Analysis

Contribution margin is the excess of sales revenue over variable cost. Contribution margin is the balance available to recover fixed expenses after which it and contributes towards profit. IF the contribution margin available out of sales is not sufficient to cover the fixed cost, then the firm suffer form losses. Contribution margin per unit (CMPU) is selling price per unit less variable cost per unit. Contribution margin expressed as percentage on sales revenue is called contribution margin (C/M) ratio or profit volume (P/V) ratio. Total contribution margin and contribution margin ratio are presented in the following table.

Table : 4.7
Contribution Margin Details

(NRs. in lakhs)

Year	2062/63	2063/64	2064/65	2065/66	2066/67
Details					
Contribution margin	2566.65	2584.39	2716.59	3012.69	3768.87
P/V or CM ratio %	11.70	13.97	14.18	14.08	11.81

The contribution margin and P/V ratio shows in the above table. The P/V ratio of the company were 11.70 percent, 13.97 percent, 14.18 percent, 14.08 percent and 11.81 percent in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. It is very low due to the huge amount of variable cost. The following table shows the analysis of productwise contribution margin of STCL.

Table : 4.8
Contribution Margin

(NRs. in lakhs)

Details Fiscal year		Consumable material	Agricu- ltural material	Fuel, lubricant and tyres, tubes	Machine and equipments	Construction materials	Other materials	Total
2062/63	S	11763	100	6653	69	815	2540	21939
	VC	10387	88	5874	61	720	2243	19373
	CM	1376	12	778	8	95	297	2566
2063/64	S	12038	1	4409	33	561	1463	18505
	VC	10353	0.86	3792	28	482	1258	15914
	CM	1685	0.14	617	5	79	205	2591
2064/65	S	11818	173	4310	27	1547	1287	19162
	VC	10142	148	3699	23	1328	1105	16445
	CM	1676	25	611	4	219	182	2717
2065/66	S	14222	774	3364	20	1626	1383	21389
	VC	12218	665	2890	17	1399	1188	18377
	CM	2004	179	474	3	227	195	3012
2066/67	S	21672	1973	6243	-	547	1469	319.4
	VC	19113	1740	5506	-	482	1296	28137
	CM	2559	233	737	-	65	173	3767

Contribution margin = Sales in Rs. – Variable cost in Rs.

From the table 4.8 shows that the amount of contribution margin sales and variable cost of each product. Among the product the contribution margin of the ‘consumable material’ has strong position than other products. Total contribution margin of the corporation were Rs. 2566, Rs. 2591, Rs. 2717, Rs. 3012 and Rs. 3767 in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. If the corporation has more contribution margin, ti has more probability to earn profit and vice-versa.

4.8 Break-Even Analysis

BEP analysis is most widely known form the CVP analysis. BEP is that point of sales at which neither there will be profit nor loss. It is concerned with the study of revenues and costs in relation to sales volume and determination of that volume of sales at which the firm’s revenues and total cost will exactly be

equal. BEP is that point at which loss ceases and profit begins. The BEP of the company in Rs. is presented in the following table.

Table : 4.9
Break Even Point Details

(NRs. in lakhs)

Year	2062/63	2063/64	2064/65	2065/66	2066/67
Details					
BEP (Rs.)	17622	17694	18053	19345	29351
Change (%)	-	0.408	2.029	7.157	51.72
BEP (Ratio)	80.32	95.62	94.21	90.44	92

Where,

$$(a) \text{ BEP (Rs.)} = \frac{\text{Fixed cost}}{\text{Weighted average (Rs.)}}$$

(b) Weighted average (Rs.) = (P/V ratio of each product x Sales mix (Rs.) of each product)

$$(c) \text{ BEP (Ratio)} = \frac{\text{BEP sales (Rs.)}}{\text{Actual sales (Rs.)}}$$

