

**"COST – VOLUME – PROFIT ANALYSIS
OF
KANTIPUR PUBLICATION & KAMANA PRAKASHAN PVT. LTD."**

A THESIS

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Nepal Commerce Campus

Submitted to:

Office of The Dean

Faculty of Management

Tribhuvan University

**In partial fulfillment of Requirements for
the Degree of Master in Business Studies (MBS)**

New Baneshwor, Kathmandu

August, 2008

RECOMMENDATION

This is to certify that the thesis

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Entitled

"Cost – Volume – Profit Analysis

Of

Kantipur Publication & Kamana Prakashan Pvt. Ltd"

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

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I hereby declare that the work reported in this entitled "Cost – Volume – Profit Analysis of Kantipur Publication & Kamana Prakashan Pvt. Ltd." has submitted to the Research Department of Nepal Commerce Campus, New Baneshwor, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirements for the Master of Business Studies (MBS), under the supervision of Dr. Prakash Neupane, Nepal Commerce Campus.

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ACKNOWLEDGEMENT

This thesis is prepared and submitted to the faculty of management as a partial fulfillment of the requirement for the degree of Master in Business Studies (MBS).

I would like to express my deep gratitude towards reverent supervisor Dr. Prakash Neupane for his guidance and suggestions; I have also received various suggestion, advices and encouragements from seniors, teachers, friends, and relatives.

I am thankful to library staffs for their help and co- operation. I also want to pay my hearty thanks to all the staffs of Kantipur Publication and Kamana Prakashan Pvt. Ltd. for providing the information and necessary data sincerely and timely and all the teachers and the staffs of Nepal Commerce Campus whose kind co – operation have made it possible to complete the work.

I express my deep gratitude to my family who helped and spent their valuable time, efforts and sacrifice for my career development. I would also like to thanks to all my nearest friends for their co – operation and encouragement to complete this thesis.

Finally, I would take full responsibility of any error or mistake on this thesis.

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Table of Contents

| | Page No. |
|-----------------------|----------|
| Viva – Voce Sheet | ii |
| Recommendation Letter | iii |
| Declaration | iv |
| Acknowledgements | v |
| Table of Contents | vi |
| List of Table | ix |
| Abbreviations | x |

Chapter - I

| | |
|---|-----|
| 1. Introduction | 1-6 |
| 1.1 Introduction | 1 |
| 1.2 Background of the study | 1 |
| 1.2.1 Profile of Kantipur Publication Pvt. Ltd. | 2 |
| 1.2.2 Objective of Kantipur Publication Pvt. Ltd. | 3 |
| 1.2.3 Functions of the Kantipur Publication Pvt. Ltd. | 3 |
| 1.2.4 Profile of Kamana Prakashan Pvt. Ltd. | 3 |
| 1.3 Statement of the problems | 4 |
| 1.4 Objective of the study | 5 |
| 1.5 Need/Scope or Significance of the study | 5 |
| 1.6 Limitation of the study | 5 |
| 1.7 Organization of the study | 6 |

Chapter – II

| | |
|---|------|
| 2. Review of Literature | 7-49 |
| 2.1 Introduction of profit planning and control | 7 |
| 2.2 Fundamental Concepts of profit planning and control | 8 |
| 2.3 Cost – Volume – Profit as a tool of profit planning and budgeting | 9 |
| 2.4 Concept of Cost – Volume – Profit Analysis | 9 |
| 2.5 Purpose of CVP Analysis | 10 |
| 2.6 Importance of CVP Analysis | 10 |
| 2.7 Application of CVP Analysis | 11 |
| 2.8 Approaches to CVP and Break – Even Analysis | 11 |
| 2.9 Application of Break – Even Analysis | 15 |
| 2.10 Assumption of Break – Even Analysis | 15 |
| 2.11 Limitation of Break - Even Analysis | 16 |

| | |
|--|----|
| 2.12 Margin of Safety | 16 |
| 2.13 Formula of CVP Analysis | 17 |
| 2.14 Cost Classification | 22 |
| 2.15 Cost Behavior | 26 |
| 2.16 Segregation of Semi Variable Cost | 27 |
| 2.17 Cost – Volume – Profit Analysis for Multi Product Firms | 28 |
| 2.17.1 CVP Analysis with single constraints | 30 |
| 2.17.2 CVP Analysis with a Multiple Constraints | 31 |
| 2.17.3 CVP Analysis under condition of uncertainty | 32 |
| 2.18 Risk Analysis techniques applied in CVP analysis | 33 |
| 2.19 Risk Measurement: The operating leverage and break even point | 35 |
| 2.20 Sensitivity analysis of CVP analysis | 36 |
| 2.21 CVP and its impact on productivity | 37 |
| 2.22 Limitation of CVP analysis | 38 |
| 2.23 Special problems in CVP analysis | 38 |
| 2.23.1 The Activity Base | 38 |
| 2.23.2 The Change in Inventory | 38 |
| 2.23.3 The Operating income and expenses | 39 |
| 2.24 Review of previous related studies | 39 |
| 2.25 Research Gap | 48 |

Chapter - III

| | |
|--|--------------|
| 3. Research Methodology | 50-52 |
| 3.1 Research Design | 50 |
| 3.2 Population and Sample Design | 50 |
| 3.3 Sources of Collection data and processing procedures | 50 |
| 3.4 Tools for analysis | 50 |
| 3.5 Method of analysis and presentation | 51 |

Chapter - IV

| | |
|---|--------------|
| 4. Presentation and Analysis of Data | 53-82 |
| 4.1 Introduction | 53 |
| 4.2 Sales plan of Kantipur Publication and Kamana Prakashan Pvt. Ltd. | 53 |
| 4.2.1 Sales value analysis of Kantipur Publication and Kamana Prakashan Pvt. Ltd. | 53 |
| 4.2.2 Sales plan analysis | 56 |
| 4.3 Cost plan of Kantipur Publication and Kamana Prakashan Pvt. Ltd. | 57 |
| 4.3.1 Variable cost analysis | 58 |
| 4.3.2 Fixed cost analysis | 60 |

| | |
|---|----|
| 4.3.3 Semi variable cost analysis | 63 |
| 4.3.4 Production salary and wages analysis | 64 |
| 4.4 Inventory consideration of Kantipur Publication and Kamana Prakashan Pvt. Ltd. | 66 |
| 4.5 CVP analysis of Kantipur Publication and Kamana Prakashan Pvt. Ltd. | 67 |
| 4.5.1 Contribution margin analysis | 70 |
| 4.5.2 Profit Volume (PV) Ratio analysis | 70 |
| 4.5.3 Break Even Point (BEP) analysis | 71 |
| 4.5.4 Margin of Safety analysis | 73 |
| 4.5.5 Degree of Operating Leverage (DOL) | 73 |
| 4.5.6 Sales Volume of Earn a Desired Profit | 74 |
| 4.6 Profitability Ratio Analysis of Kantipur Publication and Kamana Prakashan Pvt. Ltd. | 74 |
| 4.7 Change effects and relationship of CVP analysis factors | 77 |
| 4.7.1 Change in sales | 77 |
| 4.7.2 Change in variable cost | 79 |
| 4.7.3 Change in fixed cost | 80 |
| 4.8 Major finding of the study | 81 |

Chapter - V

| | |
|---|---------------|
| 5. Summary, Conclusion and Recommendations | 83- 86 |
| 5.1 Summary | 83 |
| 5.2 Conclusion | 84 |
| 5.3 Recommendations | 85 |

Bibliography

Appendices

Resume

List of tables

| <u>Table No.</u> | <u>Title of Table</u> | <u>Page No.</u> |
|------------------|--|-----------------|
| 4.1 | Sales trend of Kantipur Publication Pvt. Ltd. | 53 |
| 4.2 | Sales trend of Kamana Prakashan Pvt. Ltd | 54 |
| 4.3 | Total budgeted and actual sales volume of Kantipur Publication Pvt. Ltd | 56 |
| 4.4 | Total budgeted and actual sales volume of Kamana Prakashan Pvt. Ltd. | 57 |
| 4.5 | Statement of Detail variable costs of Kantipur Publication Pvt. Ltd. | 58 |
| 4.6 | Statement of Detail variable costs of Kamana Prakashan Pvt. Ltd. | 59 |
| 4.7 | Fixed cost details of Kantipur Publication Pvt. Ltd. | 60 |
| 4.8 | Fixed cost details of Kamana Prakashan Pvt. Ltd. | 62 |
| 4.9 | Skill wise distribution of workers of Kantipur Publication Pvt. Ltd. | 64 |
| 4.10 | Skill wise distribution of workers of Kamana Prakashan Pvt. Ltd. | 64 |
| 4.11 | Wages structure of the workers of Kantipur Publication Pvt. Ltd. | 65 |
| 4.12 | Wages structure of the workers of Kamana Prakashan Pvt. Ltd. | 65 |
| 4.13 | Total Inventory level of Kantipur Publication Pvt. Ltd. | 66 |
| 4.14 | Total Inventory level of Kamana Prakashan Pvt. Ltd. | 66 |
| 4.15 | Income statement of Kantipur Publication Pvt. Ltd | 67 |
| 4.16 | Income statement of Kamana Prakashan Pvt. Ltd. | 68 |
| 4.17 | Separate profitability ratio of Kantipur Publication Pvt. Ltd. | 75 |
| 4.18 | Separate profitability ratio of Kamana Prakashan Pvt. Ltd. | 75 |
| 4.19 | Income statement changes with sales value of Kantipur Publication Pvt. Ltd. | 78 |
| 4.20 | Income statement changes with sales value of Kamana Prakashan Pvt. Ltd. | 78 |
| 4.21 | Income statement with changes of variable cost of Kantipur Publication Pvt. Ltd. | 79 |
| 4.22 | Income statement with changes of variable cost of Kamana Prakashan Pvt. Ltd | 79 |
| 4.23 | Income statement with changes of fixed cost of Kantipur Publication Pvt. Ltd | 80 |
| 4.24 | Income statement with changes of fixed cost of Kamana Prakashan Pvt. Ltd | 81 |

Abbreviations

| | | |
|-----------|---|---------------------------------|
| AS | = | Actual Sales |
| BEP | = | Break Even Point |
| CVPA | = | Cost – Volume – Profit Analysis |
| CVP | = | Cost – Volume – Profit |
| CM | = | Contribution Margin |
| CMPU | = | Contribution Margin per unit |
| DOL | = | Degree of Operating Leverage |
| DPAT | = | Desired profit after tax |
| EBIT | = | Earning before interest and tax |
| FC | = | Fixed Cost |
| F/Y | = | Fiscal Year |
| i.e. | = | That is |
| MOS | = | Margin of Safety |
| Pvt. Ltd. | = | Private Limited |
| PVR | = | Profit Volume Ratio |
| P. | = | Page |
| PPC | = | Profit Planning and Control |
| Rs. | = | Nepalese Rupees |
| SPPU | = | Selling price per unit |
| TC | = | Total Cost |
| TU | = | Tribhuvan University |
| VCPU | = | Variable cost per unit |
| VC | = | Variable Cost |

Chapter – I

Introduction

1.1 Introduction

The relationship between cost volume and profit is shown by cost-volume-profit analysis. It is an analytical tool for analyzing the relationship among cost price, profit, sales and production volume. Mainly, there are three elements in cost-volume-profit analysis(CVP).CVP analysis examines the behavior of total revenue, total cost and total operating income as change occur in the output level, the selling price, the variable cost per unit(VCPU) and the fixed cost of the product. CVP analysis is a management accounting tools to show the relationship between the elements of profit planning. Profit planning is the function of the selling price of the product, demand, variable cost, fixed cost, tax etc. In other words, CVP analysis applies the variable costing approach to analyze the built in relationship between cost, volume and profit. It analyzes the short term static relationship between cost, volume and profit. Specially, cost control and profit planning with the help of cost-volume-profit analysis.

Break even analysis, more precisely the break even points tells what quantity of output sold at which total revenues equal total costs. Break even point is that quantity of output sold at which the operating income is zero. Profit planning of each firm begins from break even analysis. Break even point is the bridge between the loss area and the profit area. Profit begins from the break even point. It is survival point where all firms must at least remain to sustain or continue the business.

1.2 Background of the study:

Nepal is one of the underdeveloped countries. It is a small landlocked country covering only 0.033% area of the world. The total area of this country is 147181 sq. kilometer. The main occupation of Nepalese people is agriculture.

The history of Nepal's daily newspapers in more than half a century. During the time of Rana Prime Minister Dev Shamsheer JBR, the first publication of newspaper 'Gorkhapatra' was published in 1958 B.S. At that time 1000 copies of Gorkhapatra was published. The published remained weakly till 42 years. But since 2003 B.S. Ashwin 29th, it was published two times in a week. Since 1st Poush 2003 B.S. it was published three times in a week and since 7th Falgun 2003 B.S. it has been publishing daily. The publishing institution was introduced as 'Gorkhapatra' for 62 years since established time under the Gorkhapatra Santhan Act, 2019. The institution turn into a corporation and introduced as a Corporation in 25th Ashad 2020 B.S. Now, Gorkhapatra Corporation has been expanding in a wide range such as- The Gorkhapatra, The Rising Nepal, Yubmanch, Madhupark and Muna.

Publication houses are attempting to provide latest news to the people. Some of them are Kantipur Publication Pvt.Ltd. Kamana Prakashan Pvt. Ltd., Gorkhapatra Corporation, Space time Publication Pvt. Ltd., International Media Network, Nepal Pvt. Ltd etc. . Nepal has free press now. Newspaper helps readers to find an honest picture of an uncolored presentation. Now, there are several newspapers available in several languages like Nepali, English, Newari, Hindi, Maithai etc. It is said, publication houses are accountable for the fourth estate to the society. Publication can provide voice to the citizen's aspiration to see solutions for the problem that arise in the country.

As the study concentrates over comparative study on CVP analysis of Kantipur Publication Pvt. Ltd. & Kamana Prakashan Pvt. Ltd.

1.2.1 Profile of Kantipur Publication Pvt. Ltd:

Kantipur Publication Pvt. Ltd is one of the renowned and leading publication houses of Nepal. It was established in 2047 B.S. First it started to publish "Kantipur Daily" and "Kathmandu Post" in 7th Falgun 2049 B.S. In the beginning, the publication was under Goyanka but later it was replaced by Gyawali and Sirohiya family. From 2050 B.S. Baishak 12, Kantipur started publishing a four page supplement Koshli with an aim of giving entertainment purely. Since 2052 B.S. Jestha 5, sapatahik was printed on every Friday. For making the publication well, organized branch offices were established at Biratanagar, Pokhara, Bharatpur and Nepalgunj. The process of distribution and advertisement are well maintained through these offices. At the same time, capable and experienced Journalists are kept in the regional offices for the better coverage of the regions.

Some of the Kantipur Publications are available on websites. All the publications of Kantipur have own types of different news at different headlines for different countries. Kantipur Publication Pvt. Ltd. has been expanding its publication in a wide range. At present "Kantipur Publication" publishes 5 publications in total which include:

- i.) Kantipur Daily (National daily Newspaper)
- ii.) The Kathmandu Post (National daily Newspaper)
- iii.) Saptahik (Weakly)
- iv.) Nepal (Weakly)
- v.) Sarbottam Nari (Monthly)

Source: Kantipur Publication Pvt. Ltd.

1.2.2 Objective of Kantipur Publication Pvt. Ltd.

The basis objectives of running and business organization are to earn profits. Profits determine the financial position, liquidity and slovenly of Kantipur Publication. Except profits, the main objectives of the Kantipur Publication are as follows.

-) To provide true picture of news and present scenario.
-) To provide national and international news.
-) To enhance public awareness.
-) To provide readers a true alternative to the government press.
-) To give pure entertainment.
-) To make availability of newspaper in every corner of the country.

1.2.3 Functions of the Kantipur Publication Pvt. Ltd.

Kantipur Publication Pvt. Ltd. operates the following necessary activities to achieve above mentioned objectives.

-) To publish newspaper, purchase and maintain necessary raw materials, machines or tools.
-) To receive and use all movable and immovable properties for the publication use.
-) To manage training inside and outside the country for development of necessary manpower, technicians and personnel for the publication work.
-) To sell the publication indifferent parts of the country.
-) Providing the reports necessary for supervision in overall capacity.
-) To manage the non technical and technical staffs from outside and inside for the Kantipur Publication.

1.2.4 Profile of Kamana Prakashan Pvt. Ltd:

Reader in Kathmandu and elsewhere in the country came across yet another broadcast daily in January 1996. The newspaper, whose initial prefix 'Aafako' has now changed to 'Nepal', was the fourth and newest venture of 'Kamana Group of Publication'.

With an objective to eradicate geographical boundaries and make publications available globally, we launched **newsofnepal.com** on December 15th, 2002. Though started late, the official website of Kamana Prakashan gained popularity very quickly. The main reason behind it being the publications' already established credibility. Now, Kamana Prakashan's visitors from the US to UAE, from Nepal to Nigeria, from Australia to Austria -basically from all over the world. Average number of visitors is 18,000 per day.

Kamana Prakashan has proved its innovativeness time and over- from introducing Nepal's first cine-magazine to becoming the first publication house to go international. Following this track, we developed an online portal in our very own national language. Being one of the pioneers in launching a Nepali website in Nepali helped newsofnepal.com build its own identity amidst existing websites.

Newsofnepal.com has made it possible for visitors to view Nepal Samacharpatra (Vernacular daily), Kamana (Film-magazine), Sadhana (Health Digest) and Mahanagar (Evening) no matter where they reside. It comprises of news, views, and reviews from Nepal. Kamana Prakashan's goal is to provide contents that reflect Nepal and the Nepalese and make people aware of Nepal. At present 'Kamana Prakashan' publishes 4 publications in total which include:

- I. Nepal Samacharpatra (National daily Newspaper)
- II. Mahanagar (Evening Newspaper)
- III. Kamana (Monthly Film Magazine)
- IV. Sadhana (Monthly Health Magazine)

Source: Website of Kamana Prakashan Pvt. Ltd (i.e. www.newsofnepal.com)

1.3 Statement of the problems:

Nepal is a landlocked and the least development country. The economic condition of the nation is not good. All companies are measures cost-volume-profit analysis. But most of them are not operating well. They are suffering various problems directly and indirectly. Through by this study I want to show CVP analysis of Kantipur Publication Pvt. Ltd & Kamana Prakashan Pvt. Ltd. CVP analysis is the process of examining the relationship among revenues, cost and profit for a relevant range of activity and for a particular time frame. It is important to remember the cost behavior explained.

CVP analysis provides the techniques of profit planning framework. CVP analysis is the vital technique that provides supplementary information for profit planning. Every business starts with the target of break-even and then it aims to aims to earn profit over its life. But the business firm passes through many ups

and downs. CVP analysis is helps to the plan for every set of goals in the short-run.

The following are the major problems of organization like as Kantipur Publication Pvt. Ltd. & Kamana Prakashan Pvt. Ltd.

- i. Lack of awareness concerning the accounting tools and techniques.
- ii. Lack of perfect management.
- iii. Less availability of trained man power.
- iv. Political interference
- v. Lack of proper and update accounting training.

1.4 Objective of the study:

The main objective of this study is to examine the application of "A comparative study on Cost-Volume-Profit analysis of Kantipur Publication Pvt. Ltd. & Kamana Prakashan Pvt. Ltd." The major specific goals of this study are as follows:

- i. To calculate of sales volume to break- even.
- ii. To calculate of sales volume to produce desired profit.
- iii. To evaluate the profitability and financial position of Kantipur publication Pvt. Ltd & Kamana Prakashan Pvt. Ltd.
- iv. To calculate of profit resulting from a budgeted sales volume.
- v. To study relationship of cost, volume and profit as an applicable tool of budgeting.
- vi. To suggestions and recommendations with the help of major findings.

1.5 Need /Scope or Significance of the study:

CVP analysis requires a separation between fixed and variable costs, semi- variable cost or mixed cost can be segregated into variable and fixed components by applying any of the cost segregation methods, as high- low

method or least- square regression analysis method. This study is significant in the following way:

- i. It examines the publications of CVP analysis in the company.
- ii. It is useful to the potential managers, accountants, policy makers and planners etc.
- iii. It helps to know BEP level of the enterprises and take correct action to control unusual costs. BEP levels, Sales Revenue, Target profit, Safety margin and other information can find from CVP analysis.
- iv. It provides information on the application of the tools under profit planning in different circumstances.
- v. This study is also directed towards providing necessary recommendations to the related departments of the publications.

1.6 limitation of the study:

There are some limitations as follows:

- i. This study concern only to the CVP Analysis.
- ii. This study being heavily dependent on the secondary data.
- iii. This study covers the data of only five fiscal year.
- iv. The accuracy of this study is based on true response and the data available from management of the publications.
- v. This study is neither the comprehensive nor extensive due to time limit and resource constraint.

1.7 Organization of the study:

This study is divided into five different chapters which are as follows:

1. Chapter One: Introduction

This chapter includes background of the study, brief introduction of the publication, statement of the problems, objective of the study, need/scope or significance of the study, limitation of the study and organization of the study.

2. Chapter Two: Review of Literature

This chapter is concerned with review of literature reading materials in this chapter are conceptual review of previous related studies.

3. Chapter Three: Research Methodology

This chapter consists of "Research Methodology" adopted for the study and includes research design, data collection procedures and data analysis tools.

4. Chapter Four: Presentation and Analysis of data

This chapter comprises data presentation and analysis.

5. Chapter Five: Summary, Conclusion, Recommendations

This chapter includes summary and conclusion of the study. It also includes recommendation on the basis of the study. At finally list of bibliography, appendix and viva- sheet tool have been included at the end of the study.

Chapter – II

Review of Literature

2.1 Introduction to Profit Planning and Control:

Profit Planning & Control is a financial and narrative expression of the expected results from the planning decision and ensuring attainment of the objectives, goals and policies of the enterprise. Profit planning and control is viewed as a comprehensive tool rather than the narrow, traditional view of a budget. For this reason, the new term comprehensive profit planning and control is used in the literature of the business. The term comprehensive profit planning and control is defined as a systematic and formalized approach for performing significant phase of the management planning and control functions. Especially it involves:

- (a) The development and application of broad and long range objectives for the enterprise.
- (b) The specification of enterprises goals.
- (c) A long range profit plan developed in broad terms.
- (d) A short range profit plan detailed by assigned responsibilities (division products, projects etc).
- (e) Systematic periodic performance reports detailed by assigned responsibilities.
- (f) Follow up procedures.

Profit planning is a comprehensive statement of intentions expressed in financial terms, for the operation of the firm of both short and long period. It is a plan of the firm's expectation and is used as basis for measuring the actual performance of managers and their units. A profit plan is of immense value to management. It helps in planning and coordinating if used appropriately, but not a replacement for management. Profit planning is a comprehensive and coordinated plan expressed in financial terms for the operation and resources of an enterprise for some specific period in the future. Profit planning represents an overall plan of operations. It covers a definite period of time and formulates the planning decision of management. It consists of three main budgets:

- (a) Operating budget: It covers revenues and expenses. The main budgets under operating budget are sales budget, purchase budget, production budget, labor budget and other different budgets.
- (b) Financial budget: It contains the budgets, the balance sheet and supporting budgets.
- (c) Appropriation budget: It covers expenditure on advertising and research. Because of containing different budgets under profit planning and control, we can say, it is a formal expression of the policies, plans, objective and goals established by management for the concern as a whole and for each sub division.

Budget is quantitative expression of a plan of action relating to the forthcoming period. It represents a written operational plan of management and covers the area of revenue and expenditure for the budget period. It is the standards to be followed during the budget period for attainment of specified organization objectives. The main objective of budgeting is to present the future forecasting, numerically expressed in appropriate format so as to attain proper control in profit on costs.

In sum, profit planning and control is comprehensive tool that is used by management in planning for the future course of actions and in controlling for subsequent evaluation of performance. Comprehensive profit planning and control model can take the best use the opportunities for and strength of the firm and minimization the threats for and weaknesses of the firm to meet the target profit. The generation of reasonable profit is the main theme of profit planning and control.

2.2 Fundamental concepts of Profit Planning & Control:

A profit planning and control programmed helps the management perform its planning functions by developing a strategic (long run) and tactical (short run) profit plan. Both of these plans include monetary expectations for assets, liabilities profits and return on investment. The foundation for the strategic profit plan includes the objectives, goals, planning premises and strategies of the enterprise as developed by top management. The tactical profit plan can actually be viewed as the first year of the strategic plan. If it is detailed plan for the enterprise and for each of its responsibility centers. PPC programmed also help management perform if control function by providing realistic goals and standards that are then compared with

actual result to measure performance. Under PPC this performance measurements extends from the top to the lowest organizational level in the enterprise. An outline of fundamental concepts of profit planning and control are:

- (a) A managerial process that includes planning, organizing, staffing, leading and controlling.
- (b) An organization structure that clearly specifies assignment of management authority and responsibility at all organization at all organization levels.
- (c) A managerial commitment to effective management participation by all levels in the entity.
- (d) A management planning process.
- (e) A management control process.
- (f) A continuous and consistent coordination off all the management functions.
- (g) Continuous feed forward, feedback, follow- up and re- planning through defined communication channels.
- (h) A strategic profit plan.
- (i) A tactical profit plan.
- (j) A responsibility accounting system.
- (k) A behavioral management programmed.

(Welsh, Hilton & Gordon, 2000:32)

2.3 Cost Volume Profit as a tool of profit planning and budgeting:

The analysis of relationship between costs, volume and profit is known as cost, volume and profit analysis. It is an analytical tool for studying relationship between volume, cost price and profit analysis is great helpful in managerial decision making. Specially, profit planning and cost control is possible with the help of cost – volume – profit analysis.

Cost – Volume – Profit analysis is an important tools of profit planning because it provides the information about the behavior of cost in relation to volume, production or sales where the business will break-even, sensitivity of profit due to variation of output, amount of profit for a projected sales volume and quantity of production and sales for a target profit level etc. CVP analysis may therefore, by

defined as a managerial tools showing the relationship between various ingredients of profit planning. CVP analysis is an important media through which the management can have an insight into effects on profit on account of variations in cost and sales and take appropriate decisions. Cost-volume-profit analysis is great helpful in managerial decision-making.

Specially, profit planning and control is possible with the help of cost-volume-profit analysis. Profit planning is the fundamental part of the overall management functions. Profit planning can be done only when the management has the information about the cost of the product and selling price of the product.

2.4. Concept of Cost-Volume-Profit Analysis

Cost-Volume-Profit (CVP) analysis is the process of examining the relationship among revenues, costs and profits for a relevant range of activity and for a particular time frame. It is one of the most important and powerful tools that managers have at their command in short-term planning. It helps managers understand the interrelationship between cost, volume and profit in an organization by focusing interaction between the following five elements

- a) Price of product
- b) Volume of activity
- c) Variable cost
- d) Fixed cost
- e) Sales mix

CVP analysis seeks to estimate the profit or loss at different activity level. The aim of cost-volume-profit analysis is to have a fair estimate of: (a) Total cost (b) Total revenue, and (c) Profit at various sales volumes.

CVP analysis provides only an overview of the profit planning process. It provides management with a comprehensive overview of the effects on revenue and cost

of all kind of short-run financial changes. It is related to profit, sales volume and cost (Shiva Prasad Munakarmi, 2002: 123)

2.5 Purpose of CVP analysis:

CVP analysis helps management in a number of ways. The following purposes are served by it.

- (a) Calculation of profit resulting from a budgeted sales volume.
- (b) Calculation of sales volume to break even.
- (c) Calculation of sales volume to produce desired profit.
- (d) Effect of changes on price, cost and profit.
- (e) Determination of new break even point for changes in cost and selling price.
- (f) Measurement of effect of changes in profit factors.
- (g) Choosing the most profitable alternatives.
- (h) Determining the optimum sales mix.
- (i) Determining the capacity and equipment selection.
- (j) Long term decision on continuous or discontinuous of products.
- (k) Make or Buy decisions on sub assemble or part.
- (l) To contemplate the increase or decrease in profit due to change in method of production, etc.

2.6 Importance of CVP Analysis:

Planning controlling and decision making are the essential management functions CVP Analysis helps the manager to plan for profit to control to control cost and make decision. It helps;

1. To determine the break even point in term of unit or sales value.
2. To estimate the profit or losses at various level of output.
3. To ascertain margin of safety.
4. To help management to find most profitable combination of cost and volume.
5. To determine the optimum selling price.
6. To determine the sales volume at which the profit goal of the firm will be achieved.
7. To determine maximum sales volume to avoid losses.
8. To determine most profitable and least profitable product.
9. To determine new break even point for changes in fixed cost or variable cost.

