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Cost-Volume Analysis and its Impact on Profitability: An Evidence from Nepal

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Abstract

This study aims to investigate the financial dynamics and decision-making process of Nepal's public enterprises (PEs) in Kathmandu. In order to evaluate the relationship between cost, sales, and profit, this study, which is based on cost volume and profit (CVP) analysis, became essential for organizational sustainability. For this reason, sales revenue, variable cost, fixed cost, and profitability are the main focus of this study. For secondary data analysis, this study used a descriptive, correlational, and informal research design. The study's population consisted of only two manufacturing enterprises as a sample, and the manufacturing enterprises were all located in Kathmandu. Regression analysis, correlation, and descriptive statistics were used to process and examine the gathered data. The research study's findings demonstrated the variation in sales revenue and expenses. Additionally, the study's findings showed that Himalayan Distillery Limited (HDL), a company, experienced a significant improvement in its safety margin, demonstrating a strong financial buffer. Similarly, Bottlers Nepal Terai Limited (BNTL) shown consistent growth in both operational profitability and efficiency. This study illustrates the importance of cost, volume, and profit analysis by connecting it to and financial planning and strategy formation. It can also be helpful for other comparable businesses in making decisions about their operations.

Keywords: *Cost Planning, Cost Volume, Manufacturing Companies, Profitability.*

JEL classification code: D2, G12, G18, G31

Contribution/Originality: This is the investigates the in the field of manufacturing enterprises with analysis of the short-term and long-term effects on return on assets (ROA) of sales revenue (SR), total cost (TC), and total assets (TA) especially in Nepalese public enterprises.

INTRODUCTION

The cost of volume and profit (CVP) model generally examines the behavior of overall revenue, aggregate expenses, and income from operational areas as a result of changes in the level of output, selling price, per unit variable cost, and fixed cost of a product. The cost volume profit analysis is a systematic process that examines the link between changes in activity and changes in total sales revenue, expenses, and net profit (Khan & Jain, 1989). CVP analysis simplifies the real-world situations that a corporation may encounter by modeling these linkages. A management accounting tool for illustrating the relationship between demand, taxes, variable costs, fixed costs, and product selling price is cost volume profit analysis. Profit planning revolves around cost volume profit and expenses relative to sales at which the company's revenues and total costs will be exactly equal or there will be no net income (Jain & Narang, 1990).

Without the preparation of a plan business cannot operate properly and it is necessary to analyze of cost of production, Distribution costs, incremental costs, and fixed and variable costs. It provides the best route for operating the business. Management makes decisions for how to invest their property and cash to the Business (Joshi, 1993). It is one of the decision-making methods because it provides where we can earn profit more. Every profit-oriented organization wants to increase its profit and reduce many types of costs.

Most of the business shows their performance through financial statements. It just provides mathematical data but CVP (cost volume profit). Analysis shows the change in sales and changes in the cost situation. CVP analysis

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is one of the most practiced financial tools for the evaluation and allocation of financial resources. It provides decision-making decisions for various locations. It is one of ratio dependent techniques (Guo, 2022).

The CVP analysis another benefit that companies gain by using the CVP analysis is the operating leverage benefit which explains. How the cost stature of an organization is made up of a fixed cost process. It provides the decision to stop production and sales in the fixed period or it shows how the breakeven point provides a decision to stop sales and the margin of safety also helpful to identify the safety margin in the situation CVP analysis is a useful tool for evaluation analyzing the business.

Most businesses fail after a few years sometimes of months of starting because they tend to do anything for volume without thinking about how it's going to affect the bottom line cost volume profit analysis is the management accounting tool to show the relationship between elements of profit planning is the function of the selling price of product demand variable costs fixed cost taxes etc the whole picture of profit planning is associated with cost volume profit relationship is break-even analysis breakeven analysis is concerned with the study of revenue and cost about sales at which the firm revenue and total costs will be exactly equal the net income will be zero it is a no profit no loss situation this point is a concerned of profit planning.

LITERATURE REVIEW

Going through previous studies and books with the purpose of knowing the research issue in detail and find out appropriate. Methodology is known as literature review various books, articles and researcher report are available in the market a comprehensive review of such documents and preparation of summary of such topic.

