

6 Operating Leverage

Diagrams 7, 8 and 9 depict the issue of operating leverage in three different companies that sell the same product. Company “First” maintains a low level of fixed assets therefore its fixed costs (€30,000), are not high. But, in order to offset this weakness it “suffers” from high variable expenses (€2). Company “Second” experiences lower variable costs (€1.5), as a consequence of having invested in new, more productive machinery (fixed costs €50,000). This company ends up with a greater break-even value, due to the higher fixed expenses. So, at €15,000 units company “First” breaks-even, but “Second” is making loss. Finally, company “Third” has spent large amount in buying latest machinery and building plants (resulting to a fixed costs of €60,000). Its production is fully automated and fewer workers are needed. As a result variable expenses rise (according to production’s increase) at a very low rate. Break-even value for company “Third” is higher than the one that “Second” experiences. But, beyond this point its profits highly increase at each level of rising sales. This is a useful information for its Marketing Department and generally for its management when it prepares company’s pricelist.

We took the selling price (€4) for granted, but what will happen if company “Third” decides to increase its market share by cutting the selling price? The following table gives us the answer:

Selling Price: €4

	First	Second	Third
Total Cost (€)	430,000	350,000	260,000
Units Sold	200,000	200,000	200,000
Cost per unit (€)	2.15	1.75	1.30

Company “First”

Selling Price: €4

Fixed Expense: €30,000

Variable Cost (per unit): €2

Items Sold	Sales (€)	Total Cost (€)	Profit (€)
10,000	40,000	50,000	(10,000)
15,000	60,000	60,000	0
50,000	200,000	130,000	70,000
60,000	240,000	150,000	90,000
100,000	400,000	230,000	170,000

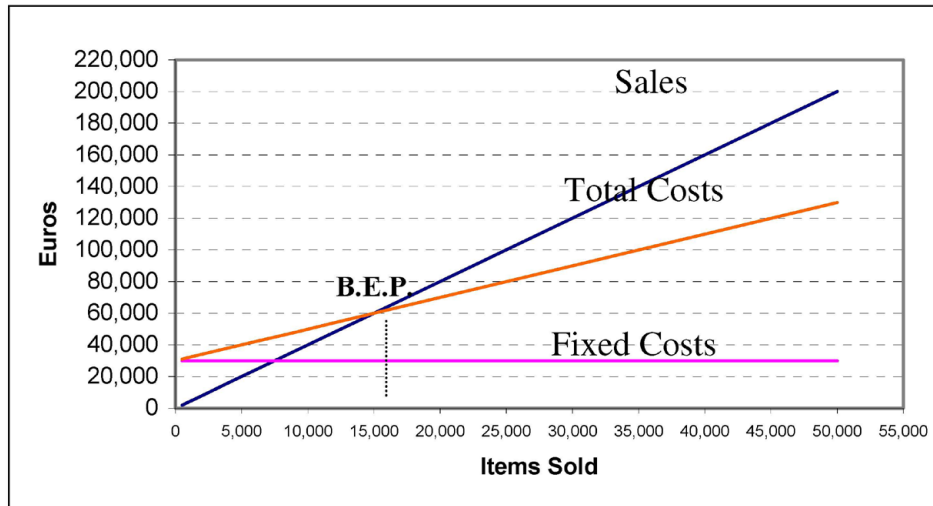


Diagram 7: Break-Even Point Graph, Company "First"

Company "Second"

Selling Price: €4

Fixed Expense: €50,000

Variable Cost (per unit): €1.5

Items Sold	Sales (€)	Total Cost (€)	Profit (€)
10,000	40,000	65,000	(25,000)
20,000	80,000	80,000	0
50,000	200,000	125,000	75,000
60,000	240,000	140,000	100,000
100,000	400,000	200,000	200,000

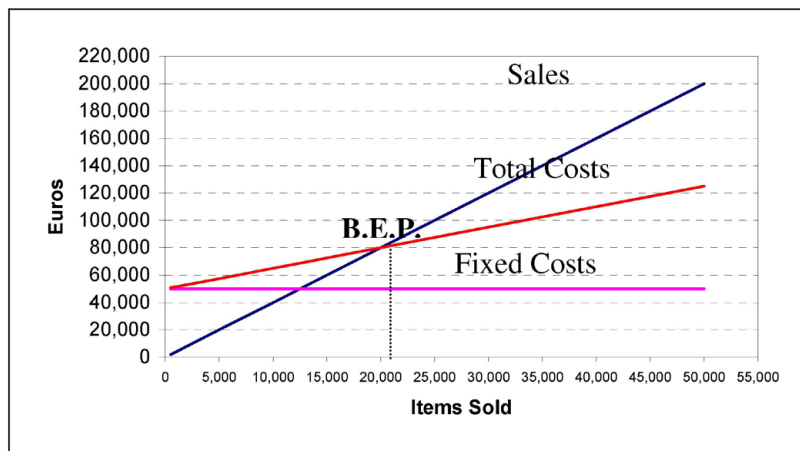


Diagram 8: Break-Even Point Graph, Company "Second"

Company "Third"

Selling Price: €4

Fixed Expense: €60,000

Variable Cost (per unit): €1

Items Sold	Sales (€)	Total Cost (€)	Profit (€)
10,000	40,000	70,000	(30,000)
20,000	80,000	80,000	0
50,000	200,000	110,000	90,000
60,000	240,000	120,000	120,000
100,000	400,000	160,000	240,000

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Diagram 9: Break-Even Point Graph, Company "Third"

When there is mass production (200,000 units) total cost per unit for company "Third" is €1.30, which gives a significant cost advantage against competitors "First" and "Second". In this case, company "Third" can lower the selling price and offer its products at the price of €2. This price knocks out of competition company "First", while company "Second" makes marginal profits. It is, therefore, obvious that there is an interaction between investment in fixed assets, variable costs and invoicing.

Operating leverage relates sales (in volume) with operational earnings. Mathematically, it can be defined as the ratio of percentage change in operating earnings to percentage change in sales (or units sold).

$$\text{Degree of Operating Leverage} = \frac{\% \Delta X}{\% \Delta Q}$$

X = Profits,

ΔX = Change in profits

Q = Sales (volume)

ΔQ = Changes in sold items

Applying the above formula to companies “First” and “Second” and for sales volume 60,000 units (from 50,000 units) we find out that operating level is 1.43 and 1.65 respectively. The meaning is that if company “Second” sells 10% more products, its profits will raise by 16.5%, while if company “First” experiences same rise in sales, it will end up with a 14.3% growth in its profits. So, earnings of company “Second” are more sensitive to changes in the volume of items’ sold than earnings of company “First”. In other words, the larger the degree of operating leverage, the greater the profits’ volatility.

Consequently, a high degree of operating leverage implies that an aggressive price policy (a situation where products’ prices decrease in the expectation of relatively higher increase in units sold) may lead to an important rise of profits, especially if the subject market is sensitive to products prices (e.g. pharmaceuticals).



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