

# **A STUDY ON COST VOLUME PROFIT ANALYSIS OF TATA CONSULTANCY SERVICES**

Submitted in partial fulfilment of the requirements for the award of

**Master of Business Administration**

by

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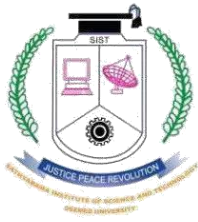
**SCHOOL OF BUSINESS ADMINISTRATION**

# **SATHYABAMA**

**INSTITUTE OF SCIENCE AND TECHNOLOGY  
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Salai, Chennai – 600 119**

**DECEMBER - 2023**



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**SCHOOL OF BUSINESS ADMINISTRATION**

## **BONAFIDE CERTIFICATE**

This is to certify that this Project Report is the bonafide work of **HARI PRASAD M S (42410230)** who have done the Project work entitled “**A Study Cost Volume Profit analysis of TATA CONSULTANCY SERVICES** ” under my supervision from October 2023 to December 2023.

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**Submitted for Viva voce Examination held on 22.12.2023**

**Internal Examiner**

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**DECLARATION**

I **HARI PRASAD M S (42410230)** hereby declare that the Project Report entitled  
“**A Study on financial ratio of TATA CONSULTANCY SERVICE**” done by me  
under the guidance of **DR.P.HAM**, at **SATHYABAMA INSTITUTE OF SCIENCE  
AND TECHNOLOGY, CHENNAI** is submitted  
in partial fulfilment of the requirements for the award of Master of Business  
Administration degree.

**DATE:** 22.12.2023

**PLACE:** Chennai

**SIGNATURE OF THE CANDIDATE**

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## A STUDY ON COST VOLUME PROFIT ANALYSIS OF TATA CONSULTANCY SERVICES

Submitted in partial fulfilment of the requirements for the award of

# **MASTER OF BUSINESS ADMINISTRATION**

by

**HARIPRASAD M S**  
**Register No.42410230**



**SCHOOL OF MANAGEMENT STUDIES**  
**SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY**  
**(DEEMED TO BE UNIVERSITY)**

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## **ABSTRACT**

Cost Volume Profit Analysis (CVPA) has become a most powerful tool to maximize profits in today's turbulent competitive market scenario. CVP analysis immensely helps the company to make vital decisions to boost up the sales and to earn profit's analysis demonstrates the association among various elements in planning of profit, in particular, variable cost, sales volume, sales mix and product cost. CVP

examination is the reason for understanding in commitment of marginal pricing, related short run choices, target costing and exchange value.

Cost-volume-profit (CVP) analysis is one of the most common-and-important chapters in an introductory managerial accounting course. While a CVP analysis for a single-product company is relatively easier to be illustrated, the CVP analysis for a multi- product company necessarily takes extra steps to illustrate. For the case of a multi-product company having a sales mix ratio among their products, this study developed a micro approach to the handling of decimals, if appearing, when the company finds their break-even point and target profit point. This study exemplifies how the developed approach gets to closer answers to a break- even point and a target profit point than an existing approach. Tata Consultancy Services Limited, initially started as Tata Computer Systems, was founded in 1968 by a division of Tata Sons Limited. Its early contracts included punched card services to sister company TISCO (now Tata Steel), working on an Inter-Branch Reconciliation System for the Central Bank of India, and providing bureau services to Unit Trust of India. In 1975, TCS delivered an electronic depository and trading system called SECOM for a Swiss company SIS Segal Inter Settle ; it also developed System X for the Canadian Depository System and automated the Johannesburg Stock Exchange. TCS associated with a Swiss partner, TKS Teknosoft, which it later acquired. In 1980, TCS established India's first dedicated software research and development centre, the Tata Research Development and Design Centre (TRDDC) in Pune. In 1981, it established India's first client-dedicated offshore development centre, set up for clients Tandem.

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# CHAPTER 1 – INTRODUCTION

## 1.1. INTRODUCTION

### COST VOLUME PROFIT ANALYSIS

Cost-Volume-Profit (CVP) analysis is a financial management tool used by businesses to understand how changes in sales volume, selling price, and costs affect a company's profit. It's also known as break-even analysis because it helps determine the level of sales at which a company neither makes a profit nor incurs a loss (break-even point). CVP analysis is valuable for decision-making, pricing strategies, and forecasting financial outcomes

Cost Volume Profit analysis has incredible breadth in different administrative decision making. It helps the administration in deciding the nature of products to be created to accomplish required benefits, the amount of items to be delivered at any rate limit level, achieving required benefits under various cost and volume relationship. This study has an objective to measure the profitability position of the factory. To satisfy the targets, the two year financial information from the time frame 2021 to 2023 in the form of secondary data. The data are then analysed and suggestions are given. It is inferred that CVP analysis is utilized to raise production limit and use trend setting technology to diminish the cost of manufacturing and to take right decisions and to gain profit. Cost Volume Profit analysis inspects the conduct of changes in the yield level, selling value, variable expense and fixed cost of a product. This study assists to know about the financial strengths and shortcoming of the factory

### DEFINITION

According to Christine Jonick Cost volume profit (CVP) analysis is a managerial accounting technique used to determine how changes in sales volume, variable costs, fixed costs, and/or selling price per unit affect a business's operating income. The focus may be on a single product or on a sales mix of two or more different products.

#### **Key components and concepts of CVP analysis:**

- **Sales Price (Selling Price):** This is the amount a company charges for its product or service.
- **Variable Costs:** These are costs that vary directly with the level of production or sales. Variable costs per unit typically remain constant. Examples include direct materials, direct labour, and sales commissions.
- **Fixed Costs:** Fixed costs remain constant regardless of the level of production or sales. These include rent, salaries of permanent staff, and depreciation.

- **Contribution Margin:** Contribution margin is the difference between total sales revenue and total variable costs. It represents the portion of revenue that contributes to covering fixed costs and generating profit. The contribution margin per unit is calculated by subtracting the variable cost per unit from the selling price per unit.

$\text{Contribution Margin per Unit} = \text{Selling Price per Unit} - \text{Variable Cost per Unit}$

- **Break-Even Point:** The break-even point is the level of sales at which total revenue equals total costs, resulting in zero profit. It can be calculated using the formula:

$\text{Break-Even Point (in units)} = \text{Fixed Costs} / \text{Contribution Margin per Unit}$

**Break-Even Point (in rupees):** To determine the break-even point in terms of sales revenue, you can use the following formula:

$\text{Break-Even Point (in rupees)} = \text{Fixed Costs} / \text{Contribution Margin Ratio}$

$\text{Contribution Margin Ratio} = \text{Contribution Margin per Unit} / \text{Selling Price per Unit}$

**Profit:** Once sales exceed the break-even point, profit is generated. Profit can be calculated as:

- $\text{Profit} = (\text{Sales} - \text{Variable Costs}) - \text{Fixed Costs}$
- **Margin of Safety:** The margin of safety is the difference between the actual or expected level of sales and the break-even point. It indicates how much sales can drop before the company starts incurring losses.

$\text{Margin of Safety} = \text{Actual (or Expected) Sales} - \text{Break-Even Sales}$

## Objectives of study

- To study the cost volume profit analysis and its impact
- To find out the break-even point.
- To identify the margin of safety and margin of safety ratio
- To understand the level of cost to be reduced to achieve a desired profit.
- To analyse the degree of operating leverage
- To investigate the impact of fixed assets and current assets on cost, volume and profit.

## Need and significance

- The CVP analysis is very much useful to management as it provides an insight into the

- effects and inter-relationship of factors, which influence the profits of the firm. The relationship
- between cost, volume and profit makes up the profit structure of an enterprise. Hence, the CVP
- relationship becomes essential for budgeting and profit planning. As a starting point in profit
- planning, it helps to determine the maximum sales volume to avoid losses, and the sales volume
- at which the profit goal of the firm will be achieved. As an ultimate objective it helps
- management to find the most profitable combination of costs and volume.
- A dynamic management, therefore, uses CVP analysis to predict and evaluate the
- implications of its short run decisions about fixed costs, marginal costs, sales volume and
- selling price for its profit plans on a continuous basis. CVP analyses are also useful for planning
- and monitoring operations. Also, management needs an understanding of how revenues, costs
- and volume interact in providing profits. All these analyses and information are provided by cost-volume-profit analysis.

## **Scope of study**

- CVP analysis helps in determining the optimal pricing strategies for products and services by considering how changes in selling prices impact sales volume and profitability.
- CVP analysis helps to set profit targets, plan for achieving those targets, and identify areas where cost control or sales growth is necessary.
- Companies can assess the profitability of different products or product lines and make decisions about which products to emphasize or discontinue.
- CVP analysis is a fundamental component of budgeting and forecasting. It helps businesses set realistic sales and profit targets, which are crucial for financial planning.
- By focusing on products or services with higher contribution margins, businesses can allocate resources more efficiently and maximize profitability.
- CVP analysis can identify opportunities for cost reduction and cost control measures to improve the financial performance of a business.

## **Advantages of CVP Analysis**

- Cost-volume-profit analysis is useful in profit planning, cost control and decision making.