Theoretical Review

Cost-Volume-Profit (CVP) Analysis Theory

The assessment of cost volume and profit (CVP) is not directly generated by a single person in the organization however, it is developed by experts in financial and accounting analysis. The significant role of fixed and variable cost, including the contribution margin and breakeven analysis has been a focus of the study since the early twentieth century. Several economists and accounting experts introduced it as as a standard mechanism for financial decision-making. Thus, CVP is the basis for developing accounting principles.

The cost volume profit analysis is a crucial managerial accounting technique for assessing the connection between company expenses, sales volume, and profit margin. As a result, CPV helps companies identify how changes in price, sales volume, and fixed and variable costs affect profitability. It is a fundamental foundation of cost volume profit analysis is the determination of the breakeven point (BEP). The margin depends on this company's expenses, which comprise sales price, variable costs, and fixed costs. Cost volume profit analysis is consequently crucial for manufacturing companies, especially when taking production, distribution, and covered profitability into account.

Review of Empirical Literature

The study conducted by Nworie et al. (2023) examined how small-scale businesses used cost, volume, and profit techniques to make decisions. The impact of price decisions, production scheduling, and profit-driven planning on the CVP mechanism is examined. The descriptive survey method was used in the study, which included managers, accounting staff, and other business respondents. Pricing, profit planning, and production for decision making were found to be the most important factors in improving CVP analysis. According to the study's findings, small businesses should use CVP analysis to address profit, cost, and volume-related concerns.

Furthermore, Ditoananot and Purwanti's (2023) study revealed that businesses were above the break-even threshold and had improved margin safety and management, indicating that business conditions were favorable following the analysis of cost volume in the company. With the help of CVP analysis, the study sets a profit target of Rp. 24,000,000. - For 2022 and determined that 6,050 units need to be sold while maintaining price, product quality, and service to consumers to add outlets.

Safitrii Yiarti and Fitriya (2023) highlighted the use of cost volume profit (CVP) analysis to aid MSMEs in profit planning by considering various aspects such as contribution margin, safety margin, breakeven point, and operating leverage. CV. The boga core torch is used as a case study due to its fluctuating turnover during the pandemic. The results of the CVP analysis show that CV. Boga Inti Torch can expect a 15% profit of sales amounting to Rp. 1.554.458.831, with a required sales amount of Rp. 5.056.329.688 and a quantity to be sold of 88.000.864 kW. The study suggests that CVP analysis can help businesses plan their profits more efficiently by separating variable and fixed costs to make the company safer in their profit planning.

Syabrina (2023) stated that the current hospitality industry is experiencing a decline in profits due to government policies related to the COVID-19 pandemic, as well as classic issues such as annual cost increases and increasing competition affecting profits. To make good profit planning, managers need to understand the relationship between costs, sales volume, and profit by using cost volume profit (CVP) analysis. This study used a qualitative descriptive method with triangulation data collection techniques. The results showed that Selabintana Hotel & Conference Resort did not use CVP analysis for profit planning, and its profits decreased from 2018 to a loss in 2020. Based on the CVP analysis, the company needs to reach the breakeven point for the following year by reducing costs, seeking cheaper raw materials, saving inventory, and limiting purchases. To increase sales volume, the company can conduct low-cost promotions and innovation to prevent sales revenue from being absorbed into costs.

Tampubolon, Sidharta, and Lumbantoruan (2022) determined the profit achievement, cost-volume-profit analysis, and the results of cost-volume-profit analysis as an evaluation tool for achieving profit on Gulaku Products at the Mini Market Primer Koperasi Markas Besar Angkatan Udara before and during the COVID-19 pandemic. This study focused on the differentiation of Gulaku Hijau and Gulaku Kuning products in the research period before and during COVID-19, namely 2019, 2020, and 2021. The research used cost-volume-profit analysis, namely the break-even point and safety limit, as an evaluation tool for achieving profit. The data was collected from the financial reports of the Mini Market Primkopau. The findings of this study indicate that the COVID-19 pandemic has the potential to result in losses on profit achievement, including Gulaku products at the Mini Market Primer Koperasi Markas Besar Angkatan Udara. Despite experiencing a decline in profit achievement in 2020, Primkopau still managed to break even. Furthermore, other behaviors also influence the achievement of Gulaku product profits, namely large demand switching to Gulaku Kuning which causes a significant decrease in the achievement of Gulaku Hijau profits and a significant increase in the Gulaku Kuning profit achievement followed by the product mix in 2021.

