

Application of Break Even Point Method as Profit Planning at UD Sinar Harapan Cracker Krecek Factory

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Article Information		Abstract
Submission date	12 December 2023	<p>Research aim: This research aims to analyze break-even points at UD Sinar Harapan as a profit planning tool.</p> <p>Design / Method / Approach: This study uses a descriptive quantitative approach with survey, interview, and observation methods.</p> <p>Research Finding: the results of the study obtained profit planning calculations by referring to the previous year's profit with a future profit target of 20%. So, for this target to be realized, UD Sinar Harapan must sell 123,682 kg in 2023 with revenue of Rp. 1,793,592,778. From the results of the application of the Break Even Point method conducted by researchers, UD Sinar Harapan's contribution margin shows that it can cover fixed costs in getting business profit or profit. UD Sinar Harapan sales also reached the Break Even Point or broke even from 2020, 2021, to 2022 in units and rupiah. From here UD Sinar Harapan gets its profit.</p> <p>Keywords: Profit Planning, Break Even Point</p>
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1. Introduction

Industry is an economic sector that processes raw materials, semi-finished goods or finished goods, raw materials, so that they become goods that have value and quality as needed to make a profit. Industry itself has an economic influence in Indonesia because it provides job opportunities that can reduce poverty and unemployment. In addition to job opportunities, the existence of Industry helps state income as well [1]; [2].

Building a business with high profit opportunities or appropriate profits is the expectation of every entrepreneur himself. Increasingly fierce competition in this era of globalization makes every entrepreneur have to be more careful in anticipating market conditions by acting more efficiently and effectively to maintain his business [3]. In market conditions that have many competitors, it is certainly important for companies to make plans [4]. Management planning includes a part of the process that can help the company's goals be achieved. The success and failure of a venture largely depends on the strength of management [5].

Management has an important role for every company in decision making. One of the tasks of the management function is planning. Planning Or planning means planning something that hasn't happened yet. Planning can control activities and predict the future state of the company based on the level of profit to be achieved [6]. Planning is needed for

companies to handle business activities, one of which is operational and financial activities. Without a comprehensive plan in place, a business will have difficulty in achieving its goals [7].

Profit planning is a carefully calculated process of working plans for the long term and short term in which the financial implications are expressed in the calculation of profit-loss, cash balance sheet and working capital. Profit planning is related to sales volume, results, production costs, and company operations [8]. Based on the purpose of every business is to make a profit, it must control the minimum amount of sales volume that must be produced so as not to experience losses [9]. In fulfilling profit planning, it is necessary to analyze so that there are no mistakes in profit planning. The profit planning of a business can be predicted through the method breakeven point. Breakeven point Become an important measure in business so that entrepreneurs can plan the profit to be obtained [10].

UD Sinar Harapan has been established for \pm 8 years. Even then, the owner of UD Sinar Harapan only determines profit by manually comparing the amount of costs incurred and the amount of costs received. Therefore, UD Sinar Harapan's sales have unstable sales charts. With the obstacles experienced by UD Sinar Harapan, this is because the owner does not apply the breakeven point analysis so that the break-even point is unknown. From this research, the owner can also find out how far the sales volume can decrease so as not to experience losses. Based on the problems described, the author is interested in knowing BEP analysis as profit planning and optimizing profits with the title "Application of the Break Even Point Method as Profit Planning at UD Sinar Harapan Cracker Krecek Factory"

1.1. Statement of Problem

Based on the background description, the author can identify that UD Sinar Harapan has not been effective in calculating the breakeven point as a profit planning and there is no calculation of the breakeven point that can be used to determine the level of operating profit.

1.2. Research Objective

- a. To analyze the determination of breakeven points at UD Sinar Harapan
- b. To analyze whether UD Sinar Harapan uses the breakeven point method as a profit planning tool.

2. Method

In this study there are two variables that will be discussed as the object of research, namely the BEP method as profit planning. This study conducted observations to determine the phenomena that occurred and conducted interviews with questions to obtain information about UD Sinar Harapan and the production carried out on the object of research. The data includes company sales data, product selling prices, revenue data, and company operating costs as well as a brief history of UD Sinar Harapan. This study was conducted from October 2022 to May 2023.

