

2. In June 2009, Apple Computer had no debt, total equity capitalization of \$128 billion, and a (equity) beta of 1.7 (as reported on Google Finance). Included in Apple's assets was \$25 billion in cash and risk-free securities. Assume that the risk-free rate of interest is 5% and the market risk premium is 4%.

a. What is Apple's enterprise value?

$$EV = 128 - 25 = 103$$

b. What is the beta of Apple's business assets?

$$\beta_A = \beta_U = \beta_E = 1.7$$

c. What is Apple's WACC?

$$WACC = 5\% + 1.7 \times 4\% = 11.8\%$$

3. Weston Enterprises is an all-equity firm with three divisions. The soft drink division has an asset beta of 0.60, expects to generate free cash flow of \$50 million this year, and anticipates a 3% perpetual growth rate. The industrial chemicals division has an asset beta of 1.20, expects to generate free cash flow of \$70 million this year, and anticipates a 2% perpetual growth rate. Suppose the risk-free rate is 4% and the market risk premium is 5%

a. Estimate the value of each division

$$P_0 = \frac{D}{k_s - g}$$

$$k_s = r_f + \beta * r_{mf}$$

$$P_1 = P_{\text{soft drink}} = 1250$$

$$P_2 = P_{\text{industrial chemicals}} = 875$$

b. Estimate Weston's current equity beta and cost of capital. Is this cost of capital useful for valuing Weston's projects?

$$w_1 = 58.82\%, \quad w_2 = 41.18\%$$

$$\beta = w_1\beta_1 + w_2\beta_2 = 0.847$$

$$WACC = r_f + \beta r_{mf} = 8.24\%$$

This may not be the cost of capital as there may be different risk for different projects. Only the projects with same risk with the firms' can be calculated directly by the current cost of capital;

4. Acme Storage has a market capitalization of \$100 million and debt outstanding of \$40 million. Acme plans to maintain this same debt-equity ratio in the future. The firm pays an interest rate of 7.5% on its debt and has a corporate tax rate of 35%. If Acme's free cash flow is expected to be \$7 million next year and is expected to grow at a rate of 3% per year, what is Acme's WACC?

$$w_d = \frac{2}{7}, \quad w_c = \frac{5}{7}$$

$$k_d = 7.5\%, \quad k_s = \frac{D}{P} + g = 8\%$$

$$WACC = k_d w_d (1 - \tau) + w_c k_s = 7.11\%$$

5. Your firm operates only book publishing projects. You have 20 million shares outstanding and the current share price is \$17 per share. You have run a CAPM regression and found the beta of your firm's equity to be 1.1. Your firm has issued two classes of bonds: junior and senior debt. As its name suggests senior debt has seniority over junior debt (i.e. gets paid first). Both classes of debt have seniority over equity. The current market value of your firm's senior and junior debt is \$100 million and \$80 million respectively. Based on its current rating your firm's junior debt has a beta of 0.4. Your firm's senior debt is considered to be risk free. The current risk free rate is 2% and the expected excess return on the market is 6%. Using this information compute your firm's asset beta and the appropriate cost of capital. Ignore taxes.

$$w_c = \frac{17}{26}, \quad w_{ds} = \frac{5}{26}, \quad w_{dj} = \frac{4}{26}$$

$$k_s = r_f + \beta r_{mf} = 8.6\%$$

$$k_{ds} = r_f = 2\%$$

$$k_{dc} = r_f + \beta r_{mf} = 4.4\%$$

$$\beta_a = w_c \beta_e + w_{dj} \beta_{dj} = 0.78$$

$$WACC = r_f + \beta_a r_{mf} = 6.68\%$$