Guo (2022) aimed to improve the application value of CVP analysis in practice by establishing a dynamic CVP model and applying it to the business decision-making and financial management of a case enterprise. The paper establishes a dynamic CVP model of traditional CVP analysis by interpreting cost behavior through multiple cost drivers. The model is then applied to the business decision-making and financial management of a case enterprise, and the products with different characteristics of the enterprise are modeled and analyzed. The research shows that the dynamic CVP model can be used to formulate a financial management strategy to optimize enterprises' profits. By continuously reducing business risks and improving the economic benefits of enterprises, it can achieve stable profits and development in the market competition. The model provides targeted improvement suggestions or strategies for the enterprise's product production decision-making.

The adoption and implementation of BEP as a production management strategy in certain production-related firms was then examined in the Maduagwe (2022) study. The study's objectives were to examine BEP's role in managerial decision-making, its impact on product pricing decisions, and its propensity for profitability. The qualitative methods used in this study, along with secondary data, showed that BEP had a favorable impact on pricing and profitability decisions. This study also found that in order to fulfill profit targets, production managers must use the BEP for cost, revenue, and profit evaluation. The study's conclusion showed that both freshly established businesses and well-run companies can use the BEP mechanism to figure out the least amount of sales needed to turn a profit. Additionally, Mishra and Mishra's (2021) study examined the conditions of business beginning simulation and shown the beneficial techniques for learning CVP analysis. The case study focuses on setting up a surgical mask system production in Odisha in order to guide the learners to adopt and apply CVP analysis in real-world business settings. This study also argued that the presumptions of fixed and

variable costs should be used to anticipate the profitability of newly established businesses in a methodical manner.

In a similar vein, Mulati and Rahim (2020) investigated how CVP and Activity based Costing (ABC) affects managerial decision-making. Both descriptive and quantitative methodologies were used in this investigation. This study came to the conclusion that ABC and CVP analysis are essential for BEP, profit planning, and margin computation. Additionally, this study promoted the use of CVP analysis in strategic decision-making to measure the level of leverage and profit margin.

In order to address the problem of inefficient profitability leading to the closure of SMEs, Encoh and Chimsunum (2020) conducted another study that evaluates the implications of the cost volume for determining the profit in SMEs. These researchers' study was founded on a cross-sectional research design that gathered data from 50 businesses. The study's conclusions demonstrated that profit estimation is positively and statistically significantly impacted by cost volume and profit analysis. This implies that manufacturing SMEs that employ the cost volume profit technique are better able to plan for profitability and ensure continuity. Inadequate profitability was identified as one of the major problems that manufacturing SMEs face in Sub Sahara, Africa, and this is responsible for their early death. The study also recommends that the management of manufacturing SMEs should employ and retain high-caliber accountants and restructure their management team for effectiveness. The decision-making process should be streamlined for planning efficiency, and top management should support the cost volume profit analysis model to aid adequate implementation and results.

Akmese, Buyuksalvarci, and Akmese (2016) revealed that the most of managers were using CVP analysis. On the other hand, a small majority seems to be uninterested about the use of CVP analysis for various purposes. Similarly, CVP analysis is mostly used by the businesses surveyed. As a result, it is seen that the analysis method is used generally by the businesses, as it has much contribution to the profitability and sustainability of the business. It is noticeable that cost-volume-profit analysis was the major tools in order to enhance their decision efficiency.

Georgiev (2015) depicted that organizations operating high-ranking hotels have significantly developed their management accounting practices in the context. Likewise, the large organization used C-V-P to aid the decision making process with special offers mainly for variable cost decision making. Similarly, CVP analysis is used by a small number of enterprises for the possible occurrence in volume of activity upon the business income. Thus, it is one of the most common tools used by hotel organizations to submit high-utility data, as part of several effective management accounting methods.

Dalici and Tanis (2014) found that the use of traditional C-V-P analysis would be misleading for the managerial decision-making process because it would not provide managers with the correct prediction of costs. By contrast, the activity-based CVP analysis would better predict costs and a much more complete picture of breakeven analysis. Hence, just as activity costing was shown to improve cost management and decision making. It also produced organizational benefits when coupled with the CVP model.