The table No.4.10 shows that the BEP (Rs.) were in fluctuating trend. The main reasons of fluctuating BEP are the change in fixed cost and change in variable cost. The change in contribution margin or profit volume ratio is also the root of cause of reduction and deduction in BEP. Break-even point (Rs.) of the company were in 17622, 17694, 18053, 19345 and 29351 lakhs in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. IN the Fy 2066/67 the company is able to cover all of its cost through sales 29351 lakhs. The ratio of BEP sales on actual sales is called BEP ratio. It provides information about how many percentage of total sales is utilized only to meet in total cost. The break-even ratio of the company were, 80.32 percent, 95.62 percent, 94.21 percent, 90.44 percent and 92 percent in the Fy 2062/63,

2063/64, 2064/65 and 2066/67 respectively. Lower break even ratio indicates the strength of the company. But this company has no lower BEP ratio. Therefore, the condition of the company is not so good taking the reference of BEP ratio.

4.9 Margin of Safety Analysis

Margin of safety is the excess of actual sales over the break even sales volume. Thus it provides a certain amount of cushion to the company to avoid loss. The formula for its calculation is, margin of safety = Total sales – Break-even sales. The larger of the margin of safety that indicates the better profitability. A low margin of safety is the result of high operating cost. The margin of safety can be expressed as a percentage by dividing the margin of safety by actual sales margin of safety and safety margin ratio of the company are presented in the following table.

Table : 4.10
Margin of Safety Details

(NRs. in lakhs)

Year	2062/63	2063/64	2064/65	2065/66	2066/67
Details					
Margin of safety (Rs.)	4317	811	1109	2044	2553
MOS Ratio (%)	19.68	4.38	5.79	9.56	8.00

In the above table it can be clearly seen the actual position of the margin of safety of the company. The margin of safety of company was in fluctuating trend. The margin of safety of company were 4317, 811, 1109, 2064/65, 2065/66, 2066/67 respectively. The margin of safety ratio of the company are 19.68 percent, 4.38 percent, 5.79 percent, 9.56 percent and 8.0 percent in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. Here the higher percentage of MOS ratio indicates that the company is in strong profitability position.

4.10 Sales Mix and Break Even Analysis

Most firms have more than one product. The relative proportion of each type of product sold is called the sales mix. All products are not equally profitable in multi-products business. This is because such changes in the sales mix from low margin items to high margin items can cause total profit to increase even though the total sales may decrease and vice-versa. Break-even analysis is somewhat more complex if a company sells more than one product. If the sales mix changes the break-even point will also change. Thus, to enhance the profit the firm may introduce required changes in the ratio with the help of break-even analysis. Here, Salt Trading Corporation Limited has six different products. So the company is defined as multi-product organization. Through it is very difficult to calculate productwise BEP for the company due to the different sales price and cost price of the product the following procedure is used to calculate productwise BEP.

a.
$$\text{Sales mix (Rs.)} = \frac{\text{Individual sales (Rs.)}}{\text{Total sales (Rs.)}}$$

b.
$$\text{Weighted P/V ratio} = \text{Sales mix (Rs.)} \times \text{P/V ratio of each product}$$

Or

$$\text{Weighted contribution margin} = \text{Sales mix (Unit)} \times \text{Contribution margin of each product}$$

c.
$$\text{Overall BEP (Rs.)} = \frac{\text{Total fixed cost}}{\text{Weighted P/V ratio}}$$

d.
$$\text{Productwise BEP (Rs.)} = \text{Overall BEP (Rs.)} \times \text{Sales mix (Rs.) of each product}$$

The productwise BEP in Rs. of the company are presented in the following table.

Table : 4.11
Productwise BEP (Rs.)

(NRs. in Lakhs)

Fiscal year \ Details		Consumable material	Agricultural material	Fuel, lubricant and tyres, tubes	Machine and equipments	Construction materials	Other materials
2062/63	BEP (Rs)	9449	80	5344	55	655	2040
	BEP (%) Ratio	64.53	64.26	64.53	64.03	64.56	64.52
2063/64	BEP (Rs)	11481	0.9537	4205	31	535	1395
	BEP (%) Ratio	9096	90.95	90.96	89.59	90.95	90.94
2064/65	BEP (Rs)	11130	163	4059	25	1457	1212
	BEP (%) Ratio	88.70	88.74	88.69	87.20	88.7	88.76
2065/66	BEP (Rs)	12868	700	3044	18	1471	1251
	BEP (%) Ratio	81.86	81.82	81.87	81.43	81.85	81.84
2066/67	BEP (Rs)	19941	1815	5744	-	503	1352
	BEP (%) Ratio	84.66	84.64	84.65	-	84.76	86.68

