BREAK-EVEN ANALYSIS

- The study of cost-volume-profit relationship is often referred as BEA(Breakeven Analysis).
- The term BEA is interpreted in two senses.
- In its narrow sense, it is concerned with finding out BEP(Breakeven Point); BEP is the point at which total revenue is equal to total cost. It is the point of no profit, no loss.
- In its broad determine the probable profit at any level of production.

ASSUMPTIONS:

1. All costs are classified into two – fixed and variable.
2. Fixed costs remain constant at all levels of output.
3. Variable costs vary proportionally with the volume of output.
4. Selling price per unit remains constant in spite of competition or change in the volume of production.
5. There will be no change in operating efficiency.
6. There will be no change in the general price level.
7. Volume of production is the only factor affecting the cost.
8. Volume of sales and volume of production are equal. Hence there is no unsold stock.
9. There is only one product or in the case of multiple products. Sales mix remains constant.

Uses of break even analysis:

1. Determining BEP.
2. Determining the selling price which will give desired profit.
3. Determining the sales volume to earn desired profit or return on capital employed.
4. Determining the costs and revenue at different levels of output.
5. It helps in determining the most profitable sales mix.
6. It help in determining comparative profitability of each product line.
7. It studies the effect of change in selling price or of price differentiation in different markets, Eg: home market and foreign market.
8. It studies the impact of increase or decrease in fixed and variable costs on profits.
9. It studies the effect on profits and break even point of high proportion of variable costs with low fixed cost and vice versa.
10. It compares the profitability of various firms.
11. It helps in management decision making Eg: make or buy decision, discontinuance of a product line, acceptance of special job

Limitations of break even analysis:

1. It is based on short run cost, where the distinction between fixed and variable cost is possible.

2. All costs cannot be classified as fixed and variable as there are certain semi variable costs also.

3. It is easily applicable to single product firm, where as there are problems in application in multi product firm.

4. It is more applicable to stable businesses.

KEY TERMS USED IN BREAK-EVEN ANALYSIS

1. **Fixed cost:**

- Expenses that do not vary with the volume of production are known as fixed expenses.
- Eg. Manager's salary, rent and taxes, insurance etc.
- It should be noted that fixed changes are fixed only within a certain range of plant capacity.
- The concept of fixed overhead is most useful in formulating a price fixing policy.
- Fixed cost per unit is not fixed.

1. **Variable Cost:**

- Expenses that vary almost in direct proportion to the volume of production of sales are called variable expenses.
- Eg. Electric power and fuel, packing materials consumable stores. It should be noted that variable cost per unit is fixed.

1. **Contribution:**

Contribution is the difference between sales and variable costs and it contributed towards fixed costs and profit.

It helps in sales and pricing policies and measuring the profitability of different proposals.

Contribution is a sure test to decide whether a product is worthwhile to be continued among different products.

Contribution = Sales – Variable cost

Contribution = Fixed Cost + Profit.

4. **Margin of safety:**

- Margin of safety is the excess of sales over the break even sales.
- It can be expressed in absolute sales amount or in percentage.
- It indicates the extent to which the sales can be reduced without resulting in loss.
- A large margin of safety indicates the soundness of the business. The formula for the margin of safety is:
- **Present sales – Break even sales** or $\frac{\text{Profit}}{\text{P. V. ratio}}$

Margin of safety can be improved by taking the following steps.

- Increasing production
- Increasing selling price
- Reducing the fixed or the variable costs or both
- Substituting unprofitable product with profitable one.

5. **Angle of incidence:**

- This is the angle between sales line and total cost line at the Break-even point.
- It indicates the profit earning capacity of the concern.

Large angle of incidence indicates a high rate of profit; a small angle indicates a low rate of earnings.

- To improve this angle, contribution should be increased either by raising the selling price and/or by reducing variable cost.
- It also indicates as to what extent the output and sales price can be changed to attain a desired amount of profit.

6. **Profit Volume Ratio** is usually called P. V. ratio.

- It is one of the most useful ratios for studying the profitability of business.
- The ratio of contribution to sales is the P/V ratio. It may be expressed in percentage. Therefore, every organization tries to improve the P. V. ratio of each product by reducing the variable cost per unit or by increasing the selling price per unit.
- The concept of P. V. ratio helps in determining break even-point, a desired amount of profit etc.

The formula is, $\frac{\text{Contributi on}}{Sales}$ X 100

7. **Break – Even- Point:**

- If we divide the term into three words, then it does not require further explanation.
- Break-divide
- Even-equal
- Point-place or position
- Break Even Point refers to the point where total cost is equal to total revenue.
- It is a point of no profit, no loss.
- This is also a minimum point of no profit, no loss.