(Shiva Prasad Munakarmi, 2002:124)

2.7 Application of cost volume profit analysis:

Cost – Volume – Profit analysis is applied specially for break even analysis and profit planning. Business organization is run to earn profit. Profit is the fundamental part of the overall management function. Profit planning can be done only when the management has the information about the cost of the product, both fixed cost and variable cost and selling price of the product. The most important factors that affect the planning for profit are costs fixed and variable and volume of sales CVP analysis can be applied in the following respects (Dangol: 2004, P. 36)

1. It helps in fixation of selling price.
2. It is helpful in cost control.
3. It also assists the management in understanding the behaviors of cost and helps in budgeting control.
4. It helps in determining the level of output where all the costs can be met.
5. It assists the management in profit planning.
6. It also assists the management in performance evaluation for the purpose of management control.
7. 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 order, selection of profitable product mix etc.

2.8 Approaches to CVP and Break – even analysis:

The cost, volume and profit relationships & the break even point can be analyzed through different approaches. Mainly the break even point and other required cost volume profit relationships can be explained through contribution margin statement approaches or graphic approach or equation/formula approach. A contribution margin statement is a variable costing income statement where philosophy is all fixed costs arte period cost which should be deducted from the contribution margin of the same period. Most often, we use the equations approach to the solution of cost volume profit analysis and break even analysis instead of the graph or the income statement.

(a) Contribution Margin Income Statement Approach

The contribution margin income statement approach to CVPA allows the preparation of Performa statement from the available information BEP and other required CVP relationships can be explained through a contribution margin statement. A contribution margin statement is the variable costing income statement whose philosophy is fixed costs is period costs that should be deducted from the contribution margin of the same period. Only the variable costs vary proportionately to the level of output or sales.

(b) Formula Approach

The most popular practiced approach to the breakeven point and cost volume profit analysis is the formula also known as the calculate the break even point. The answer provided by solving the equation may, sometimes, need to be rounded to whole number of units or lot sizes.

The calculation in the equation approach is similar to that of the contribution margin statement approach. The equation is merely a restatement of the other. To develop the cost volume profit equation.

Table No. 1

| Contribution Margin Approach | Symbol or Equation |
|------------------------------|----------------------|
| Sales Volume (Units) | Q |
| Selling price per unit | SPPU |
| Sales Revenue (Rs.) | Q*SPPU |
| Less: Variable Costs | Q*VCPU |
| Contribution Margin | Q*SPPU – Q*VCPU |
| Less: Fixed cost | FC |
| Net Profit | Q*SPPU – Q*VCPU - FC |

$$\text{Sales} - \text{Variable expenses} - \text{Fixed expenses} = \text{Net Profit}$$

$$\text{Or sales} = \text{Variable expenses} + \text{Fixed cost} + \text{Net profit}$$

$$\text{Or } Q * \text{SPPU} = Q * \text{VCPU} + \text{FC} + \text{Profit}$$

Therefore,

$$Q = \frac{\text{FC} + \text{Profit}}{\text{CMPU}}$$

Where,

$$\text{SPPU} - \text{VCPU} = \text{CMPU}$$

$$\text{Break even (BEP Units)} = \frac{\text{Fixed cost}}{\text{CMPU}}$$

&

$$\text{Break even (BEP Rs.)} = \frac{\text{Fixed cost}}{\text{CM Ratio}}$$

$$\text{Required sales in units} = \frac{\text{Fixed cost} + \text{Target profit}}{\text{CMPU}}$$

&

$$\text{Required sales Rs.} = \frac{\text{Fixed Cost} + \text{Target Profit}}{\text{CM Ratio}}$$

$$\text{Required sales after tax in unit} = \frac{\frac{\text{Fixed cost} + \text{DPAT}}{1 - \text{Tax rate}}}{\text{CMPU}}$$

&

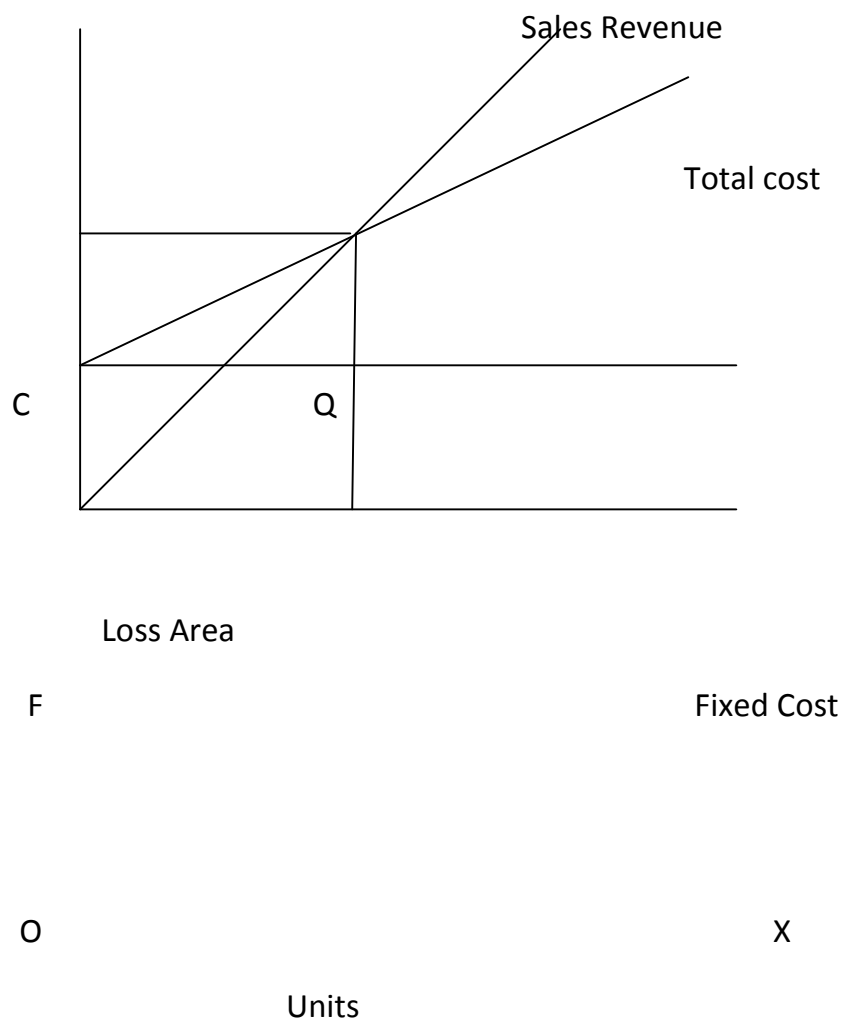
$$\text{Required sales after tax in Rs.} = \frac{\text{Fixed cost} + \text{DPAT}}{1 - \text{Tax rate} \times \text{CM Ratio}}$$

The contribution margin and equation approaches are two equivalent techniques for finding the BEP. Both methods reach the same conclusion, so personal preference dictates which approach should be used. Yet it is especially useful in which unit price and unit variable costs are not clearly identifiable.

(c) Graphic Method:

Break even point can also be determined by using graph. The relation shown among cost, volume and profit with the help of diagram is described as break even chart. There can be neither profit nor loss at the break even sales. However, if the sales exceed the break even point, the result will be profit. The loss will not be reported if the sales are less than break even sales. Below is a simple illustration to break even chart:

Cost Revenue (Rs)



OX represents output or sales units. OY represents Rs. i.e. total cost as well as revenue. OF denotes the amount of fixed cost. As the increase or decrease in sales does not have any effect on the amount of fixed cost, the fixed cost curve is parallel to x- axis.

Total cost increase if output or activity increases. It includes fixed as well as variable cost. Hence, it is started from the point of intersection of fixed cost curve and x – axis and slopping upward to right side.

The sales curve is originated from the origin "O". It is because revenue will be zero, if sales are zero. As the sale units increases, Sales revenue also increases. Hence, sales curve is also slopping upward to right side.

An equilibrium point between revenue curve and total cost curve is known as break even point. Q is the break even point and OS is the break even units. If the actual sales volume is more than break even sales, the business will earn profit and it is less than break even sales, the business will incur loss. In the chart, OQF is regarded as less area.

Loss is the result when the sales trend to be less than break even point. When sales are made less than the equilibrium point, total cost curve is above to sales curve, which is followed by loss. In case of sales being higher than break even sales, sales curve is above to total cost curve. Hence, in this condition there is gain.

(Ratna Man Dangol, Prem Gurung & Jeetendra Dangol, 2061:468)

2.9 Application of Break- Even Analysis:

Break even concept can be used to formulate different policies in a business enterprise. Some of these applications are (Maheshwari, 200, P.183)

1. Determination of profit at different level of sales and margin of safety.
2. To find the level of output to get the desisted profit.
3. Effect of price reduction on sales volume and changes on sales volume.
4. Effect of fixed cost or variable cost changes on sales volume.
5. Selection of most profitable alternative, make or buy decisions and drop and or add decision.

2.10 Assumption of Break Even Analysis:

Contribution analysis and break even analysis are based on a specific set of assumptions that should be clearly understood. These underlying assumptions are (Maheshwari, 2000, P. 183)

1. All cost can be classified into two parts, fixed cost and variable cost. There are no costs other than fixed and variable.
2. There is a relevant range of validity (activity) for using the results of the analysis and sales change.
3. There is only one product or in case of multi products, the sales mix among the products remains constant.
4. Basic management policy about operation will not change materially in short run.
5. The general price level (Inflation/deflation) will remain essentially stable in the short run.
6. Sales and production levels are synchronized that is inventory remains essentially constant or zero.
7. Efficiency and productivity per person will remain essentially unchanged in the short run.

If any of the above assumptions were changed, revised budget would be needed for a new analysis.

2.11 Limitation of Break Even Analysis:

Break even analysis in many business situations can be used for effective decision making, but there are many shortcomings or limitations in its analysis and interpretations. Some of these can be listed as (Maheshwari, 2000, P.183-184)

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

2.12 Margin of safety:

The difference between total sales and break even sales is identified by margin of safety. The high margin of safety is good for business. It indicates that there can be substantial falling of sale and yet profits can still be made. On other hand, if margin of safety is small, it indicates the weak position of business. The small reduction in sale or production will adversely affect the profit position of business. If margin of safety is unsatisfactory, the following steps can be taken.

- i.) By increasing the production and sales volume.
- ii.) By increasing the selling price.
- iii.) By decreasing the fixed cost.
- iv.) By reducing the variable cost.
- v.) By changing the sales or product mix ratio.

Margin of safety is ascertained by using the following formula:

$$\text{a.) Margin of safety} = \text{Actual sales} - \text{Break even sales}$$

$$\text{b) Margin of safety (in unit)} = \frac{\text{Profit}}{\text{Unit Contribution Margin}}$$

$$\text{c) Margin of safety (in Rs.)} = \frac{\text{Profit}}{\text{Profit Volume Ratio}}$$

$$\text{Actual Sales} - \text{Break even Sales}$$

$$d) \text{ Margin of safety (\%)} = \frac{\text{Margin of Safety}}{\text{Actual Sales}} * 100$$

$$e) \text{ Margin of safety Ratio} = \frac{\text{Margin of Safety}}{\text{Actual Sales}}$$

2.13 Formula of Cost – Volume – Profit Analysis:

1. Determination of Contribution margin per unit (CVMU):

$$\text{CMPU} = \text{Selling price per unit} - \text{Variable cost per unit}$$

2. Calculation of profit volume ratio (P/V Ratio):

$$i.) \text{ P/V ratio} = 1 - \frac{\text{Variable Cost}}{\text{Sales}}$$

$$ii.) \text{ P/V ratio} = \frac{\text{Contribution Margin}}{\text{Sales}}$$

$$\text{Fixed cost} + \text{profit}$$

$$\text{iii.) P/V ratio} = \frac{\text{—————}}{\text{Sales}}$$

When sales and profit or costs of two periods are given:

$$\text{P/V ratio} = \frac{\text{Different in profit}}{\text{Different in sales}}$$

3. Calculation of Break even point (BEP):

$$\text{i.) BEP units} = \frac{\text{Fixed Cost}}{\text{Unit Selling Price} - \text{Unit Variable Cost}}$$

$$\text{ii.) BEP units} = \frac{\text{Fixed Cost}}{\text{Unit Contribution Margin}}$$

$$\text{iii.) BEP Rs.} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

4. Calculation of Variable Cost – Volume Ratio (VC ratio)

i.) VC ratio = 1 – PV ratio

$$\text{ii.) VC ratio} = \frac{\text{Unit Variable Cost}}{\text{Unit Selling Price}}$$

When costs and sales of two periods are given:

$$\text{VC Ratio} = \frac{\text{Different in Cost}}{\text{Different in Price}}$$

5. Determination of Margin of Safety (MOS):

Margin of Safety = Actual Sales – Break even sales

$$\text{i.) MOS (units)} = \frac{\text{Profit}}{\text{Contribution per unit}}$$

$$\text{ii.) MOS (Rs)} = \frac{\text{Profit}}{\text{PV Ratio}}$$

$$\text{iii.) MOS (\%)} = \frac{\text{Actual Sales} - \text{Break even sales}}{\text{Actual Sales}} \times 100$$

6. Fixation of sales volume to earn a desired profit:

$$\text{i.) Required sales (units)} = \frac{\text{Fixed cost} + \text{desired profit}}{\text{Contribution margin per unit}}$$

$$\text{ii.) Required sales (Rs)} = \frac{\text{Fixed cost} + \text{desired profit}}{\text{PV Ratio}}$$

7. Fixation of sales volume to earn a desired profit after tax (DPAT):

$$\text{Fixed Cost} + \frac{\text{DPAT}}{1 - \text{Tax rate}}$$

$$\text{i.) Required Sales (units) = } \frac{\text{-----}}{\text{CMPU}}$$

$$\text{ii.) Required Sales (Rs) = } \frac{\text{Fixed Cost + } \frac{\text{DPAT}}{\text{1 - Tax rate}}}{\text{PV Ratio}}$$

8. Determination of Profit:

- i.) Profit = (Sales Amount * PV ratio) – Fixed cost
- ii.) Profit = (Sales Unit * CMPU) – Fixed cost
- iii.) Profit = (Actual sales – Break even sales) * PV ratio
- iv.) Profit = (Actual sales – Break even units) * CMPU
- v.) Profit = Sales – Variable cost – Fixed cost

9. Calculation of required sales volume in relation to change in selling price:

$$\text{i.) Required Sales (unit) = } \frac{\text{Fixed cost + Profit}}{\text{New Selling Price per unit – Unit Variable cost}}$$

$$\text{ii.) Required Sales (Rs.)} = \frac{\text{Fixed cost} + \text{Profit}}{\text{New PV Ratio}}$$

10. Required sales for fixed percentage of profit on sales:

$$\text{Required Sales} = \frac{\text{Fixed cost}}{\text{Unit selling price} - \text{Unit variable cost} - \text{Unit profit}}$$

11. Ascertainment of Fixed Cost:

- i.) Fixed Cost = (Sales * PV ratio) – Profit
- ii.) Fixed Cost = Break even Point (Rs) * PV ratio
- iii.) Fixed Cost = Break even Point (unit) * CM/PU

12. Ascertainment of Variable Cost:

- i.) Variable Cost = Sales – Contribution Margin
- ii.) Variable Cost = Sales – (Sales * PV ratio)

13. Measuring the effect of change in fixed cost:

$$\text{i.) Revised BEP (units)} = \frac{\text{Present FC} + \text{Proposed FC}}{\text{Unit selling price} - \text{Unit variable cost} - \text{Unit profit}}$$

$$\text{ii) Revised BEP (Rs)} = \frac{\text{CMPU} \times \text{Present FC} + \text{Proposed FC}}{\text{PV Ratio}}$$

iii) Required sales amount to earn present profit

$$= \frac{\text{Present FC} + \text{Proposed FC} + \text{Present Profit}}{\text{PV Ratio}}$$

iv.) Required sales units to earn present profit

$$= \frac{\text{Present FC} + \text{Proposed FC} + \text{Present Profit}}{\text{CMPU}}$$

v.) Required sales to earn present profit percentage on investment

$$= \frac{\text{Present FC} + \text{Proposed FC} + \text{Present Profit} + \text{Profit on Addition Investment}}{\text{PV Ratio}}$$

14. Measuring the effect of change in Variable cost:

$$\text{i.) Revised BEP units} = \frac{\text{FC}}{\text{New CMU}}$$

$$\text{ii.) Revised BEP (Rs)} = \frac{\text{FC}}{\text{New PV Ratio}}$$

$$\text{iii.) Required sales amount to earn present profit} = \frac{\text{FC} + \text{Present Profit}}{\text{New PV Ratio}}$$

$$\text{iv.) Required sales units to earn present profit} = \frac{\text{FC} + \text{Present Profit}}{\text{New CMU}}$$

15. Calculation of Cash Break point:

$$\text{Cash Break even Point} = \frac{\text{Cash Fixed Cost}}{\text{CMU or PV Ratio}}$$

$$16. \text{ Selling Price per unit} = \frac{\text{Unit Variable Cost}}{1 - \text{PV Ratio}}$$

(Dongol, 2061, P: 171-173)

2.14 Cost Classification:

Classification of an item is to define it as a certain kind. In other words, classification means to put an item or thing under a certain category. Classification of cost depends on the purpose, methods, nature and so on. Same elements of cost can be varied category depending upon the purpose. Manager of profit planning department should have an in- depth knowledge regarding the nature of costs that on which category does it lie. Otherwise planning and control of cost is impossible.

a) Classification according to element of costs:

- 1) Direct Cost: All those expenses, which can be directly traced or identified with each unit of the product, are direct costs. Key elements of direct costs are as follows.
 - i) The cost of material, which is directly and conveniently identifiable or traceable to each unit of product, is defined as direct material. Direct material also known, as raw material is the main ingredient of the finished product. A tangible product is almost impossible without the direct material.
 - ii) Direct Labour: the cost of labour that can be directly traced to each unit of product without any appointment basis is

known as direct labour. Direct labour is therefore, defined as the employment of those workers who are physically engaged in the production of the output.

- iii) Direct Expenses: Any expenses other than the direct material cost and direct labour cost, which are directly incurred on a particular product.
- 2) Indirect Cost (overhead cost): All those expenses, which cannot be directly traced or identified with each unit of product, are overhead costs. In fact, overhead costs are indirect costs which cannot be directly charged to a particular unit of product without allocation these on the basis of some appropriate methods. All expenses other than prime costs are overhead costs or indirect costs.
- i) Indirect materials: Items of indirect materials cannot be identified with any one product; indirect materials are used for the benefits of all products rather than for any one particular product.
 - ii) Indirect labour: The remuneration of all employees who do not work on the product itself but who assist on the manufacturing operation are classified as the part of indirect labour costs.
 - iii) Indirect expenses: Any expenses other than mentioned above are classified as indirect expense. One has to apportion indirect expenses over the products on appropriate basis.

b) Classification according to function of costs:

Any organization is consisted with various functions. All of these functions incur costs. For a manufacturing business enterprise, costs can be assigned to the following functions.

- i) Manufacturing Costs: Manufacturing costs are all production costs incurred to manufacture the products and to bring them to saleable condition, including the direct material, direct labour and factory overheads. Manufacturing overhead is known as factory expenses, factory overhead or factory burden.

ii) Administrative costs: Expenses relating to the overall management of the enterprise are administrative.

iii) Marketing or selling costs: Expenses needed for sales promotion, actual sales activities and post sales services are included in marketing or selling cost. These would include all cost necessary to receive customer order and get the finished product or service into the hands of the customers.

C) Classification according to behavior of costs: There exists a relationship between costs and the volume of activity. The relationship between cost and activity is called cost behavior. In most of the organization, costs can be classified as variable, fixed and mixed.

i) Variable costs: Variable costs changes in direct proportion and in the same direction to change in activity levels or outputs. Variable expenses are activity based because they are incurred as a direct result of output, activity or work done. If output double, variable costs also double and vice versa. If shop remains closed during a time there would no variable costs. Variable costs show following characteristics.

-) Proportionately related to activity.
-) Per unit variable cost is fixed.
-) Variable costs can be regulated and controlled in the same responsibility center and in the short run as well.

ii) Fixed cost: If any cost remains constant in total at any level of activity with in the relevant range is called the fixed costs. Fixed expenses are those that do not vary with output or production activity. They accrue primarily with the passage of time, that is, they are time expenses. They remain constant in amount for a given short term period within the relevant range of activity. Fixed expenses are caused by holding of assets and the other factors of production therefore. Fixed expenses are aptly been called capacity cost. Fixed expenses are of two principle kinds. First, top management decision establish commitments to certain fixed

expense like depreciation, taxes and insurance. Second, some fixed expenses are set by management discretion on a short term basis like advertisement expenditure, employee training costs, research expenditure etc. some key features of fixed costs are as follows:

-) Fixed costs remain constant in total
-) Per unit fixed cost in variable
-) Fixed costs are capacity costs, time costs or committed costs.
-) Fixed costs are regulated and controllable under top management.
-) Fixed costs can not be controlled in short run.

iv) Semi variable cost (mixed costs) :Semi variable or semi fixed costs, also known as mixed costs, are those expenses which increase or decrease as output or activity increases or decreases, but not in exact proportion to change in the activity base. Semi variable expenses have some of characteristics of both fixed and variable costs. It is neither fixed in total amount nor fixed per unit. Semi variable costs remain fixed to certain extent and there after these vary with the increase in output or activity levels.

d) Classification of cost for decision making: Decision making is one most crucial function of management. Decision making is a process of selection the next alternative among various courses of actions available. For decision making costs can be classified as relevant and irrelevant, avoidable and unavoidable costs, out of pocket costs, opportunity cost, sunk cost and differential cost.

i) Relevant cost: Relevant costs are those costs, which differ from one alternative to the next. Relevant costs pose two fundamental characteristics

-) Relevant costs are future costs.
-) Relevant costs will be different for each alternative.

ii) Irrelevant costs: All costs other than the relevant costs are irrelevant for decision making.

-) All past costs are irrelevant
-) Those costs, which are likely to be same, under either alternative are irrelevant.

iii) Avoidable and unavoidable costs: Sometimes the terms avoidable and unavoidable costs are used instead of relevant and irrelevant costs. Avoidable costs can be saved by dropping a department or product or an alternative. Therefore, only the avoidable costs are relevant for decision making.

- iii) Out of pocket costs: Out of pocket costs mean the cash incurred on an activity. Since, out of pocket cost involves a cash outlay it is very important for external reporting and internal planning and decision making both.
- iv) Opportunity cost: An opportunity cost can be defined as the potential benefit that is lost or sacrificed when the choice of one course of action requires the giving up of an alternative course of action. In decision making, opportunity costs are as equally important as the out of pocket costs are opportunity costs are not cash outlays to be made out of pocket. Rather these are the benefits foregone in the next best alternative.
- v) Sunk cost: A sunk cost is that cost which has already been incurred and there can not be any decision made now or in the future. All sunk costs are irrelevant for decision making because these are past costs, which do not alter with the change in decision.
- vi) Differential costs: The economist's marginal cost concept is same thing as the accountant's differential cost concept. Marginal cost is the change in total cost owing to the change in output. More precisely, Marginal cost is the increase in cost due to one more unit of output produced. Marginal cost concept has a greater significance in decision making like accepting or rejecting of short term special orders, because the price of the product must cover at least marginal cost.

e) Classification for control:

Controllable cost: A cost is considered to be controllable cost if that can be managed or changed within the related responsibility center (even lower level of management) and within the given period of time.

- i) Non controllable cost: Any cost which is not subject to change with in the related responsibility center and within the short time span is called the non controllable cost.

All costs are controllable at some level at some level in a company. Only at the lower level of management can some costs be considered non controllable. Controllability of costs fully depends on two horizon i.e. product cost and period cost.

-) Product costs: Those expenses, which matter for the volume of production and inventory valuation, are product costs. Product costs become assets when incurred in the course of production and expensed when outputs are sold.
-) Period costs: Those expenses, which do not matter for the volume of output, rather incur with the passage of time or volume of sales is period costs. All period costs are expensed at the time of occurrence.

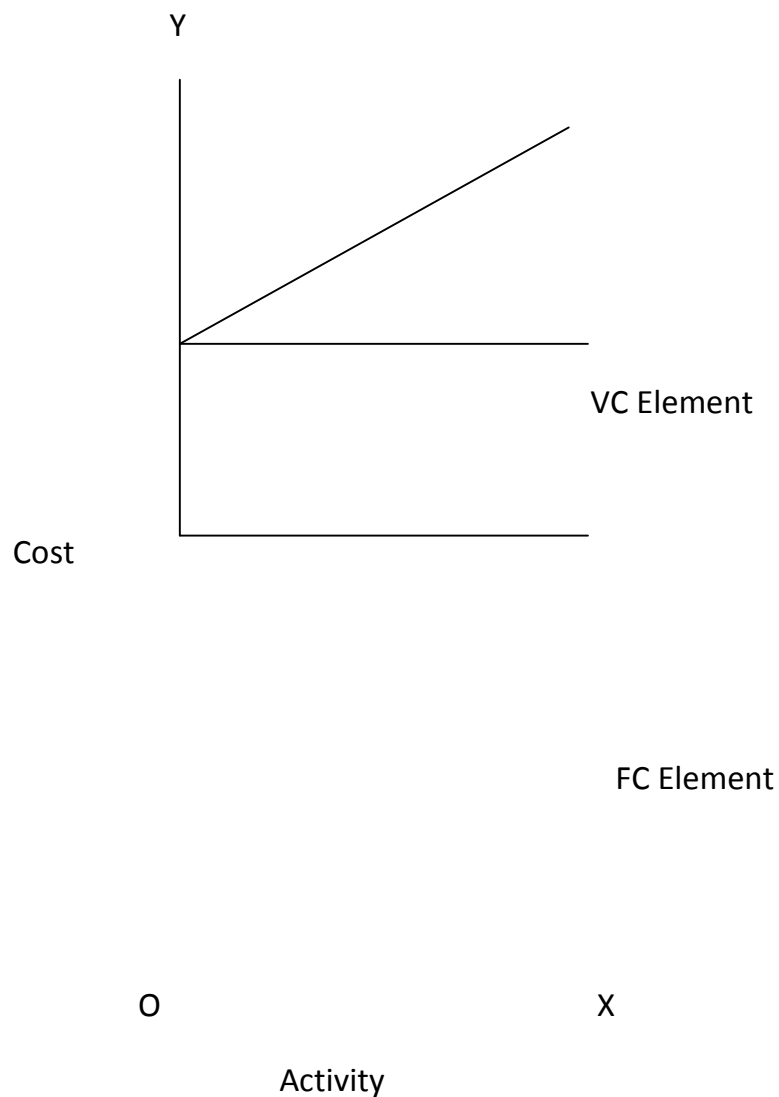
2.15 Cost Behavior:

Management of any organization wants to know how costs will be affected by changes in the organizational activity. There exist relationship between cost and activity. Such relationship between cost and activity is known as cost behavior, which affect the management functions of planning, controlling and decision making. Cost behavior pattern helps to predict the cost for different level of activities.

- 1.) Variable cost: Variable cost varies in direct proportion to change in the activity level. If the activity level increases by 50 percent, the amount of variable costs also increases by 50 percent as well. Variable cost in total increase or decrease if the activity level increases or decrease but it remains constant if expressed on per unit. The idea that a variable cost per unit is constant but varies in total with the activity level crucial to understanding of cost behaviour patterns.

2.) Fixed cost: Fixed costs remain constant in total amount despite the changes in the level of activity. That the fixed cost remains unchanged in total as the activity level varies. But a fixed cost per unit does change as activity varies. Fixed cost per unit decreases as the level of activity increase and vice versa. But for internal uses fixed costs should not be expressed on unit basis because of the potential confusion involved.

3.) Semi Variable cost: Expenditure that can not be categorized as purely fixed or variable is termed as mixed cost or semi variable cost. Mixed cost contains both variable and fixed cost elements. In mixed cost, variable cost element is added to the fixed element as such mixed cost line slopes upward in the graph.



