CHAPTER

5 LEVERAGE

Question #1 DOL

A Company produces and sells 10,000 shirts. The selling price per shirt is ₹ 500. Variable cost is ₹ 200 per shirt and fixed operating cost is ₹ 25,00,000.

a) CALCULATE operating leverage.
b) If sales are up by 10%, then COMPUTE the impact on EBIT?

Question #2 DOL

CALCULATE the operating leverage for each of the four firms A, B, C and D from the following price and cost data:

	Firms			
	A (₹)	B (₹)	C (₹)	D (₹)
Sale price per unit	20	32	50	70
Variable cost per unit	6	16	20	50
Fixed operating cost	60,000	40,000	1,00,000	Nil

What calculations can you draw with respect to levels of fixed cost and the degree of operating leverage result? EXPLAIN. Assume number of units sold is 5,000.

Question #3 DOL

The following summarises the percentage changes in operating income, percentage changes in revenues, and betas for four pharmaceutical firms.

Firm	Change in revenue	Change in operating income	Beta
PQR Ltd.	27%	25%	1.00
RST Ltd.	25%	32%	1.15
TUV Ltd.	23%	36%	1.30
WXY Ltd.	21%	40%	1.40

Required:

(i) Calculate the degree of operating leverage for each of these firms. Comment also.
(ii) Use the operating leverage to explain why these firms have different beta.

Question #4 DOL

X Limited has estimated that for a new product its break-even point is 20,000 units if the item is sold for ₹ 14 per unit and variable cost ₹ 9 per unit. Calculate the degree of operating leverage for sales volume 25,000 units and 30,000 units.

Question #5 DCL

From the following information extracted from the books of accounts of Imax Ltd., CALCULATE percentage change in earnings per share, if sales increase by 10% and Fixed Operating cost is ₹ 1,57,500

Particulars	(₹)
EBIT (Earnings before Interest and Tax)	31,50,000
Earnings before Tax (EBT)	14,00,000

Question #6 DCL

The data relating to two companies are as given below:

Particulars	Company A	Company B
Equity Capital	₹ 6,00,000	₹ 3,50,000
12% Debentures	₹ 4,00,000	₹ 6,50,000
Output (units) per annum	60,000	15,000
Selling price/ unit	₹ 30	₹ 250
Fixed Costs per annum	₹ 7,00,000	₹ 14,00,000
Variable Cost per unit	₹ 10	₹ 75

You are required to calculate the Operating leverage, financial leverage and Combined leverage of two Companies.

Question #7 DCL

A firm has sales of ₹ 75,00,000 variable cost is 56% and fixed cost is ₹ 6,00,000. It has a debt of ₹45,00,000 at 9% and equity of ₹ 55,00,000.

(i) What is the firm's ROI?
(ii) Does it have favourable financial leverage?
(iii) If the firm belongs to an industry whose capital turnover is 3, does it have a high or low capital turnover?
(iv) What are the operating, financial and combined leverages of the firm?
(v) If the sales is increased by 10% by what percentage EBIT will increase?
(vi) At what level of sales the EBT of the firm will be equal to zero?
(vii) If EBIT increases by 20%, by what percentage EBT will increase?

Question #8 Interaction of Leverages

A firm's details are as under:

Sales (@100 per unit) ₹ 24,00,000
Variable Cost 50%
Fixed Cost ₹ 10,00,000

It has borrowed ₹ 10,00,000 @ 10% p.a. and its equity share capital is ₹ 10,00,000 (₹ 100 each). Consider tax @ 50 %.

CALCULATE:

a) Operating Leverage
b) Financial Leverage
c) Combined Leverage
d) Return on Investment
e) If the sales increases by ₹ 6,00,000; what will the new EBIT?

Question #9 Interaction of Leverages

The following information is related to Yizi Company Ltd. for the current Financial Year:

Equity share capital (of ₹ 10 each)	₹ 50 lakhs
12% Bonds of ₹ 1,000 each	₹ 37 lakhs
Sales	₹ 84 lakhs
Fixed cost (excluding interest)	₹ 6.96 lakhs
Financial leverage	1.49
Profit-volume Ratio	27.55%
Income Tax Applicable	40%

You are required to CALCULATE:

(i) Operating Leverage;
(ii) Combined leverage; and
(iii) Earnings per share.

Show calculations up-to two decimal points.

Question #10 Interaction of Leverages

Following are the selected financial information of A Ltd. and B Ltd. for the current Financial Year:

	A Ltd.	B Ltd.
Variable Cost Ratio	60%	50%
Interest	₹ 20,000	₹ 1,00,000
Operating Leverage	5	2
Financial Leverage	3	2
Tax Rate	30%	30%

You are required to FIND out:

(i) EBIT
(ii) Sales
(iii) Fixed Cost
(iv) Identify the company which is better placed with reasons based on leverages.