Machuga and Smith (2013) revealed that flexible budgeting is a key starting point for developing a full cost-accounting system and subsequent analyses of variances between budgeted and actual results to improve cost control and operational performance.

Kafle (2018) analyzed the financial performance of Nepal Telecommunication using a Cost-Volume-Profit analysis. The study finds that both PSTN landline and GSM mobile variable costs are increasing during the study period. The sales revenue of GSM mobile is higher than PSTN landline revenue. The company has a high contribution margin and a strong net profit margin. However, there is a lack of scientific cost classification techniques, profit planning, and control systems. The study recommends that the company should establish a separate costing department, practice budgeting, segregate total costs into fixed and variable costs in a scientific manner, and initiate cost control mechanisms to reduce fixed costs. If the management utilizes its full potential and initiates effective cost control techniques, Nepal Telecom may enjoy further profits in the future.

Adhikari (2018) examined the impact of cost control on Nepalese Manufacturing Company's profitability with a survey study of five Manufacturing companies in Nepal to provide a critical evaluation of the need and

significance of cost control. This study used primary data taken from five companies that remained in the industry for more than ten years among eighteen manufacturing companies listed in the Nepal Stock Exchange which were operating at the time as manufacturing firms. Data were collected by distributing structured questionnaires to the respective company's management and employees. The finding of the research shows that cost control tools have negative relationship with profitability. Moreover, insufficient resources have created more challenges for the application of cost control tools in Nepalese manufacturing companies. It is therefore recommended to use value analysis for cost control and increase the profitability of the organizations. As a result, firms will be able to maximize the value and control costs in days to come.

Diktta (2015) found that net profit of Nepal Food Corporation (NFC) was more fluctuation than actual sales. There was large fluctuation in the fiscal year 2069/70 that may be the increment in sales due to unfavorable situation in the business environment and rainfall (monsoon). There was the correlation coefficient between actual sales and actual net profit after tax however, the correlation coefficient was insignificant since r is less than 6PE. Similarly, the variable cost was very high compared than that of fixed cost in each year. Likewise, the P/V ratio trends of each year show the fluctuating type. Moreover, it was found that the most recent accounting system, profitability tools like CVP analysis was not in practice. The study pointed that it was necessary to classify cost behavior according to nature i.e. fixed, variable, & semi-variable. The study found that Sales plans were not properly maintained by GRIL and appropriate cost classification techniques were not practiced in GRIL. There was a very low contribution margin and GIRL had not a detailed and systematic practice of planning. Similarly, GRIL produced very high quality and exportable products but the production cost was high.

The profitability of the industry was very poor and suffering a high degree of losses. Moreover, GRIL was utilizing only 35% capacity and the industry was in risk since operating leverage was also high (Dhakal, 2014).

Chapagain (2014) revealed that Salt Trading Limited Corporation (STLC) had no details of systematic expenses and thus planning was essential for profit planning and control. Similarly, the sales of the corporation were volatile and it slightly decreased in the fiscal year 2008/09 and then it was increasing in the following years. Likewise, the total expenses of STLC seemed to fluctuate. Similarly, the cost of sales was variable. Further, there was a positive correlation between sales and net profit. Moreover, the change in sales made a change in profit but the changes were not the same ratio.

Wagle (2013) revealed that there was no practice of identifying semi-variable cost and their segregation into fixed and variable costs. UN's total revenue was in an increasing trend and trend analysis also pointed out that the sales revenue of the company would be increasing in the future. The fixed cost of the UN was very high because of the high amount of operational maintenance cost and depreciation. Similarly, high fixed costs increase the break-even level the variable cost of the UN is lower than the fixed cost. Moreover, the UN had a high P/V ratio and efficient BEP, as a result, the UN was running in a profit situation. Likewise, the margin of safety of the UN was positive because break even sales were lower than actual sales revenue. The result concluded that there was a positive relationship between total revenue and profit/loss.

