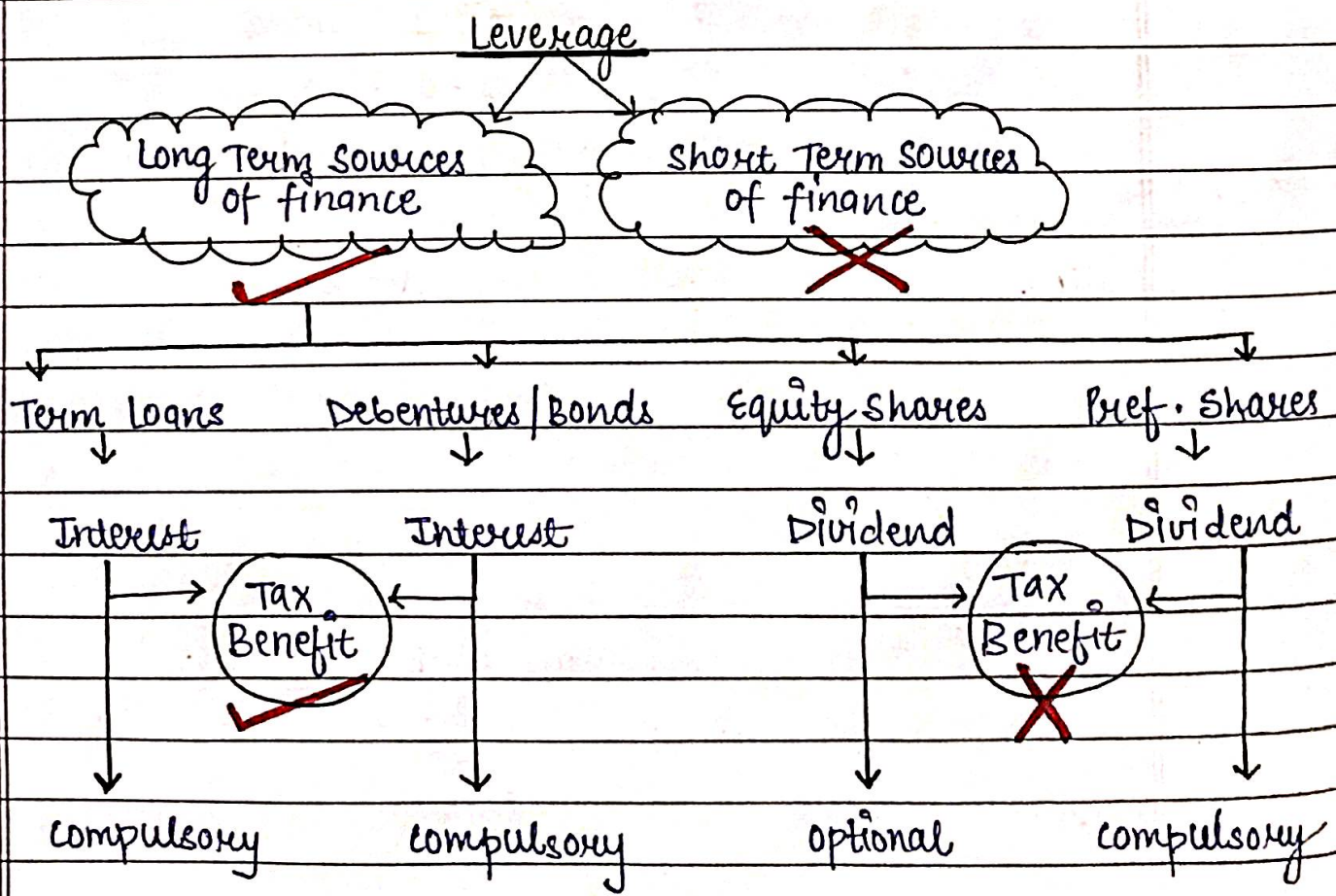


Financial Management

Chapter : Leverage Analyses and EBIT - EPS Analysis

* "Leverage" refers to the use of fixed costs in an attempt to increase (or lever up) profitability.
 In other words, Leverage is the employment of fixed assets or funds for which a firm has to meet fixed costs or fixed rate of interest obligation irrespective of the level of activities or the level of operating profit.

PARTICULARS	VARIABLE COST	FIXED COST
Total Expenditure	change proportionately with change in output.	same
Per unit	same	changes with change in output.



Fixed Cost

Operational Fixed Cost

Financial Fixed Cost

Eg: Rent, salary, depreciation etc.

Eg: interest, Preference dividend.

Types of Risk

Business Risk (Operating Risk)

Financial Risk

- Whether a company will be able to generate sufficient revenue to cover its fixed operating expenses or not.

- Whether a company will be able to repay its financial obligations (like interest) or not.

• It depends upon competition, technological obsolescence etc.

• It depends on the amount of debt taken.