In practice, mixed costs are varying common. The fixed portion of a mixed cost represents the basic, minimum cost of just having a service for use. The variable portion of mixed cost represents the cost incurred for actual consumption of goods or services. The variable element varies in proportion to the amount of services or goods that is consumed.

(Shava Prasad Munakarmi, 2003:25)

2.16 Segregation of semi variable cost:

There are various types of method to break mixed cost into variable and fixed. But in practice high low method and least square method are mostly used.

1.) High & Low Method: In the high- low point method the semi variable cost is segregated into fixed and the variable components using exactly two data points. The two points consists of selecting the periods of highest and lowest activity levels comprising the changes in cost that result from the two levels.

$$\text{Variable cost per unit (VCPU)} = \frac{\text{High Cost} - \text{Low Cost}}{\text{High Unit} - \text{Low Unit}}$$

$$= \frac{\text{Change in cost}}{\text{Change in activity}}$$

$$\text{Fixed cost per unit} = \text{Total Cost} - \text{VCPU} * \text{Activity Volume}$$

2.) Least – Square Regression Method: The term least square means that the sum of the squares of the deviations from the plotted points to the regression line is smaller than that would be obtained from any other line fitted to the data. So that in trend line analysis drawn from the relationship between the independent and dependent variables. The least square straight line trend gives more reliable estimate than any other methods. In cost estimation in relation to activity levels, activity volumes are defined as independent variable (X) and the mixed costs relating to that activity as dependent variable (Y). Then the amount of dependent variable or cost (Y) for any level of independent variable or production (X) can be explained through following least square straight line.

Least square straight line Y on X = a + bx

Where,

a= fixed cost per period

b= variable cost per unit

n= number of observations

X= Activity measures (Units or Hours)

Y= Total mixed cost observed

Since (b) stands for variable cost per unit and (a) stands for fixed cost per period, the value of (a) and (b) should be computed to segregate the mixed cost into variable and fixed components. Value of (a) and (b) can be directly estimated using simple mathematical formula.

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

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

2.17 Cost – Volume – Profit Analysis for Multi Product Firms:

Concept of Product Mix:

Sales mix can be defined as the relative combination of two or more products represented in total. It is not only the sale revenue that makes profit. The proportion of the sales contributed by different products greatly changes the amount of profit. Managers try to achieve that combination, or mix, that will yield the greatest amount of profit. If a company sells more than one product, these may not be equally profitable. So the company's profit will depend upon the ratio of each product's sales to total sales revenues. Profit will be greater if high margin items make up a relatively large proportion of total sales than if sales consist mostly of low margin items. Changes in sales mix can cause great variations in a company's profit. A shift to low margin items can cause the total profit to decrease even through total sales increase. On the contrary, a shift in the sales mix from low margin items to high margin items can cause the reverse effect total profit may increase even though total sales decrease.

In case of single product, the solution of a problem required is much simple. But if the company has more than one product the solution for the problem required may be little complex.

CVP Analysis for Multi Product or Sales Mix:

The term product mix and sales mix are used interchangeably. When a firm produces or sells more than one type of commodity, it is described as product or sales mix. In such a situation different selling price, variable cost result in different unit contribution margin and contribution margin ratio. As a result, break even points vary with the relative proportion of the commodities produced or sold. However, the

assumption has to be made that sales mix remains constant. It does not change for a specified period.

The different products may have their own different production facilities and fixed cost separately. In that case cost volume profit analysis can be done for each different product, CVP analysis is performed by averaging data using sales mix as weight. In that case, break even point is calculated as follows:

For determination of break even units:

| | |
|----------|--|
| Step – 1 | To find out sales mix ratio in units |
| Step – 2 | To find out unit contribution margin for each product |
| Step – 3 | To multiply the sales mix ratio and unit contribution margin of each product separately |
| Step – 4 | To find out weighted average contribution margin by adding product of Step - 3 |
| Step – 5 | To find out overall break even units by using following formula Overall BEP (in unit) = Total Fixed Cost / Weighted CMPU |

For determination of break even in terms of Rs.

| | |
|----------|--|
| Step – 1 | To find out sales mix ratio in sales amount |
| Step – 2 | To find out PV Ratio of each product |
| Step – 3 | To multiply the sales mix ratio and PV ratio of each product separately |
| Step – 4 | To find out overall PV ratio by adding the product of step - 3 |
| Step -5 | To find out overall BEP by using following formula: Overall BEP (in Rs.) = Total fixed cost / Weight CM ratio |

Some important formula:

| | |
|----|---|
| 1. | $\text{Overall BEP (in Rs)} = \frac{\text{Total Fixed cost}}{\text{Weighted CMPU}}$ $\text{Overall BEP (in Unit)} = \frac{\text{Total Fixed cost}}{\text{Weighted CM ratio}}$ |
| 2. | $\text{Product wise BEP (in unit)} = \text{Overall BEP (in unit)} * \text{Respective proportion (from sales unit)}$ |
| 3. | $\text{Product wise BEP (in Rs)} = \text{Overall BEP (in Rs)} * \text{Respective proportion (from sales Rs.)}$ |
| 4. | $\text{Required sales for Desired Profit (in unit)} = \frac{\text{Total Fixed cost} + \text{DP}}{\text{Weighted CMPU}}$ $\text{Required sales for Desired Profit (in Rs)} = \frac{\text{Total Fixed cost} + \text{DP}}{\text{Weighted CM ratio}}$ |
| 5. | $\text{Required sales for DP after tax (in unit)} = \frac{\text{Total FC} + \text{DP}}{1 - \text{tax rate}}$ $\text{Required sales for DP after tax (in Rs)} = \frac{\text{Total FC} + \text{DP}}{1 - \text{tax rate}}$ |

2.17.1 CVP analysis with single constraints:

Single production constraint exists when the production is constrained by only one resource or bottleneck resource. For example, if all the firm's products require the same basic raw materials, then the firm's output will be limited by the available quantity of raw materials. Likewise if the firm's products require the same labour, then the firm's output will be limited by the available labour hours.

In the presence of the single production constraint whatever it may be, the correct criterion for judging product profitability is contribution margin per unit of critical factor or scarce resources, contribution margin per unit

CMPU

$$\text{Contribution Margin per unit of critical factor} = \frac{\text{Contribution Margin per unit}}{\text{Consumption of critical factor (per unit)}}$$

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 resource. This can occur if the firm's products are all produced on a way, single resource constraint arises if the firm's products are all produced with only one material and output is limited by quantity available for that material. When there is a constraint for a scarce resource to have alternative uses, the contribution per unit should be calculated for each to these uses. Then, the available capacity for such scarce resource should be allocated to the alternative uses on the basis of contribution per scarce resources.

2.17.2 CVP Analysis with a Multiple Constraints:

Where more than one scarce resource exists, the optimum production program can not easily be established by the simple process applied in single resource constraint. Under the circumstances simple allocation of resource or the basis of contribution margin per unit is neither feasible nor desirable. Contribution margin per unit of scarce resources may be different for different product, because production process are affected by many constraints rather than single constraint. 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 the contribution from the product mix. Linear programming is a mathematical technique which shows how to arrive at the optimum results, through allocation of 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 problems which provides a valuable extension to CVP analysis.

Multiple production constraints exist when more than one resource limits the quantity that can be produced at a time in an aggregate manner. In a situation of multiple production constraints, the contribution margin per unit of scarce resource approach used in single production constraints does not work, as ranking of products across different constraining resources will generally differ. Instead, linear programming helps us to make an optimal allocation or to determine an optimal product mix.

Linear programming is a mathematical technique for finding the best uses of a firm's limited resources. The basic requirements of a linear programming problem that fits to multiple production constraints problem also can be enumerated as:

- a.) There must be an objective the firm wants to achieve i.e. criterion in which alternatives are assessed e.g. profits maximization (which is our concern at present) or cost minimization. As profits are not linearly related to sales volume, contribution is the appropriate term to be used instead of profit.
- b.) There must be alternative courses of action; one or which will assist in achieving the objective.
- c.) Resources or facilities must be in limited supply
- d.) The variable in the problem must be interrelated.
- e.) Objectives and constraints must be able to be expressed as mathematical equations or inequalities and these must be linear equations or inequalities.

2.17.3 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 significant fixing up of selling price. Management uses this as a convenient tool of profit planning with giving consideration of risk and uncertainty involved in it. Although, margin of safety ratio explains the degree of sensitivity of the project and product in general but it fails to explain certainty in the product and also between the alternatives. To overcome such a difficulty risk and uncertainty analysis like in any other management decision making can also be used in CVP analysis. The objective in CVP analysis under

condition of uncertainty is to assess the probability distribution of the profit volume under given distribution of one or more factor, sales price or profits.

Probability distribution approach is a simple statistical tool which may be used to measure the risk and uncertainty involved in CVP analysis. A probability distribution theory normally suggests for postulation of various possibility of happening of the event in consideration. This may be done by considering the personal intuition of the persons doing so. In business reference of past experience are hardly available not a person is likely to behave in the same manner in the similar situation in different time. Therefore, personal judgments plays significant role in the management decision making. The conditions thus postulated are assigned probability (i.e. ones judgments towards likeliness of happening of the condition forecasted). It must be understood that probability assigned here is a subjective probability based in personal judgments of the man making such an analysis.

2.18 Risk Analysis Techniques Applied in CVP Analysis:

For incorporating risk factor in cost, volume and profit analysis, the following techniques are used:

- i) Probability Distribution
- ii) Standard Deviation of Random Variables
- iii) Normal Distribution

i) Probability Distribution: Probability plays an important role in decision making. A manager has to make decision for future. However, future is uncertain. Hence, managerial decision must be prepared either on the basis of past experience or on the basis of proper guess. There is no certainty on guess and it is not easy to make proper decision.

A theoretical probability distribution is related to frequently distribution. It is generally used to make decision logically. It estimates the future values on the basis of limited information on theoretical consideration. Thus the probability distribution is to assign probability to different values. Those different values are the results of the outcome of a random experiment which is known as random variable. After

assigning the probability to different values, the mean or the expected value of random variable is ascertained. The mean or expected value of random variable is the sum of the product of the different values of random variable and their respective probabilities. Symbolically, it is written as "u". The expected value is determined in following ways:

| | |
|----------|--|
| Step - 1 | Multiply different estimated values by their respective probabilities. |
| Step – 2 | Sum the products of step 1, which is known as expected value. |

Mainly, there are four different factors in cost, volume and profit analysis. They are selling price, variable cost, fixed cost and sales units. All of these four factors are uncertain. However, variable cost, fixed cost and selling price are quite certain than sales units.

ii) Standard Deviation of Random Variable:

The mean or expected value of random variable is not sufficient to study the actual behaviour of random variable. The dispersion of random variable about its expected value should be measured and standard deviation provides measure of this dispersion.

In statistical terms, standard deviation is defined as the square root of the mean of squared deviation, where deviation is the difference between an outcome and the expected values of all outcomes. Further more, to calculate the value of standard deviation, we provide weight to the square of each deviation by its probability of occurrence.

The following steps are required for the calculation of standard deviation ().

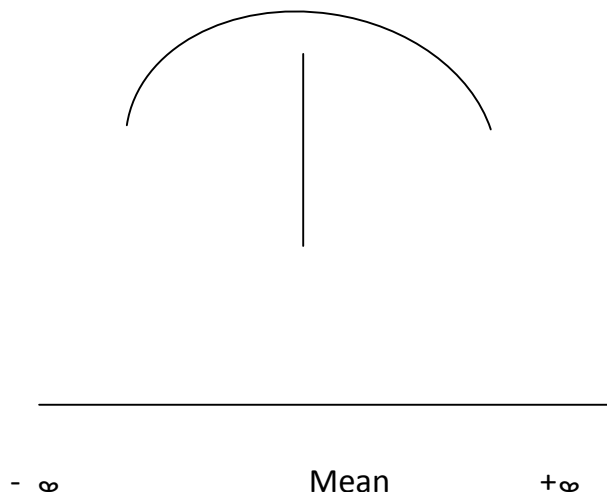
| | |
|----------|--|
| Step – 1 | To find out expected sales value(u) |
| Step – 2 | To find out deviation (dv) by deducting expected and sales value from expected sales |

Deviation = Sales value – Expected sales value

| | |
|----------|---|
| Step – 3 | To obtain the square of deviation (dv2) |
| Step – 4 | Multiply the square deviation by assigned probability and divided out the product of each item. $\text{Product} = \text{dv}^2 * P$ |
| Step – 5 | Sum the products from step-4 and find out the standard deviation |

iii) Normal Distribution: Normal distribution is the most important and frequently used continuous probability distribution. This distribution is well fitted in many types of problems. Most of the data related to economic and business statistic can take a form of this distribution.

The normal probability distribution is a smooth, symmetric, continuous, bell shaped curve as shown below. The area under the curve sums to one.



Normal probabilities can be read from a normal probability table. For the purpose of calculating the probabilities, variable, x is stated as the variable z and it is worked out as under:

$$Z = \frac{x - u}{\sigma}$$

Where,

z = Standard variate (or number of standard) deviations from x to the mean of the distribution

x = value of the random variable under consideration

u = mean of the distribution of random variable

σ = standard deviation of the distribution in units

(Dangol, Ratna Man & Jeetendra, 2061, P.267)

2.19 Risk Measurement: The Operating Leverage and Break even Point

Operating leverage tells us how profit change in sales. It is evident that profit change more rapidly than sales. Why do profit change more rapidly than the sales? It is because some costs do not change say if sales decline variable costs also decline in the same ratio so that contribution margin also decline proportionately. But fixed costs do not decline so, the net operating income decline more rapidly. The same thing applies in the case of increase well. Sales revenues changes but some parts of costs, known as fixed costs, remain unchanged. This usually net operating income changes more rapidly. This change is called the operating leverage.

Operating leverage can be measured in terms of the "Degree of operating leverage (DOL)". DOL shows the times of percentage change in net operating income of the given percentage change in sales. DOL may be defined as the percentage change in net operating income or EBIT associated with a given percentage change in sales.

$$\text{DOL} = \frac{\text{Percentage change in net operating income}}{\text{Percentage change in sales}}$$

Alternatively,

$$\text{DOL} = \frac{\text{Contribution Margin}}{\text{Net Operating income}}$$

$$\text{DOL} = \frac{Q (SP - VCPU)}{Q (SP - VCPU) - FC}$$

Where,

Q = Total demand in units

SP = Selling price per unit

VCPU = Variable cost per unit

FC = Fixed cost

$$\text{We know, BEP (unit)} = \frac{\text{Fixed Cost}}{SP - VCPU}$$

Leverage decision is meant to substitute variable cost by the fixed costs. To create a degree of operating leverage means the employment of higher amount of fixed cost which eventually increases the break even point also. Higher fixed cost increase the DOL and they also increase the break even point, so there is close relationship between the degree of operating leverage and the break even point. A high DOL and high BEP both are the indicators of higher risk.

2.20 Sensitivity Analysis of CVP:

Sensitivity analysis is the measurement of responsiveness in outcome with the change in determinant variables. We know that of a business enterprise is to maximize profits. Profits are the excess of revenues over the total costs.

Net profiles = Total sales revenue – total cost

$$= \text{Sales units} * \text{SPPU} - \text{Sales units} * \text{UVC} - \text{FC}$$

But none of the factors remain unchanged. Sometimes the manager can intentionally change the price and cost factors a part of strategic decisions. But the strategy should focus more on the factor, which is more sensitive, or responsive for profiles. Therefore, to measure the sensitivity of CVP factors one can see the impact of certain percentage of change in volume, price or cost factors on net profits.

-) **Impact of price changes:** An increase in the selling price will be the increase the PV ratio and as a result will lower the break even point. On the contrary a decrease in selling price will reduce the PV ratio and therefore, result in a higher break even point.
-) **Impact of volume changes:** A changes in volume, not accompanied with changes in the selling price and / or costs. Will not affect PV ratio. As a result, the break even point remains unchanged. Profit will increase in volume and will be reduced with a decrease in volume.
-) **Impact of change in fixed costs:** A change in fixed cost doesn't influence PV ratio. Other factors remaining unchanged, a fall in the fixed costs will, however, 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 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.

-) **Impact of change on variable cost:** The impact of the changes in variable cost on profit is straight forward if it does not cause any change in selling price and volume. An increase in variable costs will lower PV ratio, push up the BEP and reduce profits. On the other hand, if the variable cost decline, PV ratio will increase, BEP will be lowered and profit would rise.
-) **Impact of change in a combination of factors:** The management accountant, evaluating profit plans or budgets, must realize that a change in one factors leads to a changes in another factors. Therefore, all such changes should be carefully visualized and their net impact on profit must be seen.

2.21 CVP and its impact on productivity:

Cost – Volume – Profit analysis measures the relationship between cost - volume – profit. The real performance of the company is determined by profit. Profit is the final outcome of the overall activities of the organization. The ultimate goal of the every profit motive organization is to increase profit through satisfying customer's need. The higher profit can be achieved through reducing cost or increasing sales revenue. The most accepted way of achieving efficiency or productivity is cost reduction. Productivity is function of input and output. Achieving high output i.e. profit including low input i.e. cost is defined as productivity.

CVP analysis helps to measure the productivity of the organization. How much cost should be incurred to get different targeted profit? How much cost should be incurred to get zero profit? Are such types of questions, which can be satisfied through cost – volume – profit relationship? Certain costs are incurred to produce the product. There are different types of cost i.e. fixed and variable. The nature of fixed and variable cost is totally different from each other. Fixed cost is constant cost, which does not change with changes directly or proportionately with change in activity level. Due to the constant in nature, the organization should invest lower in fixed cost to get higher profit at lower level of sales volume. As the sales increase profitability also increases because only the variable cost change or increase but fixed cost remains same.

In practices, many organizations produce more than one product. In such type of multi product firm, the product firm, the product has different contribution toward profit. The product, which involves huge amount of cost but contribution toward profit is small, should be dropout. Whereas products which provides significant profit with small amount of cost comparing to other product should be continued. In this way the limited resources of the organization should be managed properly to increase the overall profitability of the organization, which is called productivity that can be possible only through CVP analysis.

2.22 Limitation of CVP Analysis:

Assumption limits the utility and general applicability of the CVPA. Therefore the analysis should recognize these limitations and adjust data, wherever possible, to get meaningful. The CVPA suffers from the following limitations.

-) It is difficult to separate costs into fixed and variable components.
-) It is not correct to assume that total fixed cost would remain unchanged over the entire range of volume.
-) The assumptions of constant selling price and unit variable cost are not valid.
-) It is difficult to use the break even analysis for a multi product firms.
-) The break even analysis is a break run concept and has a limited use in long range planning.
-) The break even analysis is a static tool.

2.23 Special problems in cost volume profit analysis:

Cost Volume Profit analysis is applied to individual products or parts of a business and all the product or activities combined. In later case, there are three special problems may be encountered. (Welsch, Hilton & Gordon 2001, P. 513-518)

2.23.1 The Activity Base

When two of more products or activities are combined for break even analysis the activity base must be in additive units using a common denominator of volume or output in multiple products. Therefore for the company as a whole, net sales amount are usually the only satisfactory common denominator because manufacturing, selling and administrative activities are expressed in combination.

2.23.2 The change in Inventory

Usually the budgeted changes in inventories (i.e. finished goods and work in process) are in material 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 effect of inventory changes in CVPA requires subjective judgment about what management might do (about making inventory changes) at different volume, levels and the conceptual precision that is desired. Management considers two practical approaches or policies in inventory changes of used (a) Disregard and inventory changes. (b) Include the inventory changes.

2.23.3 The Operating Income and Expenses

Non operating income and expenses and extra ordinary gains and losses of material in amount cause another problem in CVPA. The basic issue is whether they should be included or excluded. Extra ordinary gains and losses are non recurring and unusual, therefore they should be excluded. Non operating incomes and expenses are recurring but they are not related to on going operations. Management considers the policy may be (a) include the non operating incomes and expenses (b) exclude the non operating incomes and expenses.

2.24 Review of Previous Related Studies:

The main objective of this part is to analyze the previous research study. Review of literature is an essential part of all studies. Review of literature provides the foundation for developing a comprehensive theoretical frame work from which hypothesis can be developed for testing. There are very few research papers concerning comparative cost volume and profit analysis has been conducted.

This study is attempted to review the previous research work on profit planning and control as well as management accounting. As CPV analysis is one of the major tools of profit planning and control, the previous studies related to PPC are

reviewed which will be helpful to further study. An attempt is made here to review some of the research works.

1. Mr. Madan Bahadur Babu (1999)

He had conducted a research entitled "profit planning in dairy development corporation". He had centralized his study in current practice of profit planning in DD. Time period covered by research is five years from fiscal year 2049/050 to fiscal year 2053/54.

The data and other necessary information were collected from secondary and primary sources of data. In his research, he had pointed out various findings. Some remarkable findings were as follows.

-) Lack of budgeting experts, skilled planners and entrepreneurship.
-) No proper practice of segregation of cost into fixed and variable.
-) Inadequate authority and responsibility to planning department.
-) Lower level participation in planning decision making is not encouraged.
-) No proper analysis of environment variables.

2. Mr. Khagendra Prasad Ojha (1995)

He had conducted a research in the topic "profit planning in manufacturing public enterprises: A case study of Royal Drugs Limited and Herbal production and processing company limited". His research was in partial fulfillment of MBA, submitted to the central department of Management, Tribunal University. The study has covered a five years period from fiscal year 2046/47 to 2050/51.

The data and other necessary information were collected by using secondary as well as primary source of data. Interview and questionnaire approaches are the main techniques of primary sources of data. Mr. Ojha has pointed out various findings and recommendations based on the analysis of data and information. Some remarkable findings were as follows.

-) Inadequate planning of profit due to lack of skilled manpower.
-) Inadequate evaluate of internal and external variables.

-) Failure due to inadequate forecasting system.
-) CVP relationships are not considered when developing sales and pricing strategy.
-) Lack of entrepreneurship and commercial concept in overall operations of the enterprises.

3. Mr. Madhav Rijal (2005)

He had studied on the topic "Cost, Volume and Profit analysis to measure the effectiveness of profit planning and control (A case study of Nebico Pvt Ltd.)". The study was based on primary data as well as secondary data and analysis based on only five years data. It was submitted to Shankar Dev. Campus, TU, Kathmandu.

He had pointed out some major findings to his research are as follows:-

-) The company's sales trend has fluctuation but not satisfactory trend of increasing.
-) The company's variable cost is high proportion than fixed cost in comparison with total cost, which contributes for lower contribution margin.
-) The goal and objectives of the company are not clearly communicated to operating level of management.
-) The company had no effective inventory policy.
-) There were not effective sales forecasting techniques.
-) There is no ant specially system of taking corrective action for the re-planning.
-) NEBICO Pvt.Ltd. had not practice of segregating the cost into fixed, variable and controllable or non controllable.
-) Net profit margin, profitability ratio and other things were not satisfactory.
-) The company has not utilized its full capacity.
-) CVP relation is not considered while developing sales plan, production plan and pricing strategy.

4. Mr. Durga Prasad Baral (2003):

He had conducted research work on topic of profit planning and control of Nepal Telecommunication Corporation for partial fulfillment of MBS, submitted of Shanker Dev Campus, TU. The study had covered five years period of fiscal year 2051/052 to 2055/56 and had pointed out various finding.

-) Customers' service and line maintained service are not satisfactory.
-) Profit is earning but it is not satisfactory in monopoly situation of NTC.
-) Cash budget shows the huge amount of current assets.
-) Analysis shows that the fixed cost of corporations highly incurred.
-) The corporation has no proper practice of segregating cost into fixed and variable.
-) Overhead expenses are not classified systematically and it creates problem to analysis expenses properly.
-) The management of NTC is not success to utilize of its assets properly and not able to sale telephone lines according to demand of customers.

5. Mr. Sagar Sharma (2002)

Mr.Sagar Sharma had conducted a research entitled "Management Accounting Practices in the Listed Companies of Nepal". Mr. Sharma had concerned his study to examine and study the practice of management accounting tools in the listed companies in Nepal.

Mr. Sharma's research is based on primary data only. Stratified random sampling with proportionate allocation of percentage is followed to draw the sample. No secondary data has been used for his study.

He selected 9 manufacturing companies for the purpose. In his research, Mr. Sharma has pointed out various findings. Some remarkable findings were as follows.

-) Lack of information and extra cost burden are the main reason behind not practicing such too.
-) 100% of manufacturing companies were practicing the tools of cost segregation and 89% of companies were practicing break even analysis. Practicing of method of segregation into variable and fixed cost in manufacturing companies in Nepal are 44% practiced analytical method, 22% of the companies use high low method, and average method.
-) Management accounting is to help managers in overall managerial activities by providing information and helping in planning, controlling and decision making.
-) Practicing of regression method for segregating mixed cost into fixed and variable was nil. The reason behind this was regression method is statistical

method which is difficult in application. Besides, it requires expert manpower in statistical methodology. Companies were not ready to hire statistical expert to segregate cost.

-) Different types of management accounting tools, which are taught in the colleges, are not found applied by the listed companies of Nepal.
-) Nepalese listed companies are in infant stage in practicing of management accounting tools. Such as capital budgeting, annual budgeting, cash flow, ratio analysis, zero based budgeting, activity based costing, activity costing, target costing and value engineering.

-) As Nepal is proceeding towards globalizing and get membership of WTO, companies are recommended to apply management accounting tools to fit with the global environment.

6. Mr. Uday Kumar Dahal

Mr. Uday Kumar Dahal has studied on the topics of "Cost- Volume –Profit Analysis as a tool to measure the effectiveness of profits planning with special reference to Dabur Nepal Pvt. Ltd." This was submitted to Nepal Commerce Campus, TU in Partial fulfillment of Master's Degree in the year 2006.

The main objective of the research was:-

-) To examine the variance between target and actual sales and production.
-) To show the capacity utilization of Dabur Nepal Pvt.Ltd.
-) To forecast future production and sales.
-) To analyze financial performance.
-) To analyze the CVP of company and its impact of profit planning.
-) To analyze the trend of profit over the time covered by the study.
-) To provide recommendations and suggestion for improving the profit planning system of Dabur Nepal Pvt.Ltd.

To conclusion of the research regarding the present practice of profit planning Dabur Nepal Pvt. Ltd. has given below:-

-) Dabur Nepal Pvt. Ltd. constitutes lack of adequate inventory policy.
-) No control over external factor i.e. it has poor SWOT analysis.
-) Dabur Nepal Pvt. Ltd.does not prepare strategic and policies for long term.
-) Dabur Nepal Pvt. Ltd. is not able to coordinate among various departments.

-) Dabur Nepal Pvt. Ltd. not prepares raw material requirement budget and raw material purchase budget systematically.

The researcher also provides the following recommendations:-

-) CVP analysis should be considered while formulating profit plan.
-) Profit planning manuals should be communicated from top level to lower level.
-) The company management should look carefully into the basis of setting target for sales and achieving those targets meaningfully.
-) Dabur Nepal Pvt. Ltd. should focus on the relationship between expenditure and benefit, expenses planning and controlling is necessary to obtains company's goals.
-) To get the idea of future cash requirement and application of the firm, it should make cash budget systematically.
-) The company should prepare raw material budget and production budget scientifically.

7. Mr. Prakesh Pokharel:

He has prepared the thesis entitled "Cost – Volume –Profit Analysis of Manufacturing Organization (Special Reference to Himalayan Distillery Limited)". This was submitted to Nepal Commerce Campus, TU, Kathmandu.

The following are the objectives of the study:-

-) To ascertain the current status of the Himalayan Distillery Ltd in term of major indicator.
-) To examine how the HDL has applied the profit planning system in their organization and its practice.
-) To analyze the various functional budgets adopted in this enterprise.
-) To evaluate the variance between budgeted and actual of the enterprise.
-) To analyze the trend of profit over the time covered by the study.
-) To identify the problems faced by the HDL.
-) To prescribe remedies for these problems.
-) To point out suitable suggestion and recommendation.

