

Cost Volume Profitability Analysis - An Empirical Study With Reference To Salem Steel Authority of India Limited (SAIL),Tamilnadu

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ABSTRACT: *Cost Volume Profitability analysis has become a powerful instrument in the hands of policy makers to maximize the profits in the present scenario. The relationship between cost, revenue and profit at different levels may be expressed in graphs such as break-even charts, profit volume graphs or in various statements forms. Profit depends on a large number of factors which are the cost of manufacturing, and the volume of sales. Therefore, the researcher has taken Salem Steel Authority of India Limited, Tamilnadu which is one among the steel industries in India to measure the profitability position through BEP analysis. In order to fulfill the objectives, the researcher has taken ten years financial data from the period of 2005-2006 to 2014-2015 in the form of secondary data. From the results, a PV ratio from 2005-06 to 2014-15 are gradually increased and also breakeven point shows a satisfactory level with respect to all the level of sales volume in all ten years. Therefore, it is concluded that CVP analysis is used to escalate production capacity and utilize advanced technology to reduce cost of production and wage cost for the purpose hiking the profitability, volume, not only against the investment, but also from the investor's return point of view.*

KEY WORDS - *Break Even Point, Cost, Margin of Safety Profit, Sales.*

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I. INTRODUCTION

Now-days Cost Volume Profitability analysis has become a powerful instrument in the hands of policy makers to maximize the profits. Apart from this, the concept of cost volume, profitability is relevant in the short run. The relationship between cost, revenue and profit at different levels may be expressed in graphs such as break-even charts, profit volume graphs or in various statements forms. Maximum profit is the ultimate goal of almost all business undertakings. The most important factor influencing the earning of profit is the level of production. (ie. Volume of Production). Profit depends on a large number of factors which are the cost of manufacturing, and the volume of sales. Volume of sales depends upon the volume of production and market forces which turns in related to costs. Management has no control over the market. In order to achieve a certain level of profitability, it has to exercise control land management of costs, mainly variable cost. This fixed cost is a non-controllable cost. Departments have to make a better product mix for profit planning and to maximize the profit of a concern. These decisions can include such crucial areas as pricing policies, product mixes, market expansion or contractions, outsourcing contracts, idle plant usage, discretionary expense planning and a variety of other important considerations in the planning process. Given the broad range of context output, which evenly breaks the cost and revenues used in its broader sense; it means that system of analysis, which determines profit, cost and sales volume at different levels of output. The Cost Volume Profitability furnishes the complete picture of the profit structure. In other word, cost volume profit is a management accounting tool that expresses the relationship among sale, volume, cost and profit. The Cost Volume analysis uses the techniques of break-even analysis, operating leverage, margin of safety and effect of changes in sales and contribution on margin and net operating income. The level of sales needed to achieve desired target profit, in order to predict changes in net operating income.

Every firm's prime motive is not only earning a profit, but also maximizing it. Cost Volume Profitability analysis is a tool to get profit. C-V-P analysis is helpful for developing alternative strategies in sales planning and cost estimation. A certain relationship exists among the variables like selling price, sales volume and taxes. Cost Volume Profitability analysis is an accounting technique showing the relationship between these variables. C-V-P analysis, though most often illustrates business cases, is equally applicable for not profit making organizations allocate scarce economic resources most effectively among the competing alternatives. Allocation of scarce resources among the various demanding sectors is the most important issue of national planning.

1.1 Basic Elements of C-V-P Analysis

The Basic elements of C-V-P analysis are cost, volume and profit. These three fundamental elements determine the value creation for the business in the long run. A good understanding of cost and volume helps the business to manage its profit efficiently. Let us understand the basis of these three fundamental elements of C-V-P concept.

1.1.1 Cost

The first important business element is cost. Every business incurs certain cost initially and also as it carries out its business. These costs are the expenses related type making the product or providing a service.

1.1.2 Volume

The second most important element of the business is volume. I.e., how much it will produce and sell. The business must know beforehand how much to sell in order to determine how much to produce.

