



## Impact of Cost of Capital in Decision-Making

### KEYWORDS

equity capital, rate of return, capitals budgeting, capital structure, economic value added

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### ABSTRACT

*The cost of capital is the very basis for financial appraisal of new capital expenditure proposals. The decision of the finance manager will be irrational and wrong in case the cost of capital is not correctly determined. The cost of capital is also important consideration in capital structure decisions. The finance manager must raise capital from different sources in a way that it optimizes the risk and cost factors.*

### INTRODUCTION:

Equity holders while investing in the business expect a rate of return from their investment. If the return falls below their expectation the market price of the equity will decline and the very purpose of the financial management will defeat. If managers are not able to achieve their goals, they run the risk of being removed from their jobs and the fear or take over will also increase. If the market price of the shares goes down, the threat of take over will increase. Hostile takeovers are most likely to occur when a firm's stock is undervalued. To avoid takeovers, managers should try to maximise the share price of their respective companies.

The determination of the firm's cost of capital is important from the point of view of both capitals budgeting as well as capital structure planning decisions.

**1. Capital Budgeting Decisions:** In capital budgeting decisions, the cost of capital is often used as a discount rate on the basis of which the firm's future cash flows are discounted to find out their present values. Thus, the cost of capital is the very basis for financial appraisal of new capital expenditure proposals. The decision of the finance manager will be irrational and wrong in case the cost of capital is not correctly determined. This is because the business must earn at least at a rate which equals to its cost of capital in order to make at least a break-even.

**2. Capital Structure Decision:** The cost of capital is also important consideration in capital structure decisions. The finance manager must raise capital from different sources in a way that it optimizes the risk and cost factors. The sources of funds which have less cost involve high risk. Raising of loans may, therefore, be cheaper on account of income tax benefits, but it involves heavy risk because a slight fall in the earning capacity of the company may bring the firm near to cash insolvency. It is, therefore, absolutely necessary that cost of each source of funds is carefully considered and compared with the risk involved with it.

### COMPONENTS OF CAPITAL:

Capital is a necessary factor of productions, and like any other factor, it has a cost. Capital can be provided from different source which are as follows:

1. Debt Capital
2. Preference Share Capital
3. Equity Share Capital
4. Retained Earnings

In the present study of financial structure of **ABC Firm** the preference share capital has not been issued by this firm. Financing alternative has a major bearing on the overall cost of

capital to the firm. Proper capital budgeting decisions also require an estimate of the Cost of Capital. Many other types of decisions, including those relating to leasing, to bound re-funding, and to working capital policy also require estimates of the cost of capital. Maximising the value of a firm requires that the cost of all inputs, including capital be minimised, and to minimise the cost of capital we must be able to calculate it.

### 1. Cost of Debt Capital:

**It is that rate of return which equates the present value of all future outflows on account of debt capital with the net proceeds received by issue of debentures.** While debt capital is a cheaper source of funds at the same time it increases a firm's risk. Interest paid on debt capital is an allowable expenditure u/s 36 (i) (iii) of Income Tax Act, 1961 for the purpose of determining the taxable income. Therefore, the effective cost of debt capital becomes lower on account of the tax factor. So long as the corporate tax rate goes on declining the preference for debt capital loses its shine and vice versa. This implies that the government indirectly bears a part of the lender's required rate of return. As a result of interest tax shield, the after tax cost of debt to the company will be substantially less than the lender's required rate of return. An unprofitable company is not required to pay Income Tax. It would not gain any tax benefit associate with the payment of interest and its true cost of debt is the before tax cost. For a Debt issue, this rate of return,  $K_d$ , equates the present value of all expected future payments – interest (I), and Principal payment (M) with the offering price,  $P_0$ , of the debt security.  $MV$  denotes maturity value of debt and "n" denotes number of years. The cost of debt capital,  $K_d$ , can be computed as follows:

#### Perpetual debt

$$K_d = \frac{\text{Interest}}{\text{Net Proceeds (NP)}} \times 100 \times (1 - \text{tax rate})$$

(after tax)

#### Redeemable debt

$$K_d = \frac{\text{Interest} + (MV - NP)n \times 100 (1 - \text{tax})}{\text{Net Proceeds (NP)}}$$

(after tax)

### 2. Cost of Equity Share Capital:

It is not as easy to calculate the cost of equity share capital. The difficulty arises from the definition of Cost of Equity Share Capital, which is based on the presumption that the value of a share of a firm is determined by the present value of all future dividends expected to be paid on the stock. The rates at which these expected dividends are discounted to determine and equate their present value with the present market price of the share represent the Cost of Common Stock. This rate of discount is the function of the risk-less re-

turn on money adjusted for the business and financial risk associated with the firm. The commonly cited Gordon Model for measuring the cost of Equity Capital is

$$K_e = \frac{D_1}{P_0} + g/100$$

where  $D_1$  is dividend per share expected in year 1,  $P_0$  is the current market price per share and 'g' is the Growth rate of dividend. Growth Rate (g) is computed on the basis of earlier year's trend assuming the same to continue. In the case of sample units we have computed the 'g' on the basis of past 10 years' dividend rate of the respective companies assuming that the same rate will continue.

