

COST CONTROL THROUGH BREAK EVEN POINT ANALYSIS**¹Ella Anastasya Sinambela, ¹Didit Darmawan, ²Bayar Gardi, ³Frederika Josephine Malaihollo****¹Universitas Sunan Giri, Surabaya, Indonesia, ²Knowledge University, Erbil, Iraq, ³Universitas Katolik Darma Cendika, Surabaya, Indonesia**

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Abstract- *The furniture industry is an industry that has long existed in Indonesia. Almost all regions of Indonesia have furniture industries with their own characteristics. The furniture industry itself already has a market at home and abroad. Domestic market competition does not only come from craftsmen from regions in Indonesia but also products from abroad. Imported furniture products make industry players need to pay attention to the costs that are set as production costs. The problem that often occurs is the difficulty of controlling costs so that there is often an excess or shortage of production. This causes industry players to suffer losses. For this reason, industrial players need to know the BEP of each production run. This study aims to determine the amount of BEP required by PT ABC which is a furniture industry. The research method is carried out by determining variable costs and fixed costs which then determine the required BEP. The calculation results show that the production of PT ABC's frames and doors reaches BEP at 16 units. So, to get a profit PT ABC needs to sell more than 16 units.*

Keywords: production, cost control, break-even point, production unit, fixed cost, variable cost.

INTRODUCTION

A company is built to be able to produce for a long time. The determination of strategic management is carried out in order to extend the life of the company. The existence of a company depends on the profit generated in each period. To achieve the desired profit, management needs to pay attention to the problem of costs incurred and income received. So the company can find out the amount of profit earned. The ultimate goal of every company is to maintain and maximize profit (profit), where to achieve it requires the implementation of the right management strategy in the company, profit is influenced by 3 factors, namely production volume, selling price, and cost. According to Alnasser et al. (2014), there is a need to know the cost of determining the selling price to achieve the desired level of profit. This is because the determination of the selling price will determine the volume of sales (Sinambela & Darmawan, 2020). Furthermore, from the acquisition of sales in a certain amount, it will have an impact on the planning of further production volumes, which will then predict the production costs that will be incurred by the company.

The form of profit planning approach used in the company is using Break Even Point (BEP) analysis (St-Hilaire, 2016). This BEP analysis can be used as an analysis to observe the relationship between sales planning and predictions about company profits. There are targets and predictions. (Graham & Harvey, 2001). Companies need to do BEP analysis on each production to be able to do profit planning (Kee, 2007). Break-even point analysis is a method or technique used to find out at what sales volume and production volume a company does not suffer losses and does not make a profit (Garrison et al., 2011). The operation of a company can be said to break even if after the income statement is prepared for a certain period the company's profit is equal to zero (Hansen & Mowen, 2007). The income from sales in a certain period is equal to the total costs that have been sacrificed so that the company is not in a loss condition but also does not get a profit. Break-even point analysis is an analytical technique to study the relationship between fixed costs, variable costs, profits and activity volume (Hongren et al., 2014). The new break-even point problem will arise in the company if the company has Variable Costs and Fixed Costs (Bhimani et al., 2015). Profit is a picture of the income of the company. This has to be planned. How much profit the company wants to get can be predicted through Break Even Point (BEP) analysis. This tool can be said as a medium for planning and predicting profit.

The purpose of break-even analysis according to Dubas et al. (2011) is to find out the level of activity where sales revenue is equal to the sum of all variable costs and fixed costs. If a company has only variable costs, then there will be no break-even problem in the company. According to Dubas et al. (2011), companies at least need to know the conditions when income is balanced with all costs. This condition defines the boundary between losses and profits that may be obtained by the company. The existence of variable costs combined with fixed costs causes the problem of the existence of a break-even point to be known (Qader et al., 2021). The total of variable costs will vary according to the unit of production while fixed costs will be consistent (Kavitha, 2018). Knowledge of the break-even point is very important considering a company that is oriented to the production cost method.

