Topic 8

Marginal and Absorption Costing

Session Objectives

- Explain the importance of, and apply, the concept of contribution
- Demonstrate and discuss the effect of absorption and marginal costing on inventory valuation and profit determination

Session Objectives

- Calculate profit or loss under absorption and marginal costing
- Reconcile the profits or losses calculated under absorption and marginal costing
- Describe the advantages and disadvantages of absorption and marginal costing.

Session Objectives

- Calculate and interpret a break-even point and a margin of safety
- Demonstrate an understanding of, and use, the concepts of a target profit or revenue and a contribution to sales ratio
- Identify the elements in traditional and contribution break-even charts and profit/volume charts
- Apply CVP analysis to single-product situations

Absorption and Marginal Costing

- In **Absorption Costing** fixed manufacturing overheads are absorbed into cost units.
  - Stock is valued at absorption cost and fixed manufacturing overheads are charged in the P&L account of the period in which units are sold

- In **Marginal costing** fixed manufacturing overheads are NOT absorbed into cost units.
  - All fixed overheads, including fixed manufacturing overheads are treated as period costs and charged in the P&L account of the period.

Calculation of Profit

Marginal Costing

	£
Sales	X
Less: Variable Cost	X
Contribution	X
Less: Fixed Cost	X
Profit	X

Absorption Costing

	£
Sales	X
Less: Absorption cost	X
Profit	X

Example

Company A produces a single product and has the following budgeted cost:

	£
Selling Price	**25**
Direct Materials	**5**
Direct wages	**3**
Variable o/h	**2**

Fixed production overhead is £30000 per month.
Production volume is 6000 units per month.

Absorption Costing

		£
Direct Materials		5
Direct Wages		3
Variable overhead		2
Absorbed fixed overhead	30000 / 6000	5
Cost per unit		15

Marginal Costing

	£
Direct Materials	5
Direct Wages	3
Variable overhead	2
Cost per unit	10

Thus, stock valuation will be different under the two methods

Profit under Absorption Costing and Marginal Costing

- If stock levels change, the profits under the Absorption Costing (AC) and Marginal Costing (MC) will be different

Profit under Absorption Costing and Marginal Costing: Basic Rule

- If stock levels are rising AC profit > MC profit
- If stock levels are falling AC profit < MC profit
- If opening and closing stock levels are same AC profit =MC profit

Under and Over-absorption of Fixed Overheads

- Arises if actual expenditure and production levels are not as estimated in the pre-determined absorption rate

Points of Differences between Absorption and Marginal Costing

- Inventory valuation
- Profit statement layout

Proforma Profit and Loss Accounts: Absorption Costing

	£	£	£
Sales			X
Production cost of Sales			
Opening Stock		X	
Production Cost absorbed	X	X	
Less: Closing stock		(X)	
			(X)
Production Overhead absorbed		X	
Production Overhead incurred		X	
Over absorbed / Under absorbed			X or (X)
			X
Administration overheads incurred		X	
Selling and distribution costs		X	(X)
Profit			X

Proforma Profit and Loss Accounts: Marginal Costing

	£	£	£
Sales			X
Variable cost of Sales			
Opening Stock		X	
Variable Production Costs:	X	X	
Less: Closing stock		(X)	
Variable Production Cost of Sales		X	
Variable Selling and Distribution		X	
Total Variable Cost of Sales			(X)
Contribution			X
Fixed Costs: Fixed Production Cost Fixed administration cost Fixed selling and distribution		 X X X	
Total Fixed Costs			(X)
Profit			X

Drawbacks of Absorption Costing

- Profit per unit under absorption costing can be misleading

- Comparison between products can be misleading because of the effect of arbitrary apportionment of fixed costs

Advantages of Absorption Costing

- Fixed costs are incurred within the production function and without those facilities production would not be possible. Thus such costs can be related to production
- Absorption costing follows the matching concept of accounting
- It is necessary to include fixed overhead in stock values for financial statements

Advantages of Absorption Costing

- Overhead allotment is only practicable way of obtaining job costs
- Analysis of under / over absorption of overheads is required for identifying inefficient utilisation
- It is quite common to price jobs by adding a margin on fully absorbed costs

Advantages of Marginal Costing

- Consistent with concept of relevant costs for management decision making
- It is useful for forward planning
- More relevant for short run decision making than absorption costing
- Reflects behaviour of costs in relation to activity

Contribution

- An important concept in marginal costing
- It can be calculated as:

  Contribution = Sales- Variable Cost of Sales
- It is short of ‘Contribution to Fixed Costs and Profits’

Why is Contribution Significant

- Changes in volume of sales, or sales price or variable cost will affect profit by altering the total contribution
- Can be used by management to assess the likely effect on profits of higher or lower sales volume or sales price

Cost-Volume-Profit (CVP) Analysis

- A technique for analysing how cost and profit change with the volume of production and sales.
- It is also called break-even analysis.
- It assumes that selling price and variable costs are constant per unit at all volumes of sales and fixed costs remain fixed at all levels of activity.

