How To Perform a Cost Volume Profit Analysis

Many businesses use certain calculations to help managers carry out their responsibilities effectively. Cost volume profit analysis is a common method used to calculate future business revenues. The technique is effective in helping businesses plan well. In this article, we define what cost volume profit analysis is and how to it and provide an example of cost volume profit analysis.

What is cost volume profit analysis?

Cost volume profit analysis is mathematical equation businesses apply to see how many units of a product they need to sell to gain a profit or cover costs. Some also refer to this as break-even analysis. Businesses use this formula to determine how the changes in fixed costs, variable costs and sales volume can contribute to the profits of a business.

Business owners often analyze how many units they must sell to earn enough money to cover business costs. This may help them understand how to improve their performance. For example, a sock company may use the cost volume profit analysis to understand how many socks they need to sell to earn a $70,000 profit.

The cost volume profit analysis contains different components. These components are:

- **Fixed costs:** These are the costs that don't fluctuate with changes in sales or product productions. Examples of fixed costs include rent and advertising.
- **Variable costs:** These are the costs that change as the quantity of products changes. Examples of variable costs include raw materials and direct labor.
- **Contribution margin:** This is the difference between the total variable costs and the total revenue of a business.
- **Contribution ratio:** This is the contribution margin expressed as a percentage.
- **Sales volume:** This is the quantity of products businesses sell during a specific period.
- **Break-even point:** This is when the total costs and total revenue are equal, meaning the business is neither making a loss or profit.
- **Selling price:** This is the amount a customer pays for your product.

Advantages of using cost volume profit analysis

The cost volume profit analysis offers advantages to help you make good business decisions. It is an effective method that helps accountants make decisions that help with future operations. Some advantages of using cost volume profit analysis include:

- **Saving time:** Performing a cost volume profit analysis helps accountants save time compared with other accounting analysis tools.
- **Improving decision making:** The cost volume profit analysis helps managers make proactive decisions that influence budgeting and increase production efforts to achieve profitability.
- **Improving product selection:** The cost volume profit analysis can help you analyze which products are the most profitable and how a business can manufacture more products to increase revenue.
- **Managing costs:** Performing a cost volume profit analysis helps to prevent spending money on unnecessary distribution and production costs.

How to calculate cost volume profit analysis

Here are the steps to follow for how to calculate cost volume profit analysis:

1. Calculate the sum of fixed costs

Calculate your company's total fixed costs by adding up the costs of things like marketing, salaries, rent and insurance. There is also a simple formula you can use to do this. Start by distinguishing your fixed costs and your variable costs, then start calculating all your production costs. Subtract your production costs from your variable costs, and multiply the number by the number of produced units.

Here is the formula to calculate the sum of fixed costs:

Total cost of production - (variable cost per unit x number of units produced) = fixed costs

Read more: What Is a Fixed Cost and How Do I Determine It

2. Determine the selling price of the product

The cost volume profit analysis can help you estimate if your selling price can help you earn your desired profits. Determine the selling product of your price by evaluating your variable costs and net sales. Start by calculating the variable cost per unit by dividing your total variable costs for a period by the number of units produced during that period. For example, if you produced 100 tables in a month and your total variable costs were $10,000, your variable cost per unit would be $100.

Determine your company's net sales, which is the money you earn for selling the product after subtracting discounts, returns and allowances. Use net sales and the total variable costs to determine the contribution margin per unit. Subtract the total variable

costs from the total net sales, and divide this number by the number of units produced. For example, if you produced 200 lamps for a variable cost of $8,000 and net sales of $13,000, the contribution margin would be $5,000 with a contribution margin per unit of $25.

Add the variable cost per unit and the contribution margin per unit. This is the selling price per unit. For example, if frying pan has a variable cost per unit of $30 and a contribution margin per unit of $15, its selling price per unit would be $45.

Read more: How To Find the Selling Price per Unit (With Examples)

3. Calculate the variable cost per unit

Variable costs change. For example, you produce more of your product, the variable costs increase. However, when you produce less of your product, your variable costs decrease. Evaluate the following costs to find the variable costs:

- **Direct labor:** What you pay your workers hourly to create the final product
- **Direct material:** The raw materials used for the final product
- **Variable manufacturing overhead:** The hourly wages you pay for shipping, machinery and the manufacturing supervisors

Add these costs together to calculate the variable cost per unit. For example, the sock manufacturer may say they are taking $10 in direct material, $10 in direct labor and $20 in overhead to manufacture one set of socks. The variable cost per unit is $40, which is the sum of direct material, direct labor and variable manufacturing overhead.;

Read more: How To Calculate Total Variable Cost

4. Calculate the contribution margin and contribution margin ratio

To find the contribution margin, you must first subtract the variable cost per unit from the unit selling price. The difference you get informs you how much profit can remain that you can use to cover the fixed costs. Here is the formula:

Variable costs per unit - unit selling price = contribution margin

To find the contribution margin ratio, divide the contribution margin by the unit selling price. Here is the formula:

Contribution margin / unit selling price = contribution margin ratio

5. Perform the cost volume profit analysis

Use your previous calculations to conduct the cost volume profit analysis. There are multiple formulas you can use to calculate cost volume profit analysis and determine how many units you need to sell to earn your desired profits. Here's an example of a common formula:

Fixed costs / (price - variable costs) = break-even sales volume

Example of cost volume profit analysis

Here is an example of how to calculate cost volume profit analysis:

Greg's Socks LLC calculated their fixed costs are $7,000 every month. The fixed costs include marketing, rent, insurance, salaries and raw materials. It costs $2.65 to produce a pair of socks and each pair sells for $8, earning a profit of $5.35 for each pair. Using the common formula, here's the cost volume profit analysis:

$7,000 / ($8.00 - $5.35) = 2,641.51

This means that Greg's Socks LLC has to sell a minimum of 2,642 pairs of socks every month to achieve the break-even point of $7,000.