Pradhan (2013) revealed that the segregation of fixed and variable costs is ignored by the UN and BNTL. Similarly, cost volume profit analysis is not plasticizing by these enterprises no method has been adapted to segregate to segregate cost into fixed or variable. Likewise, the variable cost of the UN is much less compared to its fixed cost and the contribution margin ratio of the UN is very high. On the other hand, BNTL had more variable costs and its contribution margin ratio is less. Further, the study proved that the UN is running in profit but BNTL is suffering from less. Likewise, no systematic plans had been implemented to prevent the loss and improve the profit of these enterprises. Moreover, the fixed cost of the UN is high in comparison to variable cost. Employee costs and administration expenses are high. In BNTL fixed costs like interest and depreciation were high. Long term loan in BNTL was the main cause of two increases in interest. To sum up, the UN was earning profit but BNTL was suffering loss.

Gurung (2010) found that there was no cost-classification of both UN and BNTL scientifically and systematically. Likewise, the expenditure ratio of BNTL is higher than UN which leads to lower profit ratio of BNTL. Similarly, the profit line of UN was in an increasing trend whereas this was decreasing of BNTL. The

fixed cost ratio of UN was higher than BNTL whereas the variable ratio of UN was lower than BNTL. Further, the ratio of profit to sales of UN was increasing trend whereas BNTL's in decreasing trend. Further, the break-even point of UN is in parallel whereas BNTL was in a fluctuating trend. Likewise, the contribution margin ratio of the UN was higher than BNTL. Finally, the margin of safety of the UN was in a good position whereas BNTL's is in negative. This study represents a departure from the existing body of research on comprehensive profit planning and control within companies. While most previous studies have focused on this broader scope, the current research takes a closer look at the specific application of Cost-Volume-Profit (CVP) analysis in manufacturing companies. Six institutions made up the study's sample size, which was very large for a detailed examination of the cost, volume, and profit analysis trends in manufacturing firms. Prior empirical research typically contrasted businesses that were similar. This study focuses on government-owned businesses that mostly engage in manufacturing and improve their financial and operational parameters by adhering to operational procedures and governmental regulations.

Therefore, this study focused on cost-volume-profit analysis for public sector enterprises. This study fill-ups the gap that existed in the literature by examining the effect of revenue, total cost, and total assets on return on assets. The following research hypotheses are developed by the researchers for further analysis for the study:

H_1: *There is a positive and significant relationship between sales revenue and return on assets.*

H_2: *There is a positive and significant relationship between total cost and return on assets.*

H_3: *There is a positive and significant relationship between total assets and return on assets.*

Conceptual Framework

The relationship between dependent and independent variables is analyzed through the adoption of research framework. The research framework shows sales revenue (SR), total cost (TC), and total assets (TA) as predators and employed return on assets (ROA) as response variable. The research framework developed for the study is presented below:

Independent variables **Dependent variable**

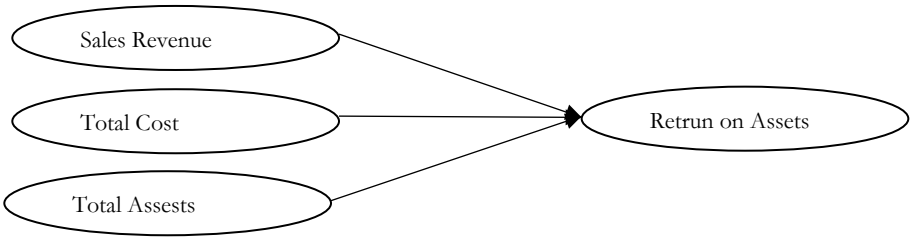

Figure 1. Conceptual Framework

The basic structure of the study is depicted in Figure 1, with return on assets (ROA) serving as the dependent variable and sales revenue (SR), total cost (TC), and total assets (TA) as independent variables.

Research Variable

A variable is a quantifiable trait or feature that changes over time, across activities, or between people. Examples of variables include motivation and political policies. F.N. Kerlinger defined a variable as a symbol that has numerical values or other characteristics attached to it. One example might be employees who are not all that motivated.

Dependent Variable (DV)

Return on Assets (ROA)

An indicator of a company's overall asset profitability is return on assets (ROA), which shows how well assets are leveraged to create profit. Calculated by dividing net income by total assets, it provides data on how well management turns investments into earnings. A key indicator is relative operational efficiency (ROA).