1.1.3 Profit

The last element is the profit of the business. A business must know how much a profit it has generated by delivering a certain number of products and services to the customers. Generally, the profit is determined as selling price of the product less cost of manufacturing the product.

1.2 Statement of the Problem

Salem Steel Authority of India Limited (SAIL) is one of the popular Steel product manufacturers in India. The major problems of large scale industries to maintain Cost-Volume level and to determine their profit level from their operations. The effective Cost-Volume Profitability analysis will lead to make how much cost to be spent to produce the required number of volumes of products to achieve the desired profit goal. This study has been made to find out of the company's profitability based on their Cost-Volume of the production.

1.3 Significance of the Study

Cost Volume Profitability analysis has great scope in various managerial decisions making. It assists management in determining the quantity of products to be produced to attain desired profits, the quantity of products to be produced at a minimum threshold level, attaining desired profits under different cost and volume relationship. Cost Volume Profitability analysis helps the business offers to its customers in the market. This helps the firms to focus more on profitable products and services as compared to other ones. It also helps the firm to understand the impact of any variance in its sales volume, due to any reason, on the profits. The management understands the amount of sales that the firm can afford to lose due to any contingency, without falling below its breakeven.

Cost Volume Profitability analysis also helps the firm to understand the level of fluctuations it can afford in its selling price. Whenever firms decrease their selling price to increase their sales, they must know the new level of sales they must meet to sustain the desired profits. The firms must also know the bare basics price(s) that must be charged for its products or services from its customers. Hence, the researcher has undertaken this area to know cost volume, profitability position of Salem Steel Authority of India Limited.

1.4 Objectives of the Study

The researcher has framed the following objectives in order to know the above said problems.

1. To analyze the profit volume of the Salem Steel Plant (SAIL).
2. To identify the effect of break-even-point for Salem Steel Plant (SAIL).

II. METHODOLOGY

The researcher has taken SAIL, Salem, Tamilnadu to analyze the cost volume, profitability position at various levels. For this, ten years data is collected from the period of 2005-2006 to 2014-2015. The data are collected from the annual financial report from the company. The research is entirely relying on secondary data. The secondary data is collected from the company balance sheet, profit and loss account of the years of 2005-2006 to 2014-2015.

III. RESULTS AND DISCUSSIONS

Ratio analysis and Break Even Analysis tools are used in order to know the profitable position of the firm (SAIL).

1.7.1 Profit Volume Ratio (PV Ratio)

This term is important for studying the profitability of operations of a business profit volume ratio establishes a relationship between the contribution and the sales value. This ratio can be shown in the form of a percentage also. The formula can be expressed thus

$$\text{BEP} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\text{Profit Volume ratio} = \frac{\text{Sales} - \text{Variable Cost}}{\text{Sales}} \times 100$$

This ratio can be also called contribution or sales ratio. The ratio can also be known comparing the change in contributing to change is the sales or change is profit due to changes in sales. Any increase in contribution would mean increase in profit only because fixed costs are assumed to be constant at all levels of production thus.

$$\text{Profit Volume} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100$$

(Or)

$$\text{Profit Volume} = \frac{\text{Change in Contribution}}{\text{Change in Sales}} \times 100$$

The ratio would remain constant at different levels of production since variable costs as a proportion to sales remain constant at various levels.

TABLE - 1 PROFIT VOLUME RATIO

(Rs.in Crores)

Years	Contribution	Sales	P/V Ratio
2005-06	20962.08	32273.8	0.650
2006-07	26619.28	39188.7	0.679
2007-08	24018.29	45555.3	0.527
2008-09	31424.98	48738.1	0.645
2009-10	29676.12	43934.7	0.675
2010-11	29879.59	47040.5	0.635
2011-12	41513.32	51030.1	0.814
2012-13	39199.06	49986.9	0.784
2013-14	40112.86	52375.7	0.766
2014-15	38165.57	51129.4	0.746

