

HW - Chapter 4 - Cost of Capital - Q17

(a) Value of the Alpha Ltd. = $EBIT \div K_o = 3,60,000 \div 18\% = \text{Rs. } 20,00,000$

(i) Return on Equity shares of Alpha Ltd.

| | |
|--|-----------|
| | Rs. |
| Value of the company | 20,00,000 |
| Market value of debt (50% × Rs. 20,00,000) | 10,00,000 |
| Market value of equity (50% × Rs. 20,00,000) | 10,00,000 |
| | Rs. |
| Net operating income | 3,60,000 |
| Less: Interest on debt (8% × Rs. 10,00,000) | 80,000 |
| Dividend | 2,80,000 |
| Return on 2% equity shares (2% × Rs. 2,80,000) | 5,600 |

(ii) Implied required rate of return on equity of Alpha Ltd.

$$= \text{Dividend} \div \text{Market value of Equity} = \text{Rs. } 2,80,000 \div \text{Rs. } 10,00,000 = 28\%$$

(b)

(i) Calculation of Implied rate of return on equity of Beta Ltd.

| | |
|--|-----------|
| | Rs. |
| Total value of company | 20,00,000 |
| Market value of debt (20% × Rs. 20,00,000) | 4,00,000 |
| Market value of equity (80% × Rs. 20,00,000) | 16,00,000 |
| | Rs. |
| Net operating income | 3,60,000 |
| Less: Interest on debt (8% × Rs. 4,00,000) | 32,000 |
| Dividend | 3,28,000 |

Implied required rate of return on equity

$$= \text{Dividend} \div \text{Market value of Equity} = \text{Rs. } 3,28,000 \div \text{Rs. } 16,00,000 = 20.5\%$$

(ii) Implied required rate of return on equity of Beta Ltd. is lower than that of Alpha Ltd. because Beta Ltd. uses less debt in its capital structure. As the equity capitalisation is a linear function of the debt-to-equity ratio when we use the net operating income approach, the decline in required equity return offsets exactly the disadvantage of not employing so much in the way of "cheaper" debt funds.