**Chapter two: Breakeven point analysis**

**The example and exercise**

 Example(1) / The total fixed cost for one company (80000) dinar and variable cost per unit (300) dinar and selling price per unit (500).

Required /

1. Determine Break even point by units .
2. Determine net income it was planned sales 401 unit .
3. Determine net income it was planned sales 800 unit .

Solution:

1. Breakeven point ( units) = 80000/ 200 = 400 unit.
2. Margin of Safety ( units) = 401 -400 = (1) one unit .

Net income = Margin of Safety units × Contribution margin for each unit

 = 1 – 200 = 200 dinar .

1. Margin of Safety ( units) = 800 – 400 = 400 unit.

Net income = Margin of Safety units × Contribution margin for each unit

 = 400 × 200 = 80000 dinar

Example (2) / The ratio margin safety for product (A) in one company's 40% the volume of actual sales was (10000) unit .

Required/ Determine Breakeven point by units .

Solution:

 Breakeven Ratio + Margin of Safety Ratio = 100%

Breakeven Ratio + 40% = 100%

Breakeven Ratio = 100% - 40% = 60%

Breakeven point by units = actual sales × Breakeven Ratio

 = 10000 unit × 60% = 6000 unit .

Example (3) / The fixed cost for one companies was (900000) dinar and variable cost per unit (500) dinar and selling price per unit (800) dinar and volume planned sales (5000) unit.

Required / Determine expected net income for volume sales 4000000 dinar .

1. Breakeven by units = 900000/ 300 = 3000 units .
2. Margin safety = 5000- 3000= 2000 unit .
3. Margin safety percentage = 2000/ 5000= 40%
4. Contribution margin percentage = Contribution margin / selling price unit

 = 300 / 800 = 37.5%

1. Net income percentage = Margin safety percentage × Contribution margin percentage .

 = 40% × 37.5% = 15 %

1. Expected net income = sales × Net income percentage

 = 4000000× 15% = 600000 dinar .

Example (4)/ Company ( M ) Achieved sales volume (1000000) dinar , loss by amount (200000) dinar and sales volume amount (2000000) dinar company achieved profit by amount (400000) dinar note that fixed cost was (800000) dinar .

Required /1- Determine Contribution margin percentage .

 2- Determine expected net income for sales volume amount (5000000)dinar .

1. Contribution margin percentage= the change in net income /the change in sales volume by amount

 = 400000- ( -200000) / 2000000- 1000000

 = 600000 / 1000000 = 60%

1. expected net income = amount volume × Contribution margin percentage – fixed cost

 = 5000000 × 60% - 800000 = 2200000 dinar

Example (5) / Company ( Ahmed ) produces and sells one product ,and comes with its related data .

1. Selling price 450 dinar .
2. Variable cost per unit 250 dinar /
3. Fixed cost 450000 dinar
4. Sales volume 5000 unit

Required/ Calculation Breakeven point and Margin safety by units .

Solution:

Breakeven by units = 450000 / 200 = 2250 unit.

Margin safety by units = 5000- 2250 = 2750 unit .

Example (6) / With reference to the example of Ahmed company assuming high fixed cost by amount ( 90000 ) dinar .

 Required/ what is the effect this high in Breakeven point and Margin safety .

Breakeven point after high fixed cost = 540000/ 200 = 2700 unit .

Margin safety by units after high fixed cost = 5000- 2700= 2300 unit

|  |  |  |  |
| --- | --- | --- | --- |
| Details  | Before high fixed cost  | After high fixed cost  | Effect |
| Breakeven point | 2250 | 2700 |  |
| Margin safety | 2750 | 2300 |  |

Example (7)/ With reference to the example of Ahmed company and assuming low fixed cost by amount ( 90000 ) dinar .

Required/ what is the effect this low in Breakeven point and Margin safety .

Breakeven point after low fixed cost = 360000 / 200 = 1800 unit .

Margin safety by units after low fixed cost = 5000- 1800= 3200 unit

|  |  |  |  |
| --- | --- | --- | --- |
| Details | Before low fixed cost  | After low fixed cost  | Effect |
| Breakeven point | 2250 | 1800 |  |
| Margin safety | 2750 | 3200 |  |

Example (8) / With reference to the example of Ahmed company and assuming high variable cost by amount ( 20 ) dinar per unit.

Required/ what is the effect this high in Breakeven point and Margin safety .

Solution:

Breakeven by units = 450000 / 180 = 2500 unit.