The major findings of the study are as follows:-

-) There is lack of entrepreneurship and business skill and proper coordination between the various responsible departments.
-) Authorities and responsibilities are not clear among the department and working managers and role conflict and lack of coordination between them is paramount.
-) Specific goals and objectives are not conveyed to lower level of management; it denotes the absence of management by objectives principle of management.
-) HDL faces some problems in receiving of raw materials.
-) There is no proper practice of cost segregation.
-) There is lack of proper marketing system.
-) In HDL, budget are prepared just to fulfill the formalities, these are not used effectively for the profit planning process.
-) HDL is guided by Nepal Government. Directly or indirectly it intervenes in setting objectives, goals and strategies in HDL. Therefore, whether their aim is to maximize profit or maximize social service is not clearly distinguished.
-) More bureaucratic formalities of Nepal Government on preparation, approval and implementation of different plan, policies and strategic keep HDL for behind from its competitor in promoting the goods.
-) Centralization of planning and decision making has created in organization.
-) The capacity utilization is near about of 70%.
-) There is no systematic profit plan in HDL.
-) The enterprise fails to analyze its strength and weakness in depth.
-) Nepal Government is the main authority in fixing price and does not have ant clear policy and method of pricing in HDL.

8. Mr. Suraj Chandra Lamichhane (2003)

Mr. Lamichhane has conducted the research work on "Budgeting as tools of profit planning of public utility enterprises: A case study of Nepal Telecommunication Corporation" for master degree thesis submitted to Shanker Dev Campus, Tribhuvan University. Lamichhane has the objective of study is to apprise and examine the proactive and effectiveness of profit plan of NT has met these findings.

-) Achievement of sales is not satisfactory with are more variable than budgeted sales.
-) Sales budgets prepared by NT, according to the nature of its customers.
-) NT has prepared short range sales budget but long range budget is not prepared in detail due to lack of effective programmed.

-) Actual production lines in NT are more fluctuated than budgeted production line due to government influenced.
-) There is a problem to analysis and control the cost due to overhead cost is not classified systematically.
-) Due to government direct interfere to PEs, has created problem of autonomy in NT.
-) NT has not practice to prepare projected profit and loss account and balance.
-) NT is suffering from high fixed cost; there is idle cash and bank balance and paying a huge amount of interest in every fiscal year.
-) From the analysis of profit plan in NT there is no proper practice of cost segregation into fixed and variable and there is no systematic approach to record manufacturing costs.
-) NT prepares various functional budgets to implement profit planning system to some extent.

9. Mr. Mahendra Rai (2004)

Mr. Rai has conducted research work on the topic of Profit planning in public utilities sector of Nepal: "A case study of Nepal electricity Authority". For partial fulfillment of MBS, submitted to Shanker Dev Campus, TU. This study has covered five year period from FY 2054/55 to 2058/59.

Major findings are:

-) There is no proper or systematic way to classify the cost. It consolidates all expenditure pertaining to manufacturing, administrative, selling and distribution under single roof as operation and maintenance expenditure budget.
-) The operating cost is creating a drastic problem due to payment of the huge amount as interest on long term loan.
-) NEA has not adequate considered controllable and non controllable variable affecting the organization.
-) Break even analysis shows that the break even sales are lower than actual sales which are the signal of good operational situation.
-) NEA ignores CVPA, while developing the sales plan and pricing strategy.
-) There is a lack of proper co-ordination among various directorates and departments.

Recommendations: Rai has given some recommendations to NEA:

-) NEA should stress on efficient control over costs. The widely accepted controlling tools such as standard costing should be applied and separate cost centre should be established.
-) Cost volume and profit analysis should be considered while formulating profit plan and the NEA should be establishing flexible budget system.
-) Variable analysis should be applied in effective way to control operating activities.
-) Effective utilization of available resources, priority given to the backward society etc.

10. Miss Kalpana Bhattarai (2004)

Miss Kalpana Bhattarai has conducted research on the topic " Budgeting in public enterprises: A case study of Nepal Telecommunications Corporation in partial fulfillment for MBA, submitted Shanker Dev Campus, TU". The has covered five years period from FY 2053/54 to 2057/58. Bhattarai has stated some finding and recommendations.

Major findings:

-) NT prepares both long term and short term budget but the long term budget is confined only on the top level.
-) The corporation is not able to maintain to proper coordination between various directorates is required on the goals and objectives of the corporations.
-) Because of lack of skilled planners and budgeting experts, budgets are prepared on adhoc basis. So there exists no consistency actual performance with budget.
-) All expenses are shown under only one budget name as "operating expense budget".
-) CVP analysis shows that BEP is satisfactory. But CVP are not considered while developing the sales plan and pricing strategy which is a vital for profitability.
-) Increasing trend in cost is another issue of NT which needs to be managed.
-) Management is totally unknown to profit planning concept, corporate planning and participative management.

Recommendations:

-) NT should prepare effective investment plan to utilize the excess cash balance which is remaining idle.
-) NT should develop its overhead budget in a well classified and scientific way.
-) Cost should be clearly identified as fixed and variables.
-) Practice of CVP analysis has to be adopted as effective management tools.
-) NT should prepare plan to use installed capacity at its maximum level.
-) In order to improve the situation of NT, privatization of the concern is highly recommended.
-) To make budgeting system more progressive, the concept of profit planning and control be introduced and applied to improve overall performance of its.

11. Mr. Yam Prasad Gautam (2006)

Mr. Gautam has conducted research work on "An analysis and comparative study on cost, volume and profit analysis of Uni – lever Nepal and Dabur Nepal Pvt. Ltd." in the partial fulfillment of the Requirement for the Degree of Master in Business Studies (MBS), submitted to Nepal Commerce Campus, TU. He has covered five years period from fiscal year 2001/02 to 2005/06 and listed some findings.

-) Expenses trend of UNL and DNPL is increasing year by year except in the last year.
-) Both companies sales achievement in higher than sales target in 2 years and nearly 100% in 2 years. The correlation between target sales and actual sales is positive. It reveals that the company is able to meet its goal as specified in annual report. The company tried to apply effective sales forecasting technique.
-) The company has no detailed and systematic expenses plan. The fixed, variable and mixed expenses plan is the necessary elements for profit planning and control.
-) The cost of UNL and DNPL is classified into fixed and variable. There is no practice of identifying semi variable cost and their segregation into variable and fixed by using scientific method.
-) The proportions of variable costs are higher than fixed cost in total cost amount of both companies, which contribute for lower contribution margin.
-) Financial position of the DNPL is not so good and UNL's is good. Net profit margin of UNL is higher than the DNPL. Profitability ratio and other things of DNPL is not satisfactory but UNL's is satisfactory

-) From hypothesis test, it was found that there was significant relationship between cost, volume and profit of UNL and DNPL.
-) As the DNPL Company has low MOS, the company might be at risk and the UNL Company has high MOS, the company might be bearing at very low risk.
-) The DNPL Company's operating leverage is increasing, so small fall in sales may result the demise of the company but the UNL Company's operating leverage is constant.
-) DNPL's CM ratios are decreasing but UNL's CM ratios are increasing.

12. Mr. Dipendra Raj Dhakal (2005)

Mr. Dhakal has conducted research work on "Cost volume profit analysis as a tools to measure the effectiveness of profit planning and control: A case study of Gorkhakali Rubber industry limited" in the partial fulfillment for MBS, submitted to Shanker Dev Campus, TU. Dhakal has covered five years period from FY 2056/67 to 2060/61 and listed some findings and recommended.

Major findings are:

-) Sales plan of GRIL is not properly maintained. The industry uses the various methods for sales planning like market survey, distribution network etc. but up to date record are not maintained. So they have poor budgeting system.
-) GRIL is not practicing the scientific and appropriate cost classification technique costs are classified into fixed and variable as per the decision of the management.
-) Out of the total cost of GRIL, variable cost is almost 60% in every year which cause the low contribution margin.
-) GRIL is in high interest bracket, out of the total fixed costs almost 60% is to be paid for interest. And the profitability of the company is greatly influenced by high fixed cost.
-) The industry does not have any detailed and systematic practice of planning of cost which is one of the essential elements of profit planning and control.
-) Lack of coordination between top and lower level of management.
-) GRIL is facing problem fluctuating international price of rubber. Sometimes it also faces the problem of raw material scarcity as well.

-) Out of the two main product truck tyres and non truck tyres, the truck tyres are more profitable than non truck tyres as shown by the product contribution margin.
-) The financial position of the industry is not satisfactory. Gross profit margin ratio and net profit margin ratio are not satisfactory.

Recommendations are:

-) GRIL should clearly define its goals and objectives. And management should develop annual (tactical) and (strategic) long term profit plan.
-) The industry should establish separate costing department, if possible and cost classification must be made within a specific framework of responsibility and time.
-) The industry should consider the cost volume profit relationship while fixing the price of its products.
-) GRIL is bearing huge amount of fixed costs for employees' expenses which is not good for the organization. It should initiate the cost control program.
-) To improve profit planning system is GRIL, trained and qualified professional should be hired.
-) The industry should utilize its full capacity, so that per unit cost of tyre will be comparatively low.
-) Industry should allocate more resources to truck tyres, which might help to improve the present condition of loss etc.

2.25 Research Gap:

In Nepal, many public or private enterprises are not practicing various accounting tools and techniques to measure its performance. Accounting practice only lays emphasis on the tax system. The accounting data are only use to calculate profit during the period. The data are not widely used for forecasting and planning.

There is the gab between the present research and the previous researches. Most of the previous researches conducted on accounting on profit planning and control covered only the budgeting practices in manufacturing company, especially in public enterprise. The previous researcher did not disclose which of the profit planning and control tools are in practices, which are not and why. Specially, comparative study on CVP analysis in publications have not been done yet by other researcher for this

purpose practice of CVPA as a tool of PPC, Kantipur Publication Pvt. Ltd. & Kamana Prakashan Pvt. Ltd is studied. Thus, to fill up this gap the current research is conducted. It will also clear the contribution of private enterprises to build strong economic condition to the nation.

Chapter – III

Research Methodology

Research Methodology is the process of arriving at the solution of problems through a planned and systematic dealing with the collection, analysis and interpretation of the facts and figures. This chapter includes research design, source of collection data and processing procedures tools for analysis, test of hypothesis, method of analysis and presentation.

3.1 Research Design:

Design is the overall plan of any proposed activity, the design of the research project guides how to conduct the study. The research designing implies procedures, techniques and takes, which guide to evaluate the objective of the study, and propounds ways for research viability. It is the overall specific finding validity, objective, accuracy and economically as possible.

The source of data shall be primary and secondary sources. All the required data and information would be collected from Kantipur publication Pvt. Ltd. & Kamana Prakashan Pvt. Ltd. the study would be followed descriptive cum analytical research design to analyze the company's performance of selected enterprises.

3.2 Population and Sample design:

I will specially focus to the organization like as Kantipur publication Pvt. Ltd. & Kamana Prakashan Pvt. Ltd. I will also concern with other similar organization, visit web side and published and unpublished reports and articles.

3.3 Sources of collection data and processing procedures:

In this study, data used primary as well as secondary. Primary data are collected through questionnaire and informal interviews with concerned employees in Kantipur publications Pvt. Ltd. & Kamana Prakashan Pvt. Ltd. Secondary data are

taken mainly from annual reports, author's reports, balance sheet, cost details sheet, all available published and unpublished materials concerning the study will also be used in the study.

3.4 Tools for analysis:

This section contains different tools for analysis and test of analysis i.e. accounting, financing and statistical tools. In this study the tools given below are used.

- i. Accounting procedures
- ii. Accounting tools
- iii. Cost classification and cost control:

Cost classification:

- a) Fixed cost: - Those costs are changed as fixed amount for fixed period.
- b) Variable: - Those cost which are change on per unit basis.
- c) Semi- variable: - Those cost which are certain portions fixed and certain portion variable.

Cost Control:

To control the cost, the different costing methods are used in this study.

CVP Analysis:

This tool of accounting is used to define break even point and sensitivity analysis of this organization.

3.5 Method of analysis and presentation:

There are three methods that are used in computing and reporting the CVP analysis. They are as follows:

- a) Contribution Margin Approach
- b) Cost and Revenue equation Approach
- c) Graphic Approach

a) Contribution Margin Approach:

The profit potential of a business enterprise is indicated by contribution margin approach. Contribution margin is one very important concept in CVP analysis and break- even analysis.

$$\text{Contribution margin (CM)} = \text{Sale} - \text{variable cost}$$

Or

$$\text{Contribution margin (CM)} = \text{Fixed cost} + \text{Profit}$$

b) Cost and Revenue equation Approach

The cost and revenue equation approach is based on the income statement concept. It represents the most convenient and accurate approach to CVP analysis. The various formulations in CVP analysis are derived from the revenue and cost function. The relationship between cost, volume and profit can be expressed algebraically as:

$$\text{Profit} = \text{Total Revenue} - \text{Total Cost}$$

$$\text{Profit} = \text{Total Revenue} - \text{Variable Cost} - \text{Fixed Cost}$$

c) Graphic Approach:

The relationship between cost, volume and profit can be shown graphically too. The graph so emerging is called CVP or break even chart. The no profit/ no loss point (break even point) are located at the point where the total cost and total revenue lines cross. Below this point, the firm incurs losses, and above this point, the firms earn profit.

Chapter – IV

Presentation and Analysis of Data

4.1 Introduction

Data presentation and analysis is the important part of the research work. It is known as the heart of research. Planning sets the proper objectives and goals for an organization and profit planning develops the specific action plans to achieve the predetermined goals and objectives. CVP analysis can be used to plan the profit and it also measure the effectiveness of profit planning and control. CVP analysis is the relation among cost, revenue and profit. It helps the management in cost control and profit planning. Major finding of the research depends on data presentation and analysis.

This chapter presents the analysis and interpretation of the data. It is concentrated to the presentation analysis and interpretation through different tools following the research methodology many suitable tables, graphs have been also used to clearly the actual position of the companies, various accounting and financial tools, mathematical and statistical tools have been used in this chapter.

It presents the analysis and interpretations of data from FY 058/059 to 062/63. CVP analyses of these publications, Kantipur Publications Pvt. Ltd & Kamana Prakashan Pvt. Ltd are comparatively presented.

4.2 Sales plan of Kantipur Publication and Kamana prakashan:

Sales planning are the necessary components of profit planning and control. The starting point in preparing profit plan is the sales plan, which displays the projected sales in units and rupees. It provides the basic management decision about marketing and help to develop comprehensive sales plan. A sales plan is detailed schedule of expected sales for coming period. If the sales plan is not realistic, most other parts of the overall profit planning also are not realistic. Therefore sales plan should be realistic.

4.2.1 Sales value analysis of Kantipur Publication and Kamana Prakashan:

Sales value means the total monetary value of units sold of publications within the period of last five years or an annual basis. The following table shows the yearly sales trend of Kantipur publication Pvt. Ltd & Kamana Prakashan Pvt.

Table – 4.1

Sales Trend of Kantipur Publication Pvt. Ltd

| Details | Fiscal Years | | | | | | | | | |
|--------------------|--------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
| | 2058/59 | % | 2059/60 | % | 2060/61 | % | 2061/62 | % | 2062/63 | % |
| Kantipur Daily | 542,24,000 | 68.95 | 552,40,000 | 69.34 | 570,53,150 | 70.27 | 573,55,000 | 69.57 | 660,45,000 | 72.06 |
| The Kathmandu Post | 182,60,000 | 23.22 | 182,60,000 | 22.92 | 180,75,880 | 22.66 | 188,75,000 | 22.92 | 192,60,000 | 21.01 |
| Saptahik | 46,80,000 | 5.95 | 46,80,000 | 5.87 | 45,93,524 | 5.66 | 46,93,520 | 5.69 | 47,80,000 | 5.23 |
| Nepal Saptahik | 10,92,000 | 1.39 | 11,04,000 | 1.39 | 10,97,208 | 1.35 | 11,20,800 | 1.36 | 11,65,900 | 1.27 |
| Sarbottam Nari | 3,84,000 | 0.49 | 3,78,000 | 0.48 | 3,72,000 | 0.46 | 3,96,000 | 0.48 | 3,98,200 | 0.43 |
| Total | 786,40,000 | 100 | 796,62,000 | 100 | 811,91,762 | 100 | 824,40,320 | 100 | 916,49,100 | 100 |
| In Amount: | | | | | | | | | | |
| Kantipur Daily | 2168,96,000 | 62.10 | 2209,60,000 | 62.34 | 2282,12,600 | 67.60 | 2294,20,000 | 67.88 | 2641,80,000 | 70.38 |
| The Kathmand | 730,40,000 | 20.7 | 730,40,000 | 20.6 | 497,05,000 | 14.7 | 424,68,000 | 12.5 | 433,35,000 | 11.54 |

| | | | | | | | | | | |
|--------------------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|
| u Post | | 6 | 000 | 0 | 920 | 3 | 750 | 7 | 000 | |
| Saptahik | 234,00,000 | 6.65 | 234,00,000 | 6.60 | 229,67,620 | 6.68 | 281,61,120 | 8.33 | 286,80,000 | 7.64 |
| Nepal Saptahik | 273,00,000 | 7.76 | 276,00,000 | 7.79 | 274,30,200 | 8.12 | 280,20,000 | 8.29 | 292,22,500 | 7.78 |
| Sarbottam Nari | 96,00,000 | 2.73 | 94,50,000 | 2.67 | 93,00,000 | 2.75 | 99,00,000 | 2.93 | 99,55,000 | 2.66 |
| Total Amount | 3518,36,000 | 100 | 3544,50,000 | 100 | 3376,16,340 | 100 | 3379,69,870 | 100 | 3753,72,500 | 100 |
| Increase/Decrease | 3.35% | | 0.74% | | 4.75% | | 0.1047% | | 11.07% | |

Source: Unpublished records of Kantipur Publication Pvt. Ltd.

Table – 4.2

Sales Trend of Kamana Prakashan Pvt. Ltd.

| Details | Fiscal Years | | | | | | | | | |
|----------------------|--------------|-------|------------|-------|------------|-------|------------|-------|------------|-------|
| | 2058/59 | % | 2059/60 | % | 2060/61 | % | 2061/62 | % | 2062/63 | % |
| Nepal Samachar patra | 182,20,000 | 63.20 | 192,10,500 | 61.47 | 198,50,000 | 62.63 | 198,88,000 | 62.57 | 212,10,000 | 60.85 |
| Mahanagar | 36,00,000 | 12.49 | 48,50,000 | 15.52 | 47,20,000 | 14.89 | 51,20,500 | 16.11 | 55,15,000 | 15.82 |
| Kamana | 35,40,000 | 12.27 | 36,10,000 | 11.55 | 38,20,000 | 12.05 | 35,35,000 | 11.13 | 41,10,000 | 11.79 |

| | | | | | | | | | | |
|--------------------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|
| Sadhana | 34,70,000 | 12.04 | 35,80,000 | 11.46 | 33,05,000 | 10.43 | 32,40,000 | 10.19 | 40,20,000 | 11.54 |
| Total | 288,30,000 | 100 | 312,50,500 | 100 | 316,95,000 | 100 | 317,83,500 | 100 | 348,55,000 | 100 |
| In Amount: | | | | | | | | | | |
| Nepal Samachar patra | 728,80,000 | 28.03 | 768,42,000 | 29.10 | 794,00,000 | 30.10 | 795,52,000 | 30.79 | 848,40,000 | 28.19 |
| Mahanager | 728,80,000 | 3.11 | 109,12,500 | 4.13 | 112,95,000 | 4.28 | 115,21,125 | 4.46 | 124,08,750 | 4.12 |
| Kamana | 1062,00,000 | 40.84 | 1083,00,000 | 41.01 | 1069,60,000 | 40.55 | 1025,15,000 | 39.67 | 1233,00,000 | 40.97 |
| Sadhana | 728,70,000 | 28.02 | 680,20,000 | 25.76 | 661,00,000 | 25.07 | 648,00,000 | 25.08 | 804,00,000 | 26.72 |
| Total Amount | 2600,50,000 | 100 | 2640,74,500 | 100 | 2637,55,000 | 100 | 2583,88,125 | 100 | 3009,48,750 | 100 |
| Increase/Decrease | 2.25% | | 1.55% | | 0.12% | | 2.03% | | 16.47% | |

Source: Unpublished records of Kamana Prakashan Pvt. Ltd.

The above table 4.1 shows that the sales value trend for five fiscal years from 2058/89 to 2062/63 of Kantipur Publication Pvt. Ltd. there is a variation in sales because of different in demand, cost of products, competition, social political factors and product prices etc. The sales units and values are in fluctuating trend.

In the fiscal year 058/859 the circulation of Kantipur Daily was 542,24,000 units, The Kathmandu post is 182,60,000 units, Saptahik is 234,00,000 units, Nepal Saptahik is 10,92,000 units and Sarbottam Nari is 3,84,000 units sold in all over the country with Rs. 2168,96,000, Rs. 730,40,000, Rs. 234,00,000, Rs. 273,00,000, Rs. 96,00,000 respectively. This is increased 3.35% as compared to total sales values of fiscal year 2057/58. Same as increased by 0.74% in fiscal year 2059/60 as compared to fiscal year 2058/59 of total sales value. Similarly, decreased by 4.75% in total sales value in fiscal year 2060/61 compared to fiscal year 2059/60, increased by 0.1047% in total sales value in fiscal year 2061/62 compared to fiscal year 2060/61 and increased by 11.07% in total sales value in fiscal year 2062/63 compared to fiscal year 2061/62.

Above table no. 4.2 shows that the sales value trend for five fiscal years of Kamana Prakashan Pvt.Ltd. There is also variation in sales. The sales units and values are in fluctuating trend for different product of Kamana Prakashan.

In the fiscal year 058/859 the circulation of Nepal Shamacharpatra Daily was 182,20,000 units, The Mahanager evening post is 36,00,000 units, Kamana is 35,40,000 units, and Sadhana is 34,70,000 units sold in all over the country with Rs. 728,80,000, Rs. 728,80,000, Rs.1062,00,000, Rs. 728,70,000, respectively. This is increased 2.25% as compared to total sales values of fiscal year 2057/58. Same as increased by 1.55% in fiscal year 2059/60 as compared to fiscal year 2058/59 of total sales value. Similarly, decreased by 0.12% in total sales value in fiscal year 2060/61 compared to fiscal year 2059/60, decreased by 2.03% in total sales value in fiscal year 2061/62 compared to fiscal year 2060/61 and increased by 16.47% in total sales value in fiscal year 2062/63 compared to fiscal year 2061/62.

4.2.2 Sales plan analysis:

Kantipur Publication Pvt. Ltd. & Kamana Prakashan Pvt. Ltd. is both publications producing and selling different types of products. An analysis of past sales has been made to find out previous sales trend and to forecast the possible future sales trend of the Kantipur publication and Kamana prakashan. The following table represents the budgeted and actual sales achievement from the fiscal year 059/060 to 063/64.

Table – 4.3

Total budgeted and actual sales volume of Kantipur Publication Pvt. Ltd (in Rs.)

| Fiscal Years | Budgeted Sales | Actual Sales | Achievement |
|--------------|----------------|--------------|-------------|
| 2058/59 | 3600,00,000 | 3518,36,000 | 97.73% |
| 2059/60 | 3600,00,000 | 3544,50,000 | 98.46% |
| 2060/61 | 3500,00,000 | 3376,16,340 | 96.46% |
| 2061/62 | 3400,00,000 | 3379,69,870 | 99.40% |
| 2062/63 | 3500,00,000 | 3753,72,500 | 107.25% |

Table – 4.4

Total budgeted and actual sales volume of Kamana Prakashan Pvt. Ltd (in Rs)

| Fiscal Years | Budgeted Sales | Actual Sales | Achievement |
|--------------|----------------|--------------|-------------|
| 2058/59 | 2700,00,000 | 2600,50,000 | 96.31% |
| 2059/60 | 2700,00,000 | 2640,74,500 | 97.81% |
| 2060/61 | 2700,00,000 | 2637,55,000 | 97.69% |
| 2061/62 | 2650,00,000 | 2583,88,125 | 97.50% |
| 2062/63 | 2600,00,000 | 3009,48,750 | 115.75% |

The above table no. 4.3 shows that there is a little gap between the budgeted sales and actual sales of the Kantipur Publication. In most of the years actual sales are lower than budgeted sales except in the fiscal year 2063/63 when the actual sales exceeds the budgeted by 15.75%. On the basis of these figures, it can

be said that there is no systematic planning. Sales plan are prepared only on the basis of last year actual sales.

Above table no. 4.4 shows that there is also little difference between budgeted and actual sales of Kamana Prakashan. There is positive as well as negative fluctuation between budgeted and actual sales. But gap is more than 7% in fiscal year 2062/63. The achievement is highest in fiscal year 2062/63 and lowest in fiscal year 2058/29. However it can be said that the sales plan is not systematic because sales plan is prepared only on the basis of last year actual sales.

So it can be said that there is not systematic and scientific sales plan of both Publication. It shows that target sales are not set on realistic basis. Therefore, top level management should consider this issue seriously for the improvement.

4.3 Cost Plan of Kantipur Publication and Kamana Prakashan:

The cost is the amount which is expenses for production of goods and services or used in operation. Cost planning and controlling should not focus only on decreasing the future cost or expense but the focus should be given on efficient and better utilization of available and limited resources. Expense planning and controlling should focus on the relationship between expenditure and benefit derived from those expenditures. Costs can be classified from different angle. Classification is the process of grouping costs according to their common characteristics. It is necessary to classified cost to find out accurate costs and profit for proper control and managerial decisions. Management is to be provided with necessary to attain enterprise goals. There are different types of cost incurred in the company. Generally costs are classified into four sectors.

- I. Cost of sales
- II. Administrative expense
- III. Selling and distribution expense
- IV. Financial expenses

Cost of sales is a part of production cost which relates with raw material, packing; work in process, electricity, power and fuel, wages and workman welfare, repair and maintenance, custom duty, laboratory expenses, cartage and coolie etc.

Administrative expense refers to the cost management and of secretarial accounting and administrative service, which can not be directly related to production, selling or other development functions of the enterprise. Example are salaries to staff, accountants, rent rates, depreciation of fixed assets, postage, stationary, legal and professional change, board meeting fee, insurance, audit fee, indirect repair and maintenance, general changes, warehouse expense and business development expenses etc. Selling and distribution cost affects the potential profit of a company. Selling and Distribution expense includes all costs related to selling, distribution, advertisement and sales promotion royalty, freight outwards, excise duty etc.

Where as financial expenses include interest short term loan, interest on long term loan, bank charges, and net expenses losses etc.

Kantipur Publication Pvt. Ltd & Kamana Prakashan Pvt. Ltd classifies its total cost into variable cost and fixed cost related to cost of sales, administrative cost and selling and distribution cost for the purpose of CVP analysis and the study of sensitivity. Due to the nature of data, the costs can be classified into following heads.

4.3.1 Variable cost analysis:

Variable cost varies in proportion to change in output or activities level but per unit variable cost is constant within a certain period. Variable costs are controllable cost. So management has to give priority to control variable cost. Variable cost of Kantipur publication and Kamana prakashan are those cost which varies in direct proportion to change in output or activities level, but per unit is constant within one financial year. Variable cost per unit varies for different financial years as affected by internal and external environment of the publication. Following table shows the details variable cost of Kantipur Publication and Kamana Prakashan.

