

MATERIAL SET 10

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FINANCIAL MANAGEMENT

LEVERAGE

FINNCIAL LEVERAGE

DOL (Degree of Operating Leverage)	DFL (Degree of Financial Leverage)	DCL (Degree of Combined Leverage)
% change in EBIT	% change in EPS	% change in EPS
% change in Sales	% change in EBIT	% change in Sales
$\frac{\text{Total Contribution}}{\text{EBIT}}$	$\frac{\text{EBIT}}{\text{EBT}}$ or $\frac{\text{EBT} - \frac{P_d}{1-t}}{\text{EBT} - \frac{P_d}{1-t}}$	$DCL = DOL \times DFL$
		$\frac{\text{Contribution}}{\text{EBT} - \frac{P_d}{(1-t)}}$

F.1. Measurement of Financial Leverage

The percentage change in earning per share (EPS) due to one percent change in earning before interest and tax (EBIT), is called **Degree of Financial Leverage (DFL)**. That is —

$$DFL = \frac{\% \text{ Change in EPS}}{\% \text{ Change in EBIT}} \dots\dots\dots (1)$$

Now, the earning per equity share (EPS) depends on whether there is preference share capital or not in the capital structure of a firm. If there is no preference share capital in the capital structure, then the earning per equity share can be obtained by dividing the net profit after interest and tax with the number of equity shares. Thus, —

$$EPS = \frac{\text{Net profit after interest and tax}}{\text{No. of Equity shares}}$$

Now, Earning before interest and tax

Less : Interest

Earning after interest

Less : Tax [(EBIT - I) × t, where t = tax rate]

Earning after interest and tax

= EBIT

= I (let)

= (EBIT - I)

= (EBIT - I) × t

= (EBIT - I) - (EBIT - I) × t

= (EBIT - I) (1 - t).

$$\therefore EPS = \frac{(EBIT - I) (1 - t)}{N} \text{ [where, N = Number of equity shares].}$$

$$\therefore \text{Change in EPS} = \Delta EPS = \frac{\Delta EBIT (1 - t)}{N} \text{ [}\because \text{'t' is fixed}]$$

Now, we get from (1),

$$DFL = \frac{\frac{\text{Change in EPS}}{\text{Opening EPS}} \times 100}{\frac{\text{Change in EBIT}}{\text{Opening EBIT}} \times 100}$$

$$\text{or, } DFL = \frac{\frac{\Delta EPS}{EPS} \times 100}{\frac{\Delta EBIT}{EBIT} \times 100}$$

$$\text{or, } DFL = \frac{\frac{\frac{\Delta EBIT(1-t)}{N}}{(EBIT-I)(1-t)} \times 100}{\frac{\Delta EBIT}{EBIT} \times 100}$$

$$\text{or, } DFL = \frac{\frac{\Delta EBIT(1-t)}{N} \times \frac{N}{(EBIT-I)(1-t)}}{\frac{\Delta EBIT}{EBIT}}$$

$$\text{or, } DFL = \frac{\frac{\Delta EBIT}{(EBIT-I)}}{\frac{\Delta EBIT}{EBIT}}$$

$$\text{or, } DFL = \frac{\Delta EBIT}{(EBIT - I)} \times \frac{EBIT}{\Delta EBIT}$$

$$\text{or, } DFL = \frac{EBIT}{EBIT - I}$$

Now, if the interest (I) is deducted from the EBIT, the rest is EBT.

$$\therefore DFL = \frac{EBIT}{EBT} \dots\dots\dots (2)$$

If there is preference share capital in the Capital Structure, then the residual incomes which is left after deducting preference dividend from the Earning after interest and tax is available to the equity shareholders. If this income is divided by the number of equity shares, then the earning per equity share is obtained. That is —

$$EPS = \frac{\text{Earning after interest and tax} - \text{Preference dividend}}{\text{No. of Equity Shares}}$$

$$\text{or, } EPS = \frac{(EBIT - I)(1 - t) - P_d}{N}$$

$$\therefore \text{Change in EPS} = \Delta EPS = \frac{\Delta EBIT(1 - t)}{N} \quad [\because 'I' \text{ and } 'P_d \text{ (preference dividend)'} \text{ are fixed}].$$