The profit volume table shows that the relationship between contributions and sales. In case of Salem Steel Plant the PV ratio shows a decreasing trend 2005-06 & 2007 – 2008 & 2010- 11& 2014-15. High PV ratio represents, high profitability and low PV ratio shows the low profitability. The PV ratio of Salem Steel Plant can be improved by increasing the selling price, reducing variable cost per unit and selling the best product mix. But In the year 2011-12-the PV ratio occupies the highest position i.e., 0.814

1.7.2 Break Even Analysis

The break Even Analysis is the most widely known forms of CVP analysis. Break Even Analysis is a specific way of presenting and studying the interrelationship between costs, volume and profit. It is an effective and efficient financial reporting system. This technique has been used to focus on how selling prices, volume of sales, total costs such as variable cost and fixed costs and the mix of product sold affects profit. The breakeven point is that point of sales volume at which total revenue is equal to total costs. It is no profit, no loss point.

The basic objective of a firm is to maximize profit up to a certain level of production the firm's total revenue may not be sufficient to cover its total cost of production. Break Even Analysis is an analytical technique used to study the relationship between the total costs, total revenue and the total profits. Breakeven analysis helps to determine the probable profit at any level of production, a business is said to be breakeven when its total revenue is equal to its total cost.

$$\text{BEP} = \frac{\text{Total Fixed Cost}}{\text{Sales} - \text{Variable Cost}} \times \text{Sales}$$

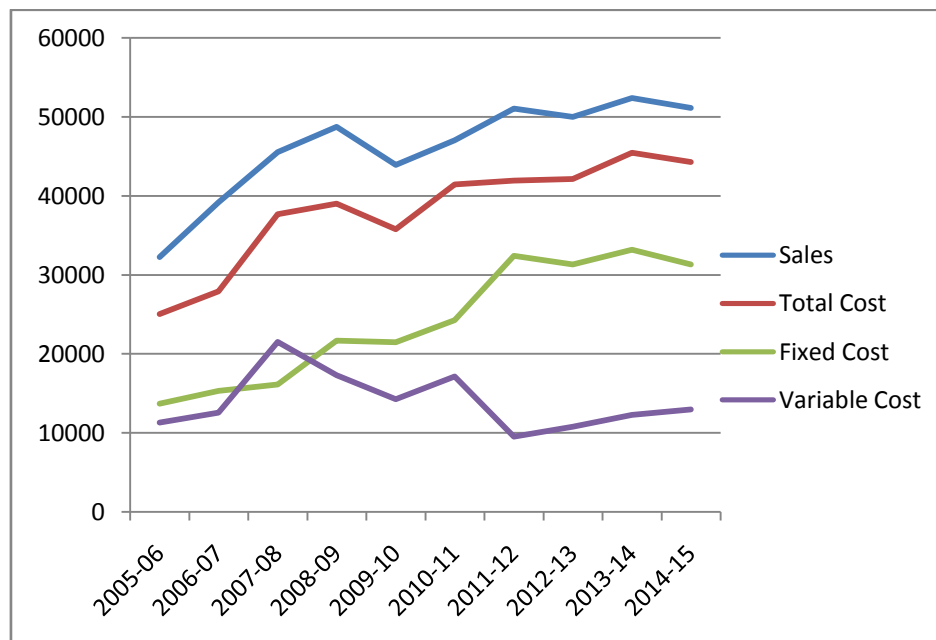
TABLE -2 BREAK EVEN POINT

(Rs.in Crores)

Years	Fixed Cost	Variable Cost	Sales	Breakeven Point
2005-06	13716.16	11311.67	32273.8	21117.75
2006-07	15338.1	12569.38	39188.7	22580.61
2007-08	16151.84	21537.05	45555.3	30635.09
2008-09	21713.38	17313.13	48738.1	33676.05
2009-10	21505.49	14258.58	43934.7	31838.30
2010-11	24297.08	17160.91	47040.5	38251.76
2011-12	32424.56	9516.78	51030.1	39857.77
2012-13	31346.41	10787.84	49986.9	39973.15
2013-14	33201.63	12262.84	52375.7	43351.65
2014-15	31320.58	12963.81	51129.4	41959.33

The table shows that BEP analysis in the year 2005-06 to 2014-15 is satisfactory levels. Higher the BEP indicates in the year 2013-14 i.e., 43351.65. From 2005-06 to 2014-15, every year total costs is change based on the volume of sales. Therefore, it is concluded that the company earn adequate profit depends upon their cost and volume of sales. Moreover fig. 1 gives a clear picture about the cost and volume of sales from 2005-06 to 2014-15.

