



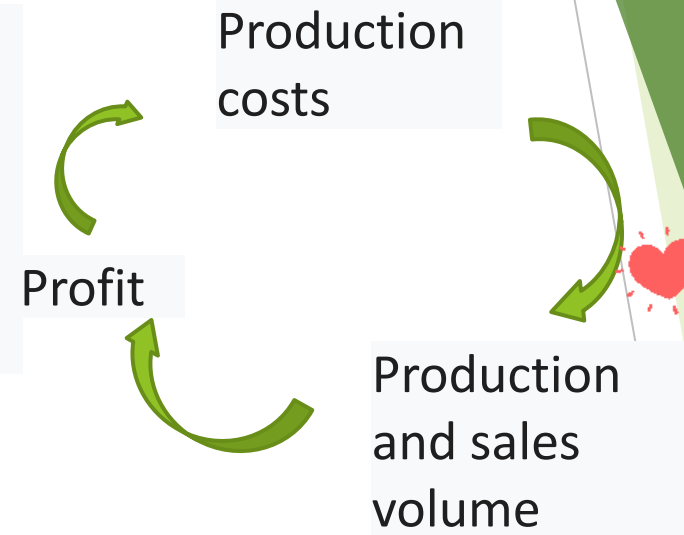
# The relationship between cost-volume production and sales-profit

Break-even analysis

Cost-Volume-Profit Analysis (CV) is a crucial tool for supporting decision-making by financial professionals and managers. When determining sales targets, managers often ask:

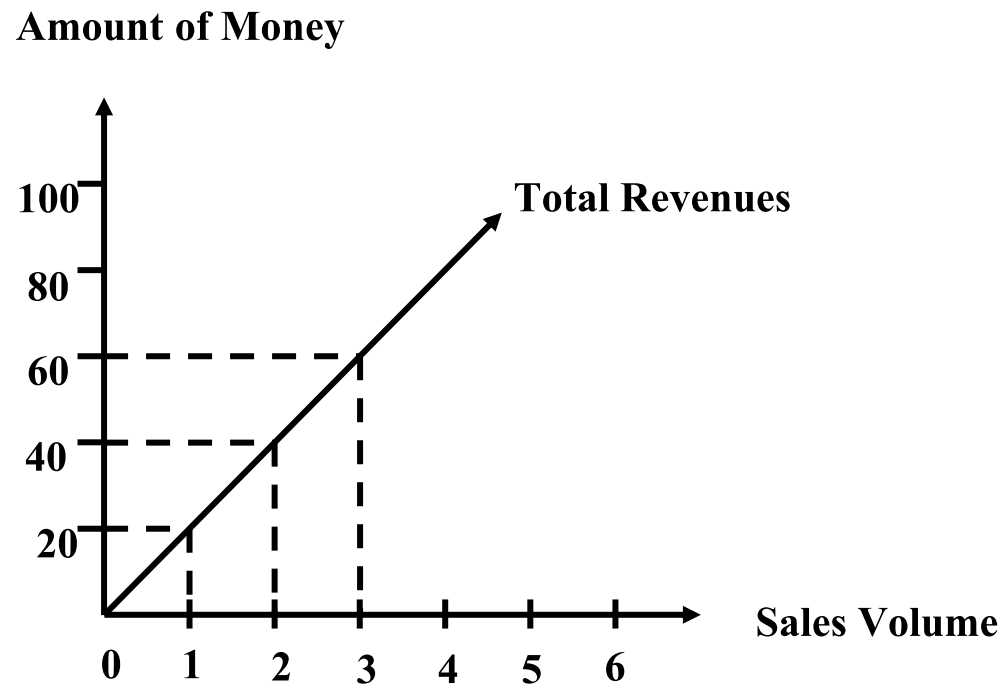
1. How much should we produce and sell to break even?
2. How much should we sell to achieve our target profit?

Such analysis will impact profitability, selling price, production volume, variable cost per unit, and total fixed cost. Therefore, understanding this relationship will enable managers to make better decisions.



