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Applying CVP Analysis Method in Product Pricing

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Abstract
Analyzing the CVP (Cost – Volume – Profit) relationship is to consider the internal relationship of the factors selling price, output, variable costs, fixed costs and consider the influence of the above factors. to the profits of the business. The article introduces the method of analyzing the Cost - Volume - Profit relationship combined with the activity-based cost accounting method, thereby suggesting to administrators to apply this method to determine the break-even point in the business. The article has applied the theory of analyzing the Cost - Volume - Profit relationship and applying the determination of costs by activity to evaluate an order in the actual operations of the business.

Keywords: Cost - Volume - Profit, Cost - Volume - Profit Using Normal Costs, Cost - Volume - Profit Using Activity-based Costs

1. Theoretical basis

CVP analysis is a useful tool to help managers understand the relationship between costs, volumes and profits. Profit levels are affected when factors like selling price, output, unit variable costs, fixed costs, and product structure change. Analyzing CVP based on normal costs does not take into account the diversity and complexity of the product's production. This makes the information CVP provides not very effective in making decisions for administrators. Therefore, research and analysis of CVP based on cost by activity is necessary to more clearly identify activities and costs to serve the decision-making process of administrators.

The difference between the selling price and the unit variable cost is called the contribution margin per unit of product. Total contribution margin will be equal to revenue minus total variable costs. The contribution margin indicator represents the profit a business receives when consuming a unit of product without taking into account fixed cost factors. Therefore, when the break-even point is reached, the point where the business's profit is zero and the business has covered all fixed costs, then for each additional product sold in addition to the break-even output, it will bring the enterprise's profit margin is equal to the contribution margin of that product. The contribution margin target is very important in choosing business plans. The contribution margin ratio is calculated by dividing the contribution margin by the product selling price to determine the percentage of contribution margin on the selling price. The contribution margin ratio reflects the change in contribution margin according to the change in revenue. In the case of having to trade off the revenue of one product with another, the product with the higher profit margin will have the upper hand.

In addition, accountants determine the break-even point for the purpose of evaluating business options. The break-even point is the point where a business's profit is zero and the business has compensated all its fixed costs. Determining the break-even point will help the business process of the enterprise be proactive and positive. The lower the break-even output and break-even revenue, the better, because this way the business will quickly break even, and each additional product sold after the break-even point will bring the business a profit equal to the contribution margin. Product unit. A business's profits are also affected by its cost structure. Cost structure is the relative ratio between fixed costs and variable costs in a business. It is impossible to determine exactly what cost structure is appropriate because it depends on each business, each period and the fluctuations of the business environment. However, a business with a cost structure with a larger fixed cost component, with an increase in revenue, will have a higher profit increase than a business with a cost structure with a larger variable cost component. On the contrary, when faced with falling revenue, businesses with smaller fixed cost structures will experience a smaller decline in profits. Therefore, a cost structure that favors variable or fixed costs both has advantages and disadvantages. Choosing the appropriate cost structure for a specific business will depend on the characteristics of the business and its expectations. Fluctuations in the current and future business environment. Based on the basic foundation of analyzing costs

into fixed costs and variable costs to build a CVP relationship to choose business options. CVP analysis guides managers in choosing options and making decisions. However, CPV analysis is only performed on the assumptions that the cost structure and consumption structure do not change, the selling price is fixed and the production and consumption output are the same.

Activity-based costing was developed in the 1980s by Robert Kaplan and Robin Cooper (Activities Base Cost-ABC). The ABC method is a method of determining costs by identifying cost centers or activity centers within an organization and determining costs for products and services based on the number of events or transactions. Translating involves the process of providing a product or service. The essence of this method is the allocation of common costs to cost objects based on the level of cost resource use of each activity. According to this method, except for direct costs such as direct material costs and direct labor costs, which are costs that can be directly determined for the product, there is no need to apply the ABC method. The remaining overhead costs that need to be allocated will use the ABC method. In an activity-based costing system, costs are divided into unit-based and non-unit-based types. In terms of cost form, there are costs that change with product volume and there are costs that do not change with product volume. In the context of the activity-based costing method, non-unit-based costs are fixed costs when production volume changes. Business costs are affected by the following factors: Unit-level cost factors (consumption quantity); batch level cost factor (number of setups); and product-level cost factors (engineering hours). Thus, according to the activity-based cost approach, design costs, setup costs, and technical costs are considered variable costs calculated based on the number of times incurred, but are fixed costs calculated for each order.

