

Summary for Chapter 12

Cost of Capital

Throughout the chapter, note that required return, appropriate discount rate and cost of capital are used interchangeably.

Weighted Average Cost of Capital: the required return on the overall firm.

We assume that the firm maintains its current capital structure when financing new project, in order to calculate WACC.

Cost of Equity

We use the dividend growth model to estimate the cost of equity. Remember that in the Constant Growth Model, we used the following formula to calculate the current price of the stock:

$P_0 = \frac{D_1}{R_E - g}$, where R_E is for cost of equity. Since we can readily observe the stock

price of a firm from the market, we can then calculate the cost of equity, with the aid of a dividend growth rate estimate. The cost of equity is then calculated as:

$$R_E = \frac{D_1}{P_0} + g$$

To estimate “g,” the dividend growth rate, we can use either average historical growth rates, or use analyst forecasts.

The main advantage of using the dividend growth model is its ease of computation. The disadvantages are more apparent. We cannot use the model to estimate the cost of equity for firms that do not pay dividends, or firms whose dividend growth rates are not constant.

Cost of Preferred Equity

Some companies use preferred stock as part of their capital structure. Usually, the dividend on preferred stock is fixed and we use the zero-growth model to value preferred stock. Since the dividend amount, as well as the price of preferred stock can be obtained from the market, we can then estimate the cost of preferred stock, R_{PS} using the formula:

$$R_{PS} = \frac{D}{P_0}$$

Cost of Debt

Cost of debt is simply the interest the company pays on its outstanding debt. Depending on maturity, seniority and other characteristics, different forms of debt for the same company may have differing yields to maturity. In those cases, we take a weighted average. However, in most instances we calculate the YTM of the company's largest outstanding issue of debt.

Capital Structure Weights

$$V = E + PS + D$$

E is the value of common stock (number of shares times the price), PS is the value of preferred stock (number of shares times the price) and D is the market value of debt.

Then, we transform the equation to get

$$100\% = E/V + PS/V + D/V$$

The figures on the left hand side are the capital structure weights.

To find the weighted average cost of capital, we use the following formula:

$WACC = (E/V) \times R_E + (PS/V) \times R_{PS} + (D/V) \times R_D \times (1 - t)$, where R_D is the cost of debt and t is the corporate tax rate (usually assumed to be 40%).