- It helps to making flexible budgets which indicate cost and profit at various levels of activities.
- It helps to determine the maximum sales volume required to avoid losses.
- It helps to determine the sales volume at which the profit goal of the firm will be achieved.
- It helps management to find the most profitable combination of costs and volume.
- It helps in evaluating the effect of change in selling price on profitability.
- It provides a means for assessing the profitability of each product so that the optimum product mix may be determined.
- The study of cost-volume relationship is necessary in order to know the amount of overhead costs which could be charged to product costs at various levels of operation.
- It helps in evaluating the performance of an organisation for the purpose of control.

## **Importance of CVP Analysis**

The CVP analysis is useful to management as it provides an insight into the effects and inter-relationship of factors, which influence the profits of the organization. The relationship between cost, volume and profit makes up the profit structure of a firm. Hence, the CVP relationship becomes important for budgeting and profit planning. As a starting point in profit planning, it helps to find the maximum sales volume to avoid losses and the sales volume at which the profit goal of the firm will be achieved. As an ultimate goal, it helps management to find the most profitable combination of costs and volume. A dynamic management, therefore, need of CVP analysis is to forecast and monitor the implication of its short-run decisions about fixed costs, sales volume and sales price for its profit plans on a continuous basis.

## **1.2 INDUSTRY PROFILE**

The Rise & Journey of Web Development in India

It was in 1991, when the first website was developed in India. Since then, the web development industry has never looked back. Intelligence combined with determination, form the base of the web industry. There has been an amazing increase in the extension to the basic web production in the last few years. Use of still graphics, animated graphics, has increased remarkably. Web has become more interesting with the arrival of 3 D technology of VRML (Virtual Reality Markup Land page). The `cost of developing a website has become very cheap. There are many web development systems available to the public free of charge to help in development of this industry. Websites like Facebook, Twitter has already started showing high popularity in the field of communication & social-networking.

## Success Of Web Development Industry in India

It would be really surprising to know that with only about 5% of India's large population having access to computer & internet; India has achieved the top most place in web development industry & IT services.

## Future Of Web Development Industry in India

Though the web designing & development industry in India is now at a greater pace, but the future of this depends on how well it is taken care of. The web designing & development industry has got tremendous foundation in India & it has got a shining future. Excellent results are expected from online auction sites like eBay.

## 1.3 COMPANY PROFILE



### TATA CONSULTANCY SERVICE

Tata Consultancy Services Limited (TCS) is an Indian multinational information technology (IT) services and consulting company headquartered in Mumbai. It is a part of the Tata Group and operates in 150 locations across 46 countries. In July 2022, it was reported that TCS had over 600,000 employees worldwide. TCS is the second largest Indian company by market capitalization and is among the most valuable IT service brands worldwide, and is the top Big Tech (India) company. As of June 2023, it is the world's 2nd largest user of U.S. H-1B visas.

As of 2018, it is ranked eleventh on the Fortune India 500 list. In September 2021, TCS recorded a market capitalization of US\$200 billion, making it the first Indian IT tech company to do so. In December 2022, the market cap was Rs. 11,71,481.89 crore. In 2016–2017, parent company Tata Sons owned 72.05% of TCS and more than 70% of Tata Sons' dividends were generated by TCS.

#### Services

- Cloud
- Cognitive Business Operations
- Consulting
- Cybersecurity

## CHAPTER 2 – REVIEW OF LITERATURE

### 2.1 INTRODUCTION

A literature review is a critical and in-depth evaluation of previous research. It is a summary and synopsis of a particular area of research, allowing anybody reading the paper to establish why the study is pursuing this particular research. A good literature review expands on the reasons behind selecting a particular research question. A literature review is likewise not a collection of quotes and paraphrasing from other sources. A good literature review should critically evaluate the quality and findings of the research.

Jaedicke and Robichek (1964) develops a procedure for approximating the distribution of profit in a Cost-Volume-Profit (CVP) model where sales volume, unit price, variable unit cost, and fixed costs are all assumed to be normally distributed. Morrison, T. and E. Kaczka (1969) DIFFERENTIAL calculus has recently been applied to some cost-volume profit situations as an extension of breakeven analysis to find maximum profit levels when cost and/or revenue behaviour is curvilinear. 'However, there is another far more practical application that, for some unknown reason, has gone unrecognized up to now. It involves changes in selling prices and costs of changes in quality which result in changes in quantities demanded.

Ferrara, Hayya, and Nachman (1972) points out limitations of this model which arise from the assumption that the product of independent, normally distributed random variables is again normally distributed. In both articles it is assumed that sales, price, variable and fixed costs are independent. The model we develop assumes a more intuitive distribution for these inputs, allows for dependent relationships, and permits a rigorous derivation of the distribution of the output random variable, profit. Probabilities and tolerance intervals for the model can be readily obtained from tables of the normal distribution

Kim, S., M. J. Abdolmohammadi and L. A. Klein (1996) Cost-volume-profit analysis has focused on the firm's short-run output decision assuming that the manager maximizes the firm's objective function rather than his or her own. This study argues that the decision problem facing the manager is to determine not only the level of output, but also the level of investment in risky assets in such a way that the expected utility of the manager's own end-of-period wealth can be maximized when the manager's wealth function is dependent on vested interests both within and outside of the firm, possibly in competition with the firm.

According to Ekpe Yong & Nyong, (1992), there is no universally accepted definition of SMEs because the classification of business into small and large scale is a subjective judgment.

Lucey (1996) defined breakeven analysis as “the term given to the study of the inter-relationships between costs, volume and profit at various levels of activity” .The term breakeven analysis is the one commonly used, but it is somewhat misleading as it implies that only concern is with that level of activity which produces neither profit nor loss the breakeven point although the behaviour of costs and profits at other level is usually of much greater significance. Because of this an alternative term, cost-volume-profit analysis or CVP analysis is frequently used and is more descriptive.

According to Drury (2000), the CVP analysis determines performance, measurement, control, stock evaluating, costs that need to be planned for production or service, the creating sales prices etc.<sup>2</sup> The definition of the CVP analysis according to the Accounting Institute's rules in the official terminology is "Calculating the predetermined cost as sum, should be under the special conditions of work in the enterprise (business environment).<sup>3</sup> According to Hilton R.W <sup>4</sup>according to mathematical approach, CVP shows the relationship between revenue and cost.

According to Gautier Et al 2001 the CVP analysis shows the relationship between sales prices, production volume, costs, expenses and income, target profit.

According to Hilton R.W (2002) is a mathematical representation of the economics of producing a product. The relationship between a products revenue and cost function expressed within the cost-volume-profit analysis are used to evaluate the financial implication of a wide range of strategic and operational decisions.

Carpenter (2003) could include various combinations of the following:  
Number of employees, financial strength, sales value, relative size, initial capital outlay and types of industry. In countries like the USA, Britain and other European countries, small and medium scale enterprises are defined in terms of turnover and number of employees

Rd. Ilhan Dalca (2005)<sup>1</sup> conducted a study entitled on Cost Volume Profit Analysis He has conducted a study on Cost volume profit analysis with the objectives to understand how traditional cost volume profit analysis leads managers to make wrong decision and also to make a comparison between activity-based cost volume profit analysis and the traditional cost volume profit analysis. The secondary data have been collected from various sources like annual reports of the companies, journals, articles, publications and websites. The study has found that under traditional cost volume profit analysis, costs are categorized strictly as fixed or variable with respect to number of products produced and sold, but some costs that are fixed with respect to the volume are not fixed with respect to other factors and due to this traditional cost volume profit analysis may not generate accurate information. It has also been identified that predicting total costs requires multiple cost factors such as number of outputs produced, number of units sold at which will be covered by activity-based cost volume profit analysis. The study has concluded that traditional cost volume profit analysis includes only volume-based cost drivers whereas activity-based cost volume profit analysis includes multiple cost drivers which proves more accurate.

Rijal Madhav (2005), had conducted research on "cost volume profit analysis tools to measure the effectiveness of profit planning and control; A case study of NEBICO Private Limited." He has entered his study to examine CVP analysis as a tool in the manufacturing industry and to analyse the CVP and its impact in profit planning. It covers five years' financial statement. The major finding is the company's variable cost is in proportion than the fixed cost in total cost amount, which contribute to a lower contribution margin. The company has a high fixed cost Company has no plan to reduce cost. There is a lack of effective cost control programs or techniques. The company has no effective inventory policy. The inventory management, raw material handling and controlling system are not efficient and effective. The board of directors is the main authority in price-fixing and it directly interferes to price of biscuit and confectionery products. Nabisco Pvt. Ltd. has not proper practice of segregating the costs into fixed and variable or controllable and non-controllable. There is no proper coordination among production, administration, distribution, inventory and sales department.

Shrestha Dharma (2006), had conducted research entitled "Cost, Volume and Profit Analysis of Commercial Bank: A Case Study of Himalayan Bank Limited". This study concerned to examine the practice of CVP analysis & its effectiveness in Commercial Bank, in this study the secondary data had been used mostly and related other information had collected by informal interview for segregating cost, Cost analysis, contribution margin analysis, P/V 30 ratio analysis & Break-Even analysis. The time period covered by this Research was six years The major findings are CVP analysis has not practised yet. There is no Practice of segregating cost into fixed and variable. The costs are roughly classified and that classification is not scientific and appropriate. All the level of management is not involved in profit planning and decision making of the Bank. There is no complete and comprehensive budgeting system. Lack of the system of SWOT analysis. Liberalized policy of Government, skill manpower, good management team, use of computer technology etc. are the strength of Bank were as unable to provide service in rural area, market competition, conflict in Nation, Industries and Business closed done are weakness and threat.