Now, we get from (1),

$$DFL = \frac{\frac{\Delta EPS}{EPS} \times 100}{\frac{\Delta EBIT}{EBIT} \times 100}$$

$$\text{or, } DFL = \frac{\frac{\frac{\Delta EBIT(1-t)}{N}}{(EBIT-I)(1-t)-P_d}}{\frac{\Delta EBIT}{EBIT}}$$

$$\text{or, } DFL = \frac{\frac{\Delta EBIT(1-t)}{(EBIT-I)(1-t)-P_d}}{\frac{\Delta EBIT}{EBIT}}$$

$$\text{or, } DFL = \frac{\Delta EBIT(1-t)}{(EBIT-I)(1-t)-P_d} \times \frac{EBIT}{\Delta EBIT}$$

$$\text{or, } DFL = \frac{EBIT(1-t)}{(EBIT-I)(1-t)-P_d}$$

Dividing numerator and denominator by $(1-t)$, we get—

$$\text{or, } DFL = \frac{EBIT}{(EBIT-I) - \frac{P_d}{(1-t)}}$$

$$\text{or, } DFL = \frac{EBIT}{EBT - \frac{P_d}{(1-t)}} \dots\dots\dots (3)$$

Tutorial Note

Students are advised to see that if there is no preference share, then $\frac{P_d}{(1-t)}$ of equation (3) is zero as $P_d = 0$. Thus, the same result will be obtained from equation (2) and 3.

F.2. Significance of Financial Leverage

- If earning before interest and tax (EBIT) changes by one percent, what percentage of earning per share (EPS) that will be changed is known from this leverage. Suppose, for example, the DFL of a firm is 2.4. This means that if the EBIT changes by 1%, the EPS of that very firm will be changed by 2.4%.
- Financial leverage is effective only at that time when the firm has to bear fixed financial cost. This means that if fixed financial cost does not exist, there can not remain the existence of financial leverage.

- (iii) If $DFL = 1$, financial leverage is not effective.
- (iv) The DFL depends on the amount of fixed financial cost. This means, if fixed financial cost increases, the DFL increases and vice-versa. For example, it is found from the following example that if fixed financial cost (*Interest on debenture*) increases, DFL increases and if fixed financial cost decreases, DFL decreases.
- (v) When the dependence on debt-capital increases, earning per equity share increases at faster rate *i.e.*, the effect of financial leverage is positive or favourable. On the other hand, when the dependence on debt-capital decreases, the earning per equity share decreases *i.e.*, the effect of financial leverage is negative or adverse. But these two conditions are fulfilled only at that time when the rate of return on investment is more than the rate of interest on debt-capital. For example—

Particulars	Plan-A (₹)	Plan-B (₹)	Plan-C (₹)
Equity Share Capital (₹ 10 each)	3,00,000	2,00,000	4,00,000
10% Debentures	2,00,000	3,00,000	1,00,000
Capital Structure	5,00,000	5,00,000	5,00,000
EBIT (Assumed)	80,000	80,000	80,000
Less : Interest on Debenture	20,000	30,000	10,000
EBT	60,000	50,000	70,000
Less : Tax @ 50% (Assumed)	30,000	25,000	35,000
EAT	30,000	25,000	35,000
$EPS = \frac{EAT}{\text{No. of Equity Shares}}$	1.00	1.25	0.875
Less : EPS of Plan-A	—	1.00	1.000
Effect of Financial Leverage		0.25	- 0.125
$DFL = \frac{EBIT}{EBT}$	1.33	1.60	1.14

- (vii) Though the debt-capital increases the earnings per share to the equity shareholders but if debt-capital is used, the firm has to bear the cost of fixed interest. So, as a result of this, financial risk is created in the firm. The financial leverage explains such financial risk attached to the capital structure. The more the degree of financial leverage, the greater is the earnings to the equity shareholders as well as increase in the degree of financial risk and vice-versa.
- (viii) If the rate of return on investment is more than the cost of debt-capital, the earnings to the equity shareholders increases *i.e.*, the effect of financial leverage is positive. On the other hand, if the rate of return on investment is less than the cost of debt-capital, the earnings to the equity shareholders decreases *i.e.*, the effect of financial leverage is negative. For example—

