

Cost of Equity

Meaning of Cost of Equity

The cost of equity is the return a company requires to decide if an investment meets capital return requirements. Firms often use it as a capital budgeting threshold for the required rate of return. A firm's cost of equity represents the compensation the market demands in exchange for owning the asset and bearing the risk of ownership. The traditional formula for the cost of equity is the dividend capitalization model and the capital asset pricing model (CAPM).

The cost of equity refers to two separate concepts depending on the party involved. If you are the investor, the cost of equity is the rate of return required on an investment in equity. If you are the company, the cost of equity determines the required rate of return on a particular project or investment.

There are two ways a company can raise capital: debt or equity. Debt is cheaper, but the company must pay it back. Equity does not need to be repaid, but it generally costs more than debt capital due to the tax advantages of interest payments. Since the cost of equity is higher than debt, it generally provides a higher rate of return.

Significance of cost of capital

The significance of cost of capital is as follows:

(a) Capital Budgeting Decision:

Refers to the decision, which helps in calculating profitability of various investment proposals.

(b) Capital Requirement:

Refers to the extent to which fund is required by an organization at different stages, such as incorporation stage, growth stage, and maturity stage. When an organization is in its incorporation stage or growth stage, it raises more of equity capital as compared to debt capital. The evaluation of cost of capital increases the profitability and solvency of an organization as it helps in analyzing cost efficient financing mix.

(c) Optimum Capital Structure:

Refers to an appropriate capital structure in which total cost of capital would be least. Optimal capital structure suggests the limit of debt capital raised to reduce the cost of capital and enhance the Value of an organization.

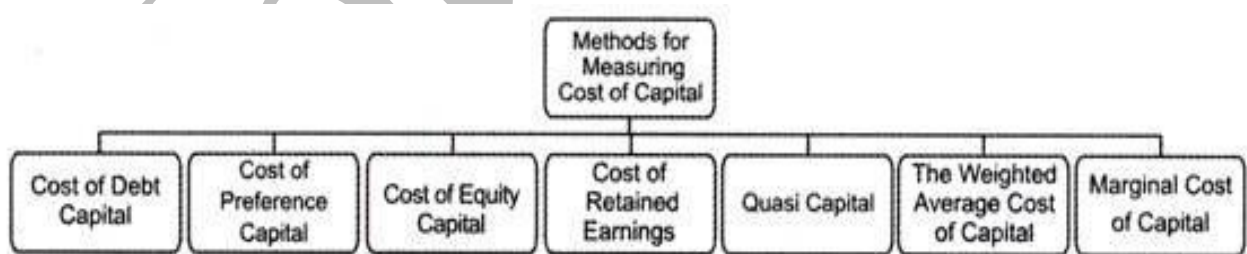
(d) Resource Mobilization:

Enables an organization to mobilize its fund from non-profitable to profitable areas. Resource mobilization helps in reducing risk factor as an organization can shut down its unproductive projects and move the resources to productive projects to earn profit.

(e) Determination of duration of Project:

Refers to evaluating whether the project, for which the capital is raised, is long term or short term. If the project is long term in nature then the organization decides to raise equity capital. However, if the project is short term in nature then the organization determines to raise debt capital.

Methods of Calculating Cost of Equity Capital



1. Cost of Debt Capital

The cost of debt is the average interest rate your company pays across all of its debts: loans, bonds, credit card interest, etc.

Cost of debt is an advanced corporate finance metric that outside investors, investment bankers and lenders use to analyze a company's capital structure, which tells them whether or not it's too risky to invest in.

Calculating cost of debt (along with cost of equity) is an important part of calculating a company's weighted average cost of capital (WACC), which measures how well a company has to perform to satisfy all its stakeholders (i.e. lenders and investors).

But you don't have to be a hedge fund manager or bank to calculate your company's cost of debt. Businesses calculate their cost of debt to gain insight into how much of a burden their debts are putting on their business and whether or not it's safe to take on any more.

Cost of debt formula is:-

$$\text{Cost of Debt} = \text{Interest Expense} (1 - \text{Tax Rate})$$

The effective interest rate is annual interest upon total debt obligation into 100. Formula for same is below:-

$$\text{Effective Interest Rate} / \text{Interest Expenses} = (\text{Annual Interest} / \text{Total Debt Obligation}) * 100$$

Example 1

For example, if a firm has availed a long term loan of \$100 at 4% interest rate p.a, and a \$200 bond at 5% interest rate p.a. Cost of debt of the firm before tax is calculated as follows:

$$(4\% * 100 + 5\% * 200) / (100 + 200) * 100, \text{ i.e } 4.6\%.$$

Assuming an effective tax rate of 30%, after-tax cost of debt works out to $4.6\% * (1 - 30\%) = 3.26\%$.