Question #11 Interaction of Leverages

Consider the following information for Mega Ltd.:

Production level	2,500 units
Contribution per unit	₹ 150

Operating leverage	6
Combined leverage	24
Tax rate	30%

Required: COMPUTE its earnings after tax

Question #12 Interaction of Leverages

From the following information, prepare Income Statement of Company A & B:

Particulars	Company A	Company B
Margin of safety	0.20	0.25
Interest	₹ 3,000	₹ 2,000
Profit volume ratio	25%	33.33%
Financial Leverage	4	3
Tax rate	45%	45%

Question #13 Interaction of Leverages

The capital structure of PS Ltd. at the end of the current Financial Year consisted as follows:

Particulars	(₹)
Equity share capital (face value ₹ 100 each)	10,00,000
10% debentures (₹ 100 each)	10,00,000

During the year, sales decreased to 1,00,000 units as compared to 1,20,000 units in the previous year. However, the selling price stood at ₹ 12 per unit and variable cost at ₹ 8 per unit for both the years. The fixed expenses were at ₹ 2,00,000 p.a. and the income tax rate is 30%.

You are required to CALCULATE the following:

(i) The degree of financial leverage at 1,20,000 units and 1,00,000 units.
(ii) The degree of operating leverage at 1,20,000 units and 1,00,000 units.
(iii) The percentage change in EPS.

Question #14 Interaction of Leverages

The Sale revenue of TM excellence Ltd. @ ₹ 20 Per unit of output is ₹ 20 lakhs and Contribution is ₹ 10 lakhs. At the present level of output, the DOL of the company is 2.5. The company does not have any Preference Shares. The number of Equity Shares are 1 lakh. Applicable corporate Income Tax rate is 50% and the rate of interest on Debt Capital is 16% p.a. CALCULATE the EPS (at sales revenue of ₹ 20 lakhs) and amount of Debt Capital of the company if a 25% decline in Sales will wipe out EPS.

Question #15 Interaction of Leverages

Betatronics Ltd. has the following balance sheet and income statement information:

Balance Sheet

Liabilities	(₹)	Assets	(₹)
Equity capital (₹ 10 per share)	8,00,000	Net fixed assets	10,00,000
10% Debt	6,00,000	Current assets	9,00,000
Retained earnings	3,50,000		
Current liabilities	1,50,000		
	19,00,000		19,00,000

Income Statement for the year

Particulars	(₹)
Sales	3,40,000
Operating expenses (including ₹ 60,000 depreciation)	1,20,000
EBIT	2,20,000
Less: Interest	60,000
Earnings before tax	1,60,000
Less: Taxes	56,000
Net Earnings (EAT)	1,04,000

a) DETERMINE the degree of operating, financial and combined leverages at the current sales level, if all operating expenses, other than depreciation, are variable costs.

b) If total assets remain at the same level, but sales (i) increase by 20 percent and (ii) decrease by 20 percent, COMPUTE the earnings per share at the new sales level?

Question #16 Interaction of Leverages

A company had the following Balance Sheet at the end of the current Financial Year:

Liabilities	(₹) in cr	Assets	(₹) in cr
Equity Share Capital (50 lakhs shares of ₹ 10 each)	5	Fixed Assets (Net)	12.5
Reserves and Surplus	1	Current Assets	7.5
15% Debentures	10		
Current Liabilities	4		
	20		20

The additional information given is as under:

Fixed cost per annum (excluding interest)	₹ 4 crores
Variable operating cost ratio	65%
Total assets turnover ratio	2.5
Income Tax rate	30%

Required: CALCULATE the following and comment:

(i) Earnings Per Share
(ii) Operating Leverage
(iii) Financial Leverage
(iv) Combined Leverage

Question #17 Interaction of Leverages

CALCULATE the operating leverage, financial leverage and combined leverage from the following data under Situation I and II and Financial Plan A and B:

Installed Capacity	4,000 units
Actual Production and Sales	75% of the Capacity
Selling Price	₹ 30 Per Unit
Variable Cost	₹ 15 Per Unit

Fixed Cost:

Under Situation-I	₹ 15,000
Under Situation-II	₹ 20,000

Capital Structure:

	Financial Plan	
	A (₹)	B (₹)
Equity	10,000	15,000
Debt (Rate of Interest at 20%)	10,000	5,000
	20,000	20,000

Question #18 Interaction of Leverages

The following details of a company for the year ended 31st March are given below:

Operating leverage	2:1
Combined leverage	2.5:1
Fixed Cost excluding interest	₹ 3.4 lakhs
Sales	₹ 50 lakhs
8% Debentures of ₹ 100 each	₹ 30.25 lakhs
Equity Share Capital of ₹ 10 each	34 lakhs
Income Tax Rate	30%

CALCULATE:

(i) Financial Leverage
(ii) P/V ratio and Earning per Share (EPS)
(iii) If the company belongs to an industry, whose assets turnover is 1.5, does it have a high or low assets turnover?
(iv) At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero?