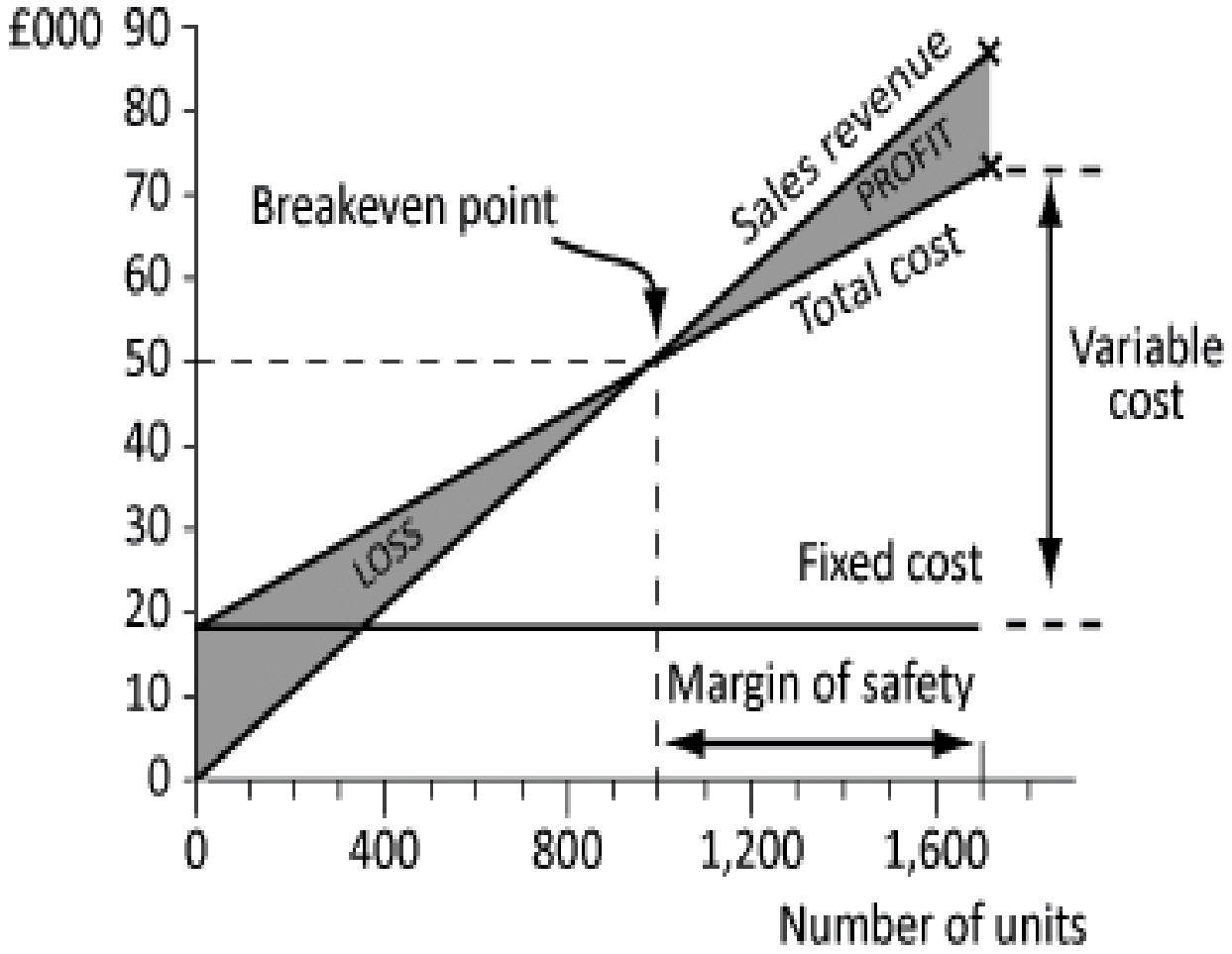
This is also a minimum point of production where total costs are recovered. If sales go up beyond the Break Even Point, organization makes a profit. If they come down, a loss is incurred.

1. Break Even point (Units) = $\frac{\text{Fixed Expenses}}{\text{Contributi on per unit}}$

2. Break Even point (In Rupees) = $\frac{\text{Fixed expenses}}{\text{Contributi on}}$ X sales

GRAPHICAL REPRESENTATION OF BEP

1. The cost and the sales income(revenue) in rupees are plotted along the vertical axis.
2. The quantity(volume of production) is plotted along the horizontal axis.
3. Fixed cost is represented by a straight line parallel to the horizontal axis.
4. The variable costs are superimposed upon the horizontal line representing the fixed cost. this top line then represents the total cost line.
5. The sales income line passes through the origin.
6. The point intersection of the sales income line and the total cost line represents the breakeven point.
7. The shaded area between the total cost line and the sales income on the left hand side of BEP indicates loss; whereas the shaded area on the right hand side of BEP shows profit.



Break-even chart

THANK YOU

PRESENTED BY

LAKSHMA REDDY K MBA, M.COM.,

ASST PROFESSOR, DEPT OF S&H.,