Table – 4.5

Statement of Detail variable costs of Kantipur Publication Pvt. Ltd.

| Details | 2058/59 | 2059/60 | 2060/61 | 2061/62 | 2062/63 |
|------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1. Cost of sales: | | | | | |
| Raw materials | 1372,22,29 3 | 1331,01,13 3 | 1292,11,54 8 | 1316,40,85 3 | 1318,10,54 0 |
| Printing materials | 659,00,145 | 373,76,805 | 637,14,826 | 633,52,633 | 635,70,500 |
| Lab chemicals | 17,48,216 | 17,27,610 | 16,61,498 | 17,06,455 | 18,25,510 |
| Production salary and wages | 219,16,042 | 21,858,027 | 20925,239 | 212,08,804 | 215,05,400 |
| Fuel and oil | 10,89,468 | 11,51,740 | 10,83,585 | 10,48,251 | 10,50,250 |
| Electricity cost | 200,41,144 | 197,04,774 | 189,98,865 | 190,63,546 | 195,50,500 |
| Water cost | 1,77,355 | 2,00,303 | 1,68,558 | 1,70,646 | 1,80,500 |
| Launch cost | 49,91,284 | 49,82,528 | 47,67,776 | 52,90,012 | 50,80,200 |
| Miscellaneous | 2,78,700 | 2,75,416 | 2,64,877 | 2,68,157 | 3,00,500 |
| Total | 2533,64,64 7 | 2503,78,31 6 | 2407,96,77 2 | 2437,79,35 7 | 2448,73,90 0 |
| 2. Administrative costs: | | | | | |
| Salary and wages | 37,53,381 | 37,87,938 | 36,54,027 | 39,66,719 | 40,20,500 |
| Employee bonus | 5,17,336 | 5,96,948 | 5,39,262 | 5,91,230 | 5,95,520 |
| Operating allowance and incentives | 13,53,516 | 13,50,174 | 13,10,512 | 14,03,463 | 15,20,400 |

| | | | | | |
|------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Fuel and moving | 33,18,675 | 33,11,834 | 32,12,812 | 34,42,545 | 34,80,540 |
| Miscellaneous | 38,621 | 39,070 | 37,644 | 40,611 | 50,700 |
| Total | 89,81,529 | 90,85,964 | 87,54,257 | 94,44,568 | 96,67,660 |
| 3. Distribution costs: | 227,81,718 | 262,57,865 | 240,19,491 | 205,31,670 | 245,52,500 |
| Total Variable cost (1+2+3) | 2851,27,894 | 2857,22,145 | 2735,70,520 | 2737,55,595 | 2790,94,060 |
| Increase/Decrease | 5.87% | 0.21% | -4.25% | 0.07% | 1.95% |

Table – 4.6

Statement of Detail variable costs of Kamana Prakashan Pvt. Ltd.

| Details | 2058/59 | 2059/60 | 2060/61 | 2061/62 | 2062/63 |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|
| 1. Cost of sales: | | | | | |
| Raw materials | 1012,12,150 | 1012,05,200 | 1013,20,210 | 1100,15,275 | 1115,05,250 |
| Printing materials | 380,50,200 | 380,51,250 | 381,21,254 | 382,02,250 | 385,05,680 |
| Lab chemicals | 9,50,210 | 9,60,125 | 9,55,200 | 9,50,260 | 10,25,250 |
| Production salary and wages | 120,20,120 | 130,10,200 | 125,20,250 | 135,50,200 | 145,35,000 |
| Fuel and oil | 5,50,500 | 5,60,254 | 5,55,260 | 5,53,280 | 6,65,000 |
| Electricity cost | 150,20,200 | 150,25,770 | 151,52,210 | 152,02,690 | 1,78,00,000 |
| Water cost | 1,50,250 | 1,51,500 | 1,51,020 | 1,49,000 | 1,55,000 |

| | | | | | |
|------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Launch cost | 35,20,250 | 36,10,210 | 35,80,215 | 35,98,210 | 37,20,500 |
| Miscellaneous | 2,50,300 | 2,51,250 | 2,55,530 | 2,98,000 | 3,40,000 |
| Total | 1717,24,180 | 1728,25,759 | 1726,11,149 | 1825,19,165 | 1882,51,680 |
| 2. Administrative costs: | | | | | |
| Salary and wages | 20,45,350 | 21,50,200 | 20,98,500 | 21,02,000 | 21,10,000 |
| Employee bonus | 1,50,500 | 151,200 | 1,20,500 | 1,22,000 | 1,25,000 |
| Operating allowance and incentives | 9,50,400 | 9,55,250 | 9,20,255 | 8,85,250 | 9,25,000 |
| Fuel and moving | 25,20,500 | 26,20,000 | 27,50,250 | 28,20,500 | 29,25,000 |
| Miscellaneous | 60,500 | 55,250 | 50,230 | 75,000 | 95,500 |
| Total | 57,27,250 | 59,31,900 | 59,39,735 | 60,04,750 | 61,80,500 |
| 3. Distribution costs: | | | | | |
| Total Variable cost (1+2+3) | 1900,01,930 | 1917,82,859 | 1917,77,384 | 2020,73,915 | 2082,84,180 |
| Increase/Decrease | 2.25% | 0.94% | -0.003% | 5.37% | 3.07% |

The above table no. 4.5 and 4.6 shows that there are variation in variable costs of sales, administrative costs and distribution costs for different years because various factors affect those cost from different angle. All these variable cost shows fluctuating trend.

Total variable cost in amount of Kantipur Publication Pvt. Ltd, increased by 5.87%, 0.21%, 0.07% and 1.95% in the fiscal years 2058/59, 2059/60, 2061/62 and 2062/63 respectively than the respective last years. Total variable cost decreased by 4.25% in the fiscal year 2060/61 than the fiscal year 2059/60 and the total variable cost in amount of Kamana Prakashan Pvt. Ltd, increased by 2.25%, 0.94%, 5.37% and 3.07% in the fiscal years 2058/59, 2059/60, 2061/62 and 2062/63 respectively than the respective last years. Total variable cost decreased by 0.003% in the fiscal year 2060/61 than the fiscal year 2059/60. The rate of increase in total variable cost is higher than the rate of decrease.

4.3.2 Fixed Costs Analysis:

Fixed cost remains constant in total amount despite the changes in the level of activity within a fiscal year. That is fixed cost remain unchanged in total as the output level varies within a year, but fixed cost per unit basis decreases as the level of activity increases and vice versa. For addition uses, fixed costs should not be expressed on unit basis because of the potential confusion involved. Fixed costs in total vary for different fiscal year effected by internal and external environment factors of the company.

Table no. – 4.7

Fixed Cost Details of Kantipur Publication Pvt. Ltd (in Rs.)

| Details | Years | | | | |
|------------------------------|-----------|-----------|-----------|-----------|-----------|
| | 2058/59 | 2059/60 | 2060/61 | 2061/62 | 2062/63 |
| 1. Costs of Sales: | | | | | |
| Production Salary and wages | 93,96,464 | 93,68,441 | 89,70,096 | 92,46,856 | 98,20,500 |
| Land and Building | 24,92,682 | 23,85,762 | 23,40,486 | 24,65,828 | 25,50,500 |
| Provident fund and subsidies | 1,13,591 | 1,11,113 | 1,07,417 | 1,07,880 | 1,20,000 |
| Repairs of | 31,21,095 | 33,69,909 | 31,13,587 | 30,82,285 | 32,20,200 |

| | | | | | |
|-----------------------------------|------------|------------|------------|------------|------------|
| Machinery and building | | | | | |
| Miscellaneous | 6,32,635 | 6,38,108 | 6,06,683 | 5,08,577 | 6,05,000 |
| Total | 157,76,467 | 158,73,333 | 151,29,189 | 154,11,426 | 163,16,200 |
| 2. Administrative costs: | | | | | |
| Salary and wages | 87,55,917 | 88,49,603 | 85,25,395 | 86,30,399 | 87,25,000 |
| Launch cost(time basis) | 13,41,998 | 13,19,395 | 12,86,925 | 13,87,028 | 13,97,200 |
| Provident fund and subsidies | 13,74,930 | 15,88,906 | 14,33,781 | 9,67,067 | 12,05,500 |
| Employees quarter | 3,00,509 | 3,45,939 | 3,13,036 | 3,08,229 | 3,18,200 |
| Office repair and maintenance | 2,09,944 | 1,93,082 | 1,93,232 | 1,73,379 | 1,98,500 |
| Telephone wire and postage | 14,24,329 | 13,59,621 | 13,48,759 | 13,44,647 | 14,89,700 |
| Advertisement on TV and radio etc | 3,70,490 | 4,06,277 | 3,74,870 | 3,85,286 | 3,25,400 |
| Licenses and insurance fees | 10,90,888 | 11,54,471 | 10,85,964 | 10,78,800 | 11,20,520 |
| Hospitality and pray cost | 15,76,,641 | 15,20,523 | 14,99,480 | 14,64,085 | 14,82,520 |
| Vehicle repair cost | 12,02,035 | 13,03,305 | 12,13,497 | 12,13,650 | 12,10,200 |
| Adviser and auditing cost | 6,09,250 | 6,03,382 | 5,87,425 | 5,77,928 | 5,78,500 |
| Bank commission | 2,30,527 | 2,01,127 | 2,088,131 | 2,08,691 | 2,20,650 |

| | | | | | |
|-----------------------------------|-------------|------------|------------|------------|------------|
| and interest | | | | | |
| Training and dress cost | 3,25,208 | 3,45,939 | 3,24,630 | 3,27,493 | 3,20,500 |
| Technical and computer fees | 34,29,092 | 33,99,052 | 33,08,131 | 32,74,928 | 33,20,500 |
| Security cost | 16,58,973 | 16,73,379 | 16,15,419 | 16,18,200 | 17,02,525 |
| Donation and membership fees | 3,08,742 | 3,13,759 | 3,01,442 | 3,00,523 | 3,05,500 |
| Depreciation | 62,40,700 | 65,92,954 | 61,83,423 | 61,64,570 | 61,54,200 |
| Interest | 1,02,87,276 | 86,48,475 | 84,28,779 | 87,22,867 | 87,58,204 |
| Miscellaneous | 90,565 | 84,474 | 96,616 | 88,614 | 91,500 |
| Total | 411,65,572 | 402,25,467 | 386,46,395 | 385,28,565 | 389,24,819 |
| 3. Distribution Cost | 97,66,067 | 112,46,700 | 103,03,997 | 102,74,284 | 103,20,000 |
| 4. Total fixed cost(1+2+3) | 667,08,106 | 673,45,500 | 640,79,581 | 642,14,275 | 655,61,019 |
| Increase/Decrease | 0.13% | 0.96% | -4.85% | 0.21% | 2.10% |

Table no. – 4.8

Fixed Cost Details of Kamana Prakashan Pvt. Ltd (in Rs.)

| Details | Years | | | | |
|---------------------------|---------|-----------|-----------|-----------|-----------|
| | 2058/59 | 2059/60 | 2060/61 | 2061/62 | 2062/63 |
| 1. Costs of Sales: | | | | | |
| Production Salary | | 51,25,500 | 51,25,500 | 55,20,400 | 55,20,400 |

| | | | | | |
|-----------------------------------|-----------|-----------|-----------|-----------|------------|
| and wages | 50,25,450 | | | | |
| Land and Building | 15,25,000 | 15,40,000 | 15,20,000 | 14,80,880 | 15,20,700 |
| Provident fund and subsidies | 1,02,000 | 1,12,000 | 1,02,000 | 1,20,700 | 1,70,200 |
| Repairs of Machinery and building | 20,12,250 | 21,01,200 | 22,20,800 | 25,40,200 | 25,40,900 |
| Miscellaneous | 2,52,000 | 2,,0,000 | 2,50,000 | 1,90,400 | 2,50,000 |
| Total | 89,16,700 | 91,48,700 | 92,18,300 | 98,52,580 | 100,02,200 |
| 2. Administrative costs: | | | | | |
| Salary and wages | 52,25,522 | 52,30,200 | 52,30,200 | 55,40,700 | 55,40,700 |
| Launch cost(time basis) | 9,85,200 | 9,25,500 | 8,80,000 | 9,70,200 | 9,90,400 |
| Provident fund and subsidies | 12,52,200 | 12,02,000 | 10,25,000 | 12,01,400 | 11,25,700 |
| Employees quarter | 2,50,000 | 2,50,000 | 2,55,000 | 2,55,000 | 2,55,000 |
| Office repair and maintenance | 1,20,500 | 1,52,000 | 1,51,000 | 2,00,000 | 250,400 |
| Telephone wire and postage | 9,25,520 | 9,30,400 | 9,40,200 | 10,40,200 | 12,80,000 |
| Advertisement on TV and radio etc | 3,20,520 | 3,25,250 | 3,01,200 | 2,10,200 | 2,50,400 |
| Licenses and insurance fees | 8,52,500 | 8,40,000 | 8,50,880 | 8,90,000 | 8,90,000 |
| Hospitality and pray cost | 12,20,000 | 10,20,120 | 10,01,200 | 11,50,100 | 15,25,000 |
| Vehicle repair cost | 8,85,000 | 8,40,400 | 8,20,900 | 5,90,200 | 8,20,000 |

| | | | | | |
|-----------------------------------|------------|------------|------------|------------|------------|
| Adviser and auditing cost | 4,52,850 | 4,20,200 | 4,20,200 | 3,10,400 | 2,10,000 |
| Bank commission and interest | 1,10,420 | 1,12,400 | 1,20,300 | 1,80,200 | 1,90,200 |
| Training and dress cost | 1,58,540 | 1,20,500 | 1,40,500 | 1,20,300 | 1,01,200 |
| Technical and computer fees | 22,52,020 | 22,02,000 | 22,80,900 | 24,90,800 | 25,50,200 |
| Security cost | 12,52,200 | 12,52,000 | 12,30,550 | 11,20,400 | 11,20,400 |
| Donation and membership fees | 1,52,570 | 1,20,200 | 1,30,700 | 1,85,200 | 1,90,000 |
| Depreciation | 30,50,200 | 30,20,000 | 30,01,000 | 34,50,500 | 35,20,400 |
| Interest | 55,87,125 | 55,77,000 | 51,20,500 | 55,80,000 | 60,50,000 |
| Miscellaneous | 70,500 | 40,200 | 60,780 | 70,900 | 1,20,000 |
| Total | 251,23,387 | 244,30,370 | 239,61,010 | 255,56,500 | 269,80,000 |
| 3. Distribution Cost | 98,25,000 | 95,02,000 | 90,52,500 | 104,20,200 | 105,25,700 |
| 4. Total fixed cost(1+2+3) | 438,65,087 | 430,81,070 | 422,31,810 | 458,29,280 | 475,07,900 |
| Increase/Decrease | 2.52% | -1.79% | -1.97% | 8.52% | 3.66% |

The above table no. 4.7 and 4.8 show that there are variations in fixed administrative costs, cost of sale and distribution cost for different years because various internal and external factors of company affected to those costs from different angle. The table no. 4.7 shows that the total fixed cost of Kantipur Publication is increasing in fiscal year 2058/59, 2059/60, 2061/62 and 2062/63 by 0.13%, 0.96%, 0.21% and 2.10% respectively. But total cost are decreasing in fiscal year 2060/61 by 4.85%. And the table no. 4.8 shows that the total fixed cost of Kamana Prakashan is increasing in fiscal year 2058/59, 2061/60 and 2062/63 by 2.52%, 8.52% and 3.66% respectively.

But total costs are decreasing in fiscal years 2059/60 and 2060/61 by 1.79% and 1.97% respectively.

4.3.3 Semi – Variable Costs Analysis:

Expenses that can not be categorized as purely fixed or variable is termed as semi variable or mixed cost. Semi variable costs contain both variable and fixed cost elements. Classification of cost into variable and fixed is very important to plan and control of costs. It helps to determine the volume of operation required to maintain the desired profitability. Kantipur Publication and Kamana Prakashan have no practice of using systematic method of classifying the costs which are identified as semi variable cost. So, there is rough practice of classifying the expenses are classified as fixed and variable component. For example, all salary and other administrative expenses are classified as fixed cost since all staffs are paid monthly basis, but all direct labor cost which directly related with production process are classified as variable cost.

On going through interview with publications operating managers, administrative manager, account in chief and other related employees reveal that practice of identification of semi variable cost and their segregation into fixed and variable was not found.

4.3.4 Production salary and wages costs analysis:

The workers are divided into two groups as the basis of sex that is male and female. The skill – wise distributions of the workers of Kantipur Publication and Kamana Prakashan are given in the following tables.

Table no. 4.9

Skill – wise distribution of workers of Kantipur Publication

| S.No | Level of skill | Male | % | Female | % | Total | % |
|------|----------------|------|-------|--------|-------|-------|-------|
| 1. | Unskilled | 500 | 72.46 | 60 | 42.86 | 560 | 67.47 |

| | | | | | | | |
|----|----------------|-----|-------|-----|-------|-----|-------|
| 2. | Semi skilled | 125 | 18.12 | 45 | 32.14 | 170 | 20.48 |
| 3. | Skilled | 50 | 7.25 | 25 | 17.86 | 75 | 9.04 |
| 4. | Highly Skilled | 15 | 2.17 | 10 | 7.14 | 25 | 3.01 |
| | Total | 690 | 100 | 140 | 100 | 830 | 100 |

Table no. 4.10

Skill – wise distribution of workers of Kamana Prakashan.

| S.No | Level of skill | Male | % | Female | % | Total | % |
|------|----------------|------|-------|--------|-------|-------|-------|
| 1. | Unskilled | 250 | 69.83 | 35 | 44.30 | 285 | 65.22 |
| 2. | Semi skilled | 75 | 20.95 | 25 | 31.65 | 100 | 22.88 |
| 3. | Skilled | 25 | 6.98 | 15 | 18.99 | 40 | 9.15 |
| 4. | Highly Skilled | 8 | 2.24 | 4 | 5.06 | 12 | 2.75 |
| | Total | 358 | 100 | 79 | 100 | 437 | 100 |

The above table no. 4.9 shows that out of 830 workers, 560 workers are unskilled where male are 500 and female are 60. There are 125 male and 45 female in semi skilled, 50 male and 25 female in skilled workers and 15 male and 10 female in highly skilled categories of workers. The table no. 4.10 shows that out of 437 workers, 285 workers are unskilled where male are 250 and female are 35. There are

75 male and 25 female in semi skilled, 25 male and 15 female in skilled workers and 8 male and 4 female in highly skilled workers.

Both table shows that the unskilled workers are majority. Highly skilled workers are lower than other skilled workers in the both publications. On the basis of the amount of wages earned, the workers are divided into four groups. The range of wages earned of the both publications is given below:

Table no. – 4.11

Wages structure of the workers of Kantipur Publication.

| S.No. | Wages per month | No of workers | | Total no of workers | % of the Distribution |
|-------|------------------|---------------|--------|---------------------|-----------------------|
| | | Male | Female | | |
| 1. | Rs.3000 - 5000 | 500 | 60 | 560 | 67.47 |
| 2. | Rs.5001 – 10000 | 125 | 45 | 170 | 20.48 |
| 3. | Rs.10001 – 15000 | 50 | 25 | 75 | 9.04 |
| 4. | Rs.15001 - Above | 15 | 10 | 25 | 3.01 |
| | Total | 690 | 140 | 830 | 100 |

Table no. – 4.12

Wages structure of the workers of Kamana Prakashan.

| S.No. | Wages per month | No of workers | | Total no of workers | % of the Distribution |
|-------|-----------------|---------------|--------|---------------------|-----------------------|
| | | Male | Female | | |
| 1. | Rs.2000 – 4500 | 250 | 35 | 285 | 65.22 |

| | | | | | |
|----|------------------|-----|----|-----|-------|
| 2. | Rs.4501 – 9000 | 75 | 25 | 100 | 22.88 |
| 3. | Rs.9001 – 13500 | 25 | 15 | 40 | 9.15 |
| 4. | Rs.13501 – Above | 8 | 4 | 12 | 2.75 |
| | Total | 358 | 79 | 437 | 100 |

The above table no. 4.11 shows that Kantipur Publication rule and regulation minimum wages fixed for the unskilled workers is Rs 3000 to 5000, semi skilled workers Rs.5001 to 10000, skilled workers Rs.10001 to 15000 and highly skilled workers Rs.15001 to above.

And the table no. 4.12 shows that Kamana Prakashan rule and regulation wages fixed for the unskilled workers are Rs.2000 to 4500, semi skilled workers Rs.4501 to 9000, skilled workers Rs.9001 to 13500 and highly skilled workers Rs.13501 to above.

4.4 Inventory Consideration of Kantipur Publication Pvt. Ltd & Kamana Prakashan Pvt. Ltd:

Inventory is needed to every manufacturing company as a protection against uncertainty. The inventory includes the stock in hand of basic raw materials, items in process maintenance material, repair and operating items. In publication house, a major portion of the working capital is locked up in inventory. The main causes for holding inventories by the publication house are to continuity of their work and to supply finished products regularly.

The sales, production and inventory are interrelated with each other. If the volume of any one of above changes the others are automatically changed. In the context of Kantipur Publication and Kamana Prakashan Pvt. Ltd. will discuss only the total amount of inventory. So, a certain level of inventory is needed for smooth sales activities to the publications. The nature of products and nature of raw materials affects the size of inventory. For example, in the context of Kantipur Publication and Kamana Prakashan inventory is needed due to unfortunately strike and Nepal Banda etc. are the causes for keeping the inventory to fulfillment of strike and Banda day's operation.

Table no. – 4.13

Total Inventory level of Kantipur Publication (in Rupees)

| Fiscal years | Opening Inventory | Closing Inventory |
|--------------|-------------------|-------------------|
| 2058/59 | 81,42,320 | 83,62,400 |
| 2059/60 | 83,62,400 | 83,60,400 |
| 2060/61 | 83,60,400 | 68,80,700 |
| 2061/62 | 68,80,700 | 68,60,700 |
| 2062/63 | 68,60,700 | 67,74,280 |

Table no. – 4.14

Total Inventory level of Kamana Prakashan (in Rupees)

| Fiscal years | Opening Inventory | Closing Inventory |
|--------------|-------------------|-------------------|
| 2058/59 | 50,25,410 | 40,40,652 |
| 2059/60 | 40,40,652 | 45,25,400 |
| 2060/61 | 45,25,400 | 45,50,700 |
| 2061/62 | 45,50,700 | 46,21,020 |
| 2062/63 | 46,21,020 | 52,20,400 |

The above table no. 4.13 and 4.14 shows that the amount of inventory of Kantipur Publication and Kamana Prakashan Pvt. Ltd. The decreasing of the closing inventory in different fiscal year of Kantipur publication and the increasing of the closing inventory in different fiscal year of Kamana prakashan.

4.5 Cost – Volume – Profit Analysis of Kantipur Publication & Kamana Prakashan Pvt. Ltd:

The analysis of the relationship between cost, volume and profit is said CVP analysis. CVP analysis is significant tool of profit planning and control. Its helps to formulate the policies and strategies regarding the revenue to the organization and cost estimation as well. CVP analysis summarizes the effects of changes in an organization's volume of activity on its costs, revenue and profit. Nowadays, CVP analysis has become a powerful instrument in management decision making especially cost control and profit planning. It helps to determine the minimum sales volume required to avoid loses and the sales volume at which the profit goal of the company will be achieved. So it is very important for sales and productions plan because without the knowledge of BEP, it is difficult to determine the sales level for certain level of profit. Profit planning can be done only when the management information about the cost of products and the selling price of the products. CVP analysis provides management with a comprehensive overview of the effects on revenue and costs of all kinds of short run financial changes.

Table no. – 4.15

Income statement of Kantipur Publication for F/Y 058/59 to 062/63 (in Rs)

| Details | Years | | | | |
|----------------------|-------------|-------------|-------------|-------------|-------------|
| | 058/59 | 059/60 | 060/61 | 061/62 | 062/63 |
| A. Sales Revenue | 3518,36,547 | 3544,50,000 | 3376,96,340 | 3379,69,870 | 3450,87,250 |
| B. Variable costs: | | | | | |
| Cost of sales | 2533,64,647 | 2503,78,316 | 2407,96,772 | 2437,79,357 | 2322,14,750 |
| Administrative costs | 89,81,529 | 90,85,964 | 87,54,257 | 94,44,568 | 96,52,200 |
| Distribution costs | 227,81,718 | 262,57,865 | 240,19,491 | 205,31,670 | 210,36,00 |

| | | | | | |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 0 |
| Total Variable costs | 2851,27,894 | 2857,22,145 | 2735,70,520 | 2737,55,595 | 2629,02,950 |
| C. Contribution margin (A – B) | 667,08,106 | 687,27,855 | 640,45,820 | 642,14,275 | 821,84,300 |
| D. Fixed costs: | | | | | |
| Costs of sales | 157,76,467 | 158,73,333 | 151,29,189 | 154,11,462 | 129,52,500 |
| Administrative costs | 211,65,572 | 202,25,467 | 186,46,395 | 185,28,565 | 205,70,680 |
| Distribution costs | 97,66,067 | 112,46,700 | 103,03,997 | 102,74,284 | 105,20,400 |
| Total fixed costs | 467,08,106 | 473,45,500 | 440,79,581 | 442,14,275 | 420,43,580 |
| E. Profit (C – D) | 200,00,000 | 213,82,355 | 199,66,239 | 200,00,000 | 381,40,720 |
| | | | | | |
| P/V Ratio= (CM ratio) | 0.1896 | 0.1939 | .18896 | 0.190 | 0.2382 |
| BEP= (Fixed cost/PV ratio) | 2463,50,770 | 2441,74,832 | 2332,74,667 | 2327,06,711 | 1765,05,374 |
| Margin of safety = (AS – BEP) | 1054,85,777 | 1102,75,168 | 1044,21,673 | 1052,63,159 | 1685,81,876 |
| % of (BEP/Sales) | 70.02 | 68.89 | 69.09 | 68.85 | 51.15 |
| % of (MOS/Sales) | 29.98 | 31.11 | 30.92 | 31.15 | 48.85 |
| Operating Leverage = (CM / Profit) | 3.34 | 3.21 | 3.21 | 3.21 | 2.15 |

| | | | | | |
|-----------------------|-------------|-------------|-------------|-------------|-------------|
| Desired Profit | 250,00,000 | 230,00,000 | 220,50,000 | 215,00,000 | 425,00,000 |
| Required sales in Rs. | 3782,07,310 | 3627,92,677 | 3499,66,030 | 3458,64,605 | 3549,26,868 |

Table no. – 4.16

Income statement of Kamana prakashan for F/Y 058/59 to 062/63 (in Rs)

| Details | Years | | | | |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|
| | 058/59 | 059/60 | 060/61 | 061/62 | 062/63 |
| A. Sales Revenue | 1251,21,200 | 1121,45,225 | 1242,12,520 | 1240,12,200 | 1224,00,250 |
| B. Variable costs: | | | | | |
| Cost of sales | 920,12,500 | 812,52,540 | 945,25,250 | 895,25,020 | 892,24,250 |
| Administrative costs | 40,25,410 | 35,25,420 | 36,54,240 | 36,98,520 | 36,78,700 |
| Distribution costs | 101,54,200 | 96,25,420 | 98,78,200 | 99,25,400 | 101,42,250 |
| Total Variable costs | 1061,92,110 | 944,03,380 | 1080,57,690 | 1031,48,940 | 1030,45,200 |
| C. Contribution margin (A – B) | 189,29,090 | 177,41,840 | 161,54,830 | 208,63,260 | 193,55,050 |
| D. Fixed costs: | | | | | |
| Costs of | 55,02,100 | 56,24,500 | 52,26,400 | 60,54,200 | 61,25,200 |

| | | | | | |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|
| sales | | | | | |
| Administrative costs | 86,58,240 | 77,52,400 | 72,25,420 | 85,25,455 | 84,85,850 |
| Distribution costs | 35,25,430 | 35,55,200 | 34,54,500 | 36,52,200 | 35,82,800 |
| Total fixed costs | 176,85,770 | 169,32,100 | 159,06,320 | 182,31,855 | 181,93,850 |
| E. Profit (C – D) | 12,43,320 | 8,09,740 | 2,78,510 | 26,31,405 | 11,61,200 |
| | | | | | |
| P/V Ratio= (CM ratio) | 0.1513 | 0.1582 | 0.1301 | 0.1682 | 0.1581 |
| BEP= (Fixed cost/PV ratio) | 1168,92,069 | 1070,29,709 | 1222,62,260 | 1083,93,906 | 1150,78,115 |
| Margin of safety = (AS – BEP) | 82,29,131 | 51,15,516 | 19,50,260 | 15,61,829 | 73,22,135 |
| % of (BEP/Sales) | 93.42 | 95.44 | 98.43 | 87.41 | 94.02 |
| % of (MOS/Sales) | 6.58 | 4.65 | 1.57 | 1.26 | 5.98 |
| Operating Leverage = (CM/Profit) | 15.22 | 21.91 | 58.00 | 7.93 | 16.67 |
| Desired Profit | 15,00,000 | 13,00,000 | 500,000 | 800,000 | 28,00,000 |
| Required sales in Rs. | 1268,06,147 | 1152,47,156 | 1261,05,457 | 1131,50,149 | 1327,88,425 |

The above table no. 4.15 and 4.16 shows that Income Statement with Break Even Analysis of Kantipur Publication and Kamana Prakashan Pvt. Ltd. Profit planning is possible only when the management has information about the cost of products, both fixed and variable cost and the selling price of the products. Cost, Volume and Profit analysis is especially applied for profit planning and control. The cost, volume and profit relationship will be established by break even analysis.