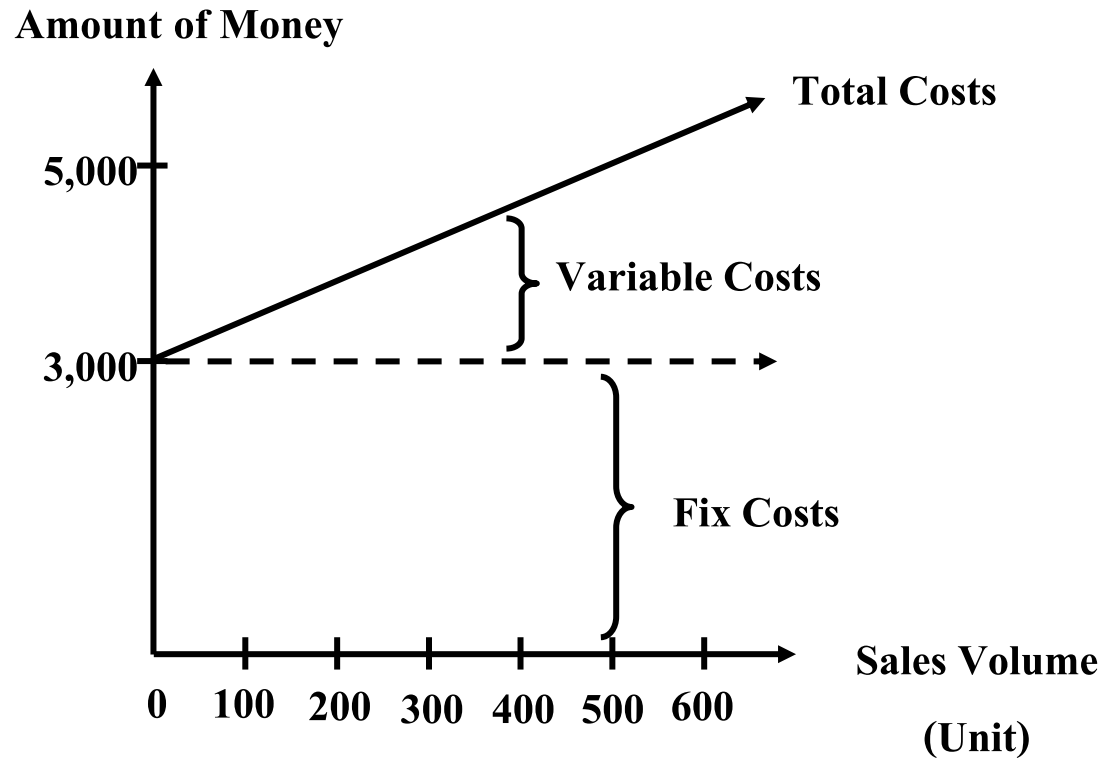
## assumptions

1. Sales volume drives both revenue and expenses. For example, the more you sell, the more revenue you generate and the more expenses you incur.
2. The selling price per unit remains constant, whether you sell more or less, but revenue increases according to the volume sold.



## assumptions

Total variable costs change with the volume produced and sold, while total fixed costs do not change with the volume produced and sold.



# Cost-volume-profit analysis

Cost-volume-profit analysis refers to analyzing the relationship between costs, sales volume, and profit in order to determine the company's sales targets.

A popular technique in this analysis is break-even point analysis, which means finding the sales volume that results in total revenue equaling total costs, or the sales volume that results in net profit being zero.



# break even point

in total revenue equaling total costs, or finding the sales quantity that results in net profit of zero.



The break-even point is the selling point at which profit becomes zero, or revenue equals expenses.

Exp. Chao Phraya Company Limited plans to produce and sell 30,000 units of its product next month. The company has estimated the selling price at 40 baht per unit, estimated variable costs at 25 baht per unit, and fixed costs at 360,000 baht. Therefore, how many units (Q) must the company sell to reach the break-even point?

$$40Q - 25Q - 360,000 = 0$$

$$15Q = 360,000$$

$$Q = 360,000 / 15$$

$$Q = 24,000 \text{ Unit}$$

Therefore, the number of units of product sold to reach the break-even point must be 24,000 units, which would result in zero profit. If the company sells less than 24,000 units, it will incur a loss.



# Target profit

In the normal course of business operations, no business aims solely to break even. All businesses strive to generate profits. Therefore, cost, volume, and profit analysis answers the management's question: how much sales volume is needed, or how much revenue must be generated, to achieve the desired profit and ensure the business's stability?

# Target profit is defined as revenue > expenses.

Formula: Total Revenue - Fixed Costs - Variable Costs = Desired Profit

Exc. Chao Phraya Company Limited's management wants an operating profit before tax of 120,000 baht. Estimated selling price per unit is 40 baht, estimated variable cost is 25 baht per unit, and estimated total cost is 360,000 baht. Therefore, how many units (Q) must the company sell to achieve an operating profit before tax of 120,000 baht?

$$40Q - 25Q - 360,000 = 120,000$$

$$15Q = 360,000 + 120,000$$

$$Q = 480,000 / 15$$

$$Q = 32,000 \text{ Unit}$$

Therefore, the number of units sold that will result in pre-tax profit is 32,000 units. To reach the break-even point, the company needs to sell 24,000 units, which will result in zero profit. If the company sells less than 24,000 units, it will incur a loss.