Particulars	Firm-A (₹)	Firm-B (₹)
Equity Share Capital (₹ 10 each)	4,00,000	4,00,000
10% Debentures	1,00,000	—
20% Debentures	—	1,00,000
Capital Employed	5,00,000	5,00,000
EBIT (Assumed)	60,000	60,000
Less : Interest on Debenture	10,000	20,000
EBT	50,000	40,000
Less : Tax @ 50% (Assumed)	25,000	20,000
EAT	25,000	20,000
EPS = $\frac{\text{EAT}}{\text{No. of Equity Shares}}$	0.625	0.50
Rate of Return on Investment = $\frac{\text{EBIT}}{\text{Capital Employed}}$	12%	12%

If both the firms procured capital of ₹ 5,00,000 by issuing equity shares only instead of debentures, the number of equity shares of each firm would be 50,000. In that case, the

EPS of both the firms would be $\frac{60,000(\text{EBIT}) - 60,000 \times \frac{50}{100} (\text{tax})}{50,000} = ₹ 0.60$. Thus, as a result

of using debt-capital, the EPS of firm-A has been increased by ₹ 0.025 i.e., the effect of financial leverage has become positive and the EPS of firm-B has been decreased by ₹ 0.10 i.e., the effect of financial leverage has become negative. This is because, the rate of return on investment of firm-A is more than the rate of interest on debenture and the rate of return on investment of firm-B is less than the rate of interest on debenture. Thus, it is clear that if the rate of return on investment is more than the rate of interest on debt-capital, the effect of financial leverage is positive and if the rate of return on investment is less than the rate of interest on debt-capital, the effect of financial leverage is negative.

F.3. Necessity of Financial Leverage

The degree of financial leverage (DFL) is determined mainly for the following three purposes—

Firstly, if EBIT changes by one per cent, what percentage of EPS that will be changed can be determined with the help of the financial leverage. So, in order to determine the effect of EBIT on EPS, the financial leverage is determined.

Secondly, if debt-capital is used, the firm has to bear the cost of fixed interest. So, as a result of this, financial risk is created in the firm. Financial leverage explains such financial risk attached to the capital structure. The more the degree of financial leverage, the greater is the earnings to the equity shareholders as well as increase in the degree of financial risk and vice-versa. So, to measure the financial risk and the capability of the firm in the case of using debt-capital for the benefits of the shareholders, the financial leverage is used.

Thirdly, The effect of capital structure on the EPS can be determined with the help of financial leverage; because, if the amount of debt-capital is changed, the EPS is changed. So, the help of financial leverage may be taken also to determine the sound capital structure.

F.4. Advantages of Financial Leverage

The advantages which are obtained from the financial leverage are—

- (i) The higher the degree of financial leverage, the higher is the degree of financial risk also and vice-versa. So, the degree of financial risk to the firm may be understood through determination of financial leverage.
- (ii) If earning before interest and tax (EBIT) changes by one per cent, what percentage of earning per share (EPS) that will be changed is known from this leverage. For example, suppose the DFL of a firm is 2.8. This means that if EBIT of that firm changes by 1%, the EPS will be changed by 2.8%.
- (iii) The more the degree of financial leverage, the greater is the earning per share and vice-versa. So, an idea can be obtained about the earning per share through determination of financial leverage.

F.5. Limitations of Financial Leverage

The financial leverage has some limitations, such as—

- (i) If the degree of financial leverage is very high, the degree of financial risk also is very high, which may cause bankruptcy of the firm.
- (ii) The financial leverage is a double-edge sword. It helps to increase the earning per share to the equity shareholders in one hand and on the other hand, it creates additional financial risk for them. So, the effort of increasing the earning per share with the help of this leverage may call in financial distress.
- (iii) It can not always be said that the earning per share (EPS) of the firm will be larger if financial leverage exists; because, the EPS increases only at that time when the rate of return on investment is more than the rate of interest on debt-capital. So, when the rate of return on investment is less than the rate of interest on debt-capital, the EPS does not increase even if the financial leverage exists.

