SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF MANAGEMENT STUDIES

COURSE NAME : 19BA201 FINANCIAL MANAGEMENT

I YEAR / II SEMESTER

UNIT 3 - COST OF CAPITAL & CAPITAL STRUCTURE

Leverage

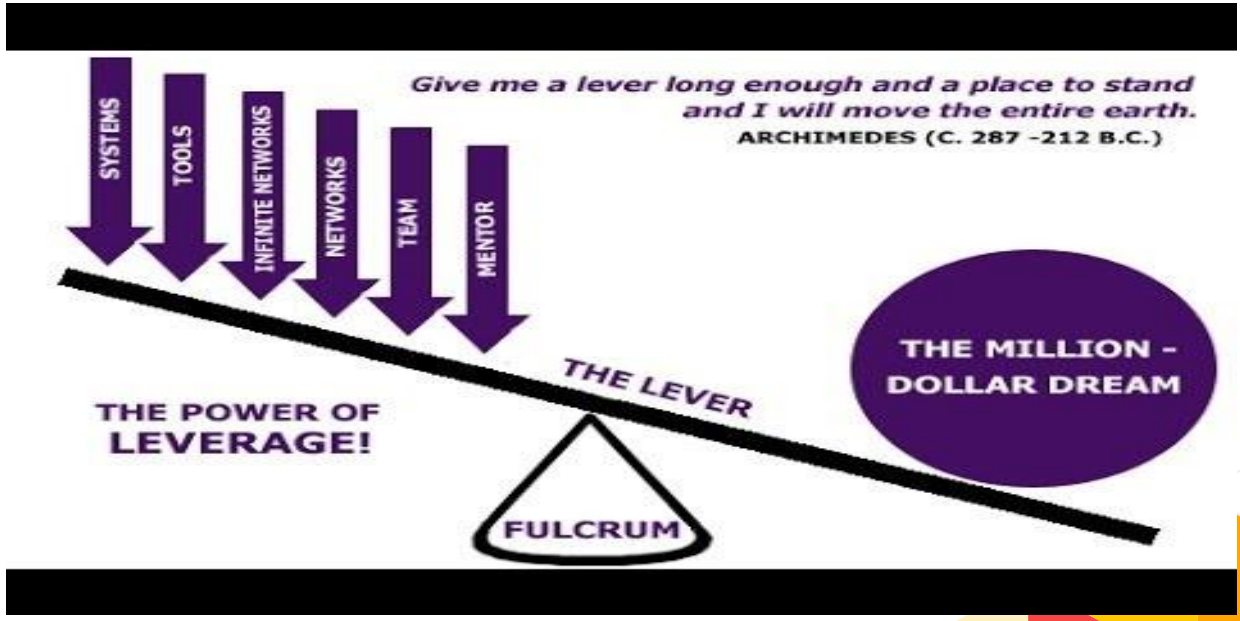
Leverage results from using borrowed capital as a funding source when investing to expand the firm's asset base and generate returns on risk capital. Leverage is an investment strategy of using borrowed money—specifically, the use of various financial instruments or borrowed capital—to increase the potential return of an investment. Leverage can also refer to the amount of debt a firm uses to finance assets.