Break Even Point analysis is useful when some basic assumptions are met. In actual fact many more assumptions cannot be met. However, this change in assumptions does not reduce the validity and usefulness of the BEP analysis as a decision-making tool. It's just that a certain modification is needed in its use. With certain considerations, this analysis has

many benefits and uses. In essence, it is emphasized at the turning point of what calculations are operationalized by a business so that it knows the transition of losses and profits. The weakness of the break-even point analysis is that there is only one kind of goods produced or sold. If there is more than one type, the combination or composition of sales will remain constant. If it is seen today that companies to increase their competitiveness they create many products, so it is very difficult and there is one more assumption, namely the selling price of the unit of goods will not change in any way, the number of units of goods sold, or there is no change in the general price (Sinambela & Djaelani, 2022).

Themeje (2015) explains that all manufacturing companies need cost control for their production, including the furniture business. Furniture business is one of the micro, small and medium enterprises (MSMEs) that has long been developed by the community as a forum for improving community welfare. The purpose of this activity is to provide many benefits for many parties, namely the owner, the community to the government because the owners of this activity are able to get a large enough income from their business, for the community it can be a job opportunity for those who do not have a job and can help the government to reduce unemployment rate in Indonesia.

PT ABC is one of the partner companies engaged in the production of frames and doors. This company produces various types of Italian or Mediterranean pinta leaves and frames every day. Raw materials are obtained from the local market with superior quality wood species. So far, PT ABC in producing frames and doors does not use a certain basic calculation so that the results obtained are less than optimal. It can be seen from the frequent occurrence of shortages or excesses in producing products. This makes the amount of production carried out not in accordance with the level of sales. Referring to this, the company needs to make improvements in its production planning. In this case, the researcher uses the method of controlling the cost of production volume. The use of this method is expected to help PT ABC in determining sales capacity to achieve maximum profit.

Production that is not optimal to get maximum profit and also furniture production sometimes has advantages and disadvantages of raw materials due to the lack of balance between production scheduling and planning of raw material requirements. The purpose of this study is to determine the number of products that need to be sold so that PT ABC obtains the break-even point or BEP.

RESEARCH METHODS

The object of this research is PT ABC which is a manufacturing company that produces furniture products. This research was carried out with a qualitative approach, where the researcher made observations, observations and interviews with sources related to the object of research. This study analyzes the volume and resources of the company to obtain maximum profit. Research focuses on the manufacture of frames and doors. The method used is to prepare a design cost of making a frame and door.

The design cost consists of variable costs, namely raw materials and direct labor, as well as fixed costs. Next, the BEP will be determined on the production of a door frame. The formula used to determine BEP is as follows

$$BEP = \frac{\text{Fixed Cost}}{\text{Price} - \text{Variable Cost}}$$

Researchers determine the BEP with a cost per unit to be able to determine the minimum amount of sales at PT ABC.

RESULTS AND DISCUSSIONS

This study determines the BEP on the production of frames and doors produced by PT ABC. The price set for each frame and door is IDR 1,200,000. Variable costs consist of raw material costs and labor costs. The variable costs required to manufacture one unit of frames and doors are shown in table 1.

Table 1
Variable Cost

No	Cost Description	Unit	Cost (IDR)	Units required	The amount of costs (IDR)
1	Wood	M ³	2.100.000	0,20	420.000
2	Door Knob	item	80.000	1	80.000
3	Door hinges	item	17.000	2	34.000
4	Builder Leader's Wage	day	125.000	0,25	31.250
5	Builder's Wage	day	85.000	1	85.000
6	Worker's Wage	day	75.000	0,75	56.250
	Total Variable Cost				706.500

To produce frames and doors, PT ABC requires work stations and procurement of work equipment. This equipment causes procurement and impacts on costs. These costs are fixed costs of PT ABC. The amount of costs required is shown in table 2 with the details of each item.