FIG -1 BREAK EVEN CHART



1.7.3 Margin of Safety

The margin of safety is the difference between the actual sales and the sales at the Break Even point. It is the sales beyond the Break Even point. Margin of safety helps to know how much sales revenue can fall before a loss is incurred.

$$\text{Margin of safety} = \text{actual sales} - \text{Break Even sales}$$

The margin of safety can be expressed as percentage of sales.

$$\text{Margin of safety ratio} = \frac{\text{Actual Sales} - \text{BE Sales}}{\text{Actual Sales}} \times 100$$

TABLE – 3 MARGIN OF SAFETY

(Rs.in Crores)

Years	Actual Sales	Breakeven Sales	Margin of Safety	Margin of Safety ratio
2005-06	32273.8	21117.75	11156.00	34.57
2006-07	39188.7	22580.61	16608.05	42.38
2007-08	45555.3	30635.09	14920.25	32.75
2008-09	48738.1	33676.05	15062.06	30.90
2009-10	43934.7	31838.30	12096.40	27.53
2010-11	47040.5	38251.76	8788.74	18.68
2011-12	51030.1	39857.77	11172.33	21.89
2012-13	49986.9	39973.15	10013.75	20.03
2013-14	52375.7	43351.65	9024.05	17.23
2014-15	51129.4	41959.33	9170.05	17.93

If the margin of safety is large, it is a sign of soundness of the business since even with a substantial reduction in sales profit shall be earned by the business. The table indicates the margin of safety level of Salem Steel Plant in the year 2006-07 occupies the peak stage of 42.38% and very low ratio shows in the year 2013-14 i.e., 17.23%. Hence, the higher the margin of safety has a more profitable position of the concern.

IV. FINDINGS

Based on the analyses, the researcher has identified the findings, which are as follows.

1. PV ratio indicates the relationship between contributions and sales. PV ratios of Salem Steel Plant are low in the year of 2007-08 and high in the year 2011-2012. Hence the PV ratio from 2005-06 to 2014-15 are gradually increased. ie high PV ratio indicates high profitability and a low PV ratio indicates low profitability. It shows that the selling price is increased as well as variable cost is reduced by the Salem Steel plant.
2. In order to identify the effect of breakeven point, the BEP is calculated the relationship between revenues and costs with respect to the volume. It is found in the table that all years from 2005-06 to 2014-15 of breakeven point shows a satisfactory level with respect to all the level of sales volume. Moreover, the researcher has calculated the margin of safety to know how the risk level of business. It is found I the table that the high margin of safety (42.38) in the year 2006-07and low margin of safety (17.23) in the year 2013-14. Hence the company should concentrate sales volume in order to reduce the loss/risk

V. CONCLUSION

Based on the results, the researcher concludes management may use cost volume, profitability analysis to calculate the profit yield by a given amount of selling goods. The management may set the necessary sales level to earn the desired profit through the cost volume profitability analysis. After analyse the various data related to Salem steel plant, the study concluded that the cost volume, profitability analysis more or less depends upon the better utilization of resources, cutoff expenses and goodwill and market share. Moreover, CVP analysis was used to increase production capacity and use advanced technology to cut down the cost of production and wage cost in order to increase the profitability, volume, not only against the investment, but also from the investor’s return point of view. Cost volume profitability analysis is helpful to analyze the profitability position according to the cost and sales volume not only Salem steel plant but also useful every organization to prevent the future risks of the business.

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