

LEVERAGE

In financial management the term 'leverage' is used to describe the firm's ability to use fixed cost assets to increase the return to its owners; i.e. equity shareholders. The leverage affects the profit earning capacity and financial strength of the firm.

Leverages are the tools for measuring Business Risk, Financial Risk and Overall Risk.

Business Risk V/s Financial Risk

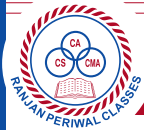
Sr	Financial Risk	Business risk
1	Financial risk is created by the use of fixed cost securities (i.e. debt and pref shares)	Business risk / operating risk is the risk associated with normal day to day operations of the firm.
2	An entity may, in order to finance its business, burden itself with some financial fixed cost which will be incurred irrespective of the fact whether entity makes any profit.	An entity carrying on a business may, in order to carry its day to day operations burden itself with some operating fixed costs which will be incurred irrespective of fact whether entity makes any sales or not.
3	Financial risk is the variability in the owner's return created by a firm's fixed cost capital.	Business risk represents the variability in return created by a firm's uses of funds.
4	It is avoidable.	It is unavoidable.
5	It is controllable risk because it is associated with a capital structure decision of the firm.	It is not within the control of the company because operating fixed cost will continue to incur irrespective of the level of revenues generated.
6	$DFL = EBIT / EBT$	$DOL = Contribution / EBIT$

Financial Leverage as 'Trading on Equity'

Financial leverage indicates the use of funds with fixed cost like long term debts and preference share capital along with equity share capital which is known as trading on equity. The basic aim of financial leverage is to increase the earnings available to equity shareholders using fixed cost fund. A firm is known to have a positive leverage when its earnings are more than the cost of debt. If earnings is equal to or less than cost of debt, it will be an unfavourable leverage. When the quantity of fixed cost fund is relatively high in comparison to equity capital it is said that the firm is "trading on equity".

Financial Leverage as a 'Double edged Sword' - On one hand when cost of 'fixed cost fund' is less than the return on investment financial leverage will help to increase return on equity and EPS. The firm will also benefit from the saving of tax on interest on debts etc. However, when cost of debt will be more than the return it will affect return of equity and EPS unfavourably and as a result firm can be under financial distress. This is why financial leverage is known as "double edged sword".





Effect on EPS and ROE:

When, ROI > Interest – Favourable – Advantage When, ROI < Interest – Unfavourable – Disadvantage

When, ROI = Interest – Neutral – Neither advantage nor disadvantage.



PRACTICAL PROBLEMS

COMPUTATION OF DOL, DFL AND DCL

Page No.	Q 1	A simplified income statement of Zenith is given below :
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Zenith Limited
Income Statement for the year ending March 31, 2015

	₹
Sales	10,50,000
Variable cost	7,67,000
Fixed cost	75,000
EBIT	2,08,000
Interest	1,10,000
Taxes (30%)	29,400
Net income	68,600

Calculate DOL, DFL and DCL.

Learning objective

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	₹ in lakh
Earnings before interest and tax (EBIT)	1,120
Fixed cost	700
Earnings Before Tax (EBT)	320

Calculate the percentage of change in earnings per share, if sales increased by 5%.



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Annual sales of a company is ₹ 60,00,000. Sales to variable cost ratio is 150 percent and fixed cost other than interest is ₹ 5,00,000 per annum. Company has 11 percent debentures of ₹ 30,00,000. You are required to calculate the operating, Financial and combined leverage of the company.

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A company operates at a production level of ₹ 5,000 units .The contribution is ₹ 60 per unit, operating leverage is 6. Combined leverage is 24. If tax rate is 30%, what would be its earnings after tax?

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From the following information available for four companies, calculate: (i) EBIT; (ii) EPS; (iii) Operating leverage; (iv) Financial leverage

Particulars		P	Q	R	S
Selling Price/ unit	(₹)	15	20	25	30
Variable Cost/ Unit	(₹)	10	15	20	25
Quantity	(Nos.)	20,000	25,000	30,000	40,000
Fixed Costs	(₹)	30,000	40,000	50,000	60,000
Interest	(₹)	15,000	25,000	35,000	40,000
Tax Rate	(%)	40	40	40	40
No. of Equity Shares		5,000	9,000	10,000	12,000

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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. Calculate the operating, financial and combined leverages and Earnings per Share (EPS).



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You are given two financial plans of a company which has two financial situations. The detailed information are as under:

Installed capacity	10,000 units
Actual production and sales	60% of installed capacity
Selling price per unit (₹)	30
Variable cost per unit (₹)	20

 Fixed cost: Situation 'A' = 20,000
 Situation 'B' = 25,000

Capital structure of the company is as follows:

	Financial Plans	
	XV	XM
	₹	₹
Equity	12,000	35,000
Debt (cost of debt 12%)	40,000	10,000
	52,000	45,000

You are required to calculate operating leverage and financial leverage of both the plans.