The above table shows that BEP of the company for each product largely decreased and increased within the period of five years. BEP ratio of each product is almost 64 percent in the Fy 2062/63. And it increases to 90 percent, 88 percent, 81 percent and 84 percent in the Fy 2063/64, 2064/65, 2065/66 and 2066/67 respectively.

4.11 Sensitivity of CVP Analysis

The analysis of cost behaviour facilitates the use of CVP technique to know the degree of impact on financial result which is known as “sensitivity analysis.” CVP analysis helps to measure the extent of the impact (sensitivity) of changes in key factors (such as price, volume, variable cost, fixed cost and combination of factors which shows proportionate relationship. The management teams may not only be able to obtain a numerical expression of their business orientation,

but in addition may be able to assess a range of issues in relation to product and service profitability profit improvement and effectiveness. The following table provides the insights into the “sensitivity analysis.”

Table: 4.12
Different Factors Affecting CVP Analysis

Factors	Effects in P/V ratio	Effects in BEP	Effective in profit
Sales revenue:			
Increase	No effect	No effect	Increase
Decrease	No effect	No effect	Decrease
Variable cost:			
Increase	Decrease	Increase	Decrease
Decrease	Increase	Decrease	Increase
Fixed cost:			
Increase	No effects	Increase	Decrease
Decrease	No effects	Decrease	Increase

4.11.1 Effects of Changes in Sales Value

Any increase or decrease in the sales value will have effect in profit. There will be changes in profitability as the changes occurs in operating leverage. An analysis of increase and decrease of sales value by 10 percent for the fiscal year 2066/67 with other factors assumed remain constant are presented below.

Table : 4.13

Income Statement with Change of Sales Value of the Fy 2066/67

(NRs. in lakhs)

Details	Original	Change in sales value	
		10% Increase	10% Decrease
Sales revenue	31904	35094	28714
Les: Variable cost	28135.13	28135.13	28135.13
Contribution margin	3768.87	6958.87	578.87
Fixed cost	3467.24	3467.24	3467.24
Profit	301.63	3491.63	(2888.37)
CM ratio	0.118	0.198	0.02016
BEP	29383	17511	171986

The above table No. 4.12 shows that with the increase in sales value by 10 percent the profit of the company will be increase by 1057.58 percent. Similarly, with the decrease in sales value by 10 percent the profit of the company will decrease by 1057.58 percent. The sales value is changed by the same percentage when changes are made in sales by 10 percent.

4.11.2 Effect of Change in Variable Cost

The impact of change in variable cost on profit is straight forward if it does not cause any change in sales revenue and fixed cost. An increase in variable cost will lower P/V ratio, push up the BEP and reduce profit. On the other hand, if the variable cost decline, P/V ratio will increase. BEP will lowered and profit will rise. If the increase and decrease of variable to remain same, it gets following result for the Fy 2066/67.

Table : 4.14

Statement with Change of Variable Cost for the Fiscal Year 2066/67

(NRs. in lakhs)

Details	Original	Change in variable cost	
		10% Increase	10% Decrease
Sales revenue	31904	31904	31904
Les: Variable cost	28135.13	30948.64	25321.62
Contribution margin	3768.87	955.36	6582.38
Fixed cost	3467.24	3467.24	3467.24
Profit	301.63	(2511.88)	3115.14
CM ratio	0.118	0.0299	0.2063
BEP	29383	115961	16807

Above table no. 4.14 shows that with 10 percent increase in variable cost, break even point increase by 295.08 percent which indicates that variable cost and break even point have positive and proportionate relationship. Similarly, with the decrease in variable cost by 10 percent, the break even point has been also decreased by 85.51 percent.