Cost-Volume-Profit (CVP) Analysis

- Contribution is the key factor in CVP analysis
  - Unit Contribution = Selling price per unit – variable cost per unit
  - Total contribution = Volume in sales x unit contribution

Uses of CVP Analysis

- Estimate future profits
- Measure contribution to sales ratio (C/S ratio)
- Determine breakeven point
- Determine margin of safety
- Attain target profit
- Decide selling price of a product

Measure Contribution to sales ratio (C/S ratio)

- It is also known as Profit-Volume ratio (PV Ratio)
- C/S Ratio = Contribution per unit / Selling price per unit

Or

- C/S Ratio = Total contribution / Total sales revenue

Determine Breakeven Point

- It is the point at which neither a profit nor a loss is made. At breakeven point:
  - Total sales revenue = Total costs
  - Profit = 0
  - Total contribution = Fixed costs

Determine Breakeven Point

- Break-even point (in units)

  = Fixed costs / Contribution per unit
- Break-even point (in sales revenue)

  = Fixed costs / C/S Ratio
- If unit fixed costs and revenues are not given
  Break-even point (expressed in sales values)

  = (Fixed cost/Total contribution) * Total sales

Determine Margin of safety

- Margin of safety (in units) = Budgeted sales – Breakeven point sales

  Margin of safety (%)

  = [(Budgeted sales – Breakeven point sales) / Budgeted sales] x100%

Attain Target profit

- Sales volume to achieve target profit

= Target contribution / Contribution per unit

where,

- Target contribution = Fixed cost + Target Profit

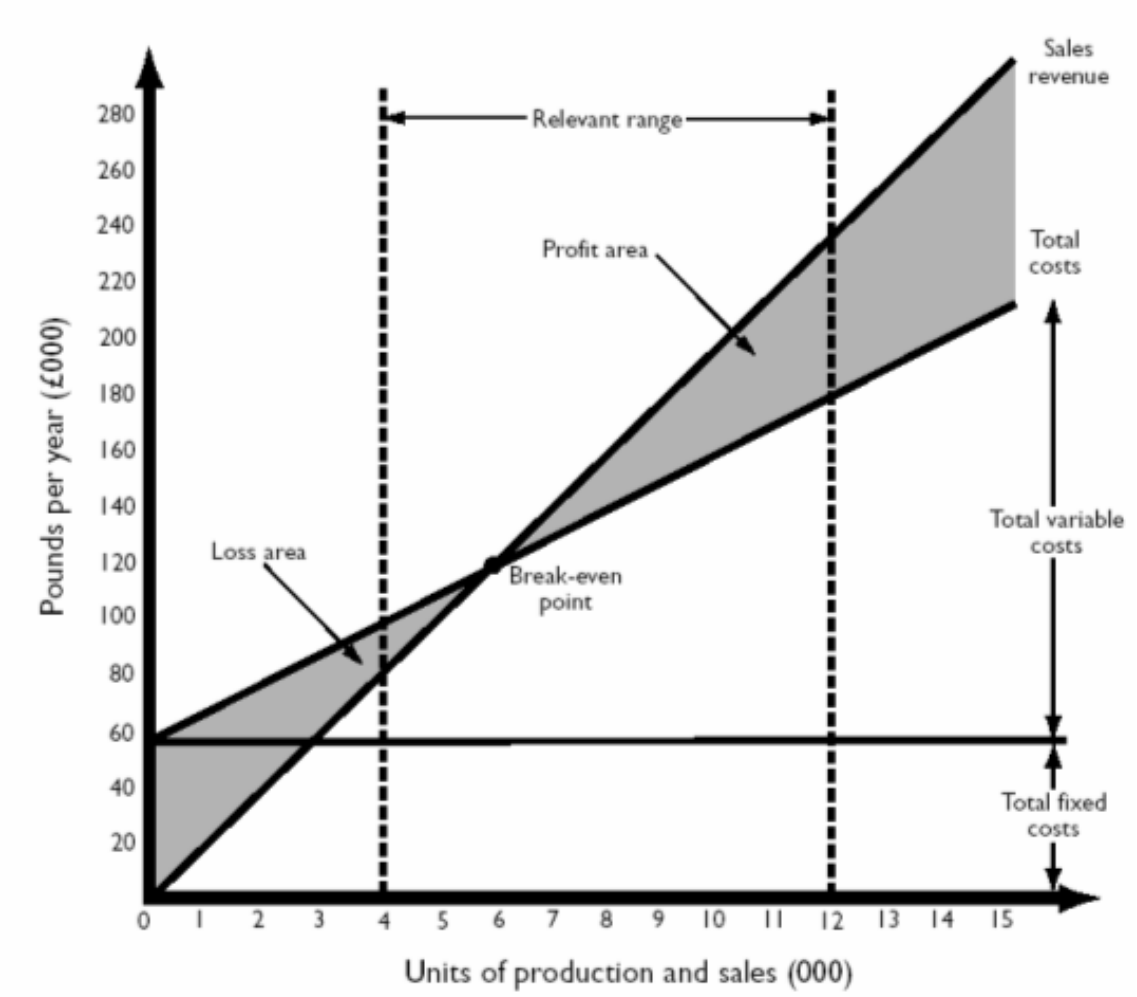
Relationship between Margin of Safety, C/S and P/S ratio