G Combined Leverage

G.1. Measurement of Combined Leverage

The percentage change in earning per equity share (EPS) due to one percent change in sales (Q), is called **Degree of Combined Leverage (DCL)**. That is, —

$$\begin{aligned} \text{DCL} &= \frac{\% \text{ change in EPS}}{\% \text{ change in Sales}} \\ \text{or, DCL} &= \frac{\% \text{ change in EPS}}{\% \text{ change in Sales}} \times \frac{\% \text{ change in EBIT}}{\% \text{ change in EBIT}} \\ \text{or, DCL} &= \frac{\% \text{ change in EBIT}}{\% \text{ change in Sales}} \times \frac{\% \text{ change in EPS}}{\% \text{ change in EBIT}} \\ \text{or, DCL} &= \text{DOL} \times \text{DFL} \end{aligned}$$

Now, we know that if there is no preference share in the Capital Structure, then, $\text{DFL} =$

$$\frac{\text{EBIT}}{\text{EBT}}$$

$$\therefore \text{DCL} = \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}} \quad \left[\because \text{DOL} = \frac{\text{Contribution}}{\text{EBIT}} \right]$$

$$\text{or, DCL} = \frac{\text{Contribution}}{\text{EBT}}$$

Again, if there is preference share capital in the Capital Structure, then $\text{DFL} = \frac{\text{EBIT}}{\text{EBT} - \frac{P_d}{(1-t)}}$

$$\therefore \text{DCL} = \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT} - \frac{P_d}{(1-t)}} \quad \left[\because \text{DOL} = \frac{\text{Contribution}}{\text{EBIT}} \right]$$

$$\text{or, DCL} = \frac{\text{Contribution}}{\text{EBT} - \frac{P_d}{(1-t)}}$$

Thus, it can be said that if there is no preference share capital in the Capital Structure, then

$$\text{DCL} = \frac{\text{Contribution}}{\text{EBT}} ; \text{ and if there is preference share capital in the Capital Structure, then}$$

$$\text{DCL} = \frac{\text{Contribution}}{\text{EBT} - \frac{P_d}{(1-t)}}$$

G.2. Significance of Combined Leverage

- (i) If volume of sales changes by one per cent, what percentage of earning per share (EPS) that will be changed is known from this leverage. For example, suppose, the DCL of a firm is 2.25. This means that if the volume of sales of that firm changes by 1%, the earning per share will be changed by 2.25%.
- (ii) The amount of risk relating to the fixed operating cost is measured by the operating leverage and the amount of risk relating to the fixed interest cost is measured by the financial leverage. Since both these leverages are closely related with the firm's capacity to meet its fixed cost obligations, if they are multiplied, the result is combined leverage. The risk involved with the combined leverage of a firm is the total risk of that very firm. So, a high degree of operating leverage together with a high degree of financial leverage makes the firm very risky. For this, the firms which have high degree of operating leverage, they should have low degree of financial leverage. On the other hand, the firms which have high degree of Financial leverage, the degree of operating leverage of those firms should be kept low.
- (iii) The combined leverage is very useful in the area of choosing financial plans for new investment. As for instance, if a firm invests large amount of fund in highly risky assets then the operating leverage will obviously increase. Now, if the firm keeps its financial policy unchanged, then there will be no change in its financial leverage. As a result of this, the degree of combined leverage will increase and the amount of risk of the firm will also increase. In such a case, if the firm wants to keep its degree of risk unchanged, then the amount of equity share capital has to be increased. Because, if the amount of equity share capital is increased, then the degree of financial leverage will decrease. As a result of this, the increased operating leverage which is created due to increase in investment in the more risky assets would be compensated due to decrease in the degree of financial leverage.

G.3. Necessity of Combined Leverage

Generally, the combined leverage is necessary for the following two reasons—

Firstly, the combined leverage is computed for determining the effect of change in sales on the earning per share; because, if the volume of sales changes by one per cent, what percentage of earning per share that will be changed is known from this leverage.

Secondly, this leverage is determined for getting the idea about the degree of total risk of the firm.

G.4. Advantages of Combined Leverage

The advantages which are obtained from the combined leverage are—

- (i) If the volume of sales changes by one per cent, what percentage of earning per share that will be changed is known with the help of combined leverage. For example, suppose the DFL of a firm is 2.25. This means that if the volume of sales of that very firm changes by 1%, the earning per share will be changed by 2.25%.
- (ii) It is possible to get an idea about the total risk of the firm with the help of this leverage.