### 3. Cost of Retained Earnings:

The cost of retained earnings is closely associated to the cost of common stock. If earnings are not retained they would be paid to the common stockholders as dividend. Retained earnings are often looked upon as a fully subscribed issue of common stock, since they increase the stock holders' equity in the same way that a new issue of common stock would. The cost of retained earnings, therefore, is viewed as the "opportunity cost" of the foregone dividends to the existing common stockholders.

The cost of retained earnings is less than the common equity capital. Had a shareholder been paid dividends out of these earnings and wanting to invest them in additional shares of the firm's stock he would have to first pay taxes on the dividend and then pay brokerage in order to acquire the added shares. It is noteworthy that the dividend in the hands of the shareholders is not subject to tax in India. Accordingly the formula for calculating the cost of retained earning has been adjusted:

$$K_r = K_e (1 - \text{Tax rate}) (1 - \text{brokerage rate})$$

Or

**TABLE: 1**  
**ECONOMIC VALUE ADDED ANALYSIS OF ABC FIRM**  
**(During The Years 2007-08 to 2012-13)**

Item	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
1. Risk Free Return on Long Term GOI Securities (Rf)	6.3%	5.2%	6.7%	7.5%	7.5%	7.5%
2. Cost Equity (Ke)	12.3%	11.2%	12.7%	13.5%	14.0%	13.9%
3. Cost of Debt (Post Tax) (Kd)	6.1%	5.4%	6.4%	6.9%	7.2%	7.1%
4. Weighted Average Cost of Capital (Ka)	6.8%	6.0%	7.0%	7.5%	7.8%	7.9%
Economic Value Added					(Rupees in Crores)	
5. Average Debt	21,003.99	25,968.16	32,665.72	41,684.38	51,957.19	63,172.13
6. Average Equity (Shareholder Funds)	2,873.35	3218.83	3638.45	4175.72	5009.86	8749.37
7. Average Capital Employed (Debt + Equity)	23,877.34	29,186.99	36,304.17	45,860.10	56,967.05	71,921.50
8. Profit After Tax (as per P&L account)	690.30	851.78	1036.58	1257.29	1570.38	2436.24
9. Interest (as per P&L account, net of Income Tax)	1300.00	1236.62	1293.22	1644.15	2420.12	3394.30
10. Net Operating Profit After Tax (NOPAT)	1990.30	2088.40	2329.80	2901.44	3990.50	5830.54
11. Weighted Average Cost of Capital (4 x 7)	1623.66	1751.22	2541.29	3439.51	4443.43	5681.80
12. Economic Value Added (10-11)	366.64	337.18	-211.49	-538.07	-452.93	148.74
13. EVA as a % of Average Capital Employed (12÷7)	1.54%	1.16%	-0.58%	-1.17%	-0.80%	0.20%

**Source:** Data have been obtained from imaginary figures.

$$K_r = K_e (1 - \text{brokerage rate})$$

### WEIGHTED AVERAGE COST OF CAPITAL (WACC):

Having analysed the cost of capital of individual components of the total capital let us now discuss the overall cost of capital i.e. the Weighted Average Cost of Capital (WACC). The WACC may be found by weighting the cost of each specific type of capital by proportions of each type of capital used. The use of weights for calculating the firm's WACC is quite common. The use of these weights is based on the assumption that the firm's existing mix of funds (i.e. capital structure) is optimal and therefore should be maintained in the future too. Two types of weights can be used – Book Value Weights and Market Value Weights.

### AN ALTERNATIVE APPROACH TO

#### COST OF CAPITAL - Economic Value Added (EVA)

**EVA**= Net operating profit after tax (NOPAT) – Weighted average cost of capital employed.

**NOPAT** = Net operating profit after tax + post tax interest cost at actual

### WEIGHTED AVERAGE COST OF CAPITAL EMPLOYED (KA)

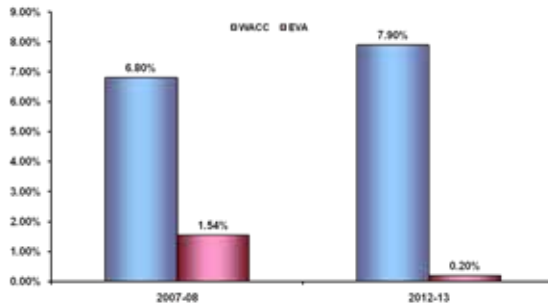
**Cost of equity (ke)** = Risk-free return equivalent to yield on long term Government of India (GOI) securities (taken @ 7.5%) + market risk premium **Ke = Rf + β (Rm – Rf)**

Where the beta is a relative measure of risk associated with the Company's shares as against the stock market as a whole.

**Cost of debt** = Effective interest applicable to **ABC Firm** based on an appropriate mix of short, medium and long term debt, net of taxes (taken at 3% above the risk-free return on long term securities issued by the Government of India).

**Ka = (Ke x average shareholders' funds) + (Kd x average debt)**

**DIAGRAM : 1**  
**WEIGHTED AVERAGE COST OF CAPITAL AND EVA OF**  
**ABC FIRM**



**CONCLUSION:**

The weighted average cost of capital in **ABC FIRM** was **6.8% in 2007-08** which has gone up to **7.9% in 2012-13**. It is interesting to note that the **Economic Value Added** by the firm such as **ABC** was negative during some of the years under study such as 2009-10, 2010-11 and 2011-12. However, the Firm has been paying dividend on its **Equity Capital** throughout all the years under study.

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