Leverage

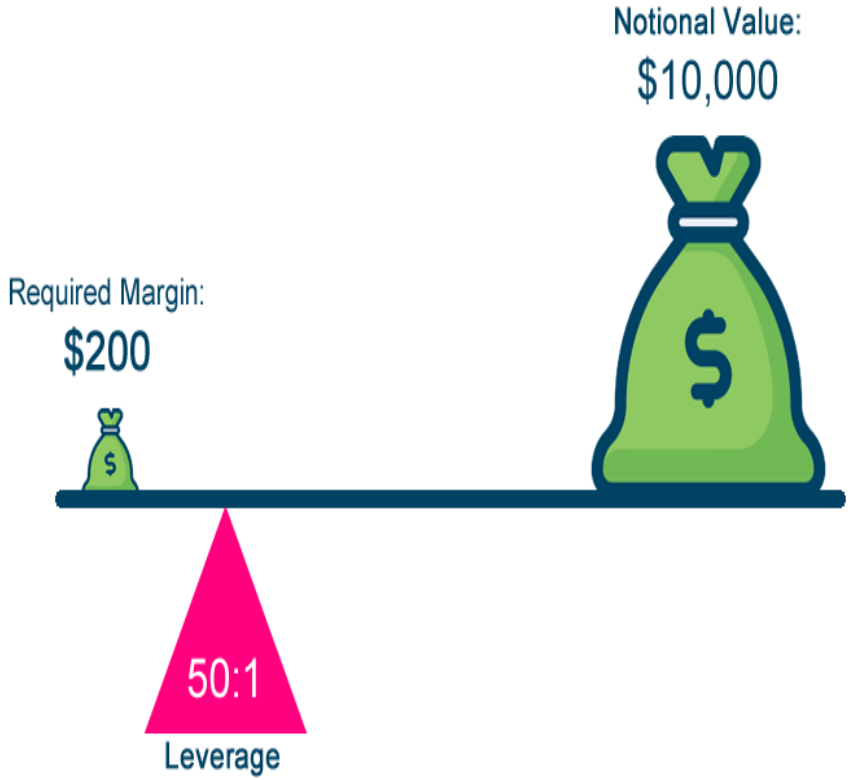
Leverage refers to the use of debt (borrowed funds) to amplify returns from an investment or project.

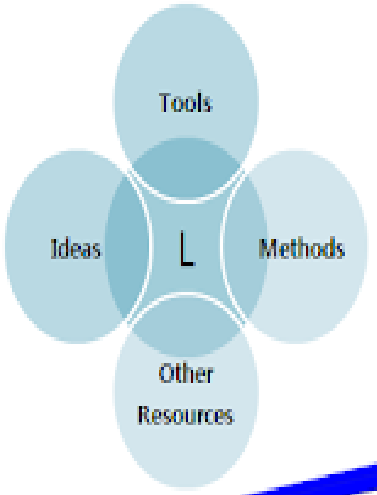
Investors use leverage to multiply their buying power in the market.

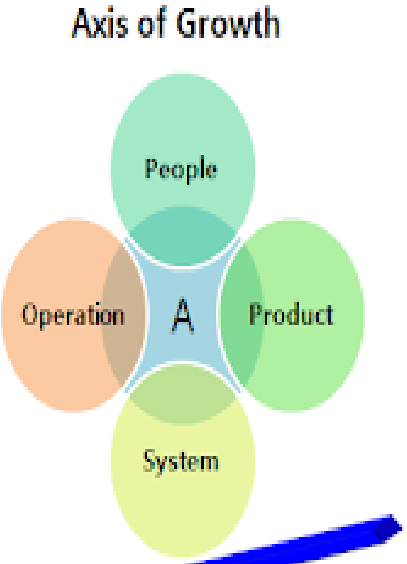
Companies use leverage to finance their assets—instead of issuing stock to raise capital, companies can use debt to invest in business operations in an attempt to increase shareholder value.



Leverage


Notional Value:
$10,000
Required Margin:
$200
50:1
Leverage


Business Leverages
Tools
Ideas
L
Methods
Other
Resources


Axis of Growth
People
Operation
A
Product
System

Types of Leverage

- **Financial Leverage**
- **Operating Leverage and**
- **Combined Leverages**

❖ Financial Leverage

Financial Leverage is a tool with which a financial manager can maximise the returns to the equity shareholders.

The capital of a company consists of equity, preference, debentures, public deposits and other long-term source of funds.

He has to carefully select the securities to mobilise the funds. The proper blend of debt to equity should be maintained.

❖ Financial Leverage

$$\text{Financial Leverage} = \frac{\text{Operating Income / EBIT}}{\text{Taxable Icome / EBT}} \quad \text{or}$$

$$\frac{\text{EBIT}}{\text{EBIT} - \text{I}} = \frac{\text{EBIT}}{\text{EBT}} .$$

EBIT = Earnings before Interest and Tax

EBT = Earnings before Tax, and I = Interest

❖ Financial Leverage

Example: *A company has the following capital structure*

Equity Capital of ₹ 10/- each	=	₹ *5,00,000*
15% Debentures of ₹ 500 each	=	₹ *5,00,000*
Total	=	₹ *10,00,000*
EBIT of Operating Profit	=	₹ *2,00,000*

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} \text{ or } \frac{\text{EBIT}}{\text{EBIT} - \text{I}} = \frac{2,00,000}{2,00,000 - 75,000}$$

$$\text{I} = \frac{15}{100} \times 5,00,000 \text{ (Deb)} = 75,000$$

$$\text{Financial Leverage} = \frac{2,00,000}{1,25,000} = 1.6 \text{ times.}$$

❖ Operating Leverage

Operating leverage shows the ability of a firm to use fixed operating cost to increase the effect of change in sales on its operating profits.