According to Horngen et al (2006) the underlying assumptions of cost-volume profit analysis the behaviour and revenues is linear. Selling price is constant. All cost can be divided in to their fixed and variable element. Total fixed cost remains constant. Total variable cost is proportional to volume. Volume is the only drive of cost. Prices of production inputs (e.g., materials) are constant.

Robert Kee (2007) conducted a study entitled on Cost-Volume Profit Analysis Incorporating the Cost of capital, the purpose of this article is to illustrate how the cost of capital may be incorporated into CVP analysis. It develops the mathematical relationship between a product's discounted operating income after taxes less the cost of capital and the product's price, costs, invested funds, and sales quantity. From this relationship, the sales quantity needed to earn a rate of return equal to the firm's cost of capital may be estimated. Cost-volume-profit (CVP) analysis is a

mathematical representation of the economics of producing a product. The relationships between a product's revenue and cost functions expressed within the CVP model are used to evaluate the financial implications of a wide range of strategic and operational decisions. For example, CVP analysis is employed to assess the financial implications of product mix, pricing, and product and process improvement decisions. Perhaps equally important, CVP analysis facilitates measuring the sensitivity of a product's profitability to variations in one or more of its underlying parameters. Finally, CVP analysis may be used to determine the trade-offs in profitability and risk from alternative product design and production possibilities. In effect, CVP is a quantitative model for developing much of the financial information relevant for evaluating resource allocation decisions.

Diliman and Bala (2007), in a related study discovered that "sales revenue and total cost were not linear, two or more breakeven points were found to exist, some costs fall under both fixed and variable portions and that beyond certain optimal production levels sales revenue decreases and total cost also increases. They suggest that block industry operators because of the short payback period of the investment and rising profit levels when efficiently managed using breakeven tool of analysis should adopt breakeven theory frequently. Although they found slight variation in the principles of breakeven theory between the two industries studied, they emphasise adequate production planning and control using breakeven theory

Ronald (2008) suggested CVP analysis is the technique which summarizes the effects of changes in an organization's volume of activity on its costs, revenue and profit. CVP analysis can be extended to cover the effects on profit of changes in selling prices, service fees, costs, income tax rates, and the organizations mix of products or services. In short CVP analysis provides management with a comprehensive overview of the effects on revenue and costs of all kinds of short-run financial changes. Although the word profit appears in the term, CVP analysis is not confined to profit seeking enterprises. Managers in non-profit organizations also routinely use CVP analysis to examine the effects of activity and other short-run changes on revenue and costs

Adenji (2008) states that cost-volume-profit analysis are predetermined costs, target costs or carefully pre planned costs which management endeavours to achieve with a view to establishing or attaining maximum efficiency in the production process. According to him, cost-volume-profit analysis is cost plans relating to a single cost unit. Because cost-volume profit analysis purports to be what cost should be, any deviation represents a measure of performance. The predetermined costs are known as cost-volume-profit analysis and the difference between the cost-volume-profit analysis and actual costs are known as a variance.

Onwuka (2009) suggests a thorough application of breakeven analysis to improve profit levels of small manufacturing firms. She (Onwuka) further states that the mathematical involvement was little, while the advantage was enormous. Most managers are too afraid of figures; they would find this method a safe- landing.

Edna Gunderson (2009)<sup>2</sup> conducted a study entitled on Cost Volume Profit Analysis. He has conducted "a study on Cost Volume Profit Analysis with the objectives to identify the essential elements of cost volume profit analysis and to show that the cost volume profit analysis helps in decision making. Break-even point and contribution have been used to analyse the collected data. The findings are break-even point can be calculated as either the minimum sales quantity or the minimum revenue required to avoid a loss or profit. The cost volume profit model can also be used to calculate target operating income. Managers also use cost volume profit analysis to take other decisions, mainly strategic. Different choices can affect selling prices, variable costs and fixed costs. Therefore, the author has concluded by suggesting that the cost volume profit model proves better in making managerial decisions.

Jain (2010) a break-even analysis indicates the relationship between the costs and profits with the sales volume. The sales volume that equates total revenue with connected costs and resulted in neither profit nor loss is termed the breakeven volume. If all costs are assumed to be variable with the sales volume, the BEP would be at zero sales. If all costs were fixed, profits would be varying disproportionately with sales and the BEP would be at a point where sales revenue total equalled fixed costs. BEP analysis is the most widely used technique of CVP analysis. Breakeven analysis establishes the connection between revenues and costs with regard to volume. It indicates the extent of sales at those total costs area unit up to total revenues. The term breakeven analysis is interpreted in narrow as well as in broad sense. In its narrow sense, it is concerned with finding out the break-even point. In its broad sense, it means a system of analysis which is used to determine the probable profit at different levels of activity.

Rhan (2010) says that CVP analysis shows the link among the varied ingredients of profit planning, namely, unit sales price, variable cost, sales volume, sales mix and fixed cost. Profit designing maybe a perform of the terms of a unit of product, the variable cost of making and selling the product, the volume of product units sold, and, within the case of multi-product firms, sales mix and, finally the total fixed costs. The CVP analysis is a management accounting tool to show the relationship between these ingredients of profit planning. The entire gamut of profit planning is associated with CVP inter-relationships. A widely used technique to review the CVP relationship is break-even analysis.

Bornia (2010) conducted a study on "calculation to contribution margin". The study conducts the shutdown point concept is mainly true for the analysis of decision to a product line. He has performed clearly about the primary reason of clearable costs on the contribution margin.

Prihadyanti (2011) This study states that "the Cost-volume-profit (CVP) analysis is a widely used tool for managerial planning. The failure of CVP analysis to include value of capital into a product's cost operate will result in underestimating a product's cost while overstating its profitability. This paper proposes another variation of the CVP analytical model to incorporate the value of capital on R&D investment and its risk level on strategic selections. The changed CVP model provides a lot of helpful data to management as a result of it focuses on a lot of

specific kind of investment that has specific characteristics. The CVP model developed is a lot of complicated, because it includes risk and uncertainty for the expected revenue, and specifies the R&D expenditure as a percentage of total sales. However, the model still needs further development.”

Trifan Anton (2011) Study Founded “on the distinction between variable costs and fixed costs, the analysis of the relationship between the volume of activity, costs and profits is directed to decision-making in order to guide an entity's management to obtain optimal results. It is known that the models that individualize the development of the expenses at an entity's level represent the basis of cost analysis. Then, given the fact that foresight imposes taken into account fluctuations in an activity, the grouping of expenses into variable and fixed will be used for forecasting management, for evaluating an entity's performance and for analysing decisional alternatives.”

Waller et Fawcett (2012) conducted a study on “deployment decision of a new distribution”. In this study the costs are associated with distribution process. The study conducts the inventory costs and labour costs and other factors may change over the period. The findings for the difficulties for the transportation frequencies are limited and also it proves that economic way is influenced by different variables in different intensity.

Teodora Rroupska (2012) This study explained that “The Cost-Volume-Profit (CVP) analysis is a well-known Management Accounting tool applicable in industrial companies. It can be applied successfully in agrarian companies, but it is necessary to identify fixed and variable costs (in Bulgaria it isn't done), made for raising animals or growing plants, because the agrarian production is made from biological assets. The costs made for plants or animals are different. Besides the same cost in the individual companies are able to be classified differently depending on its particular manifestation. The “Cost-Volume-Profit” analysis can easily be used to base agrarian companies' management decisions as in the other companies – by computing break-even point, by computing, margin of safety and etc. In our empirical study it is possible to compute the break-even point in units in two versions. In the first the unit is an animal and in the second – a kilogram of meat. The received results proved that to organizing a profitable pig farm in Bulgaria it is necessary to have more than 898 animals”. John

Donald (2013), Suggested that the ability to categorize costs as either fixed or variable and to estimate the fixed and variable components of mixed costs is important because it enables the utilization of decision-making techniques like cost volume profit analysis (CVP analysis). This is basically a short (or tactical) decision tool that shows the impact on profit of changes in prices, prices and sales volume in units. We cannot estimate accurately the impact of those changes unless we all know that prices area unit fastened and that area unit variable. CVP analysis is sometimes called break-even anal sis because it allows the user to calculate a break-even point. This is the extent of production and sales at that a product or service stops losing cash and becomes profitable. At the break-even, point profit

equals zero. Once we know the break-even point, we can assess the financial viability of a new product or analyse our current operating performance.

Georgiev (2014) studied the Application of „Cost-Volume-Profit“ Analysis in the Hotel Industry based on survey data of high-ranking hotels in the north-east region of Bulgaria, research results indicate that analysts apply the CVP analysis to all aspects of management accounting, which clearly speaks of its significance for generation of data on hotel management. Taking into account the specifics of the hotel product we cannot but accept as logical the results on the extent and frequency of application of CVP analysis.

