

When Fixed Costs Are \$90,000 And Variable Costs Are 70% Of The Selling Price, Then Breakeven Sales Are:

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Understanding the concept of breakeven analysis is crucial for any business aiming to achieve profitability. It provides insight into how much sales volume is necessary to cover all fixed and variable costs, ensuring the company does not incur losses. When fixed costs are set at \$90,000 and variable costs constitute 70% of the selling price, calculating the breakeven point becomes a strategic exercise that helps managers and entrepreneurs plan their sales targets effectively. This article explores the detailed process of calculating breakeven sales in such a scenario and discusses the implications for business operations and decision-making.

What Is Breakeven Analysis?

Breakeven analysis is a financial assessment that determines the sales volume at which total revenues equal total costs, resulting in neither profit nor loss. It is a vital tool for understanding the minimum performance a business needs to sustain itself.

Key Components of Breakeven Analysis:

- Fixed Costs: Expenses that do not change with sales volume (e.g., rent, salaries, insurance). In this case, \$90,000.
- Variable Costs: Expenses that vary directly with the level of production or sales (e.g., materials, direct labor). Here, they are 70% of the selling price.
- Selling Price per Unit: The amount charged to customers for each unit sold.
- Contribution Margin: The portion of sales revenue that contributes to covering fixed costs after variable costs are deducted.

Why is Breakeven Point Important?

- To determine minimum sales required for profitability.
- To assist in pricing strategies.
- To evaluate the feasibility of new products or services.
- To identify the impact of cost changes on profitability.

Understanding Fixed and Variable Costs in This

Scenario

In our scenario:

- Fixed Costs = \$90,000
- Variable Costs per Unit = 70% of Selling Price

This means that for each unit sold, 70% of the selling price will go toward covering variable costs, and the remaining 30% will contribute toward fixed costs and profit.

Example:

If the selling price per unit is \$100, then:

- Variable cost per unit = 70% of \$100 = \$70
- Contribution margin per unit = Selling price - Variable costs = \$100 - \$70 = \$30

The goal is to find the sales volume at which total contribution margin equals fixed costs, i.e., the breakeven point.

Calculating the Breakeven Sales

The basic formula for calculating the breakeven point in units is:

$$\text{Breakeven Units} = \frac{\text{Fixed Costs}}{\text{Contribution Margin per Unit}}$$

Given that contribution margin per unit depends on the selling price, we need to express the formula in terms of the selling price.

Step 1: Express Contribution Margin in Terms of Selling Price (P):

- Variable cost per unit = 70% of P = $0.70P$
- Contribution margin per unit = $P - 0.70P = 0.30P$

Step 2: Calculate the Breakeven Units:

$$\text{Breakeven Units} = \frac{90,000}{0.30P}$$

Step 3: Calculate the Breakeven Sales in Dollars:

Total sales revenue at breakeven point:

$$\text{Breakeven Sales} = \text{Breakeven Units} \times P = \frac{90,000}{0.30P} \times P = \frac{90,000}{0.30} = 300,000$$

This simplification shows that breakeven sales revenue is \$300,000, regardless of the selling price, provided the variable cost remains at 70% of the selling price.

Important Note:

This result assumes the selling price per unit is such that the variable cost is 70% of that price, and the contribution margin per unit is 30% of the selling price.

Practical Example: Calculating with Specific Selling Price

Suppose the selling price per unit is set at \$100, then:

- Variable cost per unit = \$70
- Contribution margin per unit = \$30

Breakeven units:

$$\left[\frac{90,000}{30} = 3,000 \text{ units} \right]$$

Breakeven sales in dollars:

$$\left[3,000 \times 100 = \$300,000 \right]$$

Thus, the business must generate \$300,000 in sales to cover fixed and variable costs.

Impact of Changing Selling Price

If the selling price per unit varies, the breakeven sales in dollars will adjust accordingly.

Selling Price per Unit	Contribution Margin per Unit	Breakeven Units	Breakeven Sales in Dollars
-----	-----	-----	-----
\$80	\$24	3,750 units	\$300,000
\$100	\$30	3,000 units	\$300,000
\$120	\$36	2,500 units	\$300,000

As seen, the total breakeven sales in dollars remains constant at \$300,000 when variable costs are 70% of the selling price. However, the number of units needed to reach this sales figure changes with the selling price.

Implications for Business Planning

Understanding the breakeven point helps businesses in multiple areas:

- Pricing Strategies: Setting a selling price that achieves desired profit margins while maintaining a feasible breakeven point.
- Cost Management: Analyzing fixed and variable costs to identify areas for reduction.
- Sales Targets: Establishing clear sales goals to reach profitability.