G.5. Limitation of Combined Leverage

Though it is possible to get an idea about the total risk of the firm with the help of the combined leverage but it is not possible to get the ideas about the operating risk and financial risk with the help of this leverage. So, in order to get clear idea about the risks of the firm, the operating leverage and financial leverage have to be determined even if the combined leverage is determined.

H Required Formula for determining Operating, Financial and Combined Leverage

1. Degree of Operating Leverage (DOL)

$$\text{Degree of Operating Leverage (DOL)} = \frac{\text{contribution}}{\text{EBIT}}$$

2. Degree of Financial Leverage (DFL)

- (i) If there is no preference share capital in the Capital Structure,

$$\text{then—Degree of Financial Leverage (DFL)} = \frac{\text{EBIT}}{\text{EBT}}$$

- (ii) If there is preference share capital in the Capital Structure,

$$\text{then—Degree of Financial Leverage (DFL)} = \frac{\text{EBIT}}{\text{EBT} - \frac{P_d}{(1-t)}}$$

3. Degree of Combined Leverage (DCL)

- (i) If there is no preference share capital in the Capital Structure, then—Degree of

$$\text{Combined Leverage} = \frac{\text{contribution}}{\text{EBT}}$$

- (ii) If there is preference share capital in the Capital Structure,

$$\text{then—Degree of Combined Leverage} = \frac{\text{contribution}}{\text{EBT} - \frac{P_d}{(1-t)}}$$

4. Determination of Contribution, EBIT, EBT and EPS	
Sales	***
Less : Variable cost	***
Contribution	***
Less : Fixed cost	***
Earning before interest and tax (EBIT)	***
Less : Interest	***
Earning before tax (EBT)	***
Less : Tax [EBT \times tax rate (t)]	***
Earning after tax (EAT)	***
Less : Preference Dividend (P_d)	***
Earning after interest, tax & Pref. dividend	***
$EPS = \frac{\text{Earning after interest, tax \& Preference dividend}}{\text{No. of Equity Shares}}$	

Application : (a) Calculate the degree of operating leverage, financial leverage and combined leverage from the following data under financial plan 'A' and 'B'.

Installed capacity	: 45,000 units
Actual production and sales	: 80% of the capacity
Selling price	: ₹ 25 per unit
Variable cost	: ₹ 15 per unit
Fixed cost	: ₹ 1,60,000
Tax rate	: 50%

		Financial Plan	
		(A)	(B)
Equity Share Capital of ₹ 10 each	(₹) :	5,00,000	2,50,000
10% Preference Share Capital of ₹ 100 each	(₹) :	—	2,00,000
Debt	(₹) :	2,00,000	2,50,000
Cost of Debt	:	upto ₹ 1,00,000 = 10%	
		above ₹ 1,00,000 to ₹ 2,00,000 = 12%	
		above ₹ 2,00,000 = 16%	

- (b) Verify whether $DCL = DOL \times DFL$ or not.
- (c) What conclusion do you draw from the computed value of DCL?
- (d) Calculate EPS.
- (e) What will be the earning per share (i) if the volume of sales increases by 5% in case of plan 'A' and (ii) if the volume of sales decreases by 5% in case of plan 'B'. Verify your results.

• Solution ⇒

• [a] Statement showing computation of degree of operating leverage, financial leverage and combined leverage.

