

Calculating Break-even Points

Break-even refers to the point where there is no profit and no loss. It is the point where revenue exactly covers all costs.

The calculation of break-even point assists a business to make sound financial decisions around controlling costs, pricing, revenue, sales volume and profitability. Break-even is a useful tool for managing your business. There are two major methods available for calculating break-even points. They are the dollar basis method and unit basis method.

Dollar Basis

We will use the following simple profit and loss scenario to calculate the break-even using the dollar basis method.

Dollar Basis Method		
Revenue	\$1,500,000	100%
Variable Expenses (COGS / COS)	\$800,000	53.33%
Gross Profit	\$700,000	46.67% (Gross margin)
Fixed Expenses	\$500,000	33.33% (Fixes expense ratio)
Operating Profit	\$200,000	13.33%

Break even revenue	=	$\frac{\text{Fixed expense}}{\text{Gross margin}}$
	=	$\frac{\$500,000}{46.67\%}$
	=	\$1,071,352

In this situation, if the business generates revenue of \$1,071,352 it would be at break-even point, that is, the point where revenue exactly covers all costs.

Unit Basis Method

The Unit basis break-even method can be used in situations where the business needs to know how many units of product need to be sold to break-even. This method will work for business' that sell a defined unit of measure such as cars, metres of steel, or consultancy labour hours.

We will use the same profit and loss statement above to calculate the break-even point using the unit basis method.

The owner has calculated the following:

- Average price per unit \$500.00
- Average cost per unit (GOGS) \$266.67
- Gross Profit per unit \$233.33
- Gross Margin 46.67%

Break even revenue	=	$\frac{\text{Fixed expense}}{\text{Gross profit per unit}}$
	=	$\frac{\$500,000}{\$233.33}$
	=	2142.9 units

In this situation, if the business sells 2143 units it would be at break-even point, that is, the point where revenue exactly covers all costs.

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