4.11.3 Effect of Changes in Fixed Cost

A change in fixed cost does not influence P/V ratio. Other factors remaining unchanged, a fall in fixed cost will however lower the BEP and raise profit. An increase in fixed cost will push up BEP but reduce profit. If increased and decreased of fixed cost by 10 percent with other factors assumed to remain same, it gets following result for the fiscal year 2066/67.

Table : 4.15

Income Statement with Change of Fixed Cost for the Fiscal Year 2066/67

Details	Original	Change in fixed cost	
		10% Increase	10% Decrease
Sales revenue	31904	31904	31904
Les: Variable cost	28135.13	28135.13	28135.13
Contribution margin	3768.87	3768.87	3768.87
Fixed cost	3467.24	3813.96	3120.52
Profit	301.63	(45.09)	648.35
CM ratio	0.118	0.118	0.118
BEP	29383	32322	26445

Above table No. 4.15 shows that 10 percent of fixed cost increase break even amount is increased by same percentage i.e. 10 percentage i.e. 10 percent and 10 percent decrease in fixed cost, BEP amount is decreased by same 10 percent. From this situation, it can be concluded the break even point and fixed cost has get direct proportionate relationship.

4.12 Major Findings

Based on the analysis and interpretation of relevant data obtained from annual reports of STCL following major findings have been drawn as follows:

-) Sales of the corporation seemed volatile. It is slightly decreased in FY 2063/64 and then increased in following years.
-) Among the different products sold by corporation, agricultural material and machine equipment on total sales are found nominal. But other products made highest contribution on total sales.
-) Total expense of Salt Trading Corporation Limited is seemed fluctuating. Variable cost as well as fixed cost increased or decreased during the period.

-) The corporation has no details of systematic expenses planning are essential for profit planning and control.
-) From correlation analysis, it is found that there is positive correlation between sales and net profit. Change in sales, made change in profit but change in sales, made change in profit but change is not in the same ratio.
-) Margin of safety ratio of the corporation are 19.68 percent, 4.38 percent, 5.79 percent, 9.56 percent and 8.0 percent in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. Here the higher percentage of MOS ratio indicates that the company is in strong profitability position.
-) Contribution margin of the corporation are Rs. 2566.65, Rs. 2584.39, Rs. 2716.59, Rs. 3012.69 and Rs. 3768.87 percent in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. It shows that the low contribution are in the Fy 2062/63 and 2063/64. Low contribution margin may problem to the corporation.
-) BEP ratio of the corporation are 80.32 percent, 95.62 percent, 94.21 percent, 90.44 percent and 92 percent in the Fy 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 respectively. This corporation has no lower BEP ratio. Lower BEP indicates strength position of the corporation. Therefore the condition of the corporation is not so good taking the reference of BEP ratio.

CHAPTER-V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter highlights some selected actionable conclusion and recommendations on the basis of the major findings of the study derived from the analysis of STCL. The study has covered 5 years data from Fy 2062/63 to 2066/67. The major findings of the study based on financial analysis listed in chapter-IV of this report in order to carry out this study only secondary data have been used. The analysis of data is carried out with the help of various financial tools. The findings of the study are summarized and conclusion and recommendations are given below.

5.1 Summary

Nepal is a developing country in the world. The main sources of income is agriculture. Industrialization is essential for the socio-economic development of the nation. Science and technological advancement play vital role in industrialization of the nation. Management of all these sectors is very essential. Without good management organization cannot achieve its goal and objectives. The government of Nepal has established so many public enterprises to facilitate the services towards the people. Most of the public enterprises are suffering from loss. Available resources and capacity are not utilized properly. Many tools and techniques of management are ignored. These tools are not practiced in public enterprises for measurement of financial performances.

Efficient management is the prime necessity of today's world as resources are limited and scarce. Proper uses of scarce resources in effective and efficient way are essential. As future is uncertain so risk is present in the business world. To avoid or reduce such risk, proper management is very necessary.