Business Risk is measured by Degree of Operating Leverage [DOL]

Financial Risk is measured by Degree of Financial Leverage [DFL]

Combined Risk of co. is measured by

Degree of combined leverage [DCL] = DOL X DFL

* leverage is always calculated in Times.

Example :-

Income Statement

Particulars	Amt (₹)	change	Amt (₹)
Sales	20,000	+20%	24,000
(H) Variable cost (30% of sales)	(6,000)	+20%	(7,200)
Contribution	14,000	+20%	16,800
(H) Fixed cost	(5,000)	-	(5,000)
Operating Profit (EBIT)	9,000	+31.11%	11,800
(H) Interest	(3,000)	-	(3,000)
EBT	6,000	+46.67%	8,800
(H) Tax (40%)	(2,400)	+46.67%	(3,520)
EAT [= EAESH assuming no pref. dividend]	3,600	+46.67%	5,280
(H) no. of equity shares	100 shares	-	100 shares
EPS	₹36/share	+46.67%	₹52.80/share

$$DOL = \frac{\text{Contribution}}{\text{EBIT}} = \frac{14,000}{9,000} = 1.56 \text{ Times.}$$

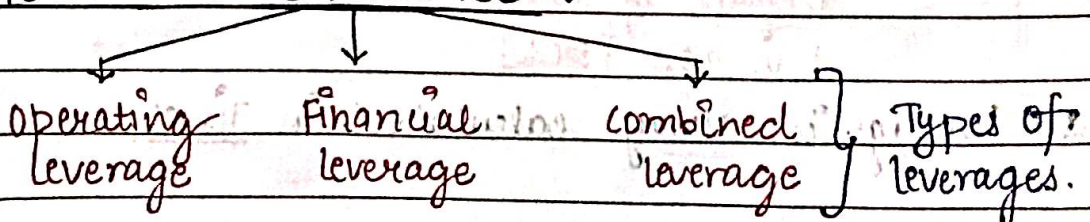
$$DFL = \frac{\text{EBIT}}{\text{EBT}} = \frac{9,000}{6,000} = 1.50 \text{ Times.}$$

$$DCL = \frac{\text{Contribution}}{\text{EBT}} \quad \text{OR} \quad \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}}$$

$$[DOL \times DFL]$$

$$= \frac{14,000}{6,000} = 2.33 \text{ Times.}$$

* FORMULAS OF LEYERAGES :-



1) Degree of Operating Leverage (DOL) :-

- * Operating leverage defines the firm's ability to use fixed operating costs to magnify effects of changes in sales on its EBIT.
- * The Degree of Operating leverage DOL of a firm at particular level of output is simply the percentage change in EBIT over the percentage change in output that causes the change in profits.

$$DOL = \frac{\text{Sales} - \text{variable cost}}{\text{Sales} - \text{Fixed cost} - \text{variable cost}}$$

{ Single Income Statement }

$$= \frac{\text{Contribution}}{\text{EBIT}} \quad \text{OR} \quad = \frac{\text{EBIT} + \text{Fixed cost}}{\text{EBIT}}$$

{ Comparative Income Statement }

$$= \frac{\% \text{ change in EBIT}}{\% \text{ change in sales} / \text{Contribution} / \text{variable cost}}$$

Note :- operating leverage affects a firm's operating profit i.e (EBIT).

2) Degree of Financial Leverage (DFL) :-

- * Financial leverage is defined as a ability of a firm to use fixed financial charges to magnify the effects of changes in operating profit, on the firm's earning per share.

$$DFL = \frac{\text{EBIT}}{\text{EBT}} \quad \text{OR} \quad \frac{\% \text{ change in EPS} / \text{PAT} / \text{EBT}}{\% \text{ change in operating profit (EBIT)}}$$

→ (When no Preference Dividend)

Note :- (i) Financial leverage is the change in the level of EPS

$$* DFL = \frac{EBIT}{EBT - \frac{FD}{1-t}}$$

$\xrightarrow{\text{Past tax item}} \frac{1-t}{1-t} \rightarrow \text{Pre tax}$

→ (where there is Preference Dividend)

due to change in EBIT.

(ii) Financial leverage occurs due to presence of fixed financial cost (interest) in the business.

3) Degree of combined leverage OR Total Leverage :-

* combined leverage is a leverage which refers to high profits due to fixed costs. It includes fixed operating expense with fixed financial expenses.

$$DCL = \frac{\text{Contribution}}{EBT} \times \frac{EBIT}{EBT}$$

OR

$$= \frac{\% \text{ change in EBIT}}{\% \text{ change in sales}} \times \frac{\% \text{ change in EPS}}{\% \text{ change in EBIT}} = \frac{\% \text{ change in EPS}}{\% \text{ change in sales}}$$

Eg :- if operating leverage of a firm = 1.4 ; whereas financial leverage = 2 , then the degree of combined leverage will be = $1.4 \times 2 = 2.8$ times.