Particulars	Plan—A	Plan—B
Effective Production & Sales ($45,000 \times \frac{80}{100}$)	36,000 units	36,000 units
Sales ($₹ 25 \times 36,000$ units)	₹ 9,00,000	₹ 9,00,000
Less : Variable cost ($₹ 15 \times 36,000$ units)	₹ 5,40,000	₹ 5,40,000
Contribution	₹ 3,60,000	₹ 3,60,000
Less : Fixed cost	₹ 1,60,000	₹ 1,60,000
EBIT	₹ 2,00,000	₹ 2,00,000
Less : Interest (Note-1)	₹ 22,000	₹ 30,000
EBT	₹ 1,78,000	₹ 1,70,000
Less : Tax @ 50%	₹ 89,000	₹ 85,000
EAT	₹ 89,000	₹ 85,000
Less : Preference dividend ($2,00,000 \times \frac{10}{100}$)	—	₹ 20,000
Earning after interest, tax & Pref. dividend	₹ 89,000	₹ 65,000
Degree of Operating Leverage = $\left[\frac{\text{Contribution}}{\text{EBIT}} \right]$	$\frac{3,60,000}{2,00,000}$ = 1.80	$\frac{3,60,000}{2,00,000}$ = 1.80
Degree of Financial Leverage : $\left[\frac{\text{EBIT}}{\text{EBT}} \right]$	$\frac{2,00,000}{1,78,000}$ = 1.1236	—
$\left[\frac{\text{EBIT}}{\text{EBT} - \frac{\text{Pd}}{(1-t)}} \right]$	—	$\frac{2,00,000}{1,70,000 - \frac{20,000}{(1-0.50)}}$ = 1.5385
Degree of Combined Leverage : $\left[\frac{\text{Contribution}}{\text{EBT}} \right]$	$\frac{3,60,000}{1,78,000}$ = 2.0225	—
$\left[\frac{\text{Contribution}}{\text{EBT} - \frac{\text{Pd}}{(1-t)}} \right]$	—	$\frac{3,60,000}{1,70,000 - \frac{20,000}{(1-0.50)}}$ = 2.7692

Interpretation of the Results of Plan—A :

- (i) DOL = 1.80. This means, if sales revenue changes by 1%, the EBIT will change by 1.80%.
- (ii) DFL = 1.1236. This means, if EBIT changes by 1%, the EPS will change by 1.1236.
- (iii) DCL = 2.0225. This means, if the volume of sales changes by 1%, the EPS will change by 2.0225%.

Interpretation of the Results of Plan—B :

- (i) $DOL = 1.80$. This means, if sales revenue changes by 1%, the EBIT will change by 1.80%.
 (ii) $DFL = 1.5385$. This means, if EBIT changes by 1%, the EPS will change by 1.5385%.
 (iii) $DCL = 2.7692$. This means, if the volume of sales changes by 1%, the EPS will change by 2.7692%.

[b] $DCL \text{ of Plan 'A'} = DOL \text{ of Plan 'A'} \times DFL \text{ of Plan 'A'}$

$$= 1.80 \times 1.1236 = 2.0225.$$

$$DCL \text{ of Plan 'B'} = DOL \text{ of Plan 'B'} \times DFL \text{ of Plan 'B'}$$

$$= 1.80 \times 1.5385 = 2.769.$$

Hence, $DCL = DOL \times DFL$ (Proved)

- [c] $DCL \text{ of Plan A is } 2.0225$. This means if the volume of sale is changed by 1%, the EPS will change by 2.0225%. Again, the $DCL \text{ of Plan B is } 2.7692$. So, if the volume of sale is changed by 1%, the EPS will change by 2.7692%.

[d] $EPS \text{ of Plan A} = \frac{\text{Earning after interest, tax \& Pref. dividend}}{\text{No. of Equity Shares}}$

$$= ₹ \frac{89,000}{50,000} = ₹ 1.78$$

$$EPS \text{ of Plan B} = \frac{\text{Earning after interest, tax \& Pref. dividend}}{\text{No. of Equity Shares}}$$

$$= ₹ \frac{65,000}{25,000} = ₹ 2.60.$$

- [e] (i) The $DCL \text{ of Plan A is } 2.0225$ i.e.; if the volume of sale is increased by 1%, the EPS will increase by 2.0225%. So, if the volume of sale is increased by 5%, the EPS will increase by $(2.0225 \times 5)\%$ or, 10.112%. Thus, the EPS will be $₹ (1.78 + (1.78 \times 10.112\%)) = ₹ (1.78 + 0.18) = ₹ 1.96$. This result is being verified by the following statement :

Statement showing EPS of Plan—A

Particulars	Amounts
Volume of Sales : $(36,000 \times \frac{105}{100})$ units	37,800 units
Sales : $(₹ 25 \times 37,800 \text{ units})$	₹ 9,45,000
Less : Variable cost : $(₹ 15 \times 37,800 \text{ units})$	₹ 5,67,000
Contribution	₹ 3,78,000
Less : Fixed cost	₹ 1,60,000
EBIT	₹ 2,18,000
Less : Interest (Note—1)	₹ 22,000
EBT	₹ 1,96,000
Less : Tax @ 5%	₹ 98,000
EAT	₹ Nil
Less : Preference dividend	₹ 98,000
Earning after interest, tax & Pref. dividend	₹ 50,000
No. of Equity Shares	₹ 98,000
EPS	$\frac{50,000}{98,000} = 1.96$