Nabil, Osama, & Zaid (2014) while looking at the effect of using break-even-point in planning, controlling, and decision making in the industrial Jordanian companies concluded that, the most of the Jordanian industrial companies are using break-even point in the planning, controlling and decision-making, and there is a statistically significant relationship between the use of the break-even point and successful planning, control and decision-making in the Jordanian industrial companies.

Henry Osahon (2014) This study shows “the ability of a corporation to check the interactions of economic variables during a kind of setting is very important in effective decision-making and ultimately profitability and survival. This paper posits the use of Cost-Profit Volume (CPV) analysis in this regard and applied it to the non-profit organization. Using a case study approach, the study demonstrates practically the application of CVP framework to decision problems. Thereafter, primary data were collected by means of questionnaire and analysed using frequency percentage to investigate why cost/management accounting decision frameworks in general are not popular among non-profit organizations in Nigeria. The traditional technique of CVP analysis together with its assumptions and limitations were addressed

Abdullahi (2015) describes cost volume profit analysis as an estimate of how changes in costs (Both variable and Fixed) sales volume, and price effect the company's profit. According to him, cost-volume- profit analysis is cost plans relating to a single cost unit. Because cost-volume profit analysis purports to be what cost should be, any deviation represents a measure of performance. The predetermined costs are known as cost-volume-profit analysis and the difference between the cost-volume-profit analysis and actual costs are known as a variance.

Horngren et al. (2015) suggest that an analysis of production targets and budgets can be used as a management tool in making decisions.

Seung Hwan Kim (2015) conducted a study entitled on Cost-Volume-Profit Analysis for a Multi-Product Company Cost-volume-profit (CVP) analysis is one of the most common-and-important chapters in an introductory managerial accounting course. While a CVP analysis for a single-product company is relatively easier to be illustrated, the CVP analysis for a multi-product company necessarily takes extra steps to illustrate. For the case of a multi-product company having a sales mix ratio among their products, this study developed a micro approach to the handling of

decimals, if appearing, when the company finds their break-even point and target profit point. This study exemplifies how the developed approach gets to closer answers to a break-even point and a target profit point than an existing approach. Cost-volume profit analysis to be a commonly used tool providing management with useful information for decision making. Cost volume-profit analysis will also be employed on making vital and reasonable decision when a firm is faced with managerial problems which have cost volume and profit implications

Ana Paula Beck da Silva Etges, Rafael Calegari, Marisa Ignez dos Santos Rhoden, Marcelo Nogueira Cortimiglia (2016) conducted a study on cost volume profit analysis to assess the viability of establishing a new distribution centre by a company that manufactures radiopharmaceutical products. The analysts gathered and dissected point by point primary data from the organization and contrasted the current situation and potential future situations utilizing cost volume profit strategy. The information was gathered somewhat through interviews and furthermore through organization's documents and records. The examination especially outlined what the development of calculated framework means for fixed expense which gives a superior situation to diminish variable expenses. The investigation featured the significance of utilizing cost breaking down procedures to examine the monetary effects of strategic choices.

Halil Akmese, Ahmet Buyuksalvarci, Kadriye Akmese (2016) conducted the research on the use of cost volume profit analysis. Cost volume profit analysis is one of the major administrative tools which is utilized for predictive purposes and uncovers demonstrative outcomes for a definite arranging inside the administration interaction. Research data gathered by means of a survey questionnaire. The information investigated and discoveries are exhibited by methods for fundamental factual procedures. The examination reasons that CVP analysis may add to the business to blade upper hand related to different techniques for investigation when contrasted with use alone. CVP analysis is generally utilized by the organizations while taking decisions.

Granof, Khumawala, Calabrese, & Smith, 2016). In government work units, the budget is the highest expenditure limit. Thus, based on standard input costs in performance-based budgeting, analysis of the amount of output and amount of costs can be required.

Gabriel Soares (2016) concluded the problem of reallocating productive resources to maximize profit. Mostly the topic focuses on developing or improving the Cost-Volume-Profit model to obtain solutions that provide an ideal mix of products before the data is given. In particular, some algorithms are available for the problem. However, these proposals do not consider the minimum number of units to be produced, and the reallocation of productive resources for each product is a problem found in these studies. Bearing this in mind, a new algorithmic program based on individual monetary revenue is planned. Computational results indicate that the proposed method can be utilized as a decision support system.

Punniyamoorthy (2017) stated that the CVP analysis was a tool to assess the impact of changes in value, volume, variable costs or fixed costs on benefits.

Moreover, CVP was the basis for pricing, deciding short-term options, target costs and value of the exchange.

Jiang and Shen (2017) conducted an analysis of the restaurant's cost, break-even, safe operation level, and the impact of restaurant profit due to changes switch factor. This result helped the restaurant manager make better decisions by analysing multi-element positioning in the service industry and examining the relationship between the key elements of the service industry and the profit due to factor change.

Walidi (2017) Standard input cost is a benchmark cost in the form of unit prices, tariffs, and indices, which are set to produce cost component outputs in work plans and budgets.

Sadiq Rabiul Abdullahi, Bello Abiodun Sulaimon, Ibrahim Salihu Mukhtar, Muhammed Hardy Musa (2017) conducted a study entitled on Cost-Volume-Profit Analysis as a Management Tool for Decision Making in Small Business Enterprise. This study aimed to figure out if small business enterprises utilize cost volume profit (CVP) analysis as a management tool for decision-making process in Bayero University Kano, with a view to shed light on the reality of the use of CVP analysis as a decision-making tool in small business enterprises. The study population is made up of the entire small business enterprises within Bayero University, Kano. Primary source of data was utilized using structured questionnaires. The hypotheses were tested using Mann-Whitney U test and Pearson correlation coefficient. A very weak relationship (0.02) was recorded, it was discovered that there is no statistically significant difference between having the knowledge of a management accounting tools and its application. The study concludes that small business enterprises utilize CVP ignorantly and it is recommended that CVP analysis and other management accounting tools be introduced to small business enterprises so that productivity can be improved.

B Navaneetha, K Punitha, Raichur Mercy Joseph, S Rashmi, T Sai Aishwarya (2017) conducted a study entitled on 8An analysis of cost volume profit of Nestlé limited9 Cost volume profit analysis scrutinizes the relationship between changes in activity and changes in total sales revenue, cost and profit. It may provide very useful information particularly for a business that is commencing operations or facing difficult economic conditions. Cost volume profit analysis determines how many units of a product must be sold so that the business reaches its breakeven point. It allows the business to consider the effect on profits of various changes in operating costs and revenues such as a reduction in selling price or an increase in fixed cost to determine the sales volume required to achieve a specific profit level and to establish the amount by which the current sales level can decrease before losses are incurred. Cost volume profit analysis examines the behaviour of changes in the output level, selling price, variable cost per unit and fixed cost of a product or service. The cost-volume profit analysis may be deterred. The purpose of this article is to illustrate how the cost of capital may be incorporated into CVP analysis. It develops the mathematical relationship between a

product's discounted operating income after taxes less the cost of capital and the product's price, costs, invested funds, and sales quantity. From this relationship, the sales quantity needed to earn a rate of return equal to the firm's cost of capital may be estimated. The main uses of cost-volume-profit analysis is in performance measurement, control, stock valuation and in the establishment of selling prices. Cost-volume-profit analysis is a target cost which should be attained. It states that cost-volume profit analysis are predetermined costs, target costs or carefully pre planned costs which management endeavours to achieve with a view to establishing or attaining maximum efficiency in the production process.

Vedat EKERGIL (2017) conducted a study on the use of cost volume profit analysis technique with the objective to understand the cost behaviour. Managers of any firm utilize cost volume profit analysis to drive their choices and they are altogether essential thoughts in the business. The speculations made for non-profitable client's declines the benefit and the proficiency of the organization by expanding the expenses. Now, it turns out to be more imperative to gauge the productivity of the clients. The researcher distinguished the contrasts between business productivity and screens the expense conduct by utilizing the incitement model. In this investigation, firstly, multi-product-based cost volume profit analysis and later client-based cost volume profit analysis are inspected.

Dr. R. Kavitha (2018) conducted a study entitled on Cost Volume Profit Analysis She has taken Salem Steel Authority of India Limited, Tamil Nadu which is one among the steel industries in India to measure the profitability position through BEP analysis.

Lulaj and Etem Iseni (2018) argued that the CVP analysis was an important content to plan and make decisions in business. The research was carried out in manufacturing and service businesses, using a combination of econometric models to make this research accurate and effective. The results showed that the number of produced products had a positive impact on the sales for service companies and increased profits for the manufacturing business, there was an important relationship between production and sales.

Stoenoiu (2018) conducted a study on the sensitivity of the indicators used in the CVP analysis. The research was based on the need to optimize and manage costs due to unforeseen economic events in all areas. Therefore, this study analysed the dependency relationship among the three CVP indices to highlight the need for permanent monitoring and optimization of these variables to provide a reliable basis for management decisions. The research showed the extent and significance of the changes toward one or more variables due to the direct relationship and inversion between these variables.