Research conducted at UD Sinar Harapan using a quantitative approach. In quantitative research it is more systematic, structured, unambiguous, and not affected by conditions that exist in the field from beginning to end [11]. Quantitative research specifications are based on a clear and orderly structure, so that the stages can be predicted

from the beginning to the end of the study. This type of research is descriptive because descriptive research describes data systematically. A phenomenon and also seeks to describe relationships, test hypotheses, predict and see their implications [12].

The data collection techniques carried out by this study are documentation and interviews. The documentation study in question is a company profile document, production and sales cost data incurred in the manufacture of UD Sinar Harapan products. Interviews are conducted directly to employees to obtain information, which is primary data through questions asked to employees, especially the finance department.

Data analysis techniques are techniques used to process research results to get a conclusion. This analysis uses descriptive quantitative using breakeven point analysis then the results of the analysis are used as a basis for planning. The steps taken are as follows:

- a. Collect the necessary data from UD Sinar Harapan to analyze break even points
- b. Calculates contribution margin, by providing information on the amount available to cover fixed costs and generate profits. The contribution margin equation is:

$$\text{Contribution Margin (Rp)} = \text{Sales} - \text{Variable Costs}$$

$$\text{Contribution Margin (units)} = \frac{\text{Margin Contribution}}{\text{Total Sales}}$$
- c. Calculate the contribution margin ratio with the formula:

$$\frac{\text{Margin Contribution}}{\text{Total Sales}} \times 100\%$$
- d. Calculating the break-even point

The breakeven point in short is the position of the company does not get a profit and does not suffer losses.

 - a) Breakeven point unit

$$\text{BEP (units)} = \frac{\text{fixed cost}}{\text{selling price per unit} - \text{variable costs per unit}}$$
 - b) Breakeven point in rupiah

$$\text{BEP (Rupiah)} = \frac{\text{fixed cost}}{\text{contribution margin ratio}}$$
- e. Calculating the margin of safety, this function is to find out to what extent the company can reduce sales so as not to experience losses.
 - a) MOS (margin of safety) =

$$\frac{\text{Revenue is planned to sell BEP}}{\text{Revenue is planned}} \times 100\%$$
 - b) MOS in rupiah = MOS x Planned revenue
- f. Determine the company's planned profit target, with the formula:
 - a) Target volume (Q) = $\frac{\text{fixed costs} + \text{profit target}}{\text{Margin contribution per unit}}$
 - b) Target volume (Rp) = $\frac{\text{fixed costs} + \text{profit target}}{\text{contribution margin ratio}}$
- g. Making breakeven point analysis conclusions as a profit planning tool

3. Results and Discussion

3.1 Analysis Results

- a. Calculating Contribution Margin

Contribution margin is sales revenue minus variable costs. If the amount of contribution margin is greater than the amount of fixed costs, the company

will get a profit, while if the contribution margin is smaller than the amount of fixed costs, it means that the company has a loss.

Table 1
UD Sinar Harapan Profit and Contribution Margin Budget Report

Information	Year 2020	Year 2021	Year 2022
Sales	Rp. 792.135.000	Rp. 942.790.000	Rp. 1.455.075.000
Variable Costs	Rp. 306.714.800	Rp. 333.389.750	Rp. 609.753.300
Contribution Margin	Rp. 485.420.200	Rp. 609.400.250	Rp. 845.321.700
Fixed Costs	Rp. 160.525.000	Rp. 261.415.000	Rp. 283.675.000
Net Profit	Rp. 324.775.000	Rp. 347.985.250	Rp. 561.646.700

Based on UD Sinar Harapan's profit budget, it is known that the contribution margin obtained in 2020 is Rp. 485,420,200. This shows that UD Sinar Harapan did not experience losses because the contribution margin in 2020 was greater than the fixed costs in 2020. In 2021, the contribution margin increased by 25.52%, amounting to Rp. 609,400,250. This shows that UD Sinar Harapan did not suffer any losses as well, because the contribution margin in 2021 was greater than the fixed costs in 2021. And in 2022, it experienced an increase of 38.71%, amounting to Rp. 845,321,700. Just like the previous year, the contribution margin in 2022 did not suffer a loss because it was greater than the fixed costs in 2022.

b. Calculating Break Even Points

Breakeven point is the state of the company knowing the minimum production that must be made so as not to suffer losses. So, it is said to break even if what is obtained is the same as what is spent. Here is the calculation of the breakeven point.