2. Actual situation

To clarify the above content, the author will illustrate a printing order from Hong Ky Co., Ltd. Hong Ky Co., Ltd.'s field of activity is design, prepress, printing consulting for all types of packaging products, labels, flyers, leaflets, magazines, calendars... Currently, Hong Ky Co., Ltd. are using the conventional cost-based CPV analysis method. The illustrated order is 5,600 Tet calendars. Hong Ky Company Limited prepares a CVP analysis report using normal costs (Fig 1):

CVP ANALYSIS REPORT ACCORDING TO REGULAR COSTS

S. No	Targets	Unit price	Quantity	Total
		(Copper)	(Volume or times)	(Copper)
1	**The variable costs**	**27,147**		**152,023,200**
	Cost of paper money, glue, staples	15,250	5,600	85,400,000
	Ink costs	2,310	5,600	12,936,000
	Direct labor (printing labor, product processing labor such as stamping, gluing, canning, etc.)	5,127	5,600	28,711,200
	Transportation costs	250	5,600	1,400,000
	Sales commission	4,210	5,600	23,576,000
2	**Fixed costs**			**19,045,000**
	Design cost (1,800,000 VND/time)		1	2,200,000
	Film cost (400,000 VND/film)		1	460,000
	Printer setup cost (300,000 VND/time)		2	840,000
	Depreciation costs of machinery and equipment			5,245,000
	Other fixed manufacturing overhead costs			2,500,000
	Other fixed selling and administrative expenses			7,800,000
3	**Total cost (1) + (2)**			**171,068,200**
4	**Revenue**	36,000	5,600	201,600,000
5	Contributed profits	8,853	5,600	49,576,800
	Contributed profit ratio	25%		25%
6	**Profit (4)-(5)**			**30,531,800**
7	**Break-even point**			
	Breakeven point in output			2,151
	Break-even point in revenue			7,444,934

Fig 1: CPV analysis report according to regular costs

When calculating CVP according to normal costs, businesses have not shown product costs per order and per production batch. Those are fixed costs for each order. However, when applying activity-based costing methods, some types of costs are fixed by product but vary by order such as design costs, film costs, and printer setup costs. Separating costs for each order has implications for determining fixed costs and variable costs, affecting the determination of product selling prices and managers' decisions.

3. Solutions

The CVP analysis method based on activity costs separates fixed costs by product but varies by batch to emphasize the existence of this type of cost, and the separate presentation of this type of cost helps to Identifying these costs makes it easier for administrators to make decisions. In this order, the types of costs that are different from the remaining costs, such as design costs, film costs, and printer setup costs, are presented separately in the separate fixed costs section of the order. order.

CVP ANALYSIS REPORT BY COST BY ACTIVITY

S. No	Targets	Unit price (Copper)	Quantity (Volume or Times)	Total (Copper)
1	**Variable costs by product (per unit)**	**27,147**	**5,600**	**152,023,200**
	Cost of paper money, glue, staples	15,250	5,600	85,400,000
	Ink costs	2,310	5,600	12,936,000
	Direct labor (printing labor, product processing labor such as stamping, gluing, canning, etc.)	5,127	5,600	28,711,200
	Transportation costs	250	5,600	1,400,000
	Sales commission	4,210	5,600	23,576,000
2	**Fixed costs**			**19,045,000**
	Product-specific fixed costs			**3,500,000**
	Design cost (2,200,000 VND/time)		1	2,200,000
	Film cost (460,000 VND/film)		1	460,000
	Printer setup cost (420,000 VND/time)		2	840,000
	Other fixed costs			**5,545,000**
	Depreciation costs of machinery and equipment			5,245,000
	Other fixed manufacturing overhead costs			2,500,000
	Other fixed selling and administrative expenses			7,800,000
3	**Total cost (1) + (2)**			**171,068,200**
4	**Revenue**	36,000	5,600	201,600,000
5	Contributed profits	8,853	5,600	49,576,800
	Contributed profit ratio	25%		25%
6	**Profit (4)-(5)**			**30,531,800**
7	**Break-even point**			
	Breakeven point in output			2,151
	Break-even point in revenue			77,444,934

Fig 2: CVP analysis report by cost by activity

Thus, the CVP analysis method using activity-based costs takes into account the existence of costs that are determined by product but vary by batch and by each order. So any change in this type of cost is also noted and reflected in the analysis report. At the same time, when this type of cost is separately identified and presented, when customers need to order new products, businesses can easily determine fixed costs, variable costs, selling prices, and profits. Contributed profit, desired profit... From which business administrators can proactively make timely and appropriate decisions.

4. Conclusion

Thus, CVP analysis uses normal costing and CVP analysis uses activity-based costing will provide information using a different approach. These two CVP analysis methods have their own advantages and disadvantages. For CVP analysis, using normal costs allows for simple calculations but cannot separately classify costs by batch and costs by each transaction class, thereby affecting the analysis results. In contrast, CVP analysis using activity-based costing takes into account the existence of costs that are fixed by product but vary by batch and by order. The article is based on the basic foundation of analyzing costs into fixed costs and variable costs to build a cost - volume - profit relationship to choose business options and guide investors. Management in choosing options and making decisions.

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