2. Cost of Preference Share Capital

The cost of preference share capital is apparently the dividend which is committed and paid by the company. This cost is not relevant for project evaluation because this is not the cost at which

further capital can be obtained. To find out the cost of acquiring the marginal cost, we will be finding the yield on the preference share based on the current market value of the preference share.

Formula for Cost of Preference Share:

Irredeemable Preference Share	Redeemable Preference Share
$K_p = D_p / NP$	$K_p = D_p + ((RV - NP) / n) / (RV + NP) / 2$

Where,

K_p = Cost of Preference Share

D_p = Dividend on preference share

NP = Net proceeds from issue of preference share (Issue price – Flotation cost)

RV = Redemption Value

N = Period of preference share

Example: A company issues 20,000 irredeemable preference share at 8% whose face value is Rs.50 each at 4% discount. Find out the Cost of Preference Share Capital.

Solution: Dividend on Preference share (D_p) = $50 * 8 / 100 = 4$

Discount = $50 * 4 / 100 = 2$

Net Proceeds (NP) = $50 - 2 = 48$

$K_p = D_p / NP$

= $4 / 48$

= **8.33%**

3. Cost of Equity Capital

Calculating the cost of equity capital is a little difficult as compared to debt capital and preference capital. The main reason is that the equity shareholders do not receive fixed interest or dividend. The dividend on equity shares varies depending upon the profit earned by an organization. Risk factor also plays an important role in deciding rate of dividend to be paid on equity capital.

Cost of equity is calculated with dividend yield method, or dividend yield plus growth rate method or earning yield method or realized yield method.

I) Dividend yield method:-

Under this method , company can calculate cost of equity on the basis of following formula

$$K_e = \frac{\text{Dividend per share}}{\text{Net proceed of per share}}$$

for example if the dividend per share is 10 and company issue 100 shares at Rs. 100 plus premium 10% then cost of equity

$$K_e = 10 / 110 \times 100 = 9.9\%$$

II) Dividend yield plus growth rate of dividend method:-

$$K_e = \frac{\text{Dividend per share}}{\text{Net proceed per share}} + \text{Growth rate}$$

III) Earning yield method

$$K_e = \frac{\text{Earning per share}}{\text{Net proceed per share}}$$

4. Calculating the Cost of Retained Earnings

Retained earnings represent a business firm's cumulative earnings since its inception, that it has not paid out as dividends to common shareholders. Retained earnings instead get plowed back into the firm for growth and use as part of the firm's capital structure. Companies calculate the opportunity cost of retaining these earnings by averaging the results of three separate calculations.

Retained earnings belong to the shareholders since they're effectively owners of the company. If put back into the company, the retained earnings serve as a further investment in the firm on behalf of the shareholders.

The cost of those retained earnings equals the return shareholders should expect on their investment. It is called an opportunity cost because the shareholders sacrifice an opportunity to invest that money for a return elsewhere and instead allow the firm to build capital.

Companies have four possible direct sources of capital for a business firm. They consist of retained earnings, debt capital, preferred stock, and new common stock.

Estimating the cost of retained earnings requires a bit more work than calculating the cost of debt or the cost of preferred stock. Debt and preferred stock are contractual obligations, making their costs easy to determine. Three common methods exist to approximate the opportunity cost of retained earnings.

In order to calculate the retained earnings for each accounting period, we add the opening balance of retained earnings to the net income or loss. From this amount, we will subtract the dividend payouts.

Retained Earnings (RE) = Beginning balance of the RE + Net Income/Loss – Cash Dividends – Stock Dividends

Example

Let us consider an example to better understand how to calculate retained earnings.

Company A has retained earnings of \$10000 at the start of the year. For the year, Company A reported a net income of \$5000 and paid \$3000 as Dividends.

Now, retained earnings at the end of the year will be: Beginning Balance + Net Income (or loss) – Dividends or $\$10000 + \$5000 - \$3000 = \12000 .

5. Quasi Capital

Quasi Equity describes a form of capital with debt-like properties and equity-like functionality. This form of financing allows the issuer flexibility and value.

The capital is less expensive than straight equity, yet provides virtually the same level of value add as a straight equity investment. Specifically, it can be mezzanine debt, venture debt, convertible debt, structured equity or preferred equity.

It can be used for anything a company needs including expansion capital, acquisition capital or to recapitalize. One differentiator denoting quasi equity is the role that periodic interest payments and dividends play.