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT/Operating Profit}}$$

Example: A firm has the following sales and cost data. Sales 50,000 units @ ₹ 6 per unit. Variable expenses ₹ 2 per unit. Fixed expenses ₹ 1,00,000. The earnings will be: .....

		₹
Sales (50,000 × ₹ 6)	=	*3,00,000*
Less: Variable Cost (50,000 × ₹ 2)	=	*1,00,000*
Contribution	=	*2,00,000*
Less: Fixed expenses	=	*1,00,000*
EBIT/Operating profit	=	*1,00,000*

From the above calculation, it is observed that, variation in production influences the operating profit. When the production was 50,000 units, the EBIT was 1,00,000 and EBIT was nil, when the production was dropped to 25,000 units.

Let us compare the same situation by using operating leverage.

Situation I–where sales = ₹ 3,00,000 V.C. = ₹ 1,00,000 and Fixed cost = ₹ 1,00,000

$$\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT/Operating Profit}}$$

Sales	=	₹ 3,00,000
Less: Variable Cost	=	₹ 1,00,000
Contribution	=	₹ 2,00,000
Less: Fixed expenses	=	₹ 1,00,000
EBIT/Operating Profit	=	₹ 1,00,000

$$\text{Operating Leverage} = \frac{2,00,000}{1,00,000} = 2 \text{ times}$$

Situation II = If the sales has dropped to ₹ 1,50,000, V. Cost = ₹ 50,000 and Fixed cost = ₹ 1,00,000

Sales	=	₹ 1,50,000
Less: Variable Cost	=	₹ 50,000
Contribution	=	₹ 1,00,000
Less: Fixed expenses	=	₹ 1,00,000
EBIT/Operating Profit	=	Nil

$$\text{Operating Leverage} = \frac{1,00,000}{0} = 0$$

Hence, at the production level of 25,000 units for the firm to have operating profit.

❖ Operating Leverage

$$\text{Degree of Operating Leverage} = \frac{\text{Percentage change in Income}}{\text{Percentage change in Sales}}$$

Let us understand the degree of operating leverage with the following example:

Particulars	1995	1996
Sales : ₹ 4 per unit	50,000 units	55,000 units
Variable Cost ₹ 2 per unit	₹ 50,000	₹ 50,000

Particulars	1995 ₹		1996 ₹	Variations ₹
Sales. 50,000 × 4	2,00,000	55,000 × 4	2,20,000	20,000
Variable Cost 50,000 × 2	1,00,000	55,000 × 2	1,10,000	10,000
Contribution	1,00,000		1,10,000	10,000
Less: Fixed Cost	50,000		50,000	Nil
EBIT/Operating profit	50,000		60,000	10,000

$$\text{O.L.} = \frac{C}{\text{EBIT}} = \frac{1,00,000}{50,000} = \frac{1,10,000}{60,000}$$

$$= 2 \text{ times} = 1.83 \text{ times}$$

When the sales revenue increases by 10 per cent (2,00,000 × 10/100), operating leverage will be 1.83 times or 1.83 times or 18.33 percent and increases EBIT by ₹ 10,000.

❖ Combined Leverage

This leverage shows the relationship between a change in sales and the corresponding variation in taxable income.

If the management feels that a certain percentage change in sales would result in percentage change to taxable income they would like to know the level or degree of change and hence they adopt this leverage.

Thus, degree of leverage is adopted to forecast the future study of sales levels and resultant increase/decrease in taxable income.