Table 2
Break Even Point Calculation Results

Year	Sales (Kg)	BEP Unit (Kg)	Income	BEP Rupiah
2020	54.630	18.067	Rp. 792.135.000	Rp. 261.996.083
2021	65.020	23.091	Rp. 942.790.000	Rp. 334.852.236
2022	100.350	33.678	Rp. 1.455.075.000	Rp. 488.337.063

Source: Data processed (2023)

Based on the table above, it can be concluded that sales and revenue obtained from 2020, 2021, and 2022 have reached the break-even point. BEP condition in 2020 at sales volume of 18,067 kg. So, in a volume of 18,067 kg alone, UD Sinar Harapan has been declared breakeven. While the sales volume that occurred was 54,630 kg, this shows that in 2020 UD Sinar Harapan has reached BEP. BEP condition in 2021 in sales volume amounted to 23,091 kg.

So in a volume of 23,091 kg alone, UD Sinar Harapan has been declared breakeven. However, the sales volume that occurred in 2021 was 65,020 kg, this shows that in 2021 UD Sinar Harapan has reached BEP. BEP condition in 2022 at sales volume of 33,678 kg. So, in a volume of 33,678 kg alone, UD Sinar Harapan has been declared breakeven. However, the sales volume that occurred was 100,350 kg, this shows that in 2022 UD Sinar Harapan has reached BEP.

c. Profit Planning Calculation

Profit planning of an enterprise can be done in various ways, including with budget programs. Most budgeting programs include estimates of revenue received and costs incurred to obtain that revenue, as well as showing the benefits that will be achieved in the end. The following is a profit planning calculation with reference to the previous profit, namely 2022, to plan the profit in the following year, namely by calculating the estimated profit in 2023. The desired profit target is 20% greater than 2022 profit.

$$\begin{aligned} \text{Net profit in 2022} &= \text{Rp. } 561.646.700 \\ \text{Planned increase in profit} &= \text{Rp. } 561.646.700 + 20\% \\ &= \text{Rp. } 758.223.045 \end{aligned}$$

After knowing the desired profit, the following sales must be achieved so that UD Sinar Harapan can optimize the planned operating profit using the formula:

$$\begin{aligned} \text{Target volume (unit)} &= \frac{\text{fixed costs} + \text{profit target}}{\text{Margin contribution per unit}} \\ \text{Target volume (Rp)} &= \frac{\text{fixed costs} + \text{profit target}}{\text{contribution margin ratio}} \\ \text{Target volume (unit)} &= \frac{283.675.000 + 758.223.045}{8424} \\ &= 123.682 \text{ kg} \\ \text{Target volume (Rp)} &= \frac{283.675.000 + 758.223.045}{58,09\%} \\ &= \text{Rp. } 1.793.592.778 \end{aligned}$$

3.2 Discussion

a. Defining Break Even Point

The results showed that breakeven point or breakeven is a profit planning tool. Once the break-even point of an enterprise is calculated and known, the company's management can easily make a profit plan and estimate possible losses in case of problems within the company. Before calculating the breakeven point of a company, it is necessary to know its contribution margin to study how the company's coefficient in producing a product. Contribution margin can be used to cover fixed costs, and if it is residual then the rest is considered profit [13].

Based on the calculation above, it is known that the contribution margin obtained in 2020 is Rp. 485,420,000. In 2021, the contribution margin obtained is IDR 609,400,250. and in 2022 get a contribution margin of Rp. 845,321,700. From the fixed costs contained in the data, it shows that UD Sinar Harapan can cover fixed costs and get the rest which means getting net profit.

After determining the contribution margin, the next step is determining the contribution margin ratio. This contribution margin ratio is used for comparison between contribution margin or total revenue minus variable costs and total sales [14].

Based on the calculation above, it is known that UD Sinar Harapan's contribution margin ratio in 2020 was 61.27%, while in 2021 it was 64.63%. And in 2022 it decreased by 58.09%, this is because variable costs in 2022 increased in one of the costs that came out. However, from the calculation of the contribution margin, there is no loss.

Account breakeven point Used to find out the minimum sales volume that must be achieved so that the company does not experience losses [15].