- Profit Planning: Calculating how much sales are needed for targeted profits beyond breakeven.

Additional Considerations

- Margin of Safety: The difference between actual or projected sales and breakeven sales, indicating how much sales can fall before the business incurs a loss.
- Sensitivity Analysis: Evaluating how changes in fixed costs, variable costs, or selling price affect the breakeven point.
- Contribution Margin Ratio: The proportion of each sales dollar that contributes to fixed costs and profit.

Conclusion

When fixed costs are \$90,000 and variable costs constitute 70% of the selling price, the breakeven sales in dollar terms are consistently \$300,000, regardless of the unit selling price. This calculation hinges on understanding the contribution margin per unit and the relationship between fixed and variable costs. Effective use of breakeven analysis enables businesses to set realistic sales targets, optimize pricing strategies, and manage costs proactively.

By carefully analyzing these parameters, entrepreneurs and managers can make informed decisions that enhance profitability and ensure long-term business sustainability.

Frequently Asked Questions

How do you calculate the breakeven sales when fixed costs are \$90,000 and variable costs are 70% of the selling price?

Breakeven sales can be calculated using the formula: $\text{Breakeven Sales} = \frac{\text{Fixed Costs}}{(1 - \text{Variable Cost Percentage})}$. Here, it's $\frac{\$90,000}{(1 - 0.70)} = \frac{\$90,000}{0.30} = \$300,000$.

What is the breakeven sales amount if fixed costs are \$90,000 and variable costs are 70% of the selling price?

The breakeven sales amount is \$300,000.

If fixed costs are \$90,000 and variable costs are 70% of the selling price, what is the contribution margin ratio used to find breakeven sales?

The contribution margin ratio is $1 - 0.70 = 0.30$, or 30%.

Why is understanding the relationship between fixed costs and variable costs important for calculating breakeven sales?

Because breakeven sales depend on covering fixed costs through contribution margin, which is affected by variable costs; understanding this ratio helps determine the sales needed to break even.

How does an increase in fixed costs impact the breakeven sales when variable costs are 70% of the selling price?

An increase in fixed costs will increase the breakeven sales amount, as more sales are needed to cover higher fixed expenses.

Can you explain the significance of the 70% variable cost in determining profitability and breakeven point?

A 70% variable cost means a high proportion of sales goes toward variable expenses, reducing the contribution margin. This increases the breakeven sales needed to cover fixed costs, highlighting the importance of managing variable costs to improve profitability.

Additional Resources

Break-even Analysis with Fixed Costs of \$90,000 and Variable Costs at 70% of Selling Price

Understanding the concept of breakeven sales is fundamental for any business aiming to achieve financial stability and profitability. When fixed costs are known and variable costs are expressed as a percentage of the selling price, it becomes straightforward to determine the sales volume required to cover all expenses – the breakeven point. This detailed analysis explores how to compute breakeven sales under the given parameters, delving into the core concepts, formulas, practical implications, and strategic considerations.

Introduction to Breakeven Analysis

Breakeven analysis helps businesses identify the sales level at which total revenues equal total costs, meaning no profit or loss occurs. It is an essential tool for:

- Planning and setting sales targets
- Pricing strategies
- Cost management
- Profit forecasting

The primary components involved in breakeven analysis are:

- Fixed Costs: Expenses that remain constant regardless of sales volume (e.g., rent, salaries, insurance).
- Variable Costs: Expenses that fluctuate directly with sales volume (e.g., raw materials, direct labor).
- Selling Price (Per Unit): The price at which each unit is sold.
- Contribution Margin: The amount each unit contributes toward covering fixed costs after variable costs are deducted.

Given Data & Assumptions

To analyze the breakeven point accurately, let's specify the known data and assumptions:

- Fixed Costs (FC): \$90,000
- Variable Costs (VC): 70% of the selling price
- Selling Price (SP): Unknown; to be derived or assumed for calculation

Assuming the selling price per unit is denoted as P, then:

- Variable Cost per Unit (VCU): 70% of P, i.e., $0.70 \times P$

The goal is to determine the breakeven sales in monetary terms or units sold, given these parameters.

Understanding the Contribution Margin

The contribution margin per unit is the difference between the selling price and variable costs:

$$\text{Contribution Margin per unit} = P - \text{VCU} = P - 0.70P = 0.30P$$

This indicates that for each unit sold, 30% of the selling price contributes toward covering fixed costs and generating profit.

Calculating the Breakeven Point in Units

The breakeven point in units (Q) is the sales volume needed to cover fixed costs:

$$Q = \frac{\text{Fixed Costs}}{\text{Contribution Margin per unit}}$$

Substituting the known values:

$$Q = \frac{90,000}{0.30P}$$

This formula shows that the breakeven quantity depends on the selling price P. To find the actual number of units, a specific selling price must be assumed or determined.