Question #19 Interaction of Leverages

You are given the following information of 5 firms of the same industry:

Name of the Firm	Change in Revenue	Change in Operating Income	Change in Earning per share
M	28%	26%	32%
N	27%	34%	26%
P	25%	38%	23%

Q	23%	43%	27%
R	25%	40%	28%

You are required to CALCULATE for all firms:

(i) Degree of operating leverage and

(ii) Degree of combined leverage.

Question #20 Interaction of Leverages

The following data have been extracted from the books of LM Ltd:

Sales	₹ 100 lakhs
Interest Payable per annum	₹ 10 lakhs
Operating leverage	1.2
Combined leverage	2.16

You are required to calculate:

(i) The financial leverage

(ii) Fixed cost and

(iii) P/V ratio

Question #21 Interaction of Leverages

The net sales of A Ltd. is ₹ 30 crores. Earnings before interest and tax of the company as a percentage of net sales is 12%. The capital employed comprises ₹ 10 crores of equity, ₹ 2 crores of 13% Cumulative Preference Share Capital and 15% Debentures of ₹ 6 crores. Income-tax rate is 40%.

(i) Calculate the Return-on-equity for the company and indicate its segments due to the presence of Preference Share Capital and Borrowing (Debentures).

(ii) Calculate the Operating Leverage of the Company given that combined leverage is 3.

Question #22 Interaction of Leverages

From the following details of X Ltd., prepare the Income Statement for the year ended 31st December, 2014:

Financial Leverage	2
Interest	₹ 2,000
Operating Leverage	3
Variable cost as a percentage of sales	75%
Income tax rate	30%

Question #23 Interaction of Leverages

From the following financial data of Company A and Company B: Prepare their Income Statements.

Particulars	Company A (₹)	Company B (₹)
Variable Cost	56,000	60% of sales
Fixed Cost	20,000	-

Interest Expenses	12,000	9,000
Financial Leverage	5: 1	-
Operating Leverage	-	4: 1
Income Tax Rate	30%	30%
Sales	-	1,05,000

Question #24 Leverage & Capital Structure Decision

Z Limited is considering the installation of a new project costing ₹ 80,00,000. Expected annual sales revenue from the project is ₹ 90,00,000 and its variable costs are 60 percent of sales. Expected annual fixed cost other than interest is ₹ 10,00,000. Corporate tax rate is 30 percent. The company wants to arrange the funds through issuing 4,00,000 equity shares of ₹ 10 each and 12 percent debentures of ₹ 40,00,000.

You are required to:

(i) Calculate the operating, financial and combined leverages and Earnings per Share (EPS).
(ii) Determine the likely level of EBIT, if EPS is ₹ 4, or ₹ 2, or zero.

Question #25 Leverage & Capital Structure Decision

The Capital structure of RST Ltd. is as follows:

Particulars	(₹)
Equity Share of ₹ 10 each	8,00,000
10% Preference Share of ₹ 100 each	5,00,000
12% Debentures of ₹ 100 each	7,00,000
Total	20,00,000

Additional Information:
- Profit after tax (Tax Rate 30%) are ₹ 2,80,000
- Operating Expenses (including Depreciation ₹ 96,800) are 1.5 times of EBIT
- Equity Dividend paid is 15%
- Market price of Equity Share is ₹ 23

Calculate:

(i) Operating and Financial Leverage
(ii) Cover for preference and equity dividend
(iii) The Earning Yield Ratio and Price Earning Ratio
(iv) The Net Fund Flow

Question #26 Leverage & Capital Structure Decision

The following particulars relating to Navya Ltd. for the year ended 31st March is given:

Output	1,00,000 units at normal capacity
Selling price per unit	₹ 40
Variable cost per unit	₹ 20
Fixed cost	₹ 10,00,000

The capital structure of the company as on 31st March is as follows:

Particulars	₹
Equity share capital (1,00,000 shares of ₹ 10 each)	10,00,000
Reserves and surplus	5,00,000
7% debentures	10,00,000
Current liabilities	5,00,000
Total	30,00,000

Navya Ltd. has decided to undertake an expansion project to use the market potential, that will involve ₹ 10 lakhs. The company expects an increase in output by 50%. Fixed cost will be increased by ₹ 5,00,000 and variable cost per unit will be decreased by 10%. The additional output can be sold at the existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion programme are planned:

(i) Entirely by equity shares of ₹ 10 each at par.

(ii) ₹ 5 lakh by issue of equity shares of ₹ 10 each and the balance by issue of 6% debentures of ₹ 100 each at par.

(iii) Entirely by 6% debentures of ₹ 100 each at par.

FIND out which of the above-mentioned alternatives would you recommend for Navya Ltd. with reference to the risk and return involved, assuming a corporate tax of 40%.

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