

# The required rate of return on the stock



7-2 - Boehm Incorporated is expected to pay a \$1.50 per share dividend at the end of this year (i. e. ,  $D_1 = \$1.50$ ). The dividend is expected to grow at a constant rate of 7% a year. The required rate of return on the stock,  $r_s$ , is 15%. What is the value per share of Boehm's stock?  $D_1 = \$1.50$  per share  $g = 7\%$   $r_s = 15\%$  What is the value of a share of Boehm Stock?  $P^0 = D_1 / (r_s - g)$   $P^0 = 1.50 / (0.15 - 0.07)$   $P^0 = \$18.75$

7-4 - Nick's Enchiladas Incorporated has preferred stock outstanding that pays a dividend of \$5 at the end of each year. The preferred sells for \$50 a share.

What is the stock's required rate of return? Dividend = \$5 Preferred = \$50

What is the stock's required rate of return  $P^0 = D / r_s$   $r_s = D / P^0$   $r_s = 5 / 50$

$r_s = 0.10$  or 10%

7-5 - A company currently pays a dividend of \$2 per share ( $D_0 = \$2$ ). It is estimated that the company's dividend will grow at a rate of 20% per year for the next 2 years, then at a constant rate of 7% thereafter.

The company's stock has a beta of 1.2, the risk-free rate is 7.5%, and the market risk premium is 4%. What is your estimate of the stock's current price?  $D_0 = \$2.00$   $g = 20\%$  for 2 years  $g = 7\%$  there after  $B_i = 1.2$   $R_f = 7.5\%$

$RP_m = 4\%$   $R_s = R_f + (b_i * RP_m)$   $R_s = 7.5 + (1.2 * 4)$   $R_s = 12.3$

What is your estimate of the stock's current price?  $D_0 = \$2.00$   $g_0$  to 1 20.0%  $g_1$  to 2 20.0%

$g_n = 7.0\%$   $r_s = 12.3\%$  Year 1 2  $D_1$   $D_2$  Expected dividends \$2.40 \$2.88

Expected  $P_2 = \$58.14$  PV of expected dividends \$4.42 PV of expected  $P_2 = \$46.10$

Expected  $P_0 = \$50.53$

Problems (p. 371) 9-2 After-Tax Cost of Debt LL Incorporated's currently outstanding 11% coupon bonds have a yield to maturity of 8%. LL believes it could issue new bonds at par that would

provide a similar yield to maturity. If its marginal tax rate is 35%, what is LL's after-tax cost of debt?

After Tax cost of debt =  $r_d * (1 - \text{tx rate}) = 0.08 * (1 - 0.35) = 0.08 * (0.65) =$

0.052 Answer: 5.2% 9-4 Cost of Preferred Stock with Flotation Costs

Burnwood Tech plans to issue some \$60 par preferred stock with a 6% dividend. A similar stock is selling on the market for \$70. Burnwood must pay flotation costs of 5% of the issue price. What is the cost of the preferred stock?  $E = \text{Dividend} / (\text{Market price} - \text{Flotation Costs}) = (60/6) / (70 - (70 * 0.05)) = 0.$

0541 = 5.41 Answer: 5.41% 9-5 Cost of Equity - DCF Summerdahl Resorts'

common stock is currently trading at \$36 a share. The stock is expected to pay a dividend of \$3.0 a share at the end of the year ( $D_1 = \$3.00$ ), and the dividend is expected to grow at a constant rate of 5% a year. What is the cost of common equity?  $P_0 = \$36; D_1 = \$3.00; g = 5%; r_s = ?$

$r_s = D_1 / P_0 + g = (3/36) + 0.05 = 0.1333$  Answer: 13.33% 9-6 Cost of Equity -

CAPM Booher Book Stores has a beta of 0.8. The yield on a 3-month T-bill is 4% and the yield on a 10-year T-bond is 6%. The market risk premium is 5.5%, and the return on an average stock in the market last year was 15%.

What is the estimated cost of common equity using the CAPM?  $r_s = r_{RF} +$

$b_i(\text{RPM}) = 0.06 + 0.8(0.55) = 0.14$  Answer: 10.4% 9-7 WACC Shi

Importers' balance sheet shows \$300 million in debt, \$50 million in preferred stock, and \$250 million in total common equity. Shi faces a 40% tax rate and the following data:  $r_d = 6%, r_{ps} = 5.8%,$  and  $r_s = 12%$ . If Shi has a target capital structure of 30% debt, 5% preferred stock, and 65% common stock,

what is Shi's WACC? 30% Debt; 5% Preferred Stock; 65% Equity;  $r_d = 6%; T = 40%; r_{ps} = 5.8%; r_s = 12%$ . WACC =  $(w_d)(r_d)(1 - T) + (w_{ps})(r_{ps}) + (w_{ce})$

$= (0.30)(0.06)(1 - 0.40) + (0.05)(0.058) + (0.65)(0.12) = 0.104$

$$(rs) WACC = 0.30(0.06)(1-0.40) + 0.05(0.058) + 0.65(0.12) = 0.0917$$

Answer: 9.17%