Problems (p. 297)

7.2 Constant Growth Valuation

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?

\[
P_0 = \frac{D_1}{r_s - g}
\]

\[
P_0 = \frac{1.50}{0.15 - 0.07} = \frac{1.50}{0.08} = \$18.75
\]

7.4 Preferred Stock Valuation

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?

\[
V_{ps} = \frac{\text{Dividend per year}}{\text{ROR}}
\]

\[
50 = \frac{5}{\text{ROR}}
\]

\[
50 \times \text{ROR} = 5
\]

\[
\text{ROR} = 10\%
\]

7.5 Nonconstant Growth Valuation

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?

\[
RP = \frac{\text{Risk-free rate}}{1 + \beta} = \frac{0.075}{1 + 1.2} = 4\%
\]

\[
ROR = 4\% \times 1.2
\]

\[
ROR = 4.8\%
\]

\[
ROR = \text{Risk-free rate} + \text{RP}
\]

\[
ROR = 7.5\% + 4.8\%
\]

\[
ROR = 12.3\%
\]

\[
P_0 = \frac{D_1}{(1 + r_s)} + \frac{D_2}{(1 + r_s)^2} + \frac{P_N}{(1 + r_s)^N}
\]

\[
P_0 = PV(D_1) + PV(D_2) + PV(D_3) / (ROR - CR)
\]

\[
P_0 = \frac{2 \times 1.20}{1.123} + \frac{2.40 \times 1.20}{1.123^2} + \frac{2.88 \times 1.07}{12.3\% - 7\%} / 1.123^2
\]

\[
P_0 = 2.14 + 2.28 + 58.11 / 1.261129
\]

\[
P_0 = 2.14 + 2.28 + 46.08
\]

\[
P_0 = 50.50
\]
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?

\[ R_{ad}(1-T) = 8\%(1.0-.35) \]
\[ R_{ad}(1-T) = 8\%(.65) \]

After-tax cost of debt = 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?

\[ R_{ps} = \frac{D_{ps}}{P_{ps}(1-F)} \]
\[ R_{ps} = \frac{60 \times 6\%}{70(1-.05)} \]
\[ R_{ps} = \frac{3.60}{66.50} \]
\[ R_{ps} = 5.41\% \]

9.5 Cost of Equity: DCF

Summerdahl Resort’s common stock is currently trading at $36 a share. The stock is expected to pay a dividend of $3.00 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 its cost of common equity.

\[ r_s = r_s = \frac{D_1}{P_0} + \text{Expected g} \]
\[ r_s = \frac{3}{36} + 5\% \]
\[ r_s = .0833 + .05 \]
\[ r_s = 13.33\% \]

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?

\[ r_s = r_{RF} + R_{M}(b_1) \]
\[ r_s = 6\% + 5.5\%(0.8) \]
\[ r_s = .06 + .044 \]
\[ r_s = 10.4\% \]
9.7 WACC

Shi Importer’s balance sheet shows $300 million in debt, $50 million in preferred stock, and $250 million in total common equity. Shi’s tax rate is 40%, \( r_d = 6\% \), \( r_{ps} = 5.8\% \), and \( r_s = 12\% \). If Shi has a target capital structure of 30% debt, 5% preferred stock, and 65% common stock, what is its WACC?

\[
WACC = w_d r_d (1 - T) + w_{ps} r_{ps} + w_s r_s
\]

\[
WACC = .30 \times .06(1-.40) + .05 \times .058 + .65 \times .12
\]

\[
WACC = .018(.60) + .0029 + .078
\]

\[
WACC = .0108 + .0029 + .078
\]

\[
WACC = 9.17\%
\]