Table 2.
Fixed Cost

No	Cost Description	The amount of costs (IDR)
1	Work Loss	3.300.000
2	Procurement of Work Equipment	4.800.000
	Total Fixed Cost	8.100.000

Based on the variable costs and fixed costs that have been determined, the researchers calculated the BEP costs as follows:

$$\begin{aligned} \text{BEP} &= \frac{\text{Fixed Cost}}{\text{Price-Variable Cost}} \\ &= \frac{8.100.000}{1.200.000-706.500} \\ &= \frac{8.100.000}{493.500} \\ &= 16,41 \text{ rounded up to } 16. \end{aligned}$$

Based on the results of the BEP calculation, it is known that the break-even point required by PT ABC is 16 units. By selling 16 units of product, PT ABC managed to return the working capital used. The next product sale is the profit earned by PT ABC. By knowing the break-even point, management can find out how many units to produce or sell so that the company does not suffer losses. The minimum target that the company needs to set is also known based on this break-even analysis. Sustained losses may be avoided if the procurement is not in accordance with the original purpose of the procurement. Thus, break-even analysis is useful in reducing costs while preventing ongoing losses. Although the prominent weakness of the break even point analysis is that there is only one type of product produced and the time period for its application is limited, BEP has benefits as a basis for production and sales planning for management.

CONCLUSIONS

The results showed that the BEP in the production of PT ABC's frames and doors was 16 units. So, to get a profit, PT ABC must sell more than 16 units. To get maximum results, PT ABC needs to pay attention to the availability of raw materials in the warehouse. The availability of raw materials will affect the production process. In addition, PT ABC also pays attention to market demand so that production goods are not stored too much in the finished material warehouse which will require storage costs.

REFERENCES

- Alnasser, N., O. S. Shaban., & Z. Shaban. (2014). The effect of using break-even-point in planning controlling, and decision making in the Industrial Jordanian Companies. *International Journal of Academic Research in Business and Social Sciences*, 4(5), 626–637.
- Bhimani, A., C.T. Hongren, S.M. Datar, & M. Rajan. (2015). *Cost and Management Accounting* (6th ed.). Pearson publishers
- Dubas, K. M., L. Hershey., I. P. Nijhawan., & R. Mehta. (2011). Breakeven and profitability analyses in marketing management using R software. *Innovative Marketing*, 7(3), 45–78.
- Garrison, R., E. Noreen., & P. Brewer. (2011). *Managerial Accounting*. 14th Ed. McGraw-Hill Irwin, New York.
- Graham, J., & Harvey, C. (2001). The Theory and Practice of Corporate finance: Evidence from the field. *Journal of Finance Economics*, 60, 187-243.
- Hansen, D. R., & M. M. Mowen. (2007). *Managerial accounting* (8th ed.). Thomson. South-Western.
- Hornngren, C., T. Datar., S. M. Rajan., & V. Madhav. (2014). *Cost Accounting*. 14th Ed. Pearson Education Limited. England.
- Ihemeje, I. J. (2015). Cost-volume-profit Analysis and Decision Making in the Manufacturing Industries of Nigeria. *Journal of International Business Research and Marketing*, 1(1), 7–15.
- Kavitha, R. (2018). Cost Volume Profitability Analysis—An Empirical Study with Reference to Salem Steel Authority of India Limited (SAIL), Tamilnadu. *International Journal of Business and Management Invention (IJBM)*, 7(5), 46–51.
- Kee, R. (2007). Cot-Volume-Profit Analysis Incorporating the Cost of Capital. *Journal of Managerial Issues*, 19(4), 478-493.
- Qader, K. S., H. A. Hamad, B. Gardi, P. Abdalla, Hamza, & G. Anwar. (2021). The role of sophisticated accounting system in organizational planning, *International Journal of Advanced Engineering, Management and Science*, 7(10), 28-38.
- Sinambela, E. A. & D. Darmawan. (2020). *Pengantar Teori Akuntansi*. Metromedia, Surabaya.
- Sinambela, E. A. & M. Djaelani. (2022). Cost Behavior Analysis and Categorization, *Journal of Social Science Studies*, 2(1), 13-16.
- St-Hilaire, S., J. Krause., K.Wight., L. Poirier., & K. Singh. (2016). Break-Even Analysis for a Green Crab Fishery in PEI, Canada. *Management of Biological Invasions*. 7(3). 297-303.