4.5.1 Contribution Margin Analysis:

Contribution margin is the difference between sales amount and variable cost. In other words fixed cost plus the amount of profit is equivalent contribution margin. Contribution margin is known as profit volume ratio (PV ratio) or CM ratio. Contribution margin can be presented as follows:

$$) \text{ Contribution Margin (CM) = Sales Value – Variable Cost}$$

OR

$$) \text{ Contribution Margin (CM) = Profit + Fixed Cost}$$

The above table no. 4.15 and 4.16 shows the calculation of CM of Kantipur Publication and Kamana Prakashan for the five fiscal years from 2058/59 to 2062/63. CM for the five year shows the fluctuating trend. High CM is signal of high profit, low CM is the signal of low profit. Contribution margin for five fiscal years of Kantipur Publication Pvt. Ltd are Rs. 667, 08,106, Rs. 687, 27,855, Rs. 640, 45,820, Rs. 642, 14,275 and Rs. 821, 84,300 for the years 2058/59 to 2062/63 respectively. And contribution margin for five fiscal years of Kamana Prakashan Pvt. Ltd are Rs. 189,29,090, Rs. 177,41,840, Rs. 161,54,830, Rs. 208,63,260 and Rs. 193,55,050 for the years 2058/59 to 2062/63 respectively.

4.5.2 Profit Volume (PV) Ratio Analysis:

Profit volume ratio establishes a relationship between the contribution and sales volume. It is known as contribution margin ratio. It is denoted by PV ratio or CM ratio. PV ratio can be computed by using following formula:

$$\text{PV ratio} = \frac{\text{Sales revenue} - \text{Variable cost}}{\text{Sales revenue}}$$

$$\text{OR} = \frac{\text{Contribution Margin}}{\text{Sales revenue}}$$

The above table no. 4.15 and 4.16 shows the calculation of Kantipur Publication and Kamana Prakashan Pvt. Ltd for the five fiscal years from 058/59 to 062/63. PV ratio for five year shows the fluctuating trend. The highest PV ratio of Kantipur Publication is 0.2382 in the fiscal year 2062/63 and lowest is 0.18896 in the fiscal year 060/61. Similarly, in Kamana Prakashan the highest PV ratio is 0.1682 in the fiscal year 061/62 and lowest is 0.1301 in the fiscal year 060/61.

An increase in CM means increase in profit only because fixed cost is assumed to be constant at certain level of activity. Management tries to increase the value to the ratio by reducing the variable cost or increasing the selling price.

4.5.3 Break Even Point (BEP) Analysis:

The break even analysis established a relationship between revenues and cost with respect to volume. It indicates the level of sales at which costs and revenues are in equilibrium. The equilibrium point is commonly known as the break even point. The BEP is that point of sales volume at which total revenue is equal to total costs. It is no profit and no loss point. So it is very necessary to know the BEP for every organization. BEP can compute in Rs. or Unit.

$$\text{BEP in unit} = \frac{\text{Fixed Cost}}{\text{CMPU}}$$

And

$$) \text{ BEP in Rs.} = \frac{\text{Fixed Cost}}{\text{PV ratio}}$$

The above table no. 4.15 presents shows the break even point of Kantipur Publications Pvt. Ltd for the fiscal year 2058/59 to 2062/63. The break even point are Rs. 2463,50,770, Rs. 2441,74,832, Rs. 2332,74,667, Rs. 2327,06,711 and Rs. 1765,05,374 for the fiscal year 2058/59 to 2062/63 respectively. Break even point amount for the fiscal year 058/59 is highest but break even point amount for the fiscal year 062/63 is lowest comparatively within five year break even point amount. Actual sales in every fiscal year are higher than break even sales amount.

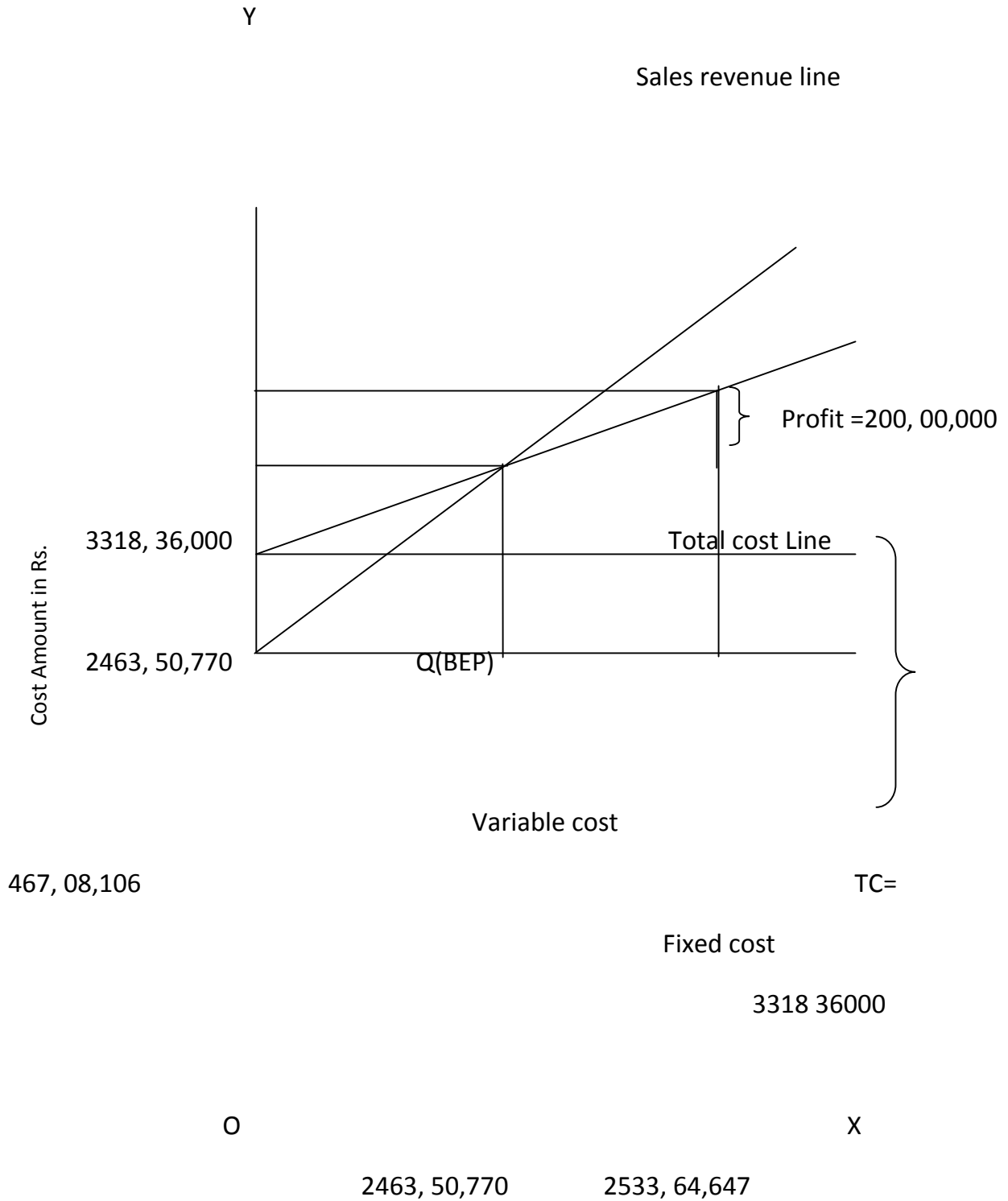
The table no. 4.16 shows that the break even point of Kamana Prakashan Pvt. Ltd for the fiscal year 058/59 to 062/63. The break even point are Rs. 1168,92,069, Rs. 1070,29,709, Rs. 1222,62,260, Rs. 1083,93,906 and Rs. 1150,78,115 for the years 058/59 to 062/63 respectively. Break even point amount for the fiscal year 2059/60 is low but break even point amount for the fiscal year 2060/61 is high comparatively within five year point amount.

The break even point can be also determined with the help of a graph. Simple illustration of a hypothetical break even chart of Kantipur Publication and Kamana Prakashan Pvt. Ltd for the F/Y 058/59 to 062/63 is given below, where sales revenue is shown in x – axis and cost is shown in y – axis.

Break Even Chart Analysis of Kantipur Publication Pvt. Ltd.

Figure no. 4.1: F/Y 058/59

(From Appendix – I)



Sales Revenue in Rs.

Above chart shows that fixed cost is always equal within a certain level of activity, so fixed cost curve is parallel to x – axis. Total cost increase with increase in sales revenue. As a result total cost curve is slopping upwards to right side. The total cost curve starts from fixed cost line. The amount of fixed cost is also total cost when sales revenue is even zero and variable cost will be zero. The sales revenue curve originates from the origin because sales revenue is zero when the quantity is zero. The chart also shows that sales curve is also slopping upwards to right. An equilibrium point between total cost and total revenue curve is known as break even point when both the cost and revenue is equal at BEP. If the actual sale amount is more than the break even sales amount, the company will earn profit and if the actual sale amount is less than the break even sales amount the firm will suffer from loss. Above chart clearly shows that the actual sales amount is greater than the total cost leading the profit amount.

4.5.4 Margin of Safety Analysis:

The margin of safety (MOS) can be defined as the excess of sales over the break even volume of sales. In other word, the difference between actual sales and break even sales is identified as margin of safety. It is an indicator of goodness for a business. High margin of safety indicates strong position of business since there still profit either in substantial falling to sales. On other hand, lower level of margin of safety indicates the weak position of business. Margin of safety can be increased by increasing the volume of unit, by increasing selling price or by reducing the costs. The formula for its calculation is:

$$) \text{ Margin of Safety (MOS) = Actual Sales – Break Even Sales}$$

The above table no. 4.15 and 4.16 shows the margin of safety of Kantipur Publication and Kamana Prakashan Pvt. Ltd. for the five fiscal years 058/59 to 062/63 in fluctuating trend. The MOS of Kantipur Publication and Kamana Prakashan Pvt. Ltd both are maximum in F/Y 062/63 and 058/59 respectively and minimum in F/Y 060/61 and 061/62 respectively. The large margin of safety indicates the better profitability.

Similarly, MOS can be expressed in percentage form. The formula for its calculation is:

$$\% \text{ of MOS} = \frac{\text{MOS}}{\text{Sales}} \times 100$$

$$\text{Or } = \frac{\text{Actual Sales} - \text{BEP Sales}}{\text{Actual Sales}} \times 100$$

The above table no. 4.15 and 4.16 shows the details calculations. MOS is fluctuating through the five fiscal years however it's lowest in F/Y 058/59 and 061/62 of Kantipur Publication and Kamana Prakashan Pvt. Ltd.

4.5.5 Degree of Operating Leverage (DOL)

A ratio between contribution margin and earning before interest and taxes (EBIT) is known as operating leverage. Operating leverage measures the sensitivity of operating profit with respect to sales. An organization with high fixed cost and low variable cost reflects high operating leverage with high break even point. It can be calculated by:

$$\text{Operating Leverage} = \frac{\text{Contribution Margin}}{\text{EBIT}}$$

Business risk refers to the risk associated with the use of measured higher DOL indicate higher degree of risk in business. High operating fixed cost lead to high

degree of operating leverage. It has also been pointed out that if the degree of operating leverage is high, a firm is exposed to greater risk. On the other hand, if the degree of operating leverage is low, a firm is exposed to lower risk. The above table no. 4.15 and 4.16 shows the DOL of five fiscal years of Kantipur Publication and Kamana Prakashan Pvt. Ltd. from 058/59 to 062/63, which is in fluctuating trend. In case of Kantipur Publication Pvt. Ltd., DOL of higher in F/Y 058/59 i.e. 3.34, which indicates that if sales increase by 1% the EBIT will increased by 3.34%.

4.5.6 Sales Volume to earn a Desired Profit:

It can be expressed by following formula:

$$\text{Required Sales in units} = \frac{\text{Fixed cost + desired profit}}{\text{CMPU}}$$

$$\text{Required Sales in Rs.} = \frac{\text{Fixed cost + desired profit}}{\text{CM ratio}}$$

The above table no. 4.15 and 4.16 shows the detail calculations of required sales to earn desired profit of Kantipur Publication and Kamana Prakashan Pvt. Ltd.

4.6 Profitability Ratio Analysis of Kantipur Publication and Kamana Prakashan Pvt. Ltd.

An arithmetical relationship between two figures in known as ratio. It is computed by dividing one item of relationship with the other. Ratio analysis is a technique of analysis and interpretation of financial statement. To evaluate the

performance of an organization by creating the ratio from the figures of different accounts consisting in balance sheet and income statement is known as ratio analysis. Ratio can be classified into four broad groups. One of them, profitability ratios shows the overall efficiency of the business concerns. The relationship of the return of the firm to either its sales or its equity or its assets is known as profitability ratios. Profitability ratios are two types:

-) Profitability in relation to sales
-) Profitability in relation to investment.

But this analysis concerns with only profitability in relation to sales.

Table no. 4.17

Separate profitability ratio of Kantipur Publication Pvt. Ltd.

(From Appendix – II)

| Details | 058/59 | 059/60 | 060/61 | 061/62 | 062/63 |
|-------------------------------|--------|--------|--------|--------|--------|
| Gross profit margin ratio (%) | 23.50 | 24.88 | 24.21 | 23.31 | 28.95 |
| Net profit margin ratio (%) | 5.68 | 6.03 | 5.91 | 5.92 | 11.05 |
| Operating ratio (%) | 94.32 | 93.97 | 94.06 | 94.08 | 88.95 |

Table no. 4.18

Separate profitability ratio of Kamana Prakashan Pvt. Ltd.

(From Appendix – III)

| Details | 058/59 | 059/60 | 060/61 | 061/62 | 062/63 |
|-------------------------------|--------|--------|--------|--------|--------|
| Gross profit margin ratio (%) | 22.06 | 22.53 | 19.69 | 22.93 | 22.10 |
| Net profit margin ratio (%) | 0.99 | 0.722 | 0.224 | 2.12 | 0.95 |
| Operating ratio (%) | 99.01 | 99.28 | 99.80 | 97.88 | 99.05 |

I. Gross Profit margin Ratio:-

Gross profit margin ratios express the relationship between gross profit and sales amount. Gross profit margin can be expressed by the following formula:

$$\text{Gross profit margin ratio} = \frac{\text{Gross Profit}}{\text{Sales}}$$

A higher ratio is a sign of good management. The above table no. 4.17 and 4.18 shows the gross profit margin ratio of Kantipur Publication and Kamana Prakashan Pvt. Ltd for the fiscal year 058/59 to 062/63, which is in fluctuating trend. On the basis of fiscal year 2062/63, Kantipur Publication's data presents high gross profit margin ratio and the Kamana Prakashan's data presents low gross profit margin ratio, which is the Kantipur Publication is positive sign and Kamana Prakashan is not positive sign for good management.

II. Net Profit Margin Ratio:

Net profit margin ratio establishes a relationship between net profit and the sales amount. Net profit margin ratio can be expressed by the following formula:

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

A higher ratio is an indication of the higher overall efficiency of the business and better utilization of total resources. Poor financial planning and low efficiency is the indication of lower ratio. On the basis of fiscal year 062/63, the Kantipur Publication's data presents high percentage of net profit margin ratio than previous year and other. Kamana Prakashan's data presents very low percentage of net profit margin ratio than Kantipur Publication. Kantipur Publication's higher net profit margin an indication of the higher overall efficiency of the business and better utilization of total resources where as lower margin of Kamana Prakashan is not an indication of the higher overall efficiency of the business and better utilization of total resources.

III. Operating Ratio

Operating ratio tries to establish relationship between operating expenses and the sales amount. Operating cost includes: - cost of good sold and operating expenses. Operating expenses includes administrative expenses, selling and distribution expenses, financial expenses, discount allowed and bad debts. Operating ratio can be expressed by following formula:

$$\text{Operating Ratio} = \frac{\text{Total Operating Expenses}}{\text{Sales Amount}}$$

Cost of goods sold + other operating expenses

$$\text{Or } = \frac{\text{Cost of goods sold + other operating expenses}}{\text{Sales Amount}}$$

Lower the operating ratio indicates the higher operating profit. So, minimum percentage of operating ratio is preferable. The above table no. 4.17 and 4.18 shows that the operating ratio of Kantipur Publication Pvt. Ltd represents the lower operating ratio throughout the five year than operating ratio of Kamana Prakashan Pvt. Ltd., which indicates the higher and lower operating profit of Kantipur Publication and Kamana Prakashan Pvt. Ltd. respectively.

4.7 Change Effects and Relationship of CVP Analysis Factors:

Profit is affected by changes in volume, cost and prices. Profit may be affected by the affected by the change in price, volume, variable cost, fixed cost and combination of factors which shows proportionate relationship, positive relationship, inverse relationship and no relationship. Lower BEP is better than the higher BEP for the comparison of results.

4.7.1 Change in Sales:

The impact of changes in sales value will be affected to PV ratio and break even sales. Increase in the sales value increases the PV ratio and increases in the BE sales. For simplicity, it is assumed that the sales increase and decrease by 10% and other things remains constant and then following result gets for the F/Y 062/63.

Table no. 4.19

Kantipur Publication Pvt. Ltd.

Income Statement Changes with Sales Value F/Y 062/63

| Particular | Change of sales value | | |
|------------------------|-----------------------|--------------|--------------|
| | Original | 10% Increase | 10% Decrease |
| Sales Revenue | 3450,87,250 | 3795,95,975 | 3105,78,525 |
| Less: Variable cost | 2629,02,950 | 2629,02,950 | 2629,02,950 |
| Contribution Margin | 821,84,300 | 1166,93,025 | 476,75,575 |
| Less: Fixed cost | 420,43,580 | 420,43,580 | 420,43,580 |
| Profit/Loss | 381,40,720 | 746,49,445 | 56,31,995 |
| CM Ratio (CM/Sales) | 0.2382 | 0.3074 | 0.1535 |
| BE Sales | 1765,05,374 | 1367,71,568 | 2738,99,544 |

The above table no. 4.19 shows that increase in sales value by 10%, the profit also increased to Rs. 746, 49,445. But decrease in sales by 10%, there is loss occurred to Rs. 56, 31,995 and BEP increased to Rs. 2738, 99,544.

Table no. 4.20

Kamana Prakashan Pvt. Ltd.

Income Statement Changes with Sales Value F/Y 062/63

| Particular | Change of sales value | | |
|------------------------|-----------------------|--------------|--------------|
| | Original | 10% Increase | 10% Decrease |
| Sales Revenue | 1224,00,250 | 1346,40,275 | 1101,60,225 |
| Less: Variable cost | 1030,45,200 | 1030,45,200 | 1030,45,200 |
| Contribution Margin | 193,55,050 | 315,95,075 | 71,15,025 |
| Less: Fixed cost | 181,93,850 | 181,93,850 | 181,93,850 |
| Profit/Loss | 11,61,200 | 134,01,225 | (110,78,825) |
| CM Ratio (CM/Sales) | 0.1581 | 0.2347 | 0.065 |
| BE Sales | 1150,78,115 | 775,19,600 | 2799,05,385 |

Above table no. 4.20 shows that when selling price of Kamana Prakashan Pvt. Ltd. is increased by 10%, profit increase by Rs. 122, 40,025. PV ratio increased up to 0.2347 from 0.1581, BE sales is reduce from Rs. 1150, 78,115 to Rs. 775, 19,600. But decrease is sales value by 10%, there is loss occurred by Rs. 110, 78,825 and BE sales increased to Rs. 2799, 05,385.

4.7.2 Changes in Variable Cost:

Increase in variable costs mainly concerns with the operating efficiency of the corporation. And increase in variable cost will make low PV ratio, push up the BEP and reduce profit. On the other hand, if the variable cost decline, PV ratio will increase, BEP will be lower and profit will rise. If the increase and decrease of variable cost by 10% with other factors assumed to remain same, it gets following results for F/Y 062/63.

Table no. 4.21

Kantipur Publication Pvt. Ltd.

Income Statement with Change of Variable Cost for F/Y 062/63

| Particular | Change of Variable cost | | |
|------------------------|-------------------------|--------------|--------------|
| | Original | 10% Increase | 10% Decrease |
| Sales Revenue | 3450,87,250 | 3450,87,250 | 3450,87,250 |
| Less: Variable cost | 2629,02,950 | 2891,93,245 | 2366,12,655 |
| Contribution Margin | 821,84,300 | 558,94,005 | 1084,74,595 |
| Less: Fixed cost | 420,43,580 | 420,43,580 | 420,43,580 |
| Profit/Loss | 381,40,720 | 138,50,425 | 664,31,015 |
| CM Ratio (CM/Sales) | 0.2382 | 0.1520 | 0.3143 |
| BE Sales | 1765,05,374 | 2766,02,500 | 1337,68,947 |

The above table no. 4.21 shows that with 10% increase in variable cost, break even point has increased by 56.71%, which indicates that variable cost and break even point has positive but not proportionate relationship. Similarly with the

decreased in variable cost by 10%, the break even point amount has decreased by 24.21%.

Table no. 4.22

Kamana Prakashan Pvt. Ltd.

Income Statement with Change of Variable Cost for F/Y 062/63

| Particular | Change of variable cost | | |
|------------------------|-------------------------|--------------|--------------|
| | Original | 10% Increase | 10% Decrease |
| Sales Revenue | 1224,00,250 | 1224,00,250 | 1224,00,250 |
| Less: Variable cost | 1030,45,200 | 1112,72,955 | 927,40,680 |
| Contribution Margin | 193,55,050 | 111,27,295 | 296,59,570 |
| Less: Fixed cost | 181,93,850 | 181,93,850 | 181,93,850 |
| Profit/Loss | 11,61,200 | (70,66,555) | 114,65,720 |
| CM Ratio (CM/Sales) | 0.1581 | 0.091 | 0.2423 |
| BE Sales | 1150,78,115 | 1999,32,418 | 750,88,114 |

The above table no. 4.22 shows that with 10% increase in variable cost, break even point has increased by 73.74%, which indicates that variable cost and break even point has positive but not proportionate relationship. Similarly with the decreased in variable cost by 10%, the break even point amount has decreased by 34.75%.

4.7.3 Change in Fixed Cost:

Fixed cost is constant cost, which don't change for certain level. Fixed cost is uncontrollable cost because it should bear whether there is operate or not operate any task. In CVP analysis, when fixed cost is changed it does not bring any change in contribution margin and PV ratio. But only when fixed cost is changed net income and BEP amount also changed. If increase and decrease by 10% with other factors assumed to remain same, if gets following results for the F/Y 062/63.

Table no. 4.23

Kantipur Publication Pvt. Ltd.

Income Statement with Change of Fixed cost for F/Y 062/63

| Particular | Change of Fixed cost | | |
|------------------------|----------------------|--------------|--------------|
| | Original | 10% Increase | 10% Decrease |
| Sales Revenue | 3450,87,250 | 3450,87,250 | 3450,87,250 |
| Less: Variable cost | 2629,02,950 | 2629,02,950 | 2629,02,950 |
| Contribution Margin | 821,84,300 | 821,84,300 | 821,84,300 |
| Less: Fixed cost | 420,43,580 | 462,47,938 | 378,39,222 |
| Profit/Loss | 381,40,720 | 359,36,362 | 443,45,078 |
| CM Ratio (CM/Sales) | 0.2382 | 0.2382 | 0.2382 |
| BE Sales | 1765,05,374 | 1941,55,911 | 1588,54,836 |

The above table no. 4.23 shows that there is 10% increase or decrease in fixed cost and other things remain constant. BE sales is increased by same percentage i.e.

10% and 10% decrease in fixed cost, BEP amount is decreased by same percentage i.e. 10%. Hence, it is concluded that BEP and fixed cost has direct relationship.

Table no. 4.24

Kamana Prakashan Pvt. Ltd.

Income Statement with Change of Fixed cost for F/Y 062/63

| Particular | Change of fixed cost | | |
|------------------------|----------------------|--------------|--------------|
| | Original | 10% Increase | 10% Decrease |
| Sales Revenue | 1224,00,250 | 1224,00,250 | 1224,00,250 |
| Less: Variable cost | 1030,45,200 | 1030,45,200 | 1030,45,200 |
| Contribution Margin | 193,55,050 | 193,55,050 | 193,55,050 |
| Less: Fixed cost | 181,93,850 | 200,13,235 | 163,74,465 |
| Profit/Loss | 11,61,200 | (6,58,185) | 29,80,585 |
| CM Ratio (CM/Sales) | 0.1581 | 0.1581 | 0.1581 |
| BE Sales | 1150,78,115 | 1265,85,927 | 1035,70,304 |

The above table no. 4.24 shows that the effects of change in fixed cost of Kamana Prakashan Pvt. Ltd. When fixed cost is increased by 10%, the Prakashan is suffering loss by Rs.6, 58,185. But PV ratio is same because there is no any effect on contribution margin while fixed cost is changed. When the fixed cost is reduced by 10%, BEP amount is decreased by same percentage i.e. 10%.

4.8 Major Finding of the Study:

Every research work is done to find something new, based on the objective of the study. On the basis of different analysis, the major findings of this study are as follows:

1. Expenses trend of Kantipur Publication Pvt. Ltd & Kamana Prakashan Pvt.Ltd is increasing in every coming year.
2. The both Kantipur Publication and Kamana Prakashan Pvt. Ltd. sales trend shows fluctuating trend. It doesn't satisfactory trend of increase.
3. The both Publications have no detail and systematic expenses plan. The fixed, variable and mixed expenses plan is the necessary element for profit planning and control.
4. The both Kantipur Publication and Kamana Prakashan's variable cost is higher than fixed cost in total, which contribute for lower contribution margin.
5. Kantipur Publication and Kamana Prakashan Pvt. Ltd have not used the practice of CVP analysis. The cost is not segregated as fixed, variable and semi- variable cost.
6. The both Publications are running in profit. But profitability ratio of both publications is not satisfactory.
7. Kantipur Publication and Kamana Prakashan Pvt. Ltd.'s CM and PV ratio is in fluctuating trend.
8. Kantipur Publication Pvt. Ltd.'s BEP sales trend is in decreasing and Kamana Prakashan Pvt. Ltd.'s BEP sales is in fluctuating trend.
9. The both Publications' MOS and Operating Leverage are in fluctuating trend.
10. The both Publications' have male employees higher than the female employees.
11. There is not proper co-ordination among production, administration, distribution, store and sales department of both Kantipur Publication and Kamana Prakashan Pvt. Ltd.
12. CVP analysis is very important and popular tools to measure the financial performance of the any organization. But CVP analysis is not applying to analyze the financial performance of the both Kantipur Publication and Kamana Prakashan Pvt. Ltd.

Chapter – V

Summary, Conclusion and Recommendations

5.1 Summary:

The relationship between cost, volume and profit is shown by cost-volume-profit analysis. It is an analytical tool for analyzing the relationship among cost price, profit, sales and production volume. CVP analysis is an analytical technique for studying the relationship between cost, volume and profit which helps to manage future cost and profit. Profit planning is a management technique and it is a written plan in all aspect to business operation for specific future period. CVP analysis is a device used to determine the usefulness of profit planning process of the firm. In fact, the entire field of profit planning has become associated with the CVP inter relationship.

In profit planning management must know the selling price of the unit of product, the variable cost to make and sell it, and the difference between the selling price and the unit variable cost. The management must know what the contribution margin is for each product line that is handled. Several factors affected profits. They are selling price, the number of unit sold, and the unit variable costs. The total fixed costs and the combination in which the various product lines are sold. All these factors must be considered in profit planning.

The main objective of the present research is to examine a comparative study on Cost, Volume and Profit Analysis of Kantipur Publication and Kamana Prakashan Pvt. Ltd. So, this study was undertaken to evaluate CVP analysis of the Publications. As per nature of the study, the secondary and primary data, with descriptive and analytical approach, studies sales revenue, PV ratio, BE sales and safety margin. Primary data were collected by direct interview with concerned employees of the both Publications. Secondary data were drawn from various documents like annual report, journal published by the publications and concerned authority.

The analysis of various data of the publications shows the different result. Kantipur Publication and Kamana Prakashan Pvt.Ltd.'s sales, contribution margin, PV ratio is in fluctuating trend, BEP of Kantipur Publication's is decreasing on coming year and BEP of Kamana Prakashan's is in fluctuating trend. Profitability ratio is not satisfactory of both publications. The sensitivity test of CVP analysis shown that cost increase (i.e. variable and fixed cost), the BEP also increased and when the cost decreased the BEP also decreased. But at the time of selling price increased and the BEP is decreased. It indicates the relationship between cost and BEP were positive correlated where as the relationship between selling price and BEP was negative correlated.

