

Lecture 8 - Team Activity

Formulas:

- CAPM SML: $r_e = r_f + B_e(r_m - r_f)$
- DDM: $P_0 = \frac{D_1}{r_e - g}$
- $V = D + E$
- $WACC_{before-tax} = r_d \cdot \frac{D}{V} + r_e \cdot \frac{E}{V}$
- $WACC_{after-tax} = r_d \cdot (1 - t_c) \cdot \frac{D}{V} + r_e \cdot \frac{E}{V}$

Q1) A firm's stock price is \$10,
Beta of equity is 0.5,
Market return is 10% p.a.,
Treasury bonds yield 5% p.a.,
The stock just paid its annual dividend of \$0.50,
which grows at a rate of 1% p.a..
Find the cost of equity of the firm using
(i) the DDM and
(ii) the CAPM or SML.
In theory, should the two answers be the same?
Which one is more correct?

Q2) A firm has a debt-to-**equity** ratio of 50%,
Cost of debt is 5% p.a.,
Cost of equity is 10% p.a.,
Corporate tax rate is 30%.

Find:

- (i) the WACC of the firm before tax,
- (ii) the WACC of the firm after tax.

Q3) A firm has a target debt-to-**assets** ratio of 0.6 which it sticks to. Its bonds yield 5% pa. It's beta of equity is 1, the market return is 10% pa, and treasury bonds yield 5% pa. The corporate tax rate is 30%.

Calculate its after-tax WACC.