Dr. R. Kavitha (2018) has conducted a study on cost volume profit analysis with the objectives to find out the company's profitability based on their cost volume of the production. The effective cost volume profit analysis will lead to make how much

expense to be spent to create the necessary number of volume of goods expected to accomplish the ideal profit goal. The tools used by the researcher are ratio analysis and break-even analysis to know the profitable position of the firm. The researcher concludes that administration may utilize cost volume productivity analysis to compute the benefit yield by a given measure of selling merchandise. It assists with forestalling the future dangers of the business.

Enyi (2019) compared the effect of the weighted contribution margin (WCM) and the reversed contribution margin ratio (RCMR). The result showed that WCM lacked analytical efficiency and generates suboptimal products mix because it ignored the inverse relationship between a product's contribution margin ratio (CMR) and its break-even point (BEP). The paper suggested the use of the RCMR with the effects of the CMR/ BEP measurement.

Kenneth Enoch Okpala, ChimsunumOsanebi (2020) has conducted a survey on cost volume profit analysis and profit planning. The investigation analyses that the use of cost volume profit method on benefit arranging in manufacturing SMEs as a way to tackle the issue. The information was gathered through surveys. Descriptive analysis, Pearson correlation and regression analysis methods were used for data analysis. The investigation reasoned that cost volume profit examination fundamentally affects profit planning. The investigation suggests that the administration on manufacturing SMEs should utilize and hold bookkeepers and rebuild their supervisory group for effectiveness.

## **CHAPTER 3 – RESEARCH METHODOLOGY**

### **3.1 INTRODUCTION**

Research Methodology is a systematic way to solve a research problem. It includes various steps that are generally adopted by a researcher in studying the problem along with the logic behind them. The present study was conducted at Tata Consultancy Services. The study depends mainly on the secondary data namely the annual reports of the company. two years annual reports had been collected from the company. Data had also been collected from text books, journals, newspapers, magazines and internet.

### **3.2 STATEMENT OF THE PROBLEM**

The most significant single factor in the planning of the average business is the relationship between the volume of business, its costs and profit. Through this study the analysis of Cost, Volume and Profit has been done by using the technique of Contribution Margin Analysis, P/V ratio, Breakeven Analysis and margin of safety. Techniques of ratio analysis and trend analysis are used to know the current profitability and to predict the future trend on cost, revenue and profit at Tata Consultancy Services. The problem identified in the company is that the unawareness and less priority given for the cost volume profit relationship. If cost, volume and profit are properly managed, it helps the company to take managerial decisions effectively. Most manufacturing industries are unaware of the extent to which cost-volume-profit analysis affect their various decisions. Manufacturing industries are facing the problem of how to make use of the available scarce resources in order to achieve the objective of profit maximization

### **3.3 OBJECTIVES THE STUDY**

#### **Primary objective**

To study on CVP analysis towards the Tata Consultancy Services.

## **Secondary objectives**

- To identify the level of sales required to achieve a specific target profit.
- To evaluate the difference between actual or expected sales and the break-even point.
- To analyse the contribution margin, which is the difference between total sales revenue and variable costs
- To assess the impact of changes in key variables (such as selling price, variable costs, and fixed costs) on profits.
- To Determine the pricing strategy that maximizes profits.
- To determine the level of sales at which total revenue equals total costs, resulting in zero profit or loss.

### **3.4 SCOPE OF THE STUDY**

- The scope of the study defined below in terms of concept adopted and period under focus.
- The study of management of working capital is only the Tata Consultancy Services., Chennai.
- Thus, the whole purpose of the project is to analyse the past and present performance of the company on various financial areas like cash, inventories and receivables.
- Since the past performance data essential for predicting future planning process
- 

### **3.5 RESEARCH DESIGN**

“A Research Design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with the economy in procedure”. In fact, the research design is the conceptual structure with in which research is conducted; it constitutes the blue print for the collection, measurement and analysis of data, the research design utilized in this study is analytical research.

### **3.6 PERIOD OF STUDY**

The duration taken by the researcher for the data collection and analysis regarding the ratio analysis of Tata Consultancy Services. for three months. The data used are of last two years from 2021 – 2023.

### **3.7 METHOD OF COLLECTION**

The study basically uses primary and secondary data. Primary data means data which is fresh collected data. Secondary data means the data that are already available. Generally speaking, secondary data is collected by some organizations or agencies which have already been processed when the researcher utilizes secondary data. the process of secondary data collection and analysis is called desk research.

### **3.8 TOOLS USED**

#### **COMPONENTS OF CVP ANALYSIS**

- MARGINAL COSTING
- CONTRIBUTION
- PROFIT VOLUME RATIO
- BREAKEVEN ANALYSIS
- MARGIN OF SAFETY

## CHAPTER 4 – DATA ANALYSIS AND INTERPRETATION

### MARGINAL COSTING

Marginal cost is the extra cost of manufacturing a further unit. IMA London defines monetary value as “the quantity at any given volume of output by that mixture prices square measure modified if the quantity of output is enhanced or bated by one unit”. Thus, the marginal cost is the amount by which total cost changes when there is a change in output by one unit.

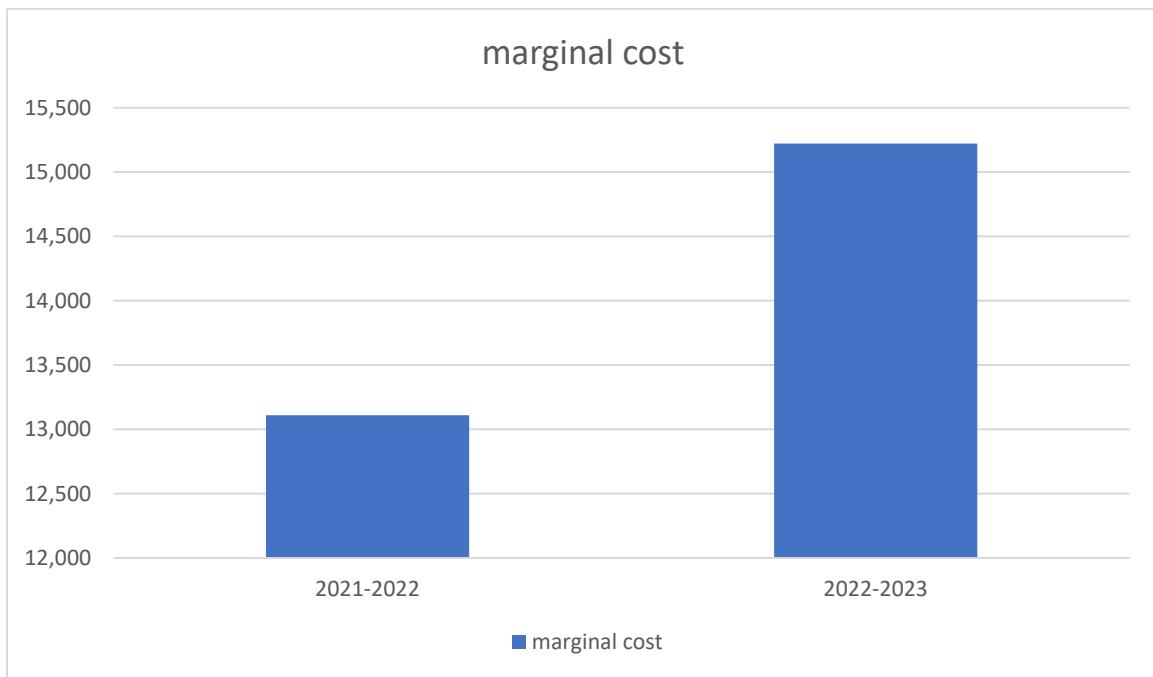
Marginal Costing is a technique whereby marginal costs are ascertained. In this technique of costing only variable costs charged to cost units, while fixed costs are written off against a fund called contribution. IMA, London wrote Marginal Costing is “the ascertainment, by differentiating between fixed costs and variable costs, of marginal cost and the effect on profit of changes in volume or type of output”. In the words of J. Batty, “marginal costing is a technique of cost accounting, which pays attention to the behaviour of costs with changes in the volume of output”.

