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22 April 2020

FINANCIAL MANAGEMENT

CAPITAL STRUCTURE

1) Probable Earning Per Share Method :-

Earning Per Share (EPS) can be computed as follows :-

Earnings Before Interest & Tax (EBIT)	xxx
(-) Interest Payable on Debt Capital	xxx
Earnings before Tax (E.B.T.)	xxx
(-) Corporate Income Tax	xxx
Earnings After Tax (E.A.T.)	xxx
(-) Preference Share Dividend (if any)	xxx
Earnings Available for Equity shareholders	xxx
Number of Equity shareholders	xxx

$$\text{Earning Per Share (E.P.S)} = \frac{\text{Earnings for Equity share holders}}{\text{No. of Equity shares}}$$

—— X —— X ——

Question 1.

Existing Earnings = 10% of Rs. 10,00,000 = Rs. 1,00,000

Calculation of Existing E.P.S.

	Rs.
Earnings before Interest and Tax (EBIT)	1,00,000
Less : Interest on 5% Debentures	20,000
Profits Before Tax (PBT)	80,000
Less Income Tax @ 50%	40,000
Profits After Tax (PAT)	40,000
Less Dividend on 8% Redeemable Preference Shares	16,000
Profits available for Equity Shareholders	24,000

Existing Earnings per Share (E.P.S.) $= \frac{24{,}000}{40{,}000} = 0{\cdot}6$

Earnings after Additional Investment = 10% of Rs. 12,00,000

= Rs. 1,20,000

Calculation of Proposed E.P.S. under Different Alternatives

Particulars	Debenture Plan	Preference Share Plan	Equity Share Plan
Earnings Before Interest and Tax (EBIT)	1,20,000	1,20,000	1,20,000
Less Interest on Debentures :			
Existing @ 5%	20,000	20,000	20,000
Proposed @ 5%	10,000	–	–
Profits Before Tax (PBT)	90,000	1,00,000	1,00,000
Less Income Tax @ 50%	45,000	50,000	50,000
Profits After Tax (PAT)	45,000	50,000	50,000
Less Preference Shares Dividend :			
Existing @ 8%	16,000	16,000	16,000
Proposed @ 8%	–	16,000	–
Profits available for Equity Shareholders	29,000	18,000	34,000
Earnings per Share	$= \frac{29{,}000}{40{,}000}$	$= \frac{18{,}000}{40{,}000}$	$= \frac{34{,}000}{60{,}000}$
E.P.S.	$= 0{\cdot}73$	$= 0{\cdot}45$	$= 0{\cdot}57$
Initial E.P.S.	$0{\cdot}60$	$0{\cdot}60$	$0{\cdot}60$
Increase/Decrease Over Initial E.P.S.	$(+)\,0{\cdot}13$	$(-)\,0{\cdot}15$	$(-)\,0{\cdot}03$

As is clear from the above analysis, 'Debenture Issue Plan' is the best because under it existing earning per share is increasing by Re. 0·13. Therefore, 'Debenture Issue Plan' should be preferred for additional finance.

Question 2.

Calculation of Existing E.P.S.

	Rs.
E.B.I.T.	9,00,000
(−) Interest on 7% Debentures $\left(12,00,000 \times \frac{7}{100}\right)$	(−) 84,000
(−) Interest on Bank Loan $\left(2,00,000 \times \frac{8}{100}\right)$	(−) 16,000
E.B.T.	8,00,000
(−) Tax @ 50%	4,00,000
E.A.T.	4,00,000
(−) Dividend on Preference Shares $\left(14,00,000 \times \frac{9}{100}\right)$	1,26,000
Earnings available to Equity Shareholders	2,74,000
No. of Equity Shares	38,000

$$\text{E.P.S.} = \frac{2,74,000}{38,000} = \text{Rs. } 7 \cdot 21$$

$$\text{Earnings after Additional Investment} = \frac{9,00,000}{60,00,000} \times 70,00,000$$

$$= \text{Rs. } 10,50,000$$

Calculation of Proposed E.P.S. Under Different Alternatives

	8% Debentures	10% Pref. Shares	Equity Shares
	Rs.	Rs.	Rs.
E.B.I.T.	10,50,000	10,50,000	10,50,000
(−) Interest on Debenture :			
Existing @ 7%	84,000	84,000	84,000
Proposed @ 8%	80,000	—	—
Interest on Bank Loan @ 8%	16,000	16,000	16,000
E.B.T.	8,70,000	9,50,000	9,50,000
(−) Tax @ 50%	4,35,000	4,75,000	4,75,000
E.A.T.	4,35,000	4,75,000	4,75,000
(−) Preference Shares Dividend :			
Existing @ 9%	1,26,000	1,26,000	1,26,000
Proposed @ 10%	—	1,00,000	—
Earnings to Equity Shareholders	3,09,000	2,49,000	3,49,000
No. of Equity Shares	38,000	38,000	38,000 + 12,500 = 50,500
E.P.S.	8·13	6·55	6·91
Existing E.P.S.	7·21	7·21	7·21
Changes in E.P.S.	+ 0·92	− 0·66	− 0·30

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Question 3.