Research Variable

A variable, like motivation or governmental policy, is a measurable quality or attribute that varies over time, between activities, or between individuals. A variable, according to F.N. Kerlinger, is a symbol that has values or numbers assigned to it. Employees with different levels of motivation are one example.

Dependent Variable (DV)

Return on Assets (ROA)

The profitability of a company's total assets is measured by its return on assets (ROA), which shows how well assets are employed to create profit. It is calculated by dividing net income by total assets and provides information on how successfully management turns investments into earnings. One such indicator is relative operating efficiency (ROA).

Independent Variables (IDVs)

Sales Revenue (SR)

Sales revenue, often known as "revenue," is a crucial measure of a business's total profits from the sale of goods or services over a specific period of time. It is an essential indicator of market performance and business growth that takes into account all credit and transactions. Analyzing sales revenue trends provides insights into consumer satisfaction, market dynamics, and marketing performance, all of which help decision-makers make informed choices. It is crucial to financial planning, budgeting, and forecasting as it is the main factor influencing resource allocation and investment priorities. Numerous factors, including as macroeconomic conditions, product quality, pricing strategy, and buyer desire, might be responsible for variations in sales revenue.

Total Cost (TC)

The sum of all operating and indirect costs associated with the manufacturing process is known as the total cost (TC). The overall cost of a firm has a direct impact on its sustainability and financial viability. The longevity of the company demonstrated efficient organizational management through optimal resource usage.

Total Assets (TA)

All financial and operational expenses related to the organization of a firm are included in the total cost (TA). All of the valuable expenses that come with a sale or both short-term and long-term debt are included. The link between the ROA and total cost is solid and favorable. Organizations' return on assets (ROA) is mostly determined by how well and efficiently they use their resources. Thus, while total assets and earnings remain constant, improved resource use definitely raises ROA.

RESEARCH METHODOLOGY

This study adopted the Cost-Volume-Profit (CVP) framework to investigate several aspects of profitability ratios, break-even point analysis, margin of safety analysis, and liquidity ratios for manufacturing firms in Nepal in order to address the research gap and objectives. The study tries to achieve its objectives systematically, using both descriptive and causal research designs. Secondary data were gathered from annual reports, balance sheets, profit and loss statements, and budget sheets. The goodness-of-fit of the model is evaluated using metrics such as the coefficient of determination (R-squared) or adjusted R-squared, which measure the proportion of variance in the dependent variable explained by the independent variables.

The Model Specification

$ROA = a + \beta_1 SR + \beta_2 TC + \beta_3 TA + e$ (i)

Where,

ROA= Return on Assets

SR= Sales Revenue,

TC= Total Cost,

TA= Total Asset, a = constant term,

β_1, β_2, β_3 = Beta coefficient of variables

ei= error term,

EMPIRICAL RESULTS AND DISCUSSIONS

This section includes information gathered over ten years from Himalayan Distillery Limited (HD) and Bottlers Nepal Terai Limited (BNTL) annual reports as well as those of other manufacturing firms. The research looks at important variables, such as break-even points (in units and money), margin of safety, intended profit, and sales volume, together with their descriptive data, using Cost-Volume-Profit (CVP) analysis. The data sample comprises five manufacturing enterprises from the fiscal years 2013/14 to 2022/23, as well as two manufacturing companies associated with the oil corporation. Regarding these factors, the study yields logical inferences and conclusions. Break-even sales, the distinction between cash and non-cash break-even points, and the sales volume required to pay all operational expenses-including certain non-cash costs can all be determined with CVP analysis, an essential accounting technique.

Rreturn on Assets (ROA)

The below Table No. 1 below shows the return on assets (ROA) ratio to measuring the manufacturing industries i.e. Himalayan Distillery (HD) and Bottlers Nepal Terai Limited (BNTL) for ten years. The data shows the ROA of both institutions, the ability and efficiency of firms can be measured through the capacity of return based on maximum and effective utilization of their assets which directly affects profitability and financial sustainability. Additionally, the higher the profitability higher be sustainability.

