

Management Accounting

Week 3 Part 1

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Content

- CVP (Cost-Volume-Profit) Relationship
- Relevant cost and revenue
- Decision making

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Key terminology

- Gross Profit = Total revenue – Cost of Goods Sold
- Contribution Margin = Total Revenue – All variable cost
- Operating profit = Gross Profit – Operating Cost
- Operating profit = Contribution Margin – All fixed cost
- Operating profit = total revenue – total costs (fixed cost + variable cost)
- Net profit = Operating profit + non-operating income – non-operating expense – income taxes

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Brilliant Accents Company manufactures and sells three styles of Kitchen faucets: Brass, Chrome and White. Production takes 25, 25 and 10 machine hours to manufacture 1000-unit batches of brass, chrome and white faucets, respectively. The following additional data apply:

			Brass	Chrome	White
Projected sales in units			30.000	50.000	40.000
Per unit data					
Sales price		€	400	€ 200	€ 300
Direct materials		€	80	€ 40	€ 80
Direct labor		€	150	€ 30	€ 90
Overhead cost based on direct labor hours (traditional system)		€	120	€ 30	€ 90

a) Using the traditional system, determine the operating profit per unit for the Brass faucets

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1. Answer: Operating profit Brass = 50

Calculations:

		Brass
a	Operating profit per unit	
	Sales price	400
	Direct materials	80
	Direct labor	150
	Overhead	120
	Operating profit	50

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Cost-volume-profit relationship

- Total cost and total revenue are linear regarding to the output
- Total costs can be divided into fixed and variable component
- Unit selling price, unit variable price and fixed cost are known and constant

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Cost and Revenue Function

Cost-Function

$Y = ax + b$, b is the fixed cost, the gradient a is the variable cost

Fixed cost is 3000 per month, the variable cost is 30, the cost function will be

$$Y = 30x + 3000$$

Revenue Function

$Y = cx$, where the gradient c is the sales price, the product is sold at 60 euro per unit, then $Y = 60x$

The intercept of the cost and revenue function is the break even point

Profit = Revenue Function – Cost Function

Break-even point

- Breakeven point represents the quantity where total cost = total revenue
- For example, A produced dress at a variable manufacturing cost of 30 per dress and non-manufacturing variable 10 euro per dress, the total fixed cost is 10000 euro. A sells each dress at 65 euro, what is the break-even point

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A produced dress at a variable manufacturing cost of 30 per dress and non-manufacturing variable 10 euro per dress, the total fixed cost is 10000 euro. A sells each dress at 65 euro. What if the tax rate is 20%. A now wants to earn after tax profit of 10000 euro, how many dresses should A sell?

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Revenue Mix Cases

- Produce more than one product or service
- There will be a fixed ratio among the products
- Equation method, understand the concept of a bundle, representing the cost and revenue in terms of the bundle
- Represent the profit or break even point in terms of the equation of the bundle
- From the bundle, deduce back the amount of each product you will need

The fixed cost of a company is 8500 euro and the company sell two types of product: Advanced mobile phones and normal mobile phones. The selling price of the advanced mobile phone is 150 euro and the cost is 100 euro and the selling price of the normal mobile phone is 100 euro and the cost is 60 euro. The advanced mobile phone and the normal mobile phone always have a sales ratio of 1:3, in other words, 25% of the sales will be advanced mobile phone and 75% will be normal mobile phone. How many advanced mobile phones and normal mobile phones you will sell to make it break even?

Target Costing

- Target Costing = Target Revenue – Target Profit

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Brilliant Accents has been working on a new innovation: the QUOQUER. The QUOQUER can provide cooking water as well as cold water. Brilliant Accents has done market research, and it expects to sell the QUOQUER for € 695,00. In addition, Brilliant Accents has a target operating profit margin of 20% of revenues. Brilliant Accents has also gathered the following information on costs:

- In terms of the design of the faucet, the direct costs are similar to the Brass faucet, with two exceptions:
 - To heat and cool the water, an additional electrical element has to be purchased. The direct material costs associated with this element are €200,00;
 - Direct labour costs will increase with 50% due to additional assembly time.
 - As for the ABC costs, it is expected that the QUOQUER will sell 500 units in the first year; these 500 units will be manufactured in one batch.
 - The cost driver rates for the QUOQUER are similar to the cost driver rates for the Brass faucet. The hours per batch are also similar to the Brass faucet; i.e., the QUOQUER requires 10 setup hours and 30 inspection hours per batch).
- d) Calculate the 1) Target operating profit, and 2) the Target operating cost for the QUOQUER.
- e) Given the cost information above, what is the required cost saving for the QUOQUER (if any)?

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4. Answer:

TOP = 139 euro; Target cost = 556 euro

d	Target sales price		€	695,00
	Profit margin			20%
	1) TOP		€	139,00
	2) Target cost		€	556,00

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Continued

- Sensitivity analysis
 - What if
- Margin of safety
 - How far budget revenue can drop before the break-even point
- Operating leverage
 - High risk, high return
 - Greatest with high fixed expense and low variable expense (railway)
 - Degree of leverage = contributing margin / operating profit

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Exam Practice

Ruben intends to sell his customers a special international round-trip train ticket package to Amsterdam, Berlin, Paris and Brussels. He is able to purchase the package from an international consortium of train companies for €150 each. The round-trip tickets will be sold for €200 each, and the consortium intends to reimburse Ruben for any unsold ticket packages. Fixed costs include €5.000 in advertising costs.

How many ticket packages will Ruben need to sell in order to break even?

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How many ticket packages will Ruben need to sell in order to achieve an operating income of €60.000?

For every € 25,000 of ticket packages sold, operating income will increase by