Margin safety by units = 5000- 2500 = 2500 unit .

|  |  |  |  |
| --- | --- | --- | --- |
| Details | Before high variable cost  | After high variable cost  | Effect |
| Breakeven point | 2250 | 2500 |  |
| Margin safety | 2750 | 2500 |  |

Example (8) / With reference to the example of Ahmed company and assumption low variable cost by amount ( 40 ) dinar for unit .

Required/ what is the effect this low in Breakeven point and Margin safety .

Breakeven point after low variable cost = 450000 / 240 = 1875 unit .

Margin safety by units after low variable cost = 5000- 1875= 3125 unit

|  |  |  |  |
| --- | --- | --- | --- |
| Details  | Before low variable cost  | After low variable cost  | Effect |
| Breakeven point | 2250 | 1875 |  |
| Margin safety | 2750 | 3125 |  |

Example (9) / With reference to the example of Ahmed company and assuming high selling price by amount ( 25 ) dinar for unit .

Required/ what is the effect this high in Breakeven point and Margin safety .

Solution:

Breakeven after high selling price = 450000 / 225 = 2000 unit.

Margin safety by units after high selling price = 5000- 2000 = 3000 unit .

|  |  |  |  |
| --- | --- | --- | --- |
| Details  | Before high selling price  | After high selling price  | Effect |
| Breakeven point | 2250 | 2000 |  |
| Margin safety | 2750 | 3000 |  |

Example (10) / With reference to the example of Ahmed company and assuming low selling price by amount ( 20 ) dinar for unit .

Required/ what is the effect this low in Breakeven point and Margin safety .

Solution:

Breakeven after low selling price = 450000 / 180 = 2500 unit.

Margin safety by units = 5000- 2500 = 2500 unit .

|  |  |  |  |
| --- | --- | --- | --- |
| Details  | Before low selling price  | After low selling price  |  Effect |
| Breakeven point | 2250 | 2500 |  |
| Margin safety | 2750 | 2500 |  |

Example (11) / With reference to the example of Ahmed company and assuming high sales volume by amount ( 1000 ) unit .

Required/ what is the effect this high in Breakeven point and Margin safety .

Solution:

Breakeven after high sales volume = 450000 / 200 = 2250 unit.

Margin safety by units = 6000- 2250 = 3750 unit .

|  |  |  |  |
| --- | --- | --- | --- |
| Details  | Before high sales volume  | After high sales volume  |  Effect  |
| Breakeven point | 2250 | 2250 |  |
| Margin safety | 2750 | 3750 |  |

Example (12) / With reference to the example of Ahmed company and assuming low sales volume by amount ( 1000 ) unit .

Required/ what is the effect this high in Breakeven point and Margin safety .

Solution:

Breakeven after low sales volume = 450000 / 200 = 2250 unit.

Margin safety by units after low sales volume = 4000 - 2250 = 1750 unit .

|  |  |  |  |
| --- | --- | --- | --- |
| Details  | Before high sales volume  | After high sales volume  |  Effect  |
| Breakeven point | 2250 | 2250 |  |
| Margin safety | 2750 | 1750 |  |

Example (13) / Industrial Company produces a particular product selling price (300) dinar per unit , variable cost (180)dinar per unit , fixed cost for company (21000) dinar contain fixed cost of carrying (Non cash) the amount of 6000 dinar .

Required /

1. Determine Breakeven point .
2. Determine closing point .
3. Prepare income statement for activity volume 175, 150 , 125 , 100 unit .

Solution:

1. Breakeven point = fixed cost / Contribution margin per unit .

 = 21000/ 120 = 175 unit .

1. closing point = fixed cost – depressions / Contribution margin per unit

 = 21000 – 6000 / 120 = 125 unit .

1. Levels income statement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Details  | 175 unit | 150 unit | 125 unit  | 100 unit |
| Sales Revenues -Variable costs = Contribution margin-Fixed cost \* Cash \* its carryingNet income  | 52500(31500)21000(15000)(6000)zero | 45000(27000)18000(15000)(6000)(3000) | 37500(22500)15000(15000)(6000)(6000) | 30000(18000)12000(15000)(6000)(9000) |

Exercise / Company (A) product selling price (20) dinar per unit , variable cost (15) per unit , fixed cost for company (40000) dinar and activate volume ( sales ) 12000 units .

Required/

1. Contribution margin per unit .
2. Total Contribution margin .
3. Contribution margin percentage.
4. Breakeven point by units and amounts.
5. Margin of safety by units and amounts.
6. Margin of safety percentage.
7. Net profit .
8. Closing point by units and amounts , if you know the fixed cost above contain deprecation (10000) dinar .