* Value of DOL :-

- $DOL = 1 \rightarrow$ NO. F.C \rightarrow NO operating risk.
- $DOL > 1 \rightarrow$ F.C is +ve \rightarrow operating risk exists.
- $DOL = \infty \rightarrow$ Contribution = F.C \rightarrow EBIT = 0
- $DOL < 0 \rightarrow$ F.C > Contribution \rightarrow EBIT = -ve

DOL can never be between 0 & 1 , because

- Fixed cost can never be -ve , or
- EBIT can never be greater than Contribution.

* If Interest and Financial leverage is given in the Question,
 Financial leverage = $\frac{EBIT}{EBT}$

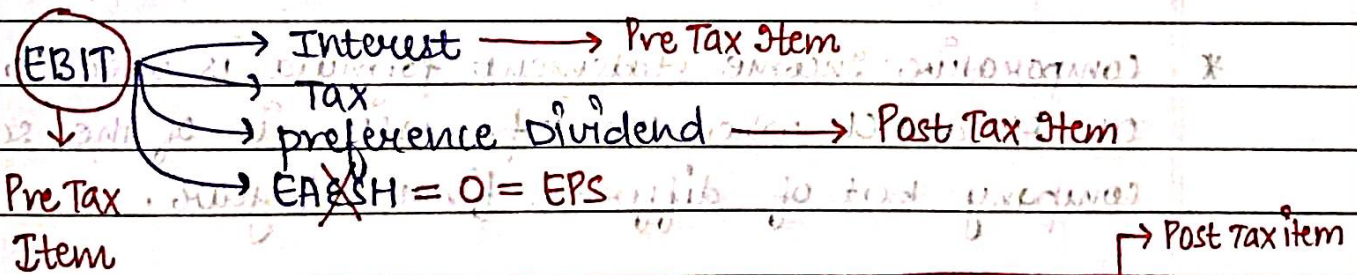
Financial leverage = $\frac{EBIT}{EBT}$ → calculate EBIT using
 $EBT = (EBIT - \text{Interest}) \times (1 - t)$ (this)

* If operating fixed cost and operating leverage is given in the Question,
 operating leverage = $\frac{\text{Contribution}}{EBIT}$

Operating leverage = $\frac{\text{Contribution}}{\text{Contribution} - \text{operating F.C}}$ → calculate Contribution using this.

Financial Breakeven Point :-

That level of EBIT where $EPS = 0$



$$\text{Financial BEP} = \frac{\text{Interest} + \text{Preference Dividend}}{(EBIT) \rightarrow \text{Pre Tax Item} \times (1 - \text{tax})}$$

Imp. Note :- 1. Pre Tax $\times (1 - t)$ → Post Tax

eg:- 100 → ? [60]
 $[100 \times (1 - 0.4)]$

assume Tax = 40%

2. Pre Tax $\div (1 - t)$ → Post Tax

eg:- ? [100] ← 60
 $[60 \div (1 - 0.4)]$

Indifference Point :-

That level of EBIT under different financial plans at which EPS is same.

i.e, $EPS (Plan A) = EPS (Plan B)$

$$\frac{(EBIT - I)(1-t) - PD}{\text{No. of shares}} = \frac{(EBIT - I)(1-t) - PD}{\text{No. of shares}}$$

Indifference Point = $\frac{(EBIT - \text{Interest}) \times (1 - \text{tax}) - \text{Pref. Dividend}}{\text{No. of shares}}$

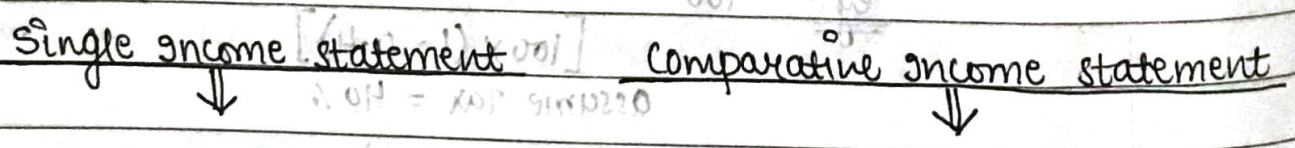
$\begin{matrix} \text{Pre Tax item} & \text{EBT} \\ \downarrow & \downarrow \\ \frac{P}{X} & \text{PAT} \\ \text{Post Tax item} & \end{matrix}$

- Imp. Note :-
- (i) Higher the operating FC, Higher operating leverage.
 - (ii) Higher the financial FC, Higher Financial leverage.
 - (iii) Higher the total FC, Higher the combined leverage.

* Comparative income statement formula is used to calculate OL, FL and CL when the information is of the same company but of different financial years.

* single income statement formula is used in all the other cases such as -

- ① different companies.
- ② same companies but different financial plans.



<p>Basic ⇒ $\frac{\text{upar vala item}}{\text{niche vala item}}$</p>	<p>$\frac{\% \text{ change in niche vala item}}{\% \text{ change in upar vala item}}$</p>
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