- (ii) The DCL of Plan—B is 2.7692 i.e.: if the volume of sale is decreased by 1%, the EPS will decrease by 2.7692%. So, if the volume of sale is decreased by 5%, the EPS will decrease by $(2.7692 \times 5)\%$ or, 13.846%. Thus, the EPS will be $= (2.60 - (2.60 \times 13.846\%)) = (2.60 - 0.36) = ₹ 2.24$. This result is being verified by the following statement :

Statement showing EPS of Plan—B

Particulars	Amounts
Volume of Sales : $(36,000 \times \frac{95}{100})$ units	34,200 units
Sales : $(₹ 25 \times 34,200 \text{ units})$	₹ 8,55,000
Less : Variable cost : $(₹ 15 \times 34,200 \text{ units})$	₹ 5,13,000
Contribution	₹ 3,42,000
Less : Fixed cost	₹ 1,60,000
EBIT	₹ 1,82,000
Less : Interest (Note—1)	₹ 30,000
EBT	₹ 1,52,000
Less : Tax @ 50%	₹ 76,000
EAT	₹ 76,000
Less : Preference Dividend	₹ 20,000
Earning after interest, tax & Pref. dividend	₹ 56,000
No. of Equity Shares	25,000
EPS	$\frac{56,000}{25,000} = 2.24$

Working Note—I

Interest on Debt	Plan — A	Plan — B
For 1st ₹ 1,00,000 of the debt	$₹ 1,00,000 \times \frac{10}{100} = ₹ 10,000$	$₹ 1,00,000 \times \frac{10}{100} = ₹ 10,000$
For next ₹ 1,00,000 of the debt	$₹ 1,00,000 \times \frac{12}{100} = ₹ 12,000$	$₹ 1,00,000 \times \frac{12}{100} = ₹ 12,000$
For balance ₹ 50,000 of the debt	—	$₹ 50,000 \times \frac{16}{100} = ₹ 8,000$
Total interest	₹ 22,000	₹ 30,000

J Differences among Operating Leverage, Financial Leverage and Combined Leverage

Operating Leverage	Financial Leverage	Combined Leverage
(i) The disproportionate changes in operating profit with the change in sales, is called Operating Leverage .	(i) The process of increasing the earning per share to the equity shareholders by increasing the amount of debt-capital, is called Financial Leverage .	(i) The leverage by which the percentage change in earning per equity share due to one percent change in sales is measured is called Combined Leverage .
(ii) Degree of Operating Leverage (DOL) $\frac{\text{Contribution}}{\text{EBIT}}$	(ii) Degree of Financial Leverage (DFL) $= \frac{\text{EBIT}}{\text{EBT} - \frac{P_d}{(1-t)}}$	(ii) Degree of Combined Leverage (DCL) $= \frac{\text{Contribution}}{\text{EBT} - \frac{P_d}{(1-t)}}$
(iii) The operating risk of a firm is measured by the Operating Leverage.	(iii) The financial risk of a firm is measured by the Financial Leverage.	(iii) The total risk of a firm is measured by the Combined Leverage.
(iv) The operating leverage becomes effective only at that time when a firm has to bear fixed operating cost.	(iv) The financial leverage becomes effective only at that time when a firm has to bear fixed financial cost.	(iv) The combined leverage becomes effective only at that time when a firm has to bear both the fixed operating cost and fixed financial cost.
(v) The percentage change in earnings before interest and tax (EBIT) due to one percent change in the amount of sales is measured with the help of the degree of operating leverage.	(v) The percentage change in earnings per share (EPS) due to one percent change in earning before interest and tax (EBIT) is measured with the help of the degree of financial leverage.	(v) The percentage change in earnings per equity share (EPS) due to one percent change in sales is measured with the help of the degree of combined leverage.
(vi) The degree of operating leverage of a firm does not depend on the capital structure of that firm. It depends on the cost structure of the firm.	(vi) The degree of financial leverage of a firm depends on the capital structure of that firm.	(vi) The degree of combined leverage of a firm depends on the cost structure as well as the capital structure of that firm.