- P / S Ratio = Margin of Safety x C/S Ratio

Breakeven Charts and P/V Charts

- Traditional breakeven charts
- Contribution breakeven charts
- P/V Charts

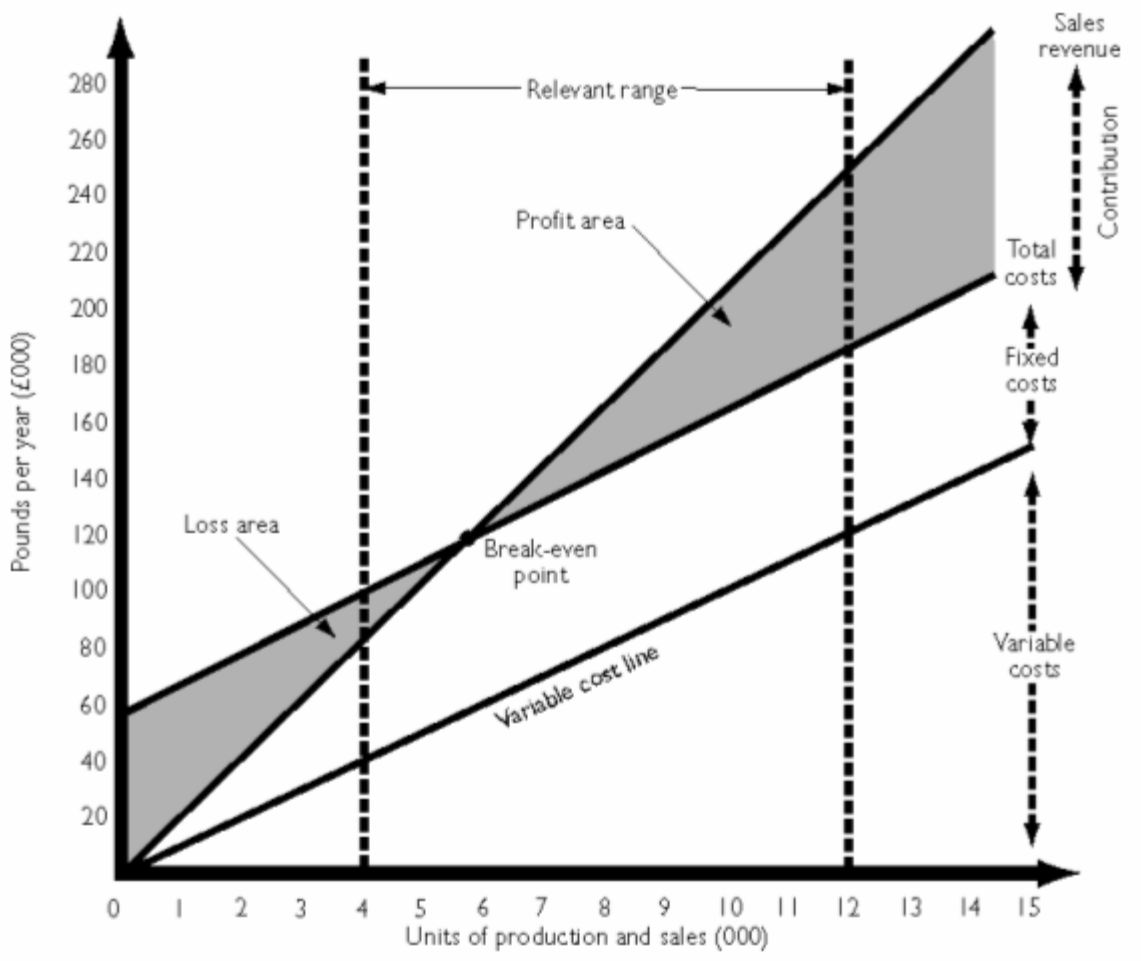
Traditional breakeven charts



Traditional breakeven charts

- Plot total costs and total revenue at different levels of output.
- Fixed cost line is a straight line parallel to horizontal axis
- Sales revenue line begins from the origin
- Total cost line is represented by fixed costs plus variable costs
- Breakeven point is the point where sales revenue is equal to total cost
- Margin of safety is the area between breakeven point and budgeted or actual sales.