Sales = Variable costs + fixed cost  $\pm$  Profit/Loss

OR

Sales – Variable costs = fixed cost  $\pm$  Profit/Loss

| Sl.no | Year      | Total cost | Fixed cost | Marginal cost |
|-------|-----------|------------|------------|---------------|
| 1     | 2021-2022 | 1,38,697   | 1,25,588   | 13,109        |
| 2     | 2022-2023 | 1,66,199   | 1,50,977   | 15,222        |

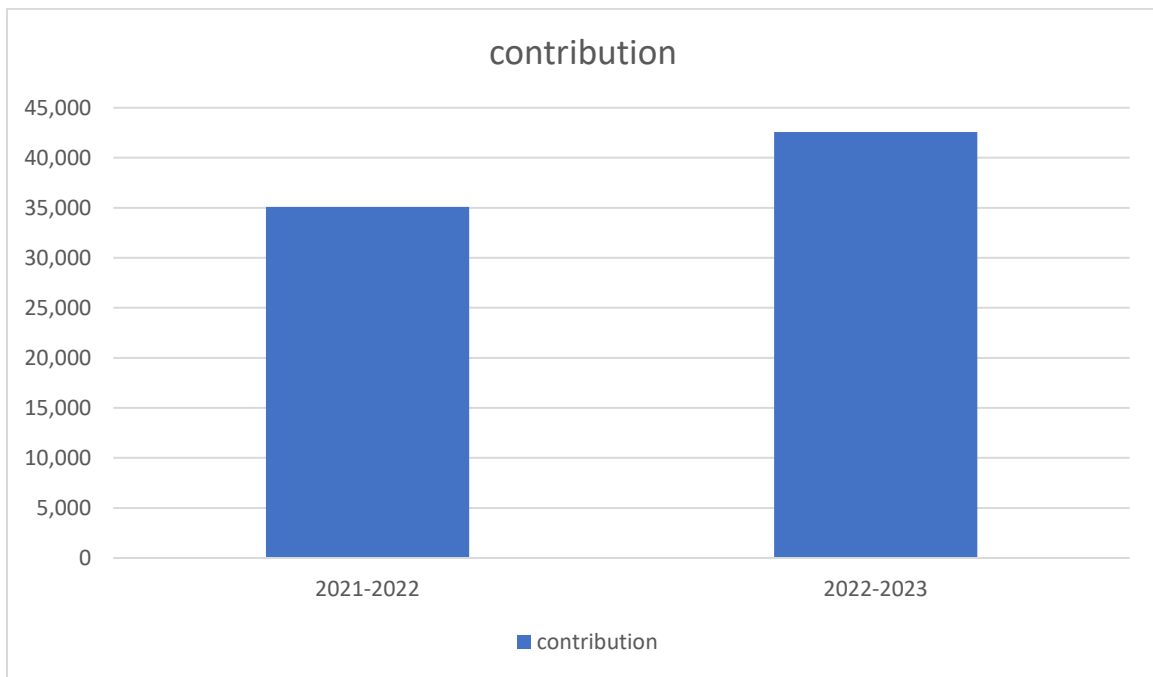


## CONTRIBUTION (C)

Contribution is a very important concept in marginal costing. It is the basis of decision-making and control. It is the profit in marginal costing. it refers to excess of sales over variable cost. It is not the final profit. It is the marginal profit. Contribution also known as 'contribution margin' or 'gross margin'. It covers fixed cost and profit. If contribution is more than the fixed cost, there is a profit. If contribution is less than the fixed cost, there is a loss.

$$\text{Contribution(C)} = \text{Sales(S)} - \text{Variable Cost (VC)}$$

| Sl.no | Year      | sales    | variable cost | contribution |
|-------|-----------|----------|---------------|--------------|
| 1     | 2021-2022 | 1,60,341 | 1,25,255      | 35,088       |
| 2     | 2022-2023 | 1,90,354 | 1,54,803      | 42,584       |



## PROFIT VOLUME RATIO

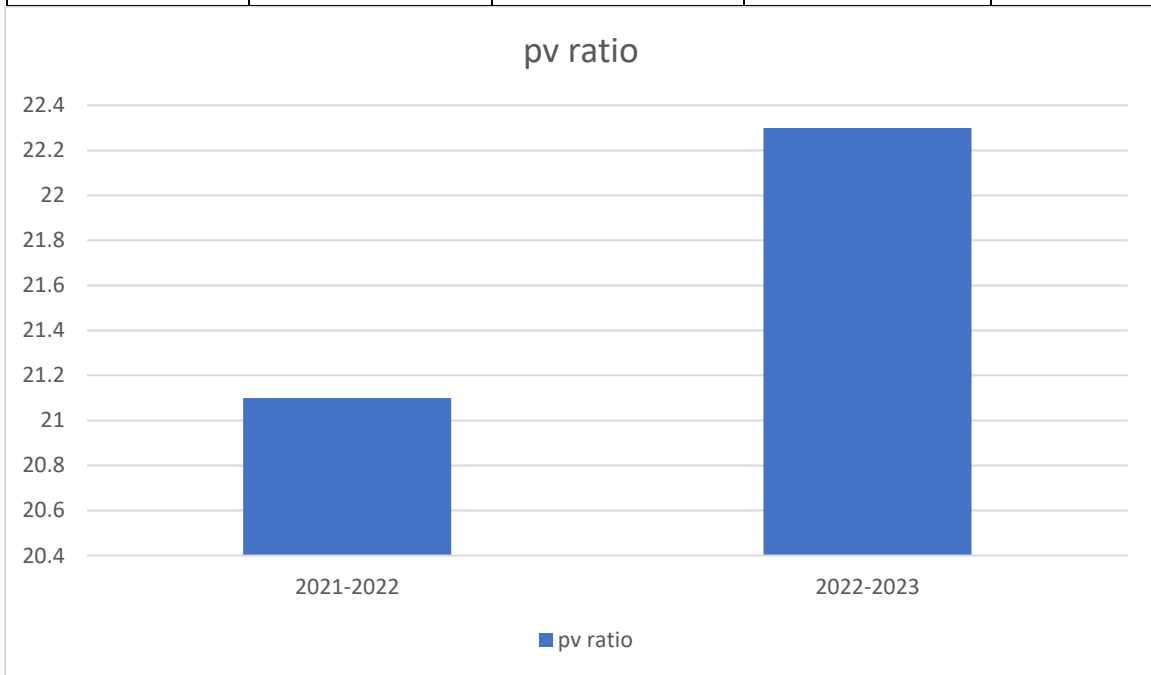
The Profit-volume ratio, which is also called the 'contribution ratio' or 'marginal ratio', indicates the relationship between contribution and sales and is usually expressed in percentage. The magnitude relation shows the quantity of contribution per rupee of sales. Since, within the short, fixed cost does not change, the profit-volume ratio also measures the rate of change of profit due to change in the volume of sales.

It is influenced by sales and variable or monetary value. If the sale value will increase while not a corresponding increase in monetary value, the contribution increases and the profit-volume ratio improves.

Similarly, if the marginal cost is reduced with sale price remaining the same, the profit-volume ratio improves. The advantages of profit-volume ratio are that it can be used to measure the profitability of each product, or group of them, separately so that the necessity for continuance of such products can be examined. It may also be used to measure the profitability of each production centre, process or operation. A high profit-volume ratio indicates high profitability and low profit-volume ratio indicates low profitability.

$$\text{pv ratio} = \text{contribution} / \text{sales} \times 100$$

| Sl.no | Year      | contribution | sales    | Pv ratio |
|-------|-----------|--------------|----------|----------|
| 1     | 2021-2022 | 35,088       | 1,60,341 | 21.1     |
| 2     | 2022-2023 | 44,462       | 1,90,354 | 22.3     |

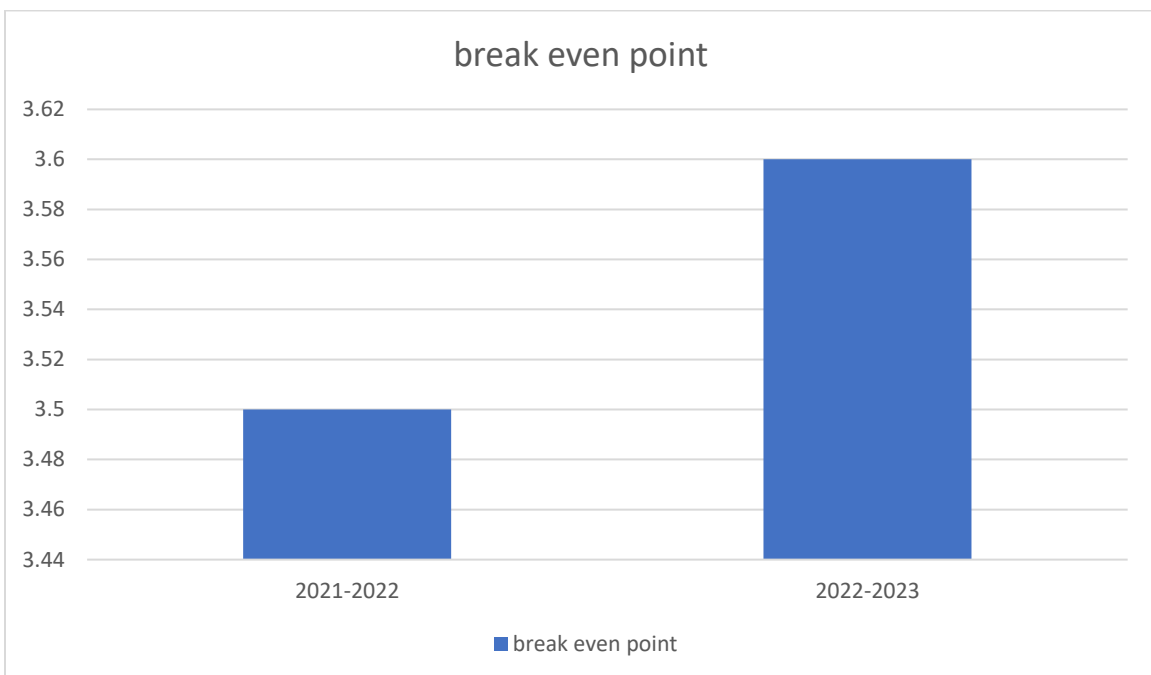


## BREAKEVEN ANALYSIS

Break-even analysis is that the most generally used technique of price volume profit analysis. It establishes the relationship between cost and profit with sales volume. It is a method of presenting and studying the interrelationship among cost, volume of sales and profit at various levels of activity. The term break-even analysis is taken in slender additionally as broad sense. In a narrow sense, it is the process of finding the breakeven point (BEP). BEP is the point at which total sales revenue is equal to total cost. It is the point of no profits no loss. In its broad sense, it means a system of analysis, which used to determine the probable profit at different levels of activity. It shows the behaviour of cost and profit at varying levels of activity.