	I Plan Equity Shares	II Plan Equity Shares & Pref. Shares	III Plan Equity Shares & Debentures
	Rs.	Rs.	Rs.
E.B.I.T.	6,00,000	6,00,000	6,00,000
(–) Interest on Debenture $\left(25,000 \times 100 \times \frac{8}{100}\right)$	–	–	2,00,000
E.B.T.	6,00,000	6,00,000	4,00,000
(–) Tax @ 50%	3,00,000	3,00,000	2,00,000
E.A.T.	3,00,000	3,00,000	2,00,000
(–) Preference Shares Dividend $\left(25,000 \times 100 \times \frac{8}{100}\right)$	–	2,00,000	–
Earnings to Equity Shareholders	3,00,000	1,00,000	2,00,000
No. of Equity Shares	50,000	25,000	25,000
E.P.S.	$\frac{3,00,000}{50,000}$ = Rs. 6	$\frac{1,00,000}{25,000}$ = Rs. 4	$\frac{2,00,000}{25,000}$ = Rs. 8

Question 4.

Calculation of Earning Per Share

Particulars	Alternatives I (Rs. 2,00,000 Debt)	Alternatives II (Rs. 6,00,000 Debt)	Alternatives III (Rs. 10,00,000 Debt)
	Rs.	Rs.	Rs.
EBIT	2,00,000	2,00,000	2,00,000
Less Interest	20,000	74,000	1,37,500
EBT	1,80,000	1,26,000	62,500
(–) Taxes @ 50%	90,000	63,000	31,250
EAT	90,000	63,000	31,250
No. of Equity Shares	$\frac{10,00,000}{40}$ = 25,000	$\frac{6,00,000}{40}$ = 15,000	$\frac{2,00,000}{25}$ = 8,000
EPS = $\frac{\text{EAT}}{\text{No. of Equity Shares}}$	$\frac{90,000}{25,000}$ = 3·60	$\frac{63,000}{15,000}$ = 4·20	$\frac{31,250}{8,000}$ = 3·91

As EPS is highest under scheme II, it is to be preferred.

Working Notes :

1. Calculation of Interest for I Alternative = $2,00,000 \times \frac{10}{100}$ = Rs. 20,000
2. Calculation of Interest for II Alternative :
(10% on Rs. 2,50,000) + (14% on Rs. 3,50,000) = Rs. 74,000

3. Calculation of Interest for III Alternative :
(10% on Rs. 2,50,000) + (14% on Rs. 3,75,000) + (16% on Rs. 3,75,000) = Rs. 1,37,500.

Question 5.

Calculation of Existing EPS :

		Rs.
Earnings before interest and tax (EBIT) (10% on Rs. 40,00,000)		4,00,000
(–) Interest on Debentures (6% on Rs. 6,00,000)	= 36,000	
Interest on Bank Loan (9% on Rs. 10,00,000)	= 90,000	1,26,000
Earnings before tax (EBT)		2,74,000
(–) Corporate Tax @ 50%		1,37,000
Earnings after tax (EAT)		1,37,000
(–) Dividend on Preference Shares @ 7% on Rs. 7,00,000		49,000
Earnings available for Equity Shareholders		88,000

$$EPS = \frac{\text{Earnings Available for Equity shareholders}}{\text{No. of Equity Shares}}$$

$= 88{,}000/1{,}00{,}000 = \text{Rs. } 0{\cdot}88$

- Probable Operating Profit : EPS × N = (EBIT – INT) (1 – T) – PD

(a) Ist Alternative : Issue of Debentures

Existing EPS = Rs. 0·88, EBIT = X, PD = Rs. 49,000, T = 50% or 0·50, N = 1,00,000, Interest = 36,000 + 90,000 + (8% on Rs. 10,00,000) = Rs. 2,06,000.

$(0{\cdot}88 \times 1{,}00{,}000) = (X - 2{,}06{,}000)\,(1 - 0{\cdot}50) - 49{,}000$

Or $88{,}000 = 0{\cdot}50\,X - 1{,}03{,}000 - 49{,}000$

Or $88{,}000 + 1{,}03{,}000 + 49{,}000 = 0{\cdot}50\,X$

Or $X = 2{,}40{,}000/0{\cdot}50 = \text{Rs. } 4{,}80{,}000$

(b) IInd Alternative : Issue of Preference Shares

Existing EPS = 0·88, EBIT = X, T = 50% or 0·50, N = 1,00,000,

Interest = 36,000 + 90,000 = Rs. 1,26,000

PD = 49,000 + (9·5% on Rs. 10,00,000) = Rs. 1,44,000

$(0{\cdot}88 \times 1{,}00{,}000) = (X - 1{,}26{,}000)\,(1 - 0{\cdot}50) - 1{,}44{,}000$

Or $88{,}000 = 0{\cdot}50X - 63{,}000 - 1{,}44{,}000$

Or $X = (88{,}000 + 63{,}000 + 1{,}44{,}000) \div 0{\cdot}50 = \text{Rs. } 5{,}90{,}000$

(c) IIIrd Alternative : Issue of Equity Shares

EPS = 0·88, EBIT = X, INT = 1,26,000, T = 0·50, PD = Rs. 49,000,

N = 1,00,000 + (10,00,000 ÷ 12·50) = 1,80,000

$(0{\cdot}88 \times 1{,}80{,}000) = (X - 1{,}26{,}000)\,(1 - 0{\cdot}50) - 49{,}000$

Or $158{,}400 = 0{\cdot}50X - 63{,}000 - 49{,}000$

Or $X = (1{,}58{,}400 + 63{,}000 + 49{,}000) \div 0{\cdot}50 = \text{Rs. } 5{,}40{,}800$

Probable EBIT is minimum (Rs. 4,80,000) in Ist alternative. Therefore, issue of debentures should be preferred.