Table 1. Return on assets of manufacturing industries

Fiscal year	HD	BNTL
2013/14	0.17	0.05
2014/15	0.16	0.05
2015/16	0.26	0.07
2016/17	0.17	0.11
2017/18	0.39	0.17
2018/19	0.05	0.06
2019/20	0.25	0.00
2020/21	0.45	0.05
2021/22	0.33	0.08
2022/23	0.18	0.07

(*Source*: Audit report of 2 manufacturing companies 2013/14 to 2022/23)

The ROA ratios of HD and BNLT for the previous 10 years, from 2013/2014 to 2022/2023, are displayed in the above table. Based on the statistics, HD's ROA started at 0.17 percent in 2013–14. It shows that HD only made 17% of the earnings on each rupe of their assets. Likewise, for 2014/2015 and 2015/2016, the ROA ratio is 16 and 26 percent, respectively. This pattern shows a decrease to 17 percent in 2016–2017, which is indicative of positive tendencies. It highlights the difficulties in sustaining the degree of use of their productive resources.

The Table 1 shows that, although the return on assets is 39 percent, the highest ratio of operation decades, there has been a noticeable increase in 2017–2018. The outcome demonstrates that the company's assets can provide the anticipated gain. Similarly, in 2018/2019, the company's profitability (i.e., just 5% of ROA) was not

sustainable. Therefore, this indicates a decline in the profitability and efficiency of asset management. Furthermore, the organization has achieved successful resource management and optimal usage, which raises profitability by 25% in 2019 and 2020.

Additionally, the fiscal year 2020–2021 exhibits the best return on assets, demonstrating the efficient and successful administration of assets that raises profitability. The firm was able to increase its return on assets by 33 percent in 2021–2022, but it only managed to increase its return on assets by 18 percent in 2022–2023, suggesting a fall from the previous year. In 2013 and 2014, BNTL's return on assets was 5%, which suggests that its assets were poorly managed and that it was less profitable than HD. As a result, the data indicates that ROA is steadily increasing, a sign of improved resource and asset use that boosts profitability.

The data demonstrates that the return on assets increased significantly in 2017–2018, reaching a successful 17 percent, indicating effective management and use of productive resources. Nonetheless, the year 2018/2019 saw a decline in profitability, which was attributed to inadequate resource management. In a similar vein, the 2019–2020 year's return on assets is zero, reflecting operational dangers and obstacles. Nonetheless, the ROA is somewhat better than in previous years, at 5% in 2020–2021. Furthermore, the years 2021–2022 and 2022–2023 show no discernible profitability, respectively, suggesting a consistent period of poor profitability.

A comparison between Bottlers Nepal Terai Limited (BNTL) and the Himalayan Distillery (HD) has consistently shown that the HD has superior return on assets ratios across time, indicating better and more efficient use of resources and more profitability. In particular, the years 2017–2018 and 2020–2021 indicated that HDs achieved more profitability, indicating exceptional efficiency and profit margin. Similar to this, BNLT showed steadier and lower return on assets ratios, indicating a small improvement in some years but a decline in 2019 and 2020. The lower and worse return on assets ratios show that BNTL has a harder time making a profit margin than HD.

Correlation Analysis

Table 2. Correlation analysis

Variables	SR	TC	TA	ROA
Sales Revenue	1			
Total Cost	.818**	1		
Total Assets	.797**	.925**	1	
Return on Assets	-.073	-.468*	-.549*	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.2 shows the correlation matrix of the study. This correlation analysis shows the strength of the link between the predictors and the response variable. This study employed the sales revenue, total cost, and total assets as predictors and return on assets as response variables. The finding of the study revealed inverse association between sales revenue and return on assets. This evidence revealed an unfavorable link between sales revenue and return on assets. Further, the finding of the research demonstrated an inverse relationship between total cost and return on assets. It reflects that an increase in the total cost of the enterprise leads to decline the return on assets of an enterprise. Similarly, an inverse association was found between total assets and return on assets of the enterprise depicting that an increase in total assets leads to a lower return on assets.

Regression Analysis

Table 3. Regression coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R Square	F	Sig.
		B	Std. Error	Beta					
1	(Constant)	.165	.035		4.722	<.001	.679	11.287	<.001[b]
	SR	5.082E-5	.000	1.071	4.279	<.001	-	-	-
	TC	-1.805E-5	.000	-.320	-.803	.434	-	-	-
	TA	-4.506E-5	.000	-1.107	-2.910	.010	-	-	-

a. Dependent Variable: ROA
(Note: SR = Sales revenue, TC = Total cost, TA = Total cost, and ROA = Return on assets.