Based on the BEP calculation above, it is known that in 2020 the BEP obtained by UD Sinar Harapan was Rp. 261,996,083 in rupiah and 18,067 BEP per unit. During the interview, the owner of UD Sinar Harapan said that his income this year decreased very drastically from the previous year due to Covid-19. Meanwhile, in 2021, the BEP obtained by UD Sinar Harapan is IDR 334,852,236 in rupiah and 23,091 BEP per unit. The drastic comparison that occurred between 2020 to 2021 was due to Covid19 which had begun to subside, and this caused production demand at UD Sinar Harapan to start increasing again. And in 2022, the BEP obtained by UD Sinar Harapan is IDR 488,337,063 in rupiah and 33,678 BEP per unit. From the calculation of the breakeven point, it shows that UD Sinar Harapan's sales have passed the break-even point, which means UD Sinar Harapan has not suffered a loss and earned a profit from the sales.

Based on the results of the breakeven point calculation in both rupiah and kg, it can be depicted in a graph to see the break-even movement produced by UD Sinar Harapan. Here is the chart:



Picture 1 BEP, Revenue, and Net Profit

Based on the chart above, it is known that the sales obtained by UD Sinar Harapan from 2020, 2021, to 2022 are above the breakeven point. And the profit obtained also increased, especially from 2021 to 2022, increasing drastically from the previous year.

b. UD Sinar Harapan Profit Planning

The success of a company in achieving the desired profit must be through profit planning. Profit planning is an important indicator carried out, because by doing profit planning a company can improve the company's performance results and its relation to the assessment of the company's success [16].

Likewise, UD Sinar Harapan also plans mainly to make a profit. One of the profit planning can be analyzed using break even points. The application uses the breakeven point method in conducting profit planning in terms of the size of the sales volume, costs incurred, and profits generated. Where the application of breakeven points provides information about how much sales volume must be achieved to make a profit, or on what amount of sales volume must be achieved to break even and in what sales volume the company will suffer losses. Meanwhile, based on the estimated number of production kg used by UD Sinar Harapan in profit planning, the application only refers to last year's production and then added the profit target. And UD Sinar Harapan set a profit plan of around 20% of last year's achievement.

Account margin of safety This has the benefit of being information for the company about how far the decline in sales can be done so that the company does not experience losses [17].

After determining the increase in profit by UD Sinar Harapan by 20% per year. The calculation of the margin of safety gets a result of Rp. 621,293,400 in 2020. It

means that for the next year, to remain safe, the income that must be obtained by UD Sinar Harapan is Rp. 621,293,400. And in 2021, the revenue earned by UD Sinar Harapan amounted to Rp. 942,790,000, this result exceeded the 20% expectation. In 2021, the margin of safety obtained is Rp. 791,943,600. It means that for the next year, to remain safe, the income that must be obtained by UD Sinar Harapan is Rp. 791,943,600. And in 2022, the revenue earned by UD Sinar Harapan is IDR 1,455,075,000, where the results exceed the 20% expectation. In 2022, the margin of safety is IDR 1,257,184,800. It means that for the next year, to remain safe, the income that must be obtained by UD Sinar Harapan is Rp. 1,257,184,800.

Profit planning in optimizing profit / business profit is needed so that planning is in accordance with the target. And from the results of profit planning calculations by referring to the previous year's profit with a future profit target of 20%. So, for this target to be realized, UD Sinar Harapan must sell 123,682 kg in 2023 with revenue of Rp. 1,793,592,778.

4. Conclusion

From the results of the analysis conducted by UD researchers, Sinar Harapan targets an increase in profit every year by 20%. So, in 2023 UD Sinar Harapan is required to sell 123,682 kg of its products. From the sale, it will generate revenue of Rp. 1,793,592,778. From these results, in 2023 UD Sinar Harapan will break even and get its profit.

From the results of the application of the breakeven point method carried out by researchers, UD Sinar Harapan's contribution margin shows that it can cover fixed costs in getting business profit or profit. UD Sinar Harapan sales also reached a breakeven point or broke even from 2020, 2021, to 2022 in units and rupiah. From here UD Sinar Harapan gets its profit. UD Sinar Harapan does not use break even points as profit planning. UD Sinar Harapan conducts a profit planning strategy based only on estimates of volume produced and total profits

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