Car Heyel defines breakeven analysis as “a method for studying the relationship among sales revenue, fixed cost and variable expenses as to determine the minimum volume at which production so can be profitable”

| Sl.no | Year      | Fixed cost | Selling – variable cost | Break even point |
|-------|-----------|------------|-------------------------|------------------|
| 1     | 2021-2022 | 1,25,588   | 35,088                  | 3.5              |
| 2     | 2022-2023 | 1,50,977   | 42,584                  | 3.6              |



## MARGIN OF SAFETY

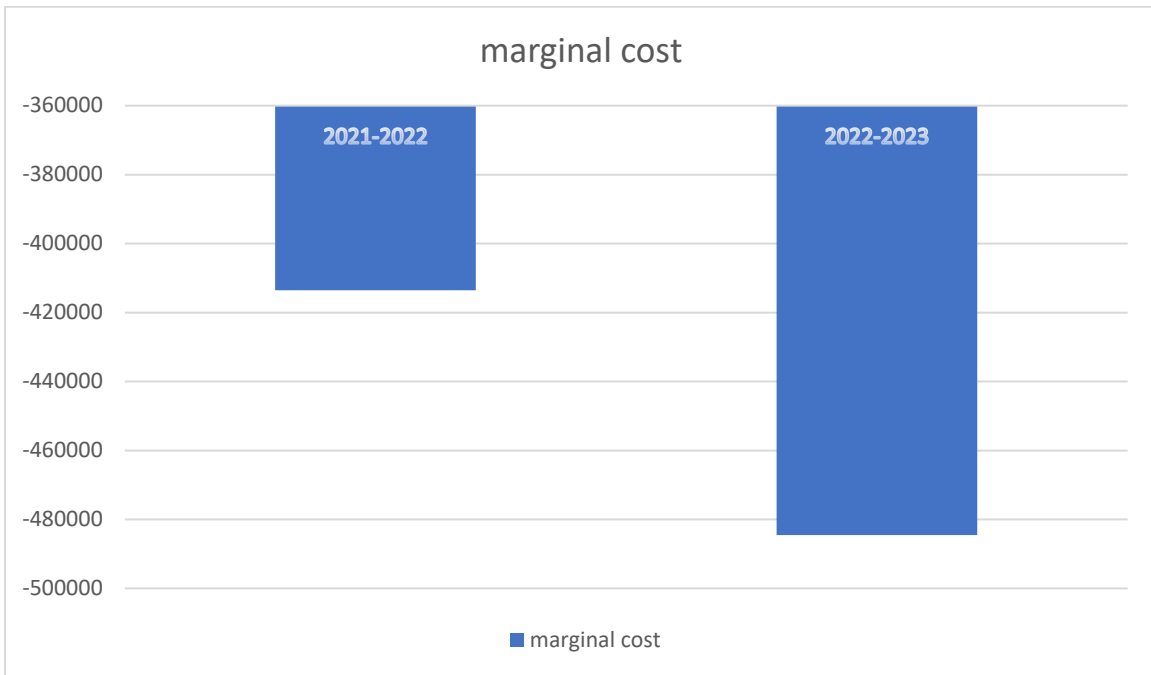
The management may be interested in knowing the extent to which the sales is above the BEP. This is called 'margin of safety'. It is the excess of actual or present sales over the BEP sales. It refers to the amount by which sales revenue can fall before a loss incurred. It indicates the strength or weakness of an enterprise. A high margin of safety indicates the soundness of the business. It may be expressed in unit, sales revenue or as a percentage of sales.

Margin of safety = present Sales value – BEP Sales value

If it is to be expressed as a percentage of sales, the following formula is used:

Margin of Safety = Actual sales - BEP Sales X 100 / Actual sales

| Sl.no | Year      | Present value | BEP sales value | Marginal cost |
|-------|-----------|---------------|-----------------|---------------|
| 1     | 2021-2022 | 1,60,341      | 5,73,897        | -4,13,556     |
| 2     | 2022-2023 | 1,90,354      | 6,74,879        | -4,84,525     |



## **CHAPTER 5 – FINDINGS, SUGGESTIONS AND CONCLUSION**

### **5.1. FINDINGS**

- The marginal cost is 13,109 in the year of 2021 and it has increased to 15,222 in the year of 2022.
- The contribution is 35,088 in the year of 2021 and it has decreased to 42,584 in the year of 2022.
- The pv ratio is 21.80 in the year of 2021 and it has increased to 22.30 in the year of 2022.
- The break-even point is 3.5 in the year of 2021 and it has increased to 3.6 in the year of 2022.
- The margin of safety is -4,13,556 in the year of 2021 and it has decreased to -4,84,525 in the year of 2022.

### **5.2 SUGGESTIONS**

- Tata Consultancy Services., Chennai within a short span of time is making very good progress. The company trademark was its highest ever turns over during the progress, further the capacity utilization of the plants and the various operational efficiency achievements further the capacity signifies growth of the organization .it can take up the following suggestions based on the study.
- Liquidity ratio here reflects the firm ability to meet short term current obligation. Analysis of these ratio revealed that the liquidity position has been satisfactory.
- Turnover ratio indicates the turnover position of the company, here ratio reflects high turnover on the basis of five years is good.
- The financial performance of the company is good, so this company capture high market share and growth.
- Fund is proper allocated to fixed assets and current assets. It should possible for the company to carry on the work smoothly.

### 5.3 LIMITATIONS OF THE STUDY

The study has based on annual report furnished by the company and the accuracy of the analysis depends on the accuracy of the available data. The data are approximated whenever necessary. Confidential data are not revealed. The study is conducted by considering only last five years report so it is not possible to find out the lifetime performance of the company. Time limit is the major limitation of the study.

The project work study was mainly based upon the information from the secondary, mainly balance sheet, profit and loss account, the annual report and accounts book by only giving limited information regarding the performance of the company. The study has been restricted span of time 2 years only.

### 5.4. CONCLUSION

A Successful management of the working capital in any concern will ensure the success of business. In The Tata Consultancy Services., marginal cost and contribution is in good condition. the level of profit is increasing in nature. After covid (By analysing the balance sheet 2019-2020) the profit level has been increased consistently. However, to show the better business result, the management may concentrate on increases of sales, sales level before changing credit policy variable, credit policy helps to retained its old customer and create new customer by coming them away from competitors. Better co-ordination between each department is very important, like sales, production, purchase because it helps to avoid the credit risk and it decrease the debt collection days.

### REFERENCES

#### WEBSITES

- [www.tcs.com](http://www.tcs.com)
- [www.websiteindustry.com](http://www.websiteindustry.com)
- [www.industrytrend.com](http://www.industrytrend.com)
- [www.mbanotes.com](http://www.mbanotes.com)

## 2021-2022

|                                 |       | (₹ crore)               |                         |                                                           |       | (₹ crore)               |                         |
|---------------------------------|-------|-------------------------|-------------------------|-----------------------------------------------------------|-------|-------------------------|-------------------------|
|                                 | Note  | As at<br>March 31, 2022 | As at<br>March 31, 2021 |                                                           | Note  | As at<br>March 31, 2022 | As at<br>March 31, 2021 |
| <b>ASSETS</b>                   |       |                         |                         |                                                           |       |                         |                         |
| <b>Non-current assets</b>       |       |                         |                         |                                                           |       |                         |                         |
| Property, plant and equipment   | 10(a) | 10,774                  | 11,110                  | Trade receivables                                         |       |                         |                         |
| Capital work-in-progress        | 10(a) | 1,205                   | 926                     | Billed                                                    | 8(b)  | 34,074                  | 30,077                  |
| Right-of-use assets             | 9     | 7,636                   | 7,633                   | Unbilled                                                  |       | 7,736                   | 6,583                   |
| Goodwill                        | 10(b) | 1,787                   | 1,798                   | Cash and cash equivalents                                 | 8(c)  | 12,488                  | 6,858                   |
| Other intangible assets         | 10(c) | 1,101                   | 480                     | Other balances with banks                                 | 8(d)  | 5,733                   | 2,471                   |
| Financial assets                |       |                         |                         | Loans                                                     | 8(e)  | 6,445                   | 11,472                  |
| Investments                     | 8(a)  | 223                     | 213                     | Other financial assets                                    | 8(f)  | 1,390                   | 1,394                   |
| Trade receivables               |       |                         |                         | Income tax assets (net)                                   |       | 11                      | 19                      |
| Billed                          | 8(b)  | 145                     | 55                      | Other assets                                              | 10(d) | 10,151                  | 11,236                  |
| Unbilled                        |       | 55                      | 273                     | <b>Total current assets</b>                               |       | <b>1,08,310</b>         | <b>99,280</b>           |
| Loans                           | 8(e)  | 311                     | 29                      | <b>TOTAL ASSETS</b>                                       |       | <b>1,41,514</b>         | <b>1,30,759</b>         |
| Other financial assets          | 8(f)  | 2,253                   | 1,573                   | <b>EQUITY AND LIABILITIES</b>                             |       |                         |                         |
| Income tax assets (net)         |       | 1,983                   | 1,845                   | <b>Equity</b>                                             |       |                         |                         |
| Deferred tax assets (net)       | 17    | 3,708                   | 3,931                   | Share capital                                             | 8(m)  | 366                     | 370                     |
| Other assets                    | 10(d) | 2,023                   | 1,613                   | Other equity                                              | 11    | 88,773                  | 86,063                  |
| <b>Total non-current assets</b> |       | <b>33,204</b>           | <b>31,479</b>           | <b>Equity attributable to shareholders of the Company</b> |       | <b>89,139</b>           | <b>86,433</b>           |
| <b>Current assets</b>           |       |                         |                         | Non-controlling interests                                 |       | 707                     | 675                     |
| Inventories                     | 10(e) | 20                      | 8                       | <b>Total equity</b>                                       |       | <b>89,846</b>           | <b>87,108</b>           |
| Financial assets                |       |                         |                         |                                                           |       |                         |                         |
| Investments                     | 8(a)  | 30,262                  | 29,160                  |                                                           |       |                         |                         |