The study has been organized in five main chapters consisting of (i) Introduction (ii) Review of Literature (iii) Research Methodology (iv) Data Presentation and Analysis and (v) Summary, Conclusion and Recommendations. Kantipur Publication and Kamana Prakashan Pvt. Ltd.'s profit conditions are not satisfactory.

But comparatively, Kantipur Publication Pvt. Ltd.'s profit condition is good than the Kamana Prakashan Pvt. Ltd. Lack of details information and extra cost burden are the main reasons behind not practicing CVP analysis efficiency from Kantipur Publication and Kamana Prakashan Pvt. Ltd. Both the Publications have not practice CVP analysis technique as a tool to measure the effectiveness of profit planning and control. In Nepal, most of the Publications have ignored the CVP analysis tools.

5.2 Conclusion:

In Nepal, most of the theoretical knowledge is not applied in practical. Different types of profit planning tools and techniques which are taught in the academic field are not applied in Kantipur Publication and Kamana Prakashan Pvt. Ltd. There is vast gap between theory and practice. CVP analysis shows the relationship among the variables related to cost, sales price, profit etc. but this tool is not applied or practice in Nepalese Publications. Neither CVP analysis is applied by Kantipur Publication and Kamana Prakashan Pvt. Ltd. nor there is segregation of cost into fixed and variables. Increasing operating and maintenance cost in each year of both publications. They have not adopted the cost control programmed. The classification of cost is not scientific and

systematic. Therefore, Kantipur Publication and Kamana Prakashan Pvt. Ltd have not been able to apply CVP analysis and make the realistic budget. In CVP analysis, it is necessary to segregate different types of cost into variable and fixed.

The cost structure of Kantipur Publication and Kamana Prakashan Pvt. Ltd shows that the high variable cost and low fixed cost, so this structure indicates the lower contribution margin. If succeeded to increase the contribution margin by increasing sales revenue more than the increase in variable cost. The CVP analysis of Kantipur Publication and Kamana Prakashan Pvt. Ltd. shows that the CM ratio, CM and MOS is in fluctuating trend. BEP of the Publications have also increased. Due to higher BEP sales, the business of the company is in high risk, and so further investment is not considered to be safe.

The goals and objectives of the Publications are not communicated to the lower level. The sensitivity of CVP analysis in response to change in fixed cost is equal, which is very high in response to change in sales revenue and variable cost. The following points highlight the analytical usefulness to CVP analysis as a tool for profit planning and control.

-) The lower the BEP sales, the less risky the business and safe the investment, other things being equal.
-) As sales exceed the BEP, a higher unit of CM or CM ratio will result in greater profit than a small unit CM or CM ratio.
-) A change in either the selling price or the variable cost per unit alters CM ratio and BEP.
-) Better CVP analysis provided vision for planning, decision making and controlling process in profit planning.

5.3 Recommendations:

On the basis of the study of CVP analysis as a tool to measure effectiveness of profit planning and control (PPC) of Kantipur Publication and Kamana Prakashan Pvt. Ltd. The following recommendations based on the finding of research study are made.

1. Kantipur Publication and Kamana Prakashan Pvt. Ltd. should segregate the cost as variable, fixed and semi- variable. This helps of control the cost
2. Kantipur Publication and Kamana Prakashan Pvt. Ltd. should apply the practice of CVP analysis in systematic manner.
3. Two large Publications Kantipur Publication and Kamana Prakashan Pvt. Ltd., there are many expert and skilled manpower but CVP analysis is ignored to practice.
4. Classification of expense item as variable and fixed or controllable and non – controllable must be made within specific framework of responsibility and time.
5. Kantipur Publication and Kamana Prakashan should consider BEP analysis while preparing sales plan, production plan and setting price of its products.
6. Sales revenue of both Publications is in increasing trend but it is not sufficient to cover the cost and earn desired profit. Sales plan of theses Publications should clearly maintain and improve.
7. The study shows that there is a high amount to fixed cost in both of the Publications, which shows that they have high investment in fixed assets.
8. Kantipur Publication and Kamana Prakashan Pvt. Ltd., there is no effective inventory policy. Therefore, use of the tools for effective and efficient inventory management, raw material handling and controlling system is recommended.
9. The number of unskilled worker are found high, so the provisions of regular training program should be made in order to increase the labor efficiency and productivity of Kantipur Publication and Kamana Prakashan Pvt. Ltd.
10. Kantipur Publication and Kamana Prakashan Pvt. Ltd. should have proper manpower planning.
11. Cost plan of both Publications are not systematically maintained. So, cost of every sector should plan properly.
12. BEP sales of Kantipur Publication and Kamana Prakashan Pvt. Ltd. are less than sales revenue. So both Publications are earning profit but both Publications should reduce its breakeven sales.
13. Sensitivity analysis of both Publications has shown that changes in sales revenue or variable cost are more effective than changes in fixed cost for contribution margin and BEP sales.
14. Most of Publications like Kantipur Publication and Kamana Prakashan Pvt. Ltd. are facing problem of poor communication among various departments. So, the strong co-ordination and communication is needed.

15. Kantipur Publication and Kamana Prakashan Pvt. Ltd.'s management performance do not show the satisfactory results about profit, BEP level and CM. So, management of these Publications should perform their program and task in planning way.
16. The financial position of the both Publication should be timely evaluated through ratio analysis, other relevant financial and mathematical tools and models recommended for the evaluation of financial position.
17. A systematic approach should be made toward comprehensive profit planning. This can considerably contribute to the increase in profitability to Kantipur Publication and Kamana Prakashan Pvt. Ltd. Since separate of costs into their fixed and variable elements is at the heart of CVP analysis. Otherwise CVP analysis will provide meaningless information.
18. The costs are main factors to increase price of the products. So controllable costs should minimize if possible.

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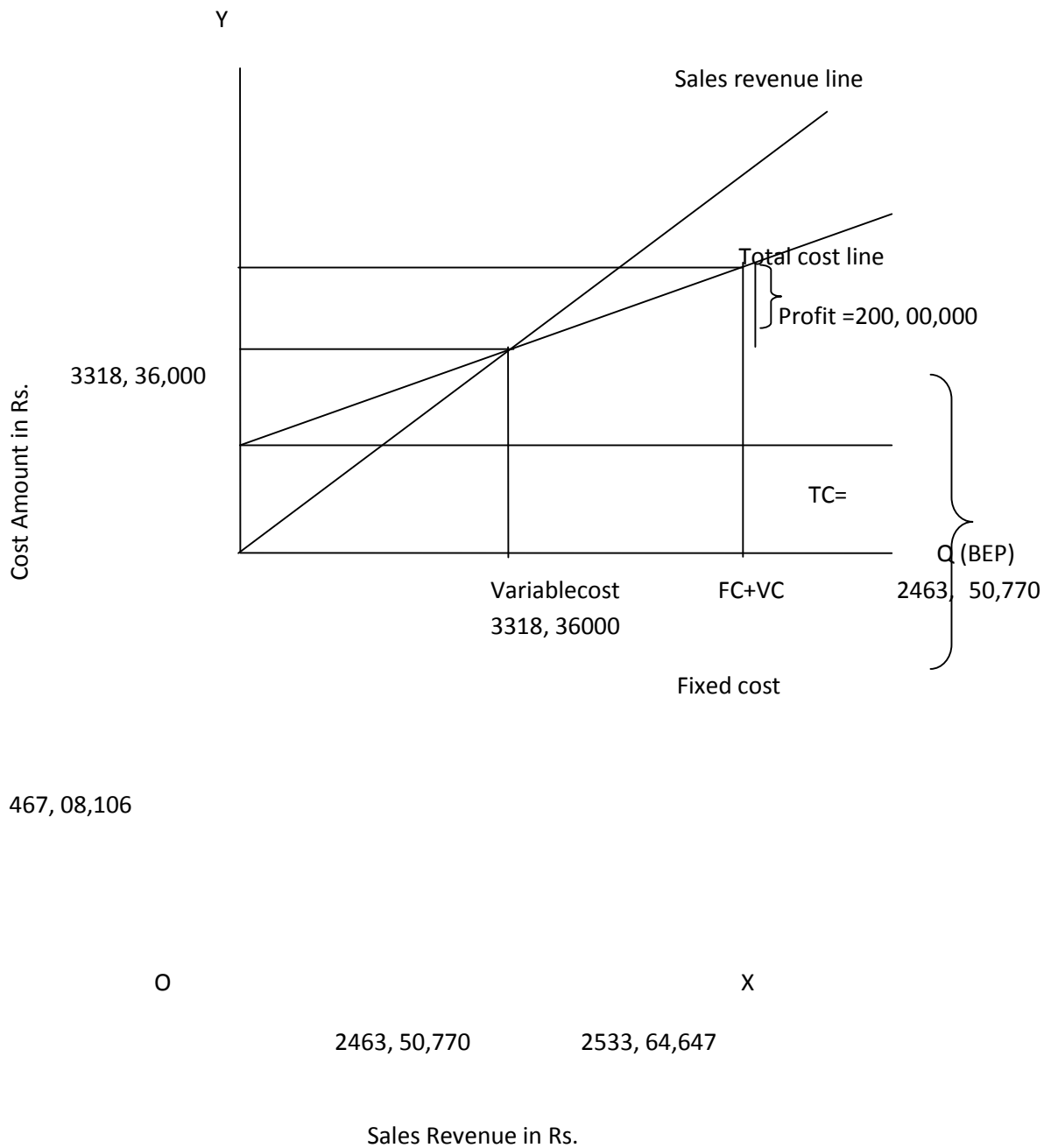
www.nepalnews.com

APPENDIX – I

Simple Graphic Structure of BEP sales, Sales Revenue, Total Cost, Fixed Cost and Profit for the fiscal years 2058/59 to 2062/63 of Kantipur Publication and Kamana Prakashan Pvt. Ltd.

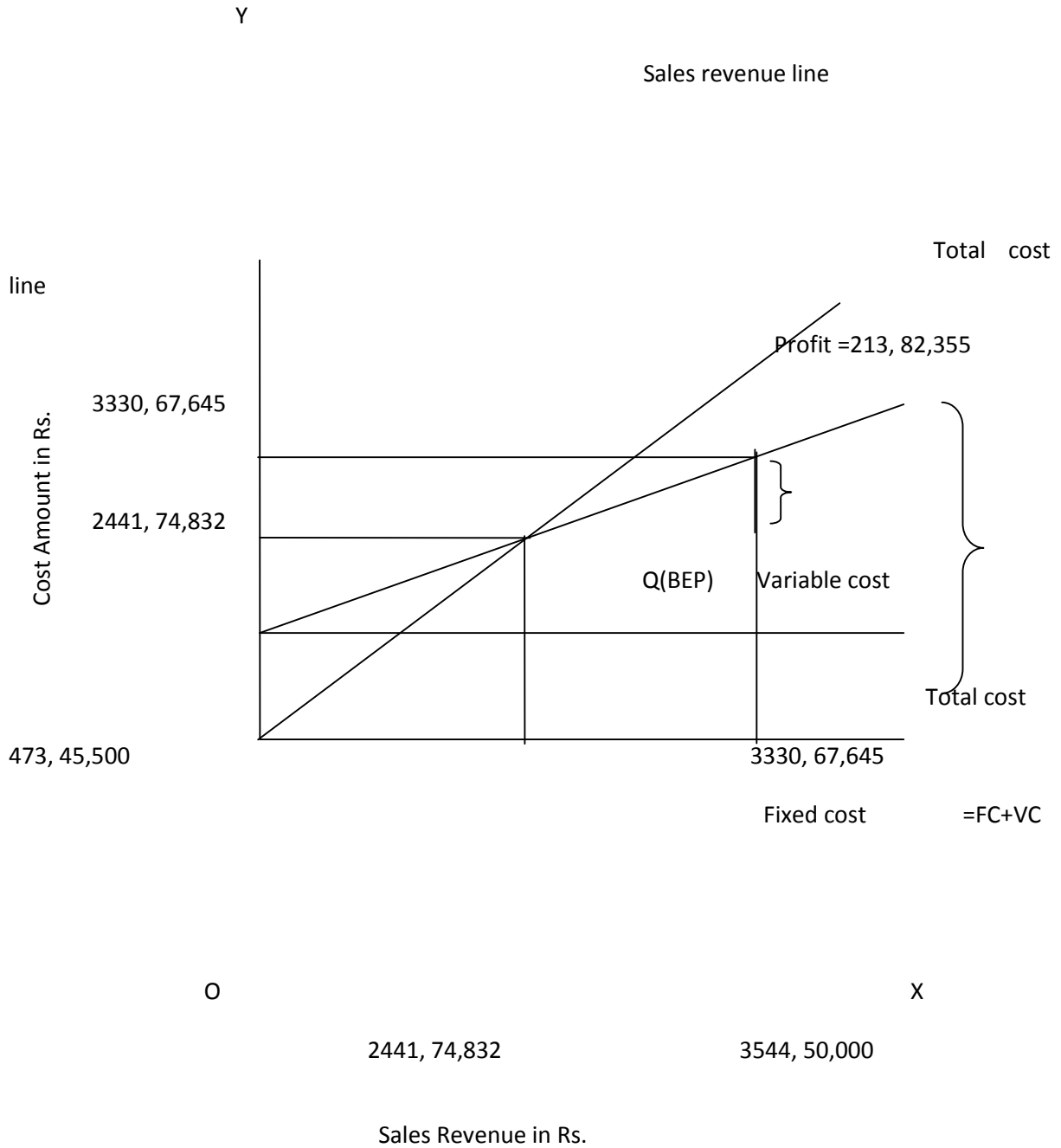
Break Even Chart Analysis of Kantipur Publication Pvt. Ltd.

Figure no. 4.1: F/Y 058/59



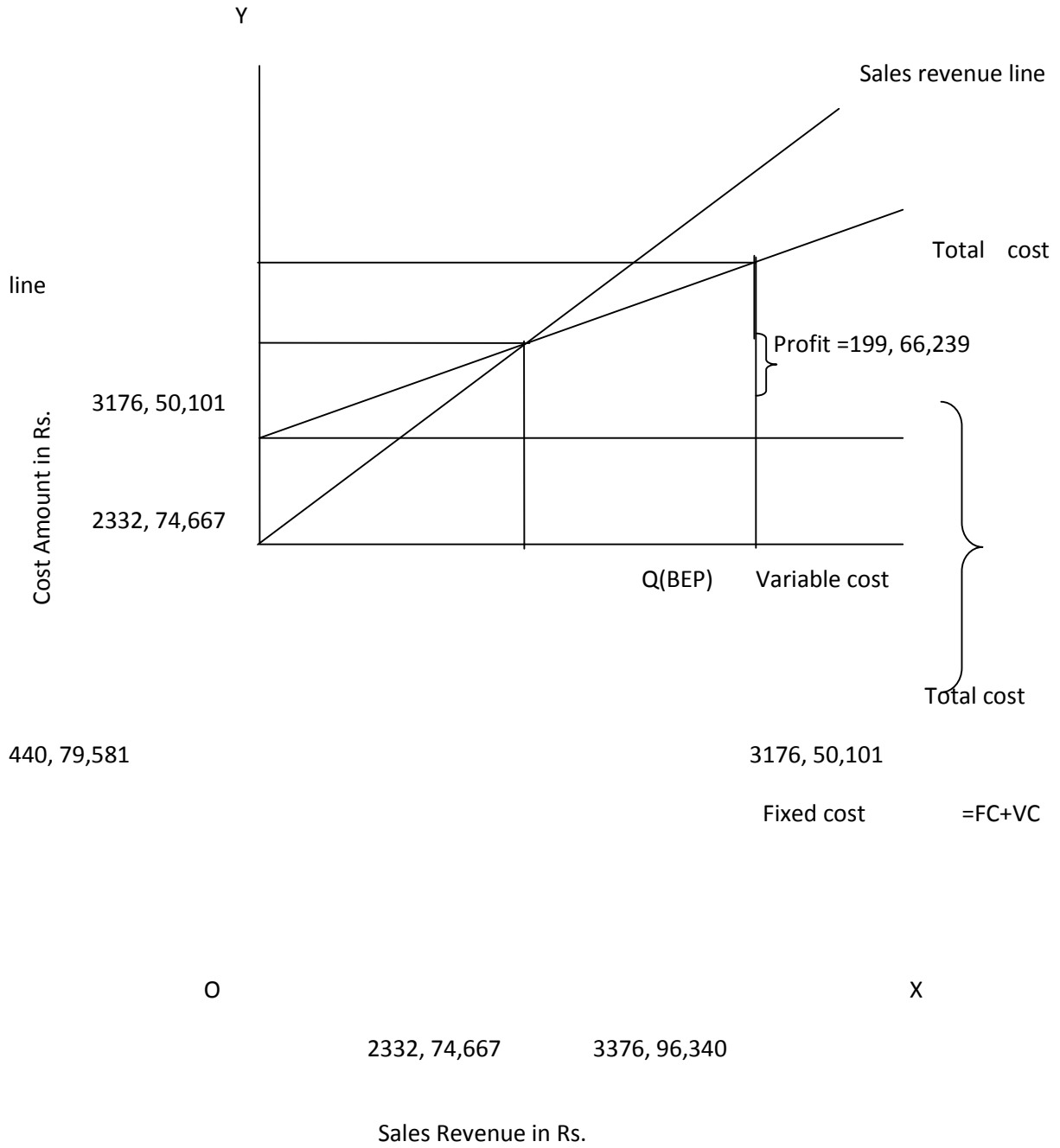
Break Even Chart Analysis of Kantipur Publication Pvt. Ltd.

Figure no. 4.2: F/Y 059/60



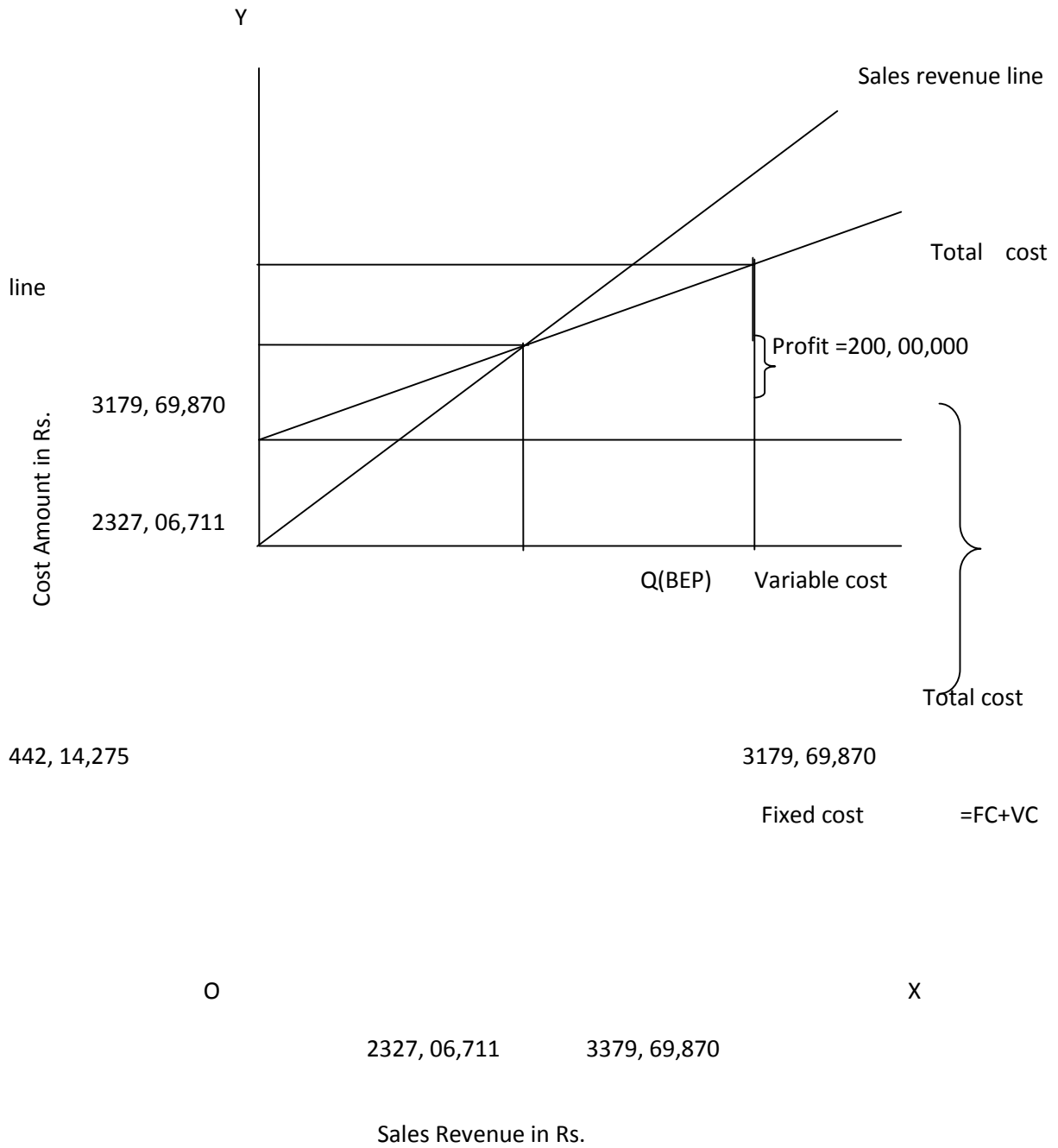
Break Even Chart Analysis of Kantipur Publication Pvt. Ltd.

Figure no. 4.3: F/Y 060/61



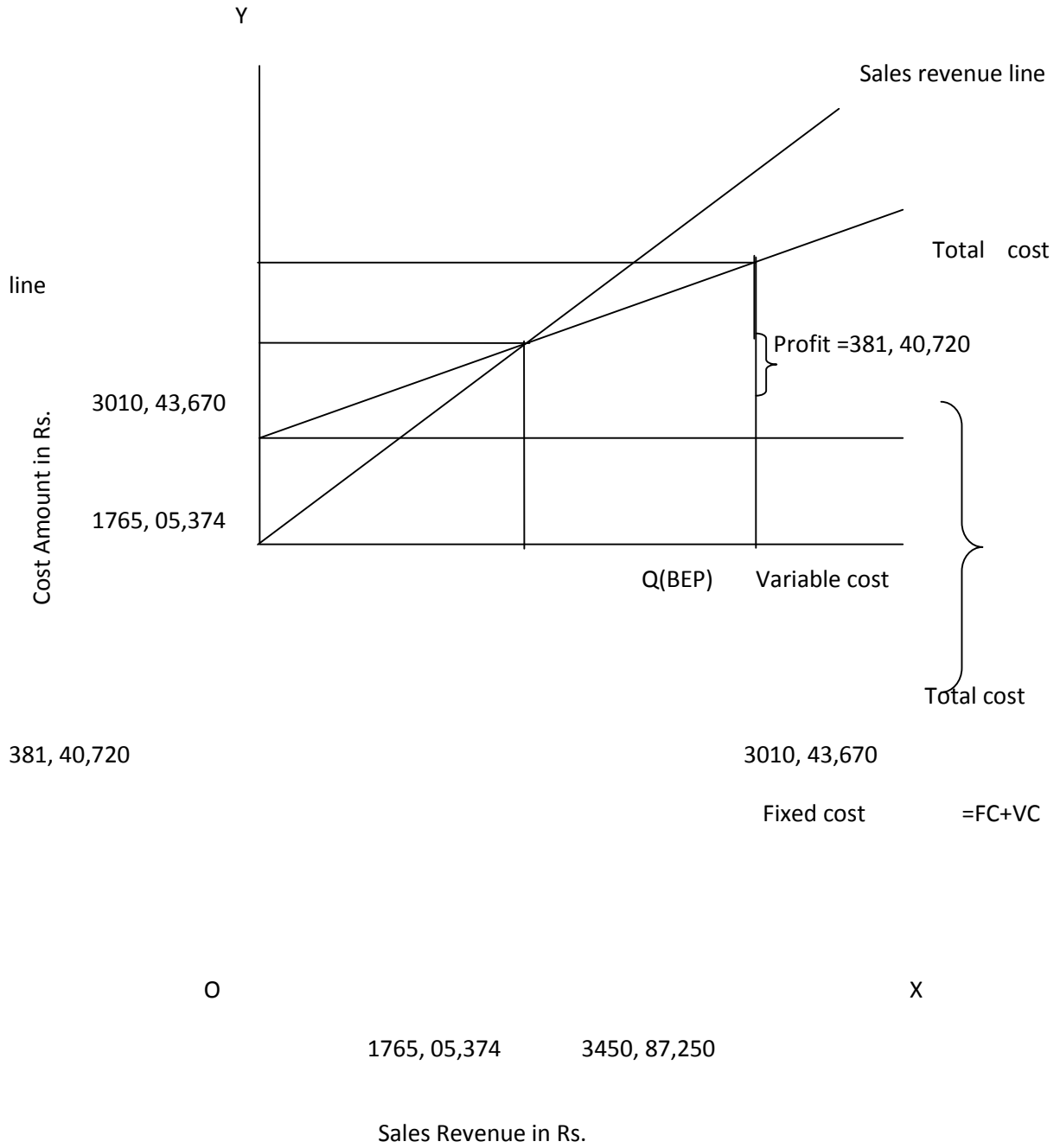
Break Even Chart Analysis of Kantipur Publication Pvt. Ltd.

Figure no. 4.4: F/Y 061/62



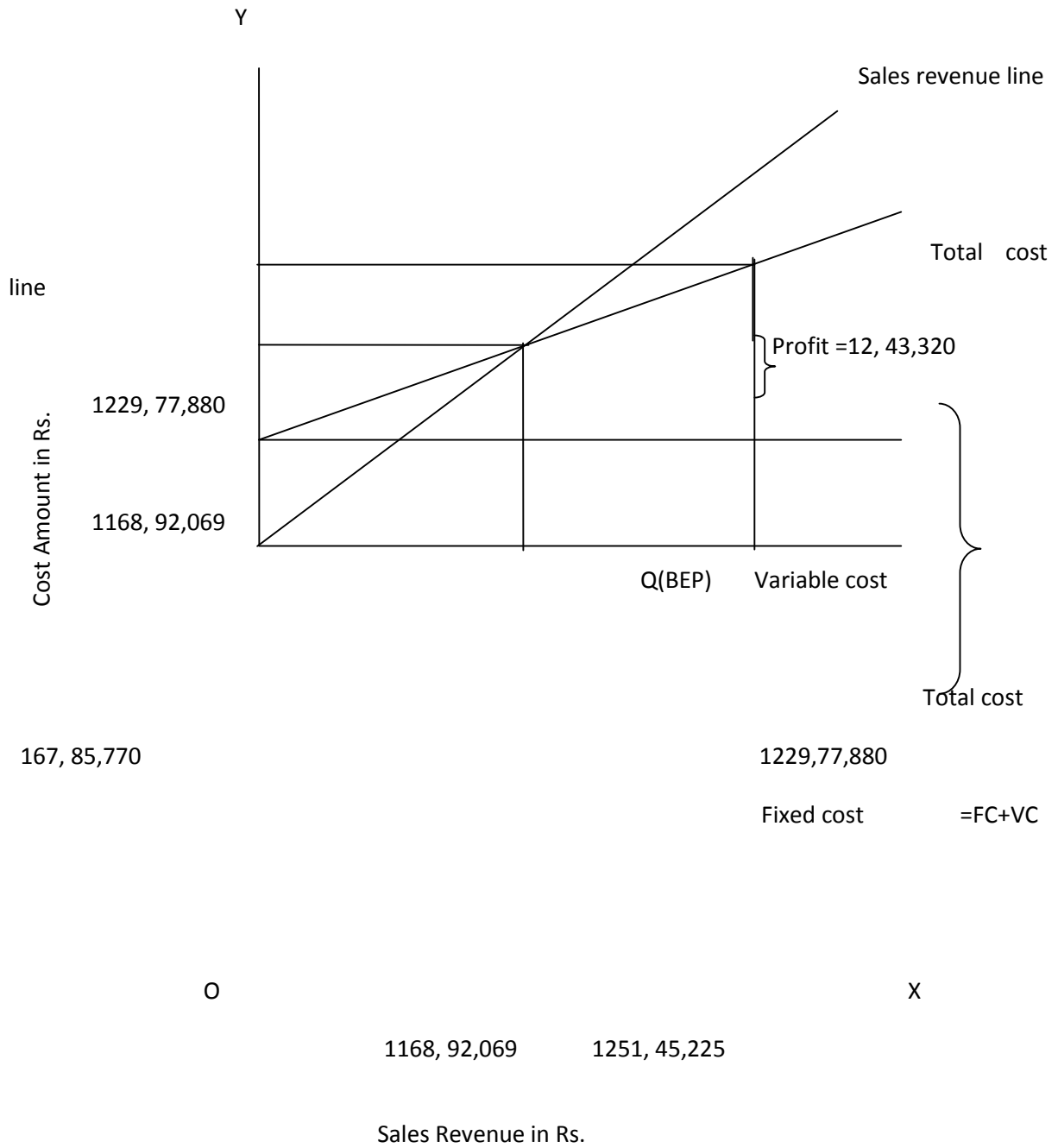
Break Even Chart Analysis of Kantipur Publication Pvt. Ltd.

