

Break-even Point Analysis

Calculating the breakeven point is a key financial analysis tool used by business owners. Once you know the fixed and variable costs for the product your business produces or a good approximation of them, you can use that information to calculate your company's breakeven point. Small business owners can use the calculation to determine how many product units they need to sell at a given price point to break even.

What Is the Breakeven Point?

A company's breakeven point is the point at which its sales exactly cover its expenses.

To compute a company's breakeven point in sales volume, you need to know the values of three variables:

Fixed costs : Costs that are independent of sales volume, such as rent

Variable costs : Costs that are dependent on sales volume, such as the cost of manufacturing the product

Selling price : of the product

How to Calculate Breakeven Point?

In order to calculate your company's breakeven point, use the following formula:

$$\text{Fixed Costs} \div (\text{Price} - \text{Variable Costs}) = \text{Breakeven Point in Units}$$

In other words, the breakeven point is equal to the total fixed costs divided by the difference between the unit price and variable costs. Note that in this formula, fixed costs are stated as a total of all overhead for the firm, whereas Price and Variable Costs are stated as per unit costs — the price for each product unit sold.

The denominator of the equation, price minus variable costs, is called the contribution margin. After unit variable costs are deducted from the price, whatever is left — the contribution margin — is available to pay the company's fixed costs.

An Example of Finding the Breakeven Point

XYZ Corporation has calculated that it has fixed costs that consist of its lease, depreciation of its assets, executive salaries, and property taxes. Those fixed costs add up to \$60,000. Their product is the widget. Their variable costs associated with producing the widget are raw material, factory labor, and sales commissions. Variable costs have been calculated to be \$0.80 per unit. The widget is priced at \$2.00 each.

Given this information, we can calculate the breakeven point for XYZ Corporation's product, the widget, using our formula above:

$$\text{\$60,000} \div (\text{\$2.00} - \text{\$0.80}) = \text{50,000 units}$$

What this answer means is that XYZ Corporation has to produce and sell 50,000 widgets in order to cover their total expenses, fixed and variable. At this level of sales, they will make no profit but will just break even.

What Happens to the Breakeven Point If Sales Change?

What if your sales change? For example, if the economy is in a recession, your sales might drop. If sales drop, then you may risk not selling enough to meet your breakeven point. In the example of XYZ Corporation, you might not sell the 50,000 units necessary to break even. In that case, you would not be able to pay all your expenses. What can you do in this situation?

If you look at the breakeven formula, you can see that there are two solutions to this problem: you can either raise the price of your product or you can find ways to cut your costs, both fixed and variable.

How Cutting Costs Affects the Breakeven Point?

Let's say you find a way to cut the cost of your overhead or fixed costs by reducing your own salary by \$10,000. That makes your fixed costs drop from \$60,000 to \$50,000.

Using the same formula and holding all other variables the same, the breakeven point would be:

$$\mathbf{\$50,000 \div (\$2.00 - \$0.80) = 41,666 \text{ units}}$$

Predictably, cutting your fixed costs drops your breakeven point.

If you reduce your variable costs by cutting your costs of goods sold to \$0.60 per unit, on the other hand, then your breakeven point, holding other variables the same, becomes:

$$\mathbf{\$60,000 \div (\$2.00 - \$0.60) = 42,857 \text{ units}}$$

From this analysis, you can see that if you can reduce the cost variables, you can lower your breakeven point without having to raise your price.

Relationships Between Fixed Costs, Variable Costs, Price, and Volume

As the owner of a small business, you can see that any decision you make about pricing your product, the costs you incur in your business, and sales volume are interrelated. Calculating the breakeven point is just one component of cost-volume-profit analysis, but it's often an essential first step in establishing a sales price-point that ensures a profit.