|                                      |       | (₹ crore)               |                         |
|--------------------------------------|-------|-------------------------|-------------------------|
|                                      | Note  | As at<br>March 31, 2022 | As at<br>March 31, 2021 |
| <b>Liabilities</b>                   |       |                         |                         |
| <b>Non-current liabilities</b>       |       |                         |                         |
| Financial liabilities                |       |                         |                         |
| Lease liabilities                    |       | 6,368                   | 6,503                   |
| Other financial liabilities          | 8(h)  | 572                     | 280                     |
| Employee benefit obligations         | 14    | 677                     | 749                     |
| Deferred tax liabilities (net)       | 17    | 590                     | 767                     |
| Unearned and deferred revenue        |       | 1,110                   | 1,197                   |
| <b>Total non-current liabilities</b> |       | <b>9,317</b>            | <b>9,496</b>            |
| <b>Current liabilities</b>           |       |                         |                         |
| Financial liabilities                |       |                         |                         |
| Lease liabilities                    |       | 1,450                   | 1,292                   |
| Trade payables                       | 8(g)  | 8,045                   | 7,860                   |
| Other financial liabilities          | 8(h)  | 7,687                   | 6,150                   |
| Unearned and deferred revenue        |       | 3,635                   | 3,650                   |
| Other liabilities                    | 10(f) | 8,392                   | 4,068                   |
| Provisions                           | 10(g) | 1,411                   | 1,394                   |
| Employee benefit obligations         | 14    | 3,810                   | 3,498                   |
| Income tax liabilities (net)         |       | 7,921                   | 6,243                   |
| <b>Total current liabilities</b>     |       | <b>42,351</b>           | <b>34,155</b>           |
| <b>TOTAL EQUITY AND LIABILITIES</b>  |       | <b>1,41,514</b>         | <b>1,30,759</b>         |

|                                                                                                        |                                                          |                                                              |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------|
| As per our report of even date attached                                                                | For and on behalf of the Board                           |                                                              |
| For <b>B S R &amp; Co. LLP</b><br>Chartered Accountants<br>Firm's registration no:<br>101248W/W-100022 | <b>Rajesh Gopinathan</b><br>CEO and<br>Managing Director | <b>N Ganapathy Subramaniam</b><br>COO and Executive Director |
| <b>Amit Somani</b><br>Partner<br>Membership No. 060154                                                 | <b>Samir Seksaria</b><br>CFO                             | <b>Pradeep Manohar Gaitonde</b><br>Company Secretary         |
| Mumbai, April 11, 2022                                                                                 | Mumbai, April 11, 2022                                   |                                                              |

## 2022-2023

### Consolidated Balance Sheet

|                                                           |                         | (₹ crore)               |  |
|-----------------------------------------------------------|-------------------------|-------------------------|--|
| Note                                                      | As at<br>March 31, 2023 | As at<br>March 31, 2022 |  |
| <b>ASSETS</b>                                             |                         |                         |  |
| <b>Non-current assets</b>                                 |                         |                         |  |
| Property, plant and equipment                             | 10(a) 10,230            | 10,774                  |  |
| Capital work-in-progress                                  | 10(a) 1,234             | 1,205                   |  |
| Right-of-use assets                                       | 9 7,560                 | 7,636                   |  |
| Goodwill                                                  | 10(b) 1,858             | 1,787                   |  |
| Other intangible assets                                   | 10(c) 867               | 1,101                   |  |
| Financial assets                                          |                         |                         |  |
| Investments                                               | 8(a) 266                | 223                     |  |
| Trade receivables                                         |                         |                         |  |
| Billed                                                    | 8(b) 149                | 145                     |  |
| Unbilled                                                  | 199                     | 55                      |  |
| Loans                                                     | 8(e) 173                | 311                     |  |
| Other financial assets                                    | 8(f) 2,149              | 2,253                   |  |
| Income tax assets (net)                                   | 2,583                   | 1,983                   |  |
| Deferred tax assets (net)                                 | 17 3,307                | 3,708                   |  |
| Other assets                                              | 10(d) 2,806             | 2,023                   |  |
| <b>Total non-current assets</b>                           | <b>33,381</b>           | <b>33,204</b>           |  |
| <b>Current assets</b>                                     |                         |                         |  |
| Inventories                                               | 10(e) 28                | 20                      |  |
| Financial assets                                          |                         |                         |  |
| Investments                                               | 8(a) 36,897             | 30,262                  |  |
| Trade receivables                                         |                         |                         |  |
| Billed                                                    | 8(b) 41,049             | 34,074                  |  |
| Unbilled                                                  | 8,905                   | 7,736                   |  |
| Cash and cash equivalents                                 | 8(c) 7,123              | 12,488                  |  |
| Other balances with banks                                 | 8(d) 3,909              | 5,733                   |  |
| Loans                                                     | 8(e) 1,325              | 6,445                   |  |
| Other financial assets                                    | 8(f) 1,319              | 1,390                   |  |
| Income tax assets (net)                                   | 8                       | 11                      |  |
| Other assets                                              | 10(d) 9,707             | 10,151                  |  |
| <b>Total current assets</b>                               | <b>1,10,270</b>         | <b>1,08,310</b>         |  |
| <b>TOTAL ASSETS</b>                                       | <b>1,43,651</b>         | <b>1,41,514</b>         |  |
| <b>EQUITY AND LIABILITIES</b>                             |                         |                         |  |
| <b>Equity</b>                                             |                         |                         |  |
| Share capital                                             | 8(k) 366                | 366                     |  |
| Other equity                                              | 90,058                  | 88,773                  |  |
| <b>Equity attributable to shareholders of the Company</b> | <b>90,424</b>           | <b>89,139</b>           |  |
| Non-controlling interests                                 | 782                     | 707                     |  |
| <b>Total equity</b>                                       | <b>91,206</b>           | <b>89,846</b>           |  |
| <b>Liabilities</b>                                        |                         |                         |  |
| <b>Non-current liabilities</b>                            |                         |                         |  |
| Financial liabilities                                     |                         |                         |  |
| Lease liabilities                                         | 6,203                   | 6,368                   |  |
| Other financial liabilities                               | 8(g) 353                | 572                     |  |
| Employee benefit obligations                              | 13 536                  | 677                     |  |
| Deferred tax liabilities (net)                            | 17 792                  | 590                     |  |
| Unearned and deferred revenue                             | 1,003                   | 1,110                   |  |
| <b>Total non-current liabilities</b>                      | <b>8,887</b>            | <b>9,317</b>            |  |
| <b>Current liabilities</b>                                |                         |                         |  |
| Financial liabilities                                     |                         |                         |  |
| Lease liabilities                                         | 1,485                   | 1,450                   |  |
| Trade payables                                            | 10,515                  | 8,045                   |  |
| Other financial liabilities                               | 8(g) 9,068              | 7,687                   |  |
| Unearned and deferred revenue                             | 3,843                   | 3,635                   |  |
| Other liabilities                                         | 10(f) 4,892             | 8,392                   |  |
| Provisions                                                | 10(g) 345               | 1,411                   |  |
| Employee benefit obligations                              | 13 4,065                | 3,810                   |  |
| Income tax liabilities (net)                              | 9,345                   | 7,921                   |  |
| <b>Total current liabilities</b>                          | <b>43,558</b>           | <b>42,351</b>           |  |
| <b>TOTAL EQUITY AND LIABILITIES</b>                       | <b>1,43,651</b>         | <b>1,41,514</b>         |  |

NOTES FORMING PART OF CONSOLIDATED FINANCIAL STATEMENTS