Figure no. 4.5: F/Y 062/63



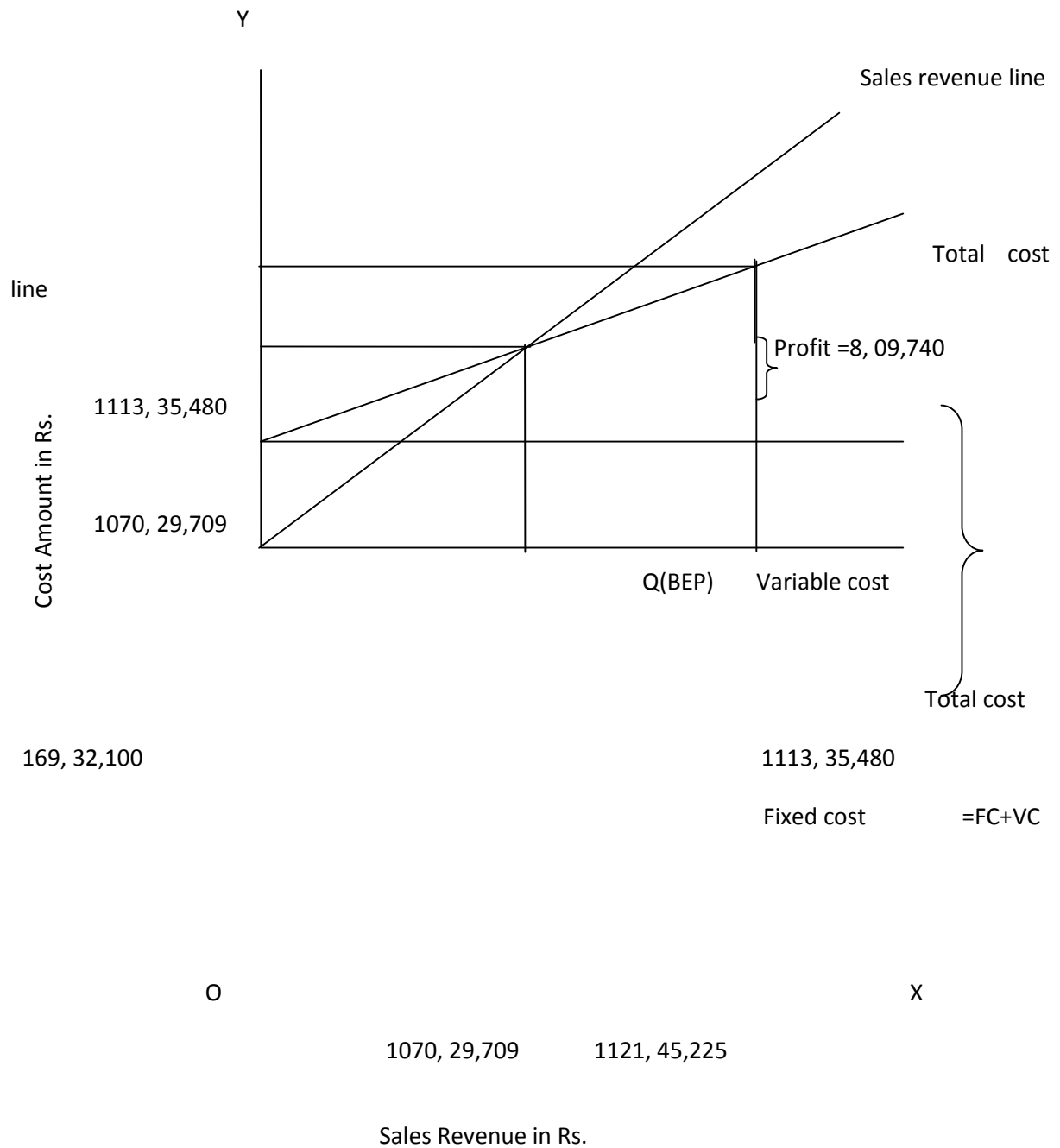
Break Even Chart Analysis of Kamana Prakashan Pvt. Ltd.

Figure no. 4.6: F/Y 058/59



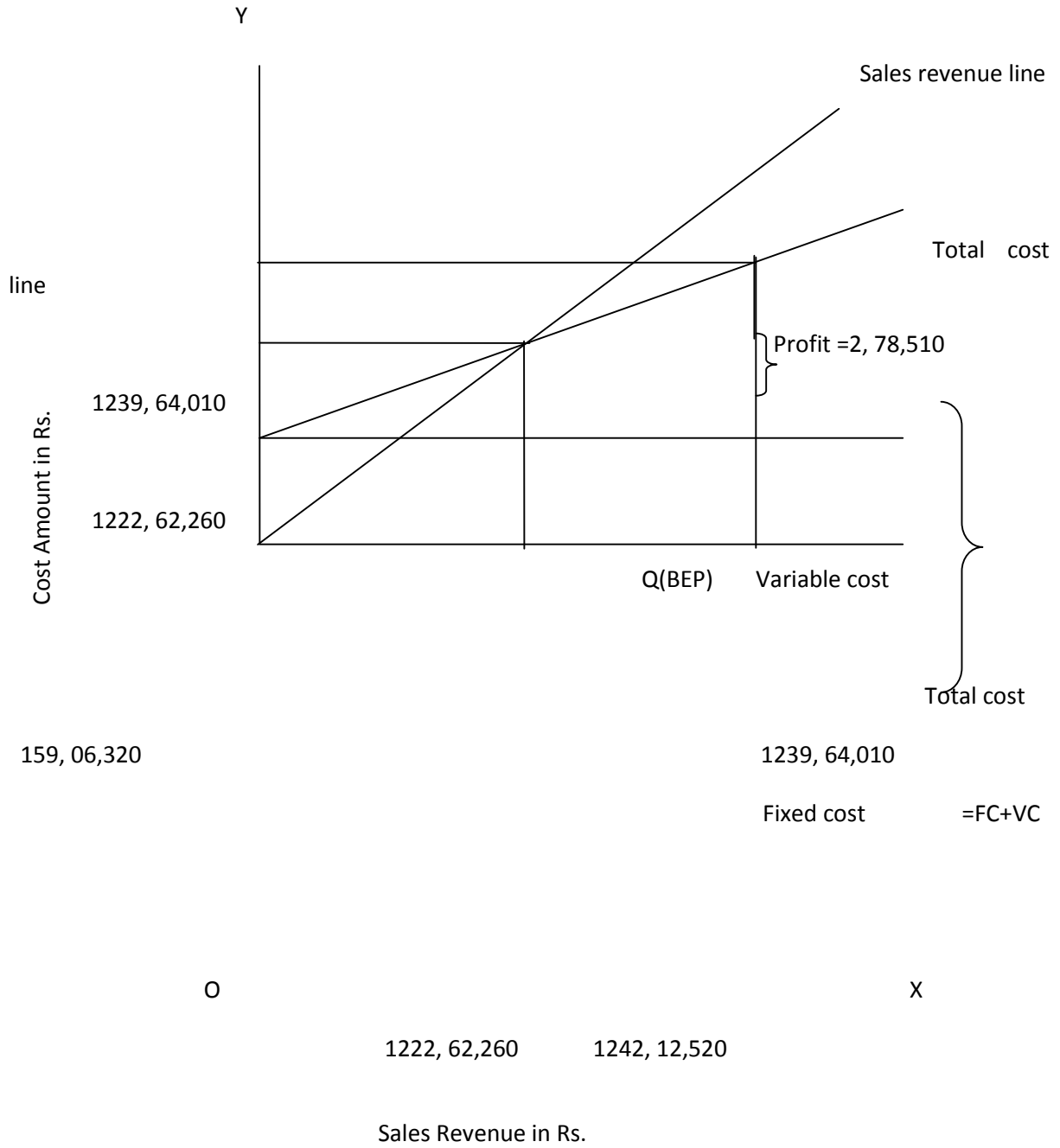
Break Even Chart Analysis of Kamana Prakashan Pvt. Ltd.

Figure no. 4.7: F/Y 059/60



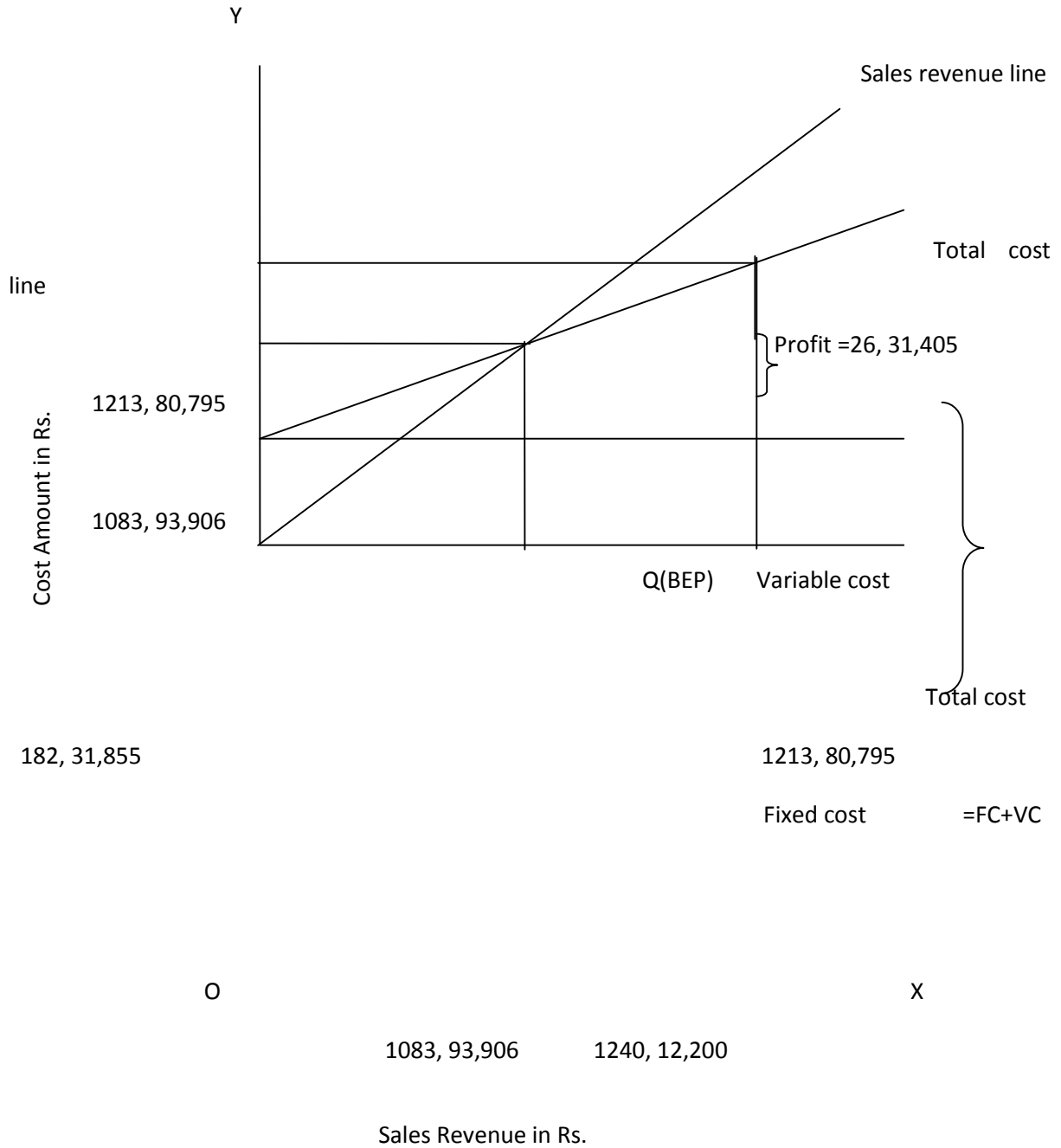
Break Even Chart Analysis of Kamana Prakashan Pvt. Ltd.

Figure no. 4.8: F/Y 060/61



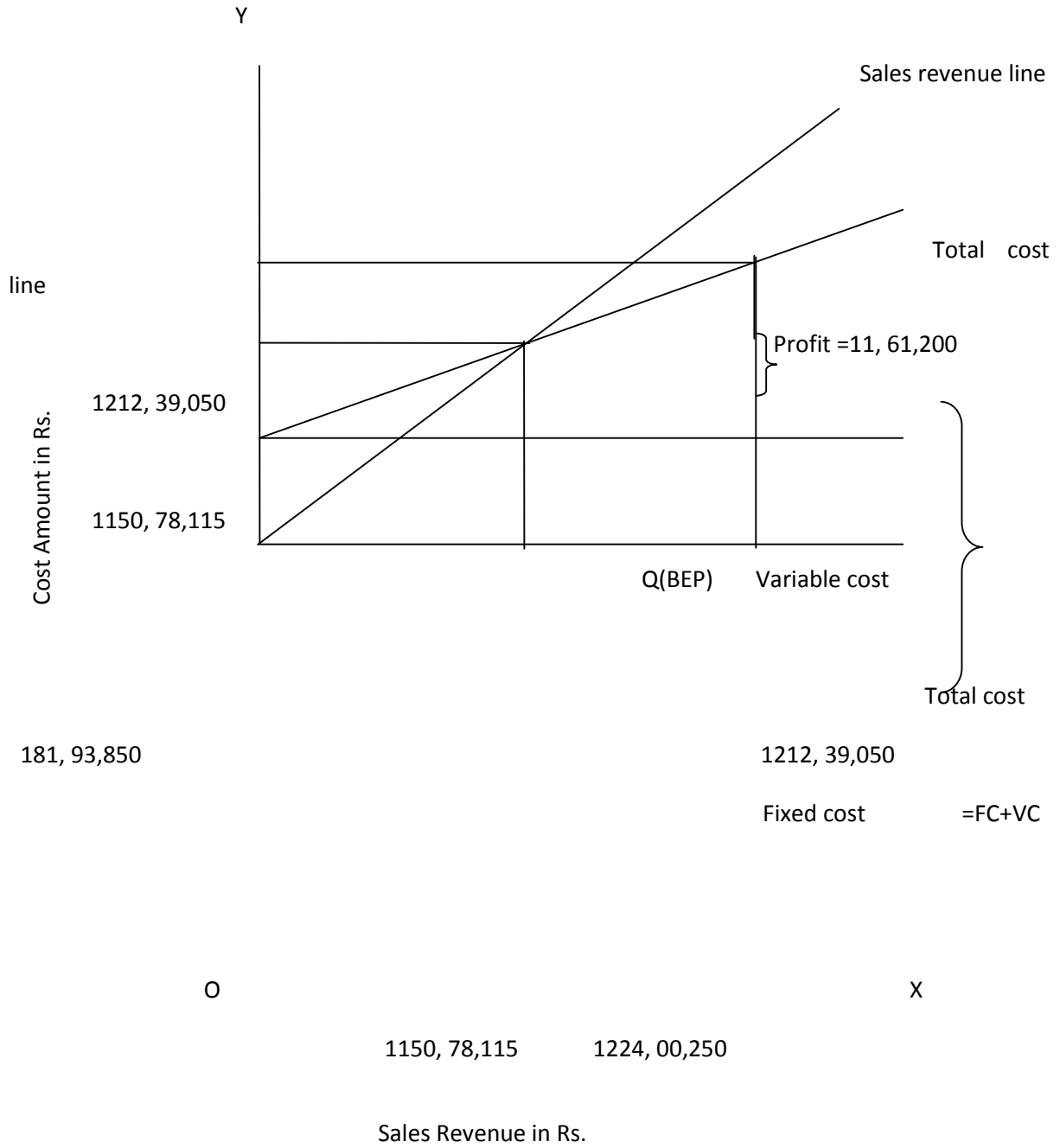
Break Even Chart Analysis of Kamana Prakashan Pvt. Ltd.

Figure no. 4.9: F/Y 060/61



Break Even Chart Analysis of Kamana Prakashan Pvt. Ltd.

Figure no. 4.10: F/Y 062/63



Appendix – 11

Kantipur Publication Pvt. Ltd

Profitability Ratio in relation to sales for fiscal year 058/59 to 062/63

| Details | Years | | | | |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| | 058/59 | 059/60 | 060/61 | 061/62 | 062/63 |
| Sales Revenue | 3518,36,547 | 3544,50,000 | 3376,96,340 | 3379,69,870 | 3450,87,250 |
| Less: Cost of Sales | | | | | |
| Variable cost | 2533,64,647 | 2503,78,316 | 2407,96,772 | 2437,79,357 | 2322,14,750 |
| Fixed cost | 157,76,467 | 158,73,333 | 151,29,189 | 154,11,462 | 129,52,500 |
| Gross Profit | 826,95,433 | 881,98,351 | 817,70,379 | 787,79,051 | 999,20,000 |
| Less: Other operating cost | | | | | |
| Administrative cost:- | | | | | |
| Variable cost | 89,81,529 | 90,85,964 | 87,54,257 | 94,44,568 | 96,52,200 |
| Fixed cost | 211,65,572 | 202,25,467 | 186,46,395 | 185,28,565 | 205,70,680 |
| Distribution Cost:- | | | | | |
| Variable cost | 227,81,718 | 262,57,865 | 240,19,491 | 205,31,670 | 210,36,000 |
| Fixed cost | 97,66,067 | 112,46,700 | 103,03,997 | 102,74,284 | 105,20,400 |
| Net profit before tax | 200,00,000 | 213,82,355 | 199,66,239 | 200,00,000 | 381,40,720 |
| Gross profit margin ratio (%) | 23.50 | 24.88 | 24.21 | 23.31 | 28.95 |
| Net profit margin ratio (%) | 5.68 | 6.03 | 5.91 | 5.92 | 11.05 |
| Operating ratio (%) | 94.32 | 93.97 | 94.06 | 94.08 | 88.95 |

Appendix – III

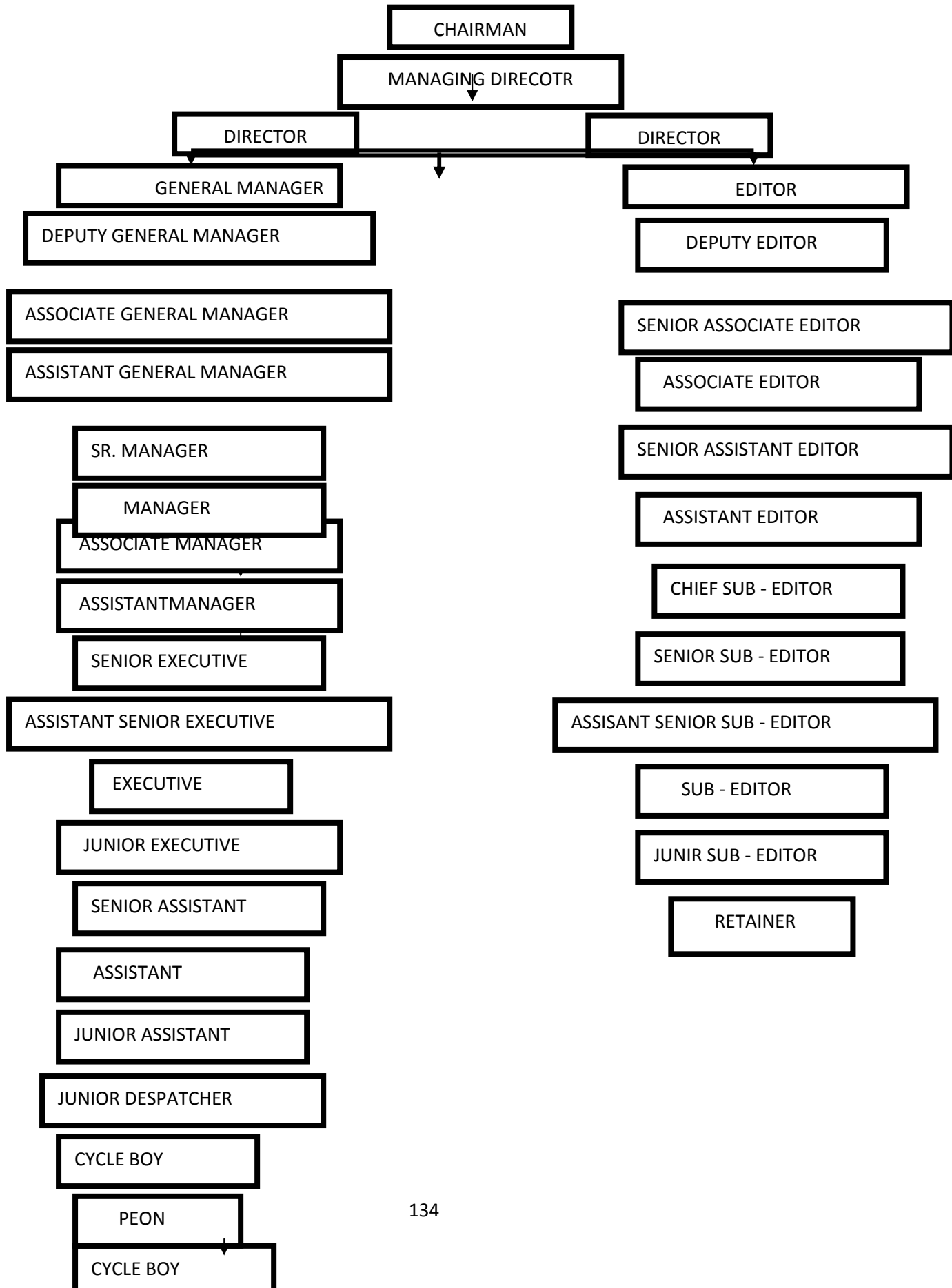
Kamana Prakashan Pvt. Ltd

Profitability Ratio in relation to sales for fiscal year 058/59 to 062/63

| Details | Years | | | | |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| | 058/59 | 059/60 | 060/61 | 061/62 | 062/63 |
| Sales Revenue | 1251,21,200 | 1121,45,225 | 1242,12,520 | 1240,12,200 | 1224,00,250 |
| Less: Cost of Sales | | | | | |
| Variable cost | 920,12,500 | 812,52,540 | 945,25,250 | 895,25,020 | 892,24,250 |
| Fixed cost | 55,02,100 | 56,24,500 | 52,26,400 | 60,54,200 | 61,25,200 |
| Gross Profit | 276,06,600 | 252,68,185 | 244,60,870 | 284,32,980 | 270,50,800 |
| Less: Other operating cost | | | | | |
| Administrative cost:- | | | | | |
| Variable cost | 40,25,410 | 35,25,420 | 36,54,240 | 36,98,520 | 36,78,700 |
| Fixed cost | 86,58,240 | 77,52,400 | 72,25,420 | 85,25,455 | 84,85,850 |
| Distribution Cost:- | | | | | |
| Variable cost | 101,54,200 | 96,25,420 | 98,78,200 | 99,25,400 | 101,42,250 |
| Fixed cost | 35,25,430 | 35,55,200 | 34,54,500 | 36,52,200 | 35,82,800 |
| Net profit before tax | 12,43,320 | 8,09,740 | 2,78,510 | 26,31,405 | 11,61,200 |
| Gross profit margin ratio (%) | 22.06 | 22.53 | 19.69 | 22.93 | 22.10 |
| Net profit margin ratio (%) | 0.99 | 0.722 | 0.224 | 2.12 | 0.95 |
| Operating ratio (%) | 99.01 | 99.28 | 99.80 | 97.88 | 99.05 |

Appendix - IV

Organization Chart of Kantipur Publication Pvt. Ltd.



Appendix – V

Questionnaires

Q.N. (1) what are the Products of your Publication?

a. b. c.

d. e. f.

(2) The publication is practicing cost, volume and profit analysis?

a. Yes

b. No

(3) What technique does the publication practice for pricing of product?

a. Cost based pricing

b. Going rate pricing

c. Target return on investment pricing

d. Activities based cost pricing

e. Other, Please specify

(4) What are the processes of managerial decision making?

a. Top to bottom

b. Bottom to top

c. Participating all staffs

(5) What criteria does the management adopt to classify semi variable cost?

a. High low method

b. Least square method

c. Rang method

d. Other

(6) What are the major difficulties faced to conduct CVP analysis?

a. b.

c. d.

(7) What are the major difficulties regarding sales expansion?

a. b.

c. d.

(8) What are the channels of distribution adopted?

a.

b.

c.

(9) What kinds of raw materials are being used by your organization?

.....

(10) Who are the suppliers of raw materials?

a. Domestic b. Foreign

c. Both

(11) What types of plant and machinery have been installed?

a. Automatic

b. Semi automatic

c. Others

(12) How many employees are engaged in your company?

.....

(13) What are the major markets of the companies' products?

a. b.

c. d.

(14) Are you satisfied with your wages?

a. Yes

b. No

(15) When had your organization established?

.....

(16) How is your expected sale in this year?

.....

(17) Is your company going to drop any product or launch any new products?

.....

(18) Which parts of CVP analysis are mostly practiced and which are not practiced till now?

.....

RESUME

PERSONAL DETAILS:

NAME : **RAMESH BHATTARAI**

DATE OF BIRTH : **13-07-1983(29-03-2040 BS)**

NATIONALITY : **Nepalese**

PERMANENT ADDRESS : **Karmaiya-6, Sarlahi, Nepal**

CONTACT ADDRESS : **Mobile Number. 9841-509197**

E-mail: r_bhattarai2002@yahoo.com

SEX/ MARITAL STUTAS : Male/ Single

ACADEMIC QULIFICATION:

-) **Master in Business Studies (MBS)** from Nepal Commerce Campus, Kathmandu, Tribhuvan University will complete in 2008 (Final year's result waiting) & Specialization subject is PPC and Taxation.
-) **Bachelor in Business Studies (BBS)** from Makwanpur Multiple College, Hetauda, Tribhuvan University in Second Division (55%) in 2005 & Specialization subject is Accountancy and Taxation.
-) **Proficiency Certificate (10+2) in Management** from Makwanpur Multiple College, Hetauda, Higher Secondary Education Board in Second Division (56%) in 2002.
-) **School Leaving Certificate** from Shree 5 Mahendra Janta Secondary School, Sarlahi, Nepal S.L.C. Board in First Division (61%) in 2000.

LANGUAGES:

-) Nepali, English and Hindi

COMPUTER SKILLS:

-) **Proficiency in Computer Application** (Computer Fundamentals, MS DOS, Windows 2000, MS Office 2000, Ms Access Programming, Web Fundamentals, HTML, FrontPage, Photoshop, Flash, VB Script & ASP) from College of Software Engineering, Hetauda, Six months (216 hours) Course in 2004.
-) **Computer Accounting Training** (Tally, Tata-Ex Next Generation, Fact) from Soft-Tech Computer Institute (p) Ltd., New Baneshwor, Kathmandu, Three months Course in 2004.
-) **Management Training** (Quality and Quality Management, Management Tools, Total Quality Management, Product Certification, Standards and Standardization, ISO 9000, ISO 9001 and ISO 17025), 4 days in 2008

WORKING EXPERIENCE:

-) Worked as an Accountant for nine months in Hotel Planet Pvt. Ltd., Thamel, Kathmadu, Nepal.
-) Worked as a Computer and Math teacher for a year in Elite English Boarding School, Karmaiya, Sarlahi.
-) Worked as an Accountant for 2 years in Ultra Trading Concern, Maharajung, Kathmandu, Nepal
-) Worked as an Admission Officer for a month in Kathmandu Don Bosco College.
-) Working as a Secretarial in Youth for Society, Kathmandu (NGO).

EXTRA CURRICULUM ACTIVITIES:

-) Black Belt in Taekwondo
-) Won Championships Cup in District & Zone Level