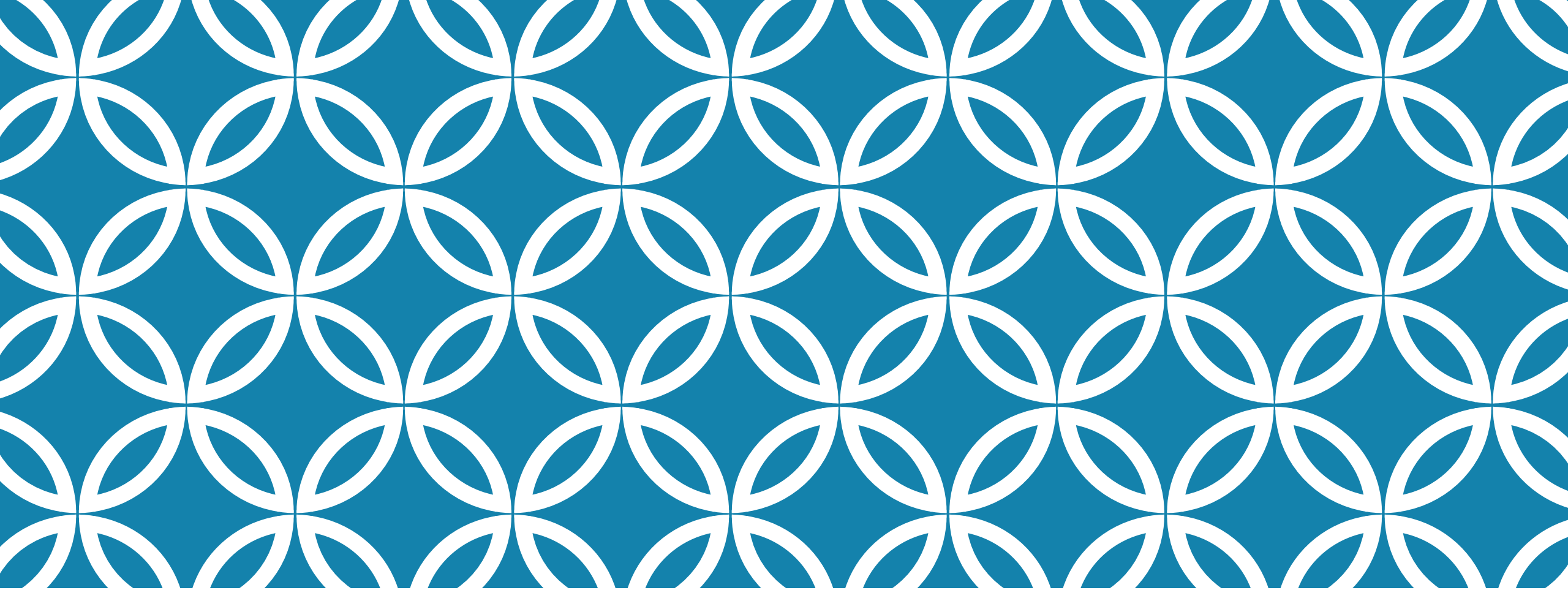

COST-VOLUME-PROFIT ANALYSIS

CVP ANALYSIS

- It is an important tool used for profit planning of a business.
- Costs, volume of business and profits are the most significant factors influencing the profits of a business.
- In CVP analysis the inter- relationship between variations in cost with variations in volume with resultant impact on profits are analysed for profit planning, cost control and decision making.

CVP ANALYSIS APPLICATIONS

- How much sales should be made to avoid losses?
- How much sales should be made to earn a a desired profit?
- What will be the effect of change in prices, costs and volume on profits?
- Which product or product mix in most profitable?
- Should we manufacture or buy some product or component?

BREAK EVEN ANALYSIS

- Most widely applied form of CVP analysis;
- In broad sense, BE Analysis refers to the study of relationship between costs, volume and profits at different levels of sales or production i.e. CVP analysis;
- In narrow sense, it refers to the technique of determining the level of operations where total revenues is equal to total expenses, i.e., **the point of no profit, no loss.**

BREAK EVEN ANALYSIS- ASSUMPTIONS

- All elements of costs can be segregated into fixed and variable components;
- Variable cost remains constant per unit of output irrespective of the level of output and thus fluctuates directly in proportion to the changes in volume of output;
- Fixed Costs remain constant at all volumes of output;
- Selling price per unit remains constant at all volumes of output;
- Volume of production is the only factor that influences cost;
- There will be no change in the general price level;
- There is only one product or in case of multi-products the salaes mix remains unchanged
- There is synchronisation between production and sales.

BREAK- EVEN POINT

Sales at Break Even Point = Fixed Cost + Variable Cost

Or, Sales- Variable Cost = Fixed Cost

Or, Contribution = Fixed Cost

If sales/ production in increased from this level, contribution will provide some amount towards profit after meeting fixed cost.

If sales/ production in decreased from this level, there will be loss as contribution will not be sufficient to cover the fixed cost.

BREAK- EVEN POINT- CALCULATION

A. BEP in units = Fixed Cost / (SP per unit- VC per unit)

= Fixed Cost / Contribution per unit

B. BEP in sales = Fixed Cost / PV Ratio

C. BEP as % of capacity = Fixed Cost / Total Contribution

ILLUSTRATION

Calculate BEP in units and in sales value from the following:

Output : 3000 units

SP per unit: Rs. 30

VC per unit : Rs. 20

Total FC : Rs. 20000

SOLUTION

BEP (in units) = FC/ SP – VC

= 20000 / (30-20)

= 2000 units

BEP (in sales) = FC/ PV ratio

PV Ratio = Contribution / Sales

Contribution = (3000 * 30- 3000*20)= 30000

Sales = 3000 * 30= 90000

BEP (in sales)= 20000/ (30000/90000)

= (20000 * 90000) / 30000

= Rs. 60000

VERIFICATION

BEP in units = 2000 units

Sales at BEP = 2000* 30 = 60000

Variable Cost = 2000 * 20 = 40000

Sales – Variable Cost i.e Contribution = Fixed Cost

60000-40000 = 20000

ILLUSTRATION

Calculate

a. PV Ratio

b. Break even sales

c. Sales required to earn a profit of Rs. 450000

Fixed expenses: Rs. 90000

Variable Cost per unit: Direct Material: Rs. 5, Direct Labour : Rs. 2, Direct Overheads: 100 % of Direct Labour, SP per unit : Rs. 12

SOLUTION

SP per unit : Rs. 12

VC per unit: (5+2+2)= Rs. 9

Contribution per unit = (12-9) = Rs. 3

PV Ratio = (Contribution /Sales) * 100 = (3/12) * 100 = 25%

BEP Sales= FC/ PV Ratio

= 90000 / (25/100) = (90000 * 100) /25 = Rs. 360000

Sales required for profit of Rs. 450000

= (FC + Profit) / PV Ratio

= (90000 + 450000)/ 25%

= (540000 * 100)/ 25 = Rs. 21,60, 000