Management effectively helps achieve organizational objectives through the efficient use of the scarce resources in a changing environment. Cost volume and profit analysis is an analytical technique which helps to study the relationship between cost, volume and profit. Cost volume and profit analysis helps to manage profit without suffering from loss in future. So profit planning refers to a written plan. Without cost, volume and profit planning tools estimation of profit are not possible.

The objectives behind the research study is to examine the effectiveness of profit planning and control with the help of cost, volume and profit tool in Salt Trading Corporation Limited. Focus of this study is to evaluate cost, volume and relationship of STCL. Salt Trading Corporation has been able to meet the expectation of general public. The secondary data with descriptive and analytical approach are used for cost analysis, sales analysis, contribution margin analysis, P/V ratio analysis and break-even analysis.

Salt Trading Corporation has low contribution margin, low P/V ratio, high break even point and low margin of safety. The sensitivity test of CVP analysis proves that if variable and fixed cost increases, the break even point will also increases and if they were decreased then, the break even point also decreases. But at the time of increases in sales price the break even point will decrease. It indicates that cost and break even point has positively correlation where as sales price and break even point has negatively correlation. The company's condition is very poor and requires effective improvement in situation.

5.2 Conclusions

Salt Trading Corporation Ltd. could not achieve the goal. Various popular profit planning tool like, JIT, zero based budgeting, CVP analysis are not practiced in Salt Trading Corporation Limited. Cost segregation into fixed and variable where not done. The operating and maintenance cost are in rising trend. No specific technique is used till now to control cost or reduce them. Classification of cost is not done on scientific and systematic basis rather they

are done on hunches and prediction made by employees. Salt Trading Corporation Limited still remained behind for the realistic budget and is not been able to practice CVP analysis as a tool to profit planning and control.

The study of CVP Salt Trading Corporation Ltd. shows that the corporation has low and fluctuating contribution margin affecting the profit. Even though the corporations contribution margin has increased by because of increase in sales revenue but the increase in fixed cost has increased BEP to higher level. The sensitivity of CVP analysis in response to change in fixed cost is proportionate whereas it is very high in response to change in sales revenue and variable cost. The increase in sales revenue of the company has also increased profit and safety margin. CVP relationship is not used in STCL while developing sales plan, margin analysis, P/V ratio analysis and break-even analysis.

Salt Trading Corporation has low contribution margin, low P/V ratio, high break even point and low margin of safety. The sensitivity test of CVP analysis proves that if variable and fixed cost increases, the break even point will also increases and if they are decreased then, the break even point also decreases. But at the time of increases in sales price the break even point will decrease. It indicates that cost and break even point has positively correlation where as sales price and break even point has negatively correlation. The company's condition is very poor and requires effective improvement in situation.

5.3 Recommendations

Nepal is moving towards globalization with membership of WTO. Therefore, Nepalese companies now have to prepare themselves to compete with international market through effective use of limited resources. Profit planning and control is a means for every organization to achieve goals in a cut throat competition without much difficulty. Nepalese organization lacks effective tools for its improvement. Thus the following recommendations are made taking the reference of major findings.

-) In Nepal most public and private enterprises have not practiced CVP analysis in systematic manner. So, it is suggested that every public and private enterprises should apply CVP analysis.
-) CVP analysis shows the relationship cost, revenue, profit. So, this tool is very much useful to every organization in formulating profit plan for future.
-) In this corporation, there are many expert and skilled manpower but CVP analysis is not used. Semi variable costs are not segregated systematically into fixed or variable. It is essential to classify the cost for controlling purpose also.
-) The objectives are the basic guideline of Salt Trading Corporation. Therefore, duties and responsibilities to be clearly assigned to its staffs. So that overall objectives of the corporation can be achieved.
-) BEP ratio of the corporation is not satisfactory level. In the FY 2062/63, 2063/64, 2064/65, 2065/66 and 2066/67 the BEP ratio is 80.32 percent, 82.32 percent, 95.62 percent, 94.21 percent, 90.44 percent and 92 percent respectively. To make a good condition of the organization, they should have maintained a minimum level of BEP ratio. Lower the BEP ratio, lower risk and vice-versa.
-) Like other trading company in Nepal, salt trading lacks profit planning and control tools for import substitution and increase in profit. Better planning tools are needed to be utilized like CVP analysis and budgeting.
-) Salt trading corporation limited should follow CVP analysis to reach break even point which helps in preparation of sales plan, purchase plan, and setting price of its products.
-) Salt trading corporation should increase the proportion of fixed cost and should reduce the proportion of variable cost on its cost structure to be a leverage organization.