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A company had the following Balance Sheet as on March 31, 2015

Liabilities and Equity	₹ (in Crores)	Assets	₹ (in Crores)
Equity Share Capital (1 crore shares of ₹ 10 each)	10	Fixed Assets (Net)	25
Reserves and Surplus	2	Current Assets	15
15% Debentures	20		
Current Liabilities	8		
	40		40

The additional information given is as under:

Fixed Costs per annum (excluding interest)	₹ 8 crores
Variable operating costs ratio	65%
Total Assets turnover ratio	2.5
Income-tax rate	40%

Required: Calculate the following and comment:

- | | |
|--------------------------|-------------------------|
| (i) Earnings per share | (ii) Operating Leverage |
| (iii) Financial Leverage | (iv) Combined Leverage |


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X Ltd. 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). The company is in a tax bracket of 50%.

Calculate:

- Operating Leverage
- Financial Leverage
- Combined Leverage
- Return on Equity
- If the sales increases by ₹ 6,00,000; what will the new EBIT?

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The following data are available for the ABC Ltd. and XYZ Ltd.:-

	ABC Ltd.	XYZ Ltd.
Sales Volume	10,000 units	10,000 units
Selling price per unit of output	₹ 200	₹200
Variable cost per unit of output	₹ 120	₹ 150
Fixed operating cost per unit of output	₹ 60	₹ 30
Equity	₹ 3,00,000	₹ 6,00,000
Preference Shares	₹ 1,00,000	---
Debt	₹ 6,00,000	₹ 4,00,000
Interest rate on debt	16.25%	15%
Dividend rate on Preference Share	13%	---
Tax rate	60%	60%

Required:-

- Calculate the ROE, DOL, DFL, DCL for each company.
- As a financial analyst which of the two companies would you described as more risky? Give reasons.

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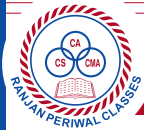
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A firm has sales of ₹ 75,00,000 variable cost of ₹ 42,00,000 and fixed cost of ₹ 6,00,000. It has a debt of ₹ 45,00,000 at 9% and equity of ₹ 55,00,000.

- What is the firm's ROI ?
- Does it have favourable financial leverage ?





- (iii) If the firm belongs to an industry whose asset turnover is 3, does it have high or low asset leverage?
- (iv) What are the operating, financial and combined leverage of the firm ?
- (v) If the sales drop to ₹ 50,00,000 what will be the new EBIT ?
- (vi) At what level the EBIT of the firm, PBT will be equal zero ?

REVERSE WORKING WITH DOL, DFL AND DCL

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

	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

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The selected financial data for A, B and C companies for the current year ended 31st December are as follows:

Particulars	A	B	C
Variable cost %	66.66	75	50
Interest expense	200	300	1,000
Operating leverage	5	6	6
Financial leverage	3	4	2
Income tax rate %	50	50	50

Prepare the income statement of all the three companies.



FINANCING METHODS – LEVERAGE EFFECT ON ROE AND EPS

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The following summarizes 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:

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

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

Balance Sheet as on March 31st

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 ending March 31

Liabilities	(₹)
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

- 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, what will be the earnings per share at the new sales level?

Page No. Class Date	 16	From the following information, prepare Income Statement of Company A & B:			
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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%

Page No. Class Date	 17	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.			
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">R1</td> <td style="width: 33%; text-align: center;">R2</td> <td style="width: 33%; text-align: center;">R3</td> </tr> </table>	R1	R2	R3		
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Page No. Class Date	 18	The following particulars relating to Navya Ltd. for the year ended 31st March 2021 is given:			
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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, 2021 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:

- Entirely by equity shares of ₹ 10 each at par.
- ₹ 5 lakh by issue of equity shares of ₹ 10 each and the balance by issue of 6% debentures of ₹ 100 each at par.
- 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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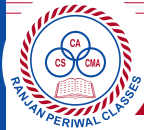
The following data is available for XYZ Ltd.:

Sales	₹ 2,00,000
Less : Variable cost @ 30%	60,000
Contribution	1,40,000
Less : Fixed Cost	1,00,000
EBIT	40,000
Less : Interest	5,000
Profit before tax	35,000

Find out:

- Using the concept of financial leverage, by what percentage will the taxable income increase if EBIT increase by 6%?
- Using the concept of operating leverage, by what percentage will EBIT increase if there is 10% increase in sales, and
- Using the concept of leverage, by what percentage will the taxable income increase if the sales increase by 6%. Also verify results in view of the above figures.





NOTES

Leverage