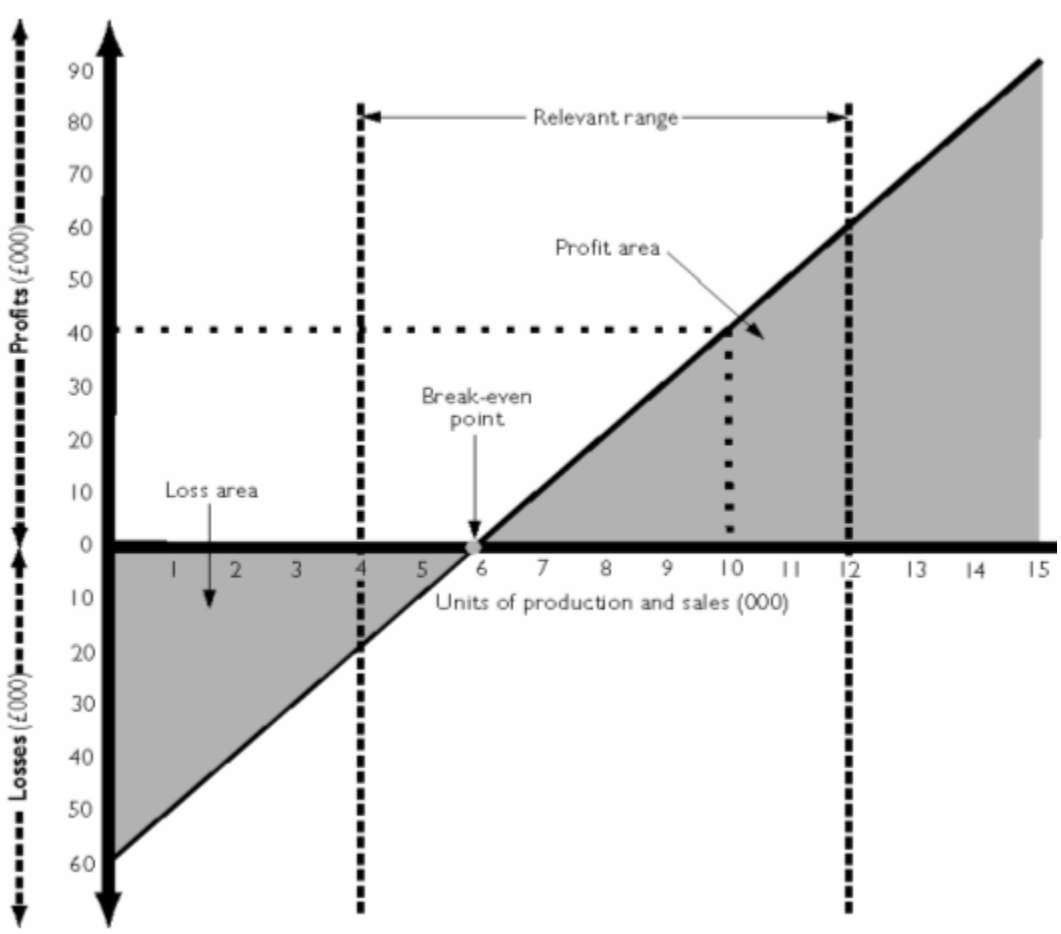
Contribution breakeven charts



Main Difference between Traditional B/E Charts and Contribution Charts

- Traditional breakeven charts show the fixed cost line whereas the contribution chart shows the variable cost line
- Contribution can be read more easily from the contribution breakeven chart.

P/V Chart


Relevant range
Profit area
Break-even point
Loss area
Profits (£000)
Losses (£000)
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Units of production and sales (000)

P/V chart

- P/V chart clearly identifies the net profit or loss at different levels of activity.

Sample Exam Question

- What is contribution margin ratio?

A. Selling price – Variable cost per unit
B. Fixed cost per unit / Variable cost per unit
C. Variable cost per unit / Selling price
D. Unit contribution margin / Selling price

Answer

- **D**

- Contribution margin ratio is the ratio between contribution margin and selling price.

Sample Exam Question

- What is the break even sales revenue during a period if budgeted sales revenue is £750,000, budgeted contribution is £300,000 and budgeted profit is £75,000 during the period?

A. £325,000
B. £465,000
C. £562,500
D. £650,000

Answer

- **C**

- Fixed costs = £300,000 – £75,000 = £225,000
- C/S ratio = £300,000 / £750,000 = 0.40
- Breakeven sales revenue = £225,000 / 0.4 = £562,500