Often a large percentage of total return for the quasi equity provider is provided through current interest and dividend payments.

6. The weighted average Cost of capital

A firm's Weighted Average Cost of Capital (WACC) represents its blended cost of capital across all sources, including common shares, preferred shares, and debt. The cost of each type of capital is weighted by its percentage of total capital and they are added together. This guide will provide a detailed breakdown of what WACC is, why it is used, how to calculate it, and will provide several examples.

WACC is used in financial modeling as the discount rate to calculate the net present value of a business.

WACC Formula

As shown below, the WACC formula is:

$$\text{WACC} = (E/V \times R_e) + ((D/V \times R_d) \times (1 - T))$$

Where:

E = market value of the firm's equity (market cap)

D = market value of the firm's debt

V = total value of capital (equity plus debt)

E/V = percentage of capital that is equity

D/V = percentage of capital that is debt

R_e = cost of equity (required rate of return)

R_d = cost of debt (yield to maturity on existing debt)

T = tax rate

Example

A firm has the following capital structure and after-tax costs for the different sources of funds used:

Source of Funds	Amount ₹	Proportion %	After-tax cost %
Debt	15,00,000	25	5
Preference Shares	12,00,000	20	10
Equity Shares	18,00,000	30	12
Retained Earnings	15,00,000	25	11
Total	60,00,000	100	

You are required to compute the weighted average cost of capital.

Solution:

Computation of Weighted Average Cost of Capital			
Sources of Funds	Proportion % (W)	Cost % (X)	Weighted Cost % Proportion × Cost (XW) %
Debt	25	5	1.25
Preference shares	20	10	2.00
Equity Shares	30	12	3.60
Retained Earnings	25	11	2.75
Weighted Average Cost of Capital			9.60%

7. Marginal cost of capital

Marginal cost of capital can be defined as the cost of additional capital required by an organization to finance the investment proposals. It is calculated by first estimating the cost of each source of capital, which is based on the market value of the capital.

After that, it is identified that which source of capital would be more appropriate for financing a project. The marginal cost of capital is ascertained by taking into consideration the effect of additional cost of capital on the overall profit. In simpler terms, the marginal cost of capital is calculated in the same manner as the weighted average cost of capital is calculated by just adding additional capital to the total cost of capital.

Marginal cost of capital can be calculated mathematically by using the following formula:

$$\text{Marginal Cost of Capital} = K_E \left\{ \frac{E}{(E + D + P + R)} \right\} + K_D \left\{ \frac{D}{(E + D + P + R)} \right\} + K_P \left\{ \frac{P}{(E + D + P + R)} \right\} + K_R \left\{ \frac{R}{(E + D + P + R)} \right\}$$

For example a company has equity shares of Rs. 100 each, 10% preference shares, and 12% debentures in the proportion of 3:2:5. The company needs further capital that is available from a financial institution @ 14% interest. The new proportion would be 3:2:5:5 for equity capital, preference capital, debentures, and loans from financial institutions, respectively.

The company pays 40% tax on income. The market price of equity shares is Rs. 120 per share. Expected dividend at the end of the year is Rs. 6 per share. Dividends are expected to grow every year @ 5%. How will the cost of capital change on borrowing funds from financial institutions?

Solution:

The calculations of equity and debt capital are as follows:

$$K_E = [(D/MP) + G] * 100$$

$$= [(6/120) + 0.05] * 100 = 10\%$$

$$K_D = [(1-T) * R] * 100$$

$$= [(1 - 0.40) * 0.121 * 100$$

$$= 7.2\%$$

Source	Proportion of capital	Weight (W)	Specific cost of capital (CC)	W * CC
Equity share capital	3	0.3	0.10	0.03
Preference capital	2	0.2	0.10	0.02
Debenture	5	0.5	0.072	0.036
	10			0.086

$$\text{Cost of loan raised from bank, } K_D = [(1 - T) * R] * 100$$

$$= [(1-0.40) * 0.12] * 100 = 8.4$$

Source	Proportion of capital	Weight (W)	Specific cost of capital (CC)	W * CC
Equity share capital	3	0.2	0.10	0.02
Preference capital	2	0.13	0.10	0.013
Debenture	5	0.33	0.072	0.023
Loan from financial institution	5	0.33	0.084	0.027
	15			0.083

Therefore it can be analyzed from the calculation that the cost of capital decreases on borrowing funds from the financial institution. Before borrowing loan from the financial institution, cost of capital was 0.086, which reduced to 0.083 after borrowing.