-) As S.T.C.L. is multi-product company more emphasis should be provided for the product of consumable materials having high contribution margin to generate more profit.
-) As S.T.C.L. spend huge amount on the topic of salaries and wage, it should like proper manpower planning to reduce the cost.
-) Some portion of profit should be allocated to research and development program so that new technology could be found which provide more competitiveness in the market.
-) New market areas should be identified for the coverage increase of company.
-) System of periodicals performance reports should be strictly followed to be conscious about poor performance and take corrective action immediately.
-) Sales revenue of the corporation is fluctuating trend, it is not sufficient to cover the cost and earn desire profit. Sales plan of the enterprises should clear maintain and improve.
-) There are many new and popular management theory like, management by objective, participative management etc. This principle can be more effective to every organization. S.T.C.L. should apply this theory for better performance of the enterprises.

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APPENDICES

Appendix-I

Actual Sales of STCL

(NRs. in Lakhs)

Year		2062/63	2063/64	2064/65	2065/66	2066/67
Products						
Consumable material	Amount (Rs.)	11762.9	12037.7	11818.0	14222.4	21672.06
Agricultural material	Amount (Rs.)	99.83	1.2212	173.44	773.94	1973.30
Fuel, lubricant and tyre tubes	Amount (Rs.)	6651.8	4409.4	4310.2	3364.4	6243.30
Machine and equipments	Amount (Rs.)	69.35	33.29	26.90	19.73	-
Construction materials	Amount (Rs.)	815.29	560.56	1547.1	1625.83	546.53
Other materials	Amount (Rs.)	2540.2	1463.33	1286.56	1383.31	1469.12
Total		21939.37	18505.50	19162.2	21389.18	31904.25

Appendix-II

Cost of Goods Sold of STCL

(NRs. in Lakhs)

Year		2062/63	2063/64	2064/65	2065/66	2066/67
Details						
Purchases		17984	12797.15	10082.70	13172.36	25467.60
Opening inventory		4706.69	7898.88	8765.78	7129.30	6101.69
Closing inventory		7898.88	8765.78	7144.40	6116.21	10057.31
Business expenses		4580.54	3990.36	4741.33	4190.86	6623.15
Total cost of sales		19372.35	15920.61	16445.41	18376.31	28135.13

Appendix-III

Profit and Loss A/C of STCL

(NRs. in Lakhs)

Particulars	2062/63	2063/64	2064/65	2065/66	2066/67
Actual sales	2193.37	18505.50	19162.2	21389.18	31904.25
Cost of goods sold	19372.35	15920.61	16445.41	18376.31	28135.13
Gross profit	2567.02	2584.89	2716.79	3012.87	3769.12
Other income	275.51	3458.77	260.25	257.89	282.15
Total	2842.52	2930.66	2977.04	3270.76	4051.27
Adm. expenses	822.92	883.65	904.79	1143.54	1424.64
Interest expenses	1199.95	1540.15	1611.89	1529.56	1971.95
Depreciation expenses	38.73	47.33	42.75	51.69	70.65
Operating profit	780.92	459.53	417.61	545.97	584.03
Gain on sale of assets (loss)	1.45	0.0084	0.9617	0.0899	0.0295
Earning before bonus and taxes	782.37	459.54	418.572	546.060	584.060
Employee bonus	78.24	45.95	-	22.40	26.0
Earning before bonus (loss)	704.13	413.59	418.572	523.66	558.06
Tax amount	206.04	123.06	105.12	123.64	152.77
Earning after tax (loss)	498.09	290.53	313.452	400.02	405.29
Opening retained earning	120.34	46.95	1407.31	-	339.80
Closing retained earning	618.43	337.48	1720.76	400.02	745.09