❖ Combined Leverage

$$\text{Combined Leverage} = \text{Operating Leverage} \times \text{Financial Leverage}$$

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBIT/Operating Profit}} \times \frac{\text{EBIT}}{\text{EBT}}$$

$$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{Earning before Tax}}$$

Combined Leverage

		₹
Sales	=	2,00,000
Less: Variable Cost (40/100 × 2,00,000)	=	80,000
Contribution	=	1,20,000
Less: Fixed Cost	=	60,000
Operating Profit/EBIT	=	60,000
Less: Interest on Borrowings	=	20,000
Earnings before Tax	=	40,000

Combined Leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{1,20,000}{40,000}$ = 3 times

When sales increased by 10 per cent (i.e., ₹ 2,00,000 × 10/100 = 20,000)

= ₹ 2,20,000

		₹
Sales	=	2,20,000
Less: Variable Cost ($\frac{40}{100} \times 2$,20,000)	=	88,000
Contribution	=	1,32,000
Less: Fixed Cost	=	60,000
Operating Profit/EBIT	=	72,000
Less: Interest on/Borrowings	=	20,000
Earnings before Tax	=	52,000

Combined Leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{1,32,000}{52,000}$ = 2.5 times

This shows that there is an increase of ₹ 12,000 EBIT (₹ 52,000 – ₹ 40,000), for an increase of 10 per cent of sales. The taxable income increases by 30 per cent.

Increase in Taxable Income = $\frac{\text{Incremental profit}}{\text{Original profit}} \times 100$

$\frac{12,000}{40,000} \times 100$ = 30 per cent

❖ Degree of Operating Leverage (DOL)

$$DOL = \frac{\%\text{ change in operating profit}}{\%\text{ change in sales}}$$

Or

$$DOL = \frac{(\Delta\ EBIT/EBIT)}{(\Delta\ Sales/Sales)}$$

Or

$$DOL = \frac{\text{Contribution}}{\text{EBIT}}$$

Or

$$DOL = \frac{(\text{Sales} - \text{Variable Cost})}{(\text{Sales} - \text{Vatiable Cost} - \text{Fixed operating cost})}$$

❖ Degree of Financial Leverage (DFL)

$$\text{Degree of financial leverage (DFL)} = \frac{\%\ \text{change in EPS}}{\%\ \text{change in EBIT}}$$

$$\text{Degree of financial leverage (DFL)} = \frac{(\Delta\ \text{EPS}/\text{EPS})}{(\Delta\ \text{EBIT}/\text{EBIT})}$$

$$\text{Degree of financial leverage (DFL)} = \frac{\text{EBIT}}{\text{EBIT} - \text{Interest Expense}}$$

Or

$$\text{Degree of financial leverage (DFL)} = \frac{\text{EBIT}}{\text{PBT}}$$

❖ Degree of Combined Leverage (DCL)

$$\text{Degree of combined leverage (DCL)} = \frac{\%\ \text{Change in EPS}}{\%\ \text{Change in Sales}}$$

Or

$$\text{Degree of combined leverage (DCL)} = \text{DOL} \times \text{DFL}$$

Or

$$\text{Degree of combined leverage (DCL)} = \frac{(\Delta \text{EPS}/\text{EPS})}{(\Delta \text{Sales}/\text{Sales})}$$

Degree of Operating Leverage (DOL)	Degree of Financial Leverage (DFL)	Degree of combined leverage (DCL)
High	High	Risky (Very High)
High	Low	Normal (Moderate)
Low	High	Normal (Moderate)
Low	Low	Low

DIFFERENCE

Finance - Profit/Earnings, Operation - Quantity and Combined - Both

BASIS FOR COMPARISON	OPERATING LEVERAGE	FINANCIAL LEVERAGE
Meaning	Use of such assets in the company's operations for which it has to pay fixed costs is known as Operating Leverage.	Use of debt in a company's capital structure for which it has to pay interest expenses is known as Financial Leverage.
Measures	Effect of Fixed operating costs.	Effect of Interest expenses
Relates	Sales and EBIT	EBIT and EPS
Ascertained by	Company's Cost Structure	Company's Capital Structure
Preferable	Low	High, only when ROCE is higher
Formula	DOL = Contribution / EBIT	DFL = EBIT / EBT
Risk	It give rise to business risk.	It give rise to financial risk.

Thank You