Additional Cost-volume-profit analysis (CVP) notes Semester 2 2014 MAC3701

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CVP

MAC2601 ASSUMED PRIOR KNOWLEDGE:
Study unit 29: CVP

Make sure you know & understand the CVP formulas and the format of a contribution statement of profit or loss and other comprehensive income

The basic format of a contribution statement of profit or loss and other comprehensive income is as follows:

	R
Sales	xxx
Less: Variable costs	(xx)
Contribution	xxx
Less: Fixed costs	(xx)
Profit	xxx

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MAC2601 ASSUMED PRIOR KNOWLEDGE:
Study unit 29: CVP

Remember the following:

(Sales – variable cost) – fixed cost = Profit

break-even units,
break-even value,
margin of safety
units, margin of
safety %, contribution
ratio…

Let the sales quantity be *SQ*, the selling price per unit *SP*, variable costs per unit *VC* and fixed costs *FC* and assume an entity would like to arrive at a specified profit.

By rewriting *Equation 1* above, we can isolate the sales quantity which we would like to determine, as follows:

$(SQ \times SP) - (SQ \times VC) - FC$	=	Required profit
$SQ \times (SP - VC)$	=	Required profit + FC
$SQ \times$ (contribution per unit)	=	Required profit + FC
SQ	=	$\dfrac{\text{Required profit} + FC}{\text{Contribution/unit}}$

Example 8.1 in Drury = good revision

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New in third year:
Multi-product cost-volume-profit analysis [Example 8.2 in Drury;
                                    TL102 (Q2b)]
                                    Q8.15 Drury

Graphs

Operating leverage = measure of the sensitivity of profits to changes in sales

Standard deviation and coefficient of variation
(You do not need to know how to calc std deviation or coefficient of variation, but you must be able to interpret them. You need to know how to calculate expected value).

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New in third year:
Multi-product cost-volume-profit analysis

Where more than one product is marketed, you have to bear in mind that each product has its own contribution ratio.

A sales mix must be established in order to calculate the contribution ratio on a weighted average basis.

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MAC3701 Example multi-product CVP
Calculate the breakeven quantity and value

Example: DEF manufactures and sells three products, D, E and F.

	Products			Total
	D	E	F	
Selling price per unit	R10	R15	R20	
Variable cost per unit	R7	R12	R18	
Common fixed cost in total				R26 000
Direct avoidable fixed cost				R30 000
Sales mix	5	3	2	

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MAC3701 Suggested solution to example

	Products			Total
	D	**E**	**F**	
Selling price per unit	R10	R15	R20	
Variable cost per unit	R7	R12	R18	
Contribution	R3	R3	R2	
Sales mix	5	3	2	10

Contribution per batch: (5 x R3) + (3 x R3) + (2 x R2) = R28

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MAC3701 Suggested solution to example

Contribution per batch: (5 x R3) + (3 x R3) + (2 x R2) = R28

Breakeven nr of batches = Total fixed cost
$$\frac{\text{Total fixed cost}}{\text{Contribution per batch}}$$

$$= \frac{R56\ 000}{R28}$$

= 2000 batches

= 2000 batches x 10 units per batch

= 20 000 units in total

          Breakeven Q   **Breakeven Value**
A = 5/10 x 20 000 =   10 000 units x R10 = R100 000
B = 3/10 x 20 000 =   6 000 units x R15 = R90 000
C = 2/10 x 20 000 =   4 000 units x R20 = R80 000

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