The table 4.3 shows the multiple linear regression analysis to examine the effect of predictors on response variable. The beta coefficient for sales revenue depicted a positive effect on return on assets. It means that a rise in the volume of sales revenue helps to increase the volume of return on assets. It shows that a one percent

increase in the sales revenue increase the return on assets by 5.082 percent. Moreover, the beta coefficient for total cost showed a negative effect on return on assets. It depicts that a rise in the volume of total cost minimizes the portion of return on assets in the manufacturing enterprises in Kathmandu. Further, it reveals that a one percent rise in the total cost causes to decrease in the return on assets by -1.805 percent. Finally, the beta coefficient for total assets also reflects an inverse effect of it on return on assets. It reveals that an increase in total assets decreases the return on assets of the enterprise.

DISCUSSION

The purpose of the study was to examine the effect of the cost volume on profitability of the manufacturing enterprises operated in the Kathmandu, Nepal. Thus, the major study variable embraced by the research were sales revenue, total cost and total assets as independent variables and return on assets as dependent variable.

The finding of the study showed the distinguished results among the study variables. Thus, the result depicted a positive effect of sales revenue on return on assets. This shows that a rise in the sales revenue leads to increase the volume of return on assets in the manufacturing enterprises. This finding is in line with previous empirical researcher's findings (Dhakal, 2014). Further, the finding of the study showed an inverse association between total cost and return on assets revealing that rise in the volume of total cost minimizes the return on assets of the manufacturing enterprise. This result is in the direction with previous studies findings (Adhikari, 2018; Diktta, 2015). Finally, the results showed an inverse relationship between total assets and return on assets. It means that even in rise lf total assets does not support to enhancement the return on assets of manufacturing enterprises operated in Kathmandu. This finding is in the same direction as previous empirical findings (Dalici & Tanis, 2014; Machuga & Smith, 2013).

CONCLUSION

The major aim of the study was to assess the effect of cost volume on the profitability of the manufacturing enterprise working in the Kathmandu Valley. The study employed sales revenue, total cost, and total assets as the major independent variables of the study, and return on assets was considered as a dependent variable in the study. The survey findings of this study showed a positive effect of sales revenue on the return on assets. It means a rise in the volume of sales contributes to increase the return on assets of the enterprise. Thus, it can be concluded that an enterprise operating the business needs to consider the proportion of the sales revenue which ultimately improves the profitability of the enterprise through the increase in return on assets. Further, this study's findings showed an inverse relationship between total cost and return on assets for the manufacturing enterprise embraced in the study. This clearly shows that a rise in the total cost of the enterprise reduces the volume of return on assets. Therefore, it can be concluded that an enterprise willing to enhance the proportion of the return from the business operation needs to minimize the volume of cost occurring in the enterprises which finally supports maintaining a higher level of profitability for perpetual sustainability. Finally, the evidence of this study demonstrated an inverse relationship between the total assets and return on assets. It means that a rise in the total assets leads to a weaker position of return on assets in the manufacturing enterprises. Thus, it can be concluded that holding more portion of total assets reduces the return on assets suggesting that effective and efficient mobilization of total assets should be implemented in time with rational decision-making procedure. However, this study is not free from the limitation and this study was entirely based on secondary data comprising only two manufacturing enterprises operating in Kathmandu. Further, this study employed only a few variables and research methodologies. Thus, future research can be organized including the additional methods of study, more variables, and other factors being responsible for the profitability of the enterprise even in distinct geographical context.

The findings of this research can be a benchmark for policy makers, practitioners, regulator and other stakeholders to further improvise the profitability of enterprises by considering the factors being responsible for generating the profitability and financial sustainability.

Author's Contribution

The author's contribution can be outlined as below:

Conceptualization: Author 1, Author 2, Author 3

Methodology: Author 1, Author 2, Author 3

Data Collection: Author 1, Author 2, Author 3

Analysis: Author 1, Author 2, and Author 3

Writing – Original Draft: Author 1, Author 2, and Author 3

Writing – Review & Editing: Author 1, Author 2, and Author 3

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