Calculating Breakeven Sales in Dollar Terms

The breakeven sales in dollars (S) are:

$$S = P \times Q = P \times \frac{90,000}{0.30P} = \frac{90,000}{0.30} = 300,000$$

Notice that the selling price cancels out, indicating that the breakeven sales in dollar terms depend solely on fixed costs and the contribution margin ratio, regardless of the actual selling price.

Key insight:

- Breakeven sales (dollars) = Fixed costs / Contribution margin ratio

Where the contribution margin ratio (CMR) is:

$$\begin{aligned} \text{CMR} &= \frac{\text{Contribution Margin per unit}}{\text{Selling Price}} \\ &= \frac{0.30P}{P} = 0.30 \end{aligned}$$

Thus,

$$\boxed{\text{Breakeven Sales} = \frac{\text{Fixed Costs}}{\text{Contribution Margin Ratio}} = \frac{90,000}{0.30} = 300,000}$$

This is a critical result: The breakeven sales in dollars are \$300,000, regardless of the actual selling price, as long as variable costs are 70% of the selling price.

Interpreting the Results

The calculations reveal several important points:

- Breakeven sales in dollars are \$300,000. This means the business needs to generate \$300,000 in revenue to cover all fixed and variable costs.
- Units to sell depend on the selling price. For example:
- If $P = \$10$, then:

$$Q = \frac{90,000}{0.30 \times 10} = \frac{90,000}{3} = 30,000 \text{ units}$$

- If $P = \$20$, then:

$$Q = \frac{90,000}{0.30 \times 20} = \frac{90,000}{6} = 15,000 \text{ units}$$

- The higher the selling price, the fewer units need to be sold to break even, but total revenue needed remains \$300,000.

Implications for Pricing Strategies

Understanding the breakeven point in dollar terms facilitates strategic decision-making regarding pricing:

- Pricing Flexibility: Since breakeven sales in dollars are unaffected by the selling price (given the fixed costs and variable cost ratio), businesses can set prices based on market conditions, competition, and perceived value without impacting the breakeven threshold.
- Profit Margin Optimization: Increasing the selling price raises the contribution margin per unit, reducing the required unit sales to breakeven.
- Cost Management: Lowering fixed costs or variable costs (e.g., negotiating better supplier terms) can also reduce the breakeven sales target.

Sensitivity Analysis: What if Variable Costs Change?

Suppose variable costs are not fixed at 70% but vary with the selling price:

- Lower Variable Cost Percentage: If variable costs decrease to 60%, the contribution margin ratio increases to 40%, lowering the breakeven sales:

$$\text{Breakeven Sales} = \frac{90,000}{0.40} = 225,000$$

- Higher Variable Cost Percentage: If variable costs increase to 75%, the contribution margin ratio drops to 25%, increasing breakeven sales:

$$\text{Breakeven Sales} = \frac{90,000}{0.25} = 360,000$$

This demonstrates the importance of controlling variable costs to improve profitability and reduce the sales volume needed to break even.

Practical Applications and Limitations

Practical Applications:

- Setting realistic sales targets based on revenue goals.

- Evaluating the impact of pricing strategies on breakeven sales.
- Planning for scenarios where costs fluctuate.
- Establishing thresholds for profitability and risk management.

Limitations:

- Assumes linear costs and revenues, which may not hold in complex real-world scenarios.
- Does not account for market elasticity—selling prices may influence demand.
- Assumes fixed costs remain constant within the relevant range.
- Only applicable if variable costs are a consistent percentage of the selling price.

Conclusion and Strategic Takeaways

In summary, when fixed costs are \$90,000 and variable costs are 70% of the selling price:

- Breakeven sales in dollar terms are \$300,000, regardless of the selling price.
- The number of units to sell depends on the chosen selling price, with higher prices reducing unit sales needed.
- Managing variable costs and fixed expenses is critical to lowering the breakeven point.
- Strategic pricing, cost control, and market analysis should be aligned to ensure sales targets are attainable and profitability is optimized.

Understanding this relationship enables managers and entrepreneurs to make informed decisions, set achievable sales goals, and devise strategies to reach profitability efficiently. It emphasizes the importance of cost management and pricing strategies in achieving financial stability and growth.

In essence, the key takeaway is that in a scenario where variable costs are a fixed percentage of the selling price, the dollar amount of breakeven sales remains constant at fixed costs divided by the contribution margin ratio. This insight simplifies planning and highlights the importance of cost control and strategic pricing in business success.

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