FIN5EQS EQUITY SECURITIES

Quiz 3 (Version B) Solutions

1. A company, which has a beta of 1.3, has just paid a dividend of \$1.25. The long-term sustainable growth rate is 5%. The risk-free rate is 3.5% and the expected return on the market is 9%. What is the value of the stock?

   A. \$12.25
   B. \$12.87
   C. \$22.12
   D. \$23.23

$$r = R_F + \beta_i \left[E(R_M) - R_F \right]$$
$$= 0.035 + 1.3(0.09 - 0.035) = 10.65\%$$
$$V_0 = \frac{D_0(1+g)}{r-g} = \frac{1.25(1+0.05)}{0.152 - 0.05} = \$23.23$$

2. Suppose a company has a beta of 0.85. The risk-free rate is 4.5% and the equity risk premium is 6.6%. The dividend paid by the company last year was \$2.09. You estimate that the dividend will grow at a constant rate of 4.5% indefinitely. The current market value of the stock is \$28.70.

   Calculate the cost of equity implied by the market assuming the Gordon Growth Model is appropriate for valuing the stock and the sustainable growth assumption is reasonable.

   A. 10.3%
   B. 10.1%
   C. 11.6%
   D. 12.1%

$$28.70 = \frac{2.09(1+0.045)}{r - 0.045}$$
$$\therefore 28.70r - 1.2915 = 2.1841$$
$$\therefore 28.70r = 3.4756$$
$$\therefore r = 0.121 = 12.1\%$$

3. A company has EPS of $2.20 and a retention ratio of 40%. It expects earnings to grow at 8% p.a. for the next two years, after which earnings growth will decline to a long-term sustainable growth rate of 3.5%. The cost of equity is 7%. What is the value of the stock?

A. $26.56
B. $28.30
C. $42.44
D. $70.65

$$V_0 = \sum_{t=1}^{n} \frac{D_0(1+g_S)^t}{(1+r)^t} + \frac{D_0(1+g_S)^n(1+g_L)}{(1+r)^n(r-g_L)}$$

$$= \frac{2.20(0.6)(1.08)}{1.07} + \frac{2.20(0.6)(1.08)^2}{1.07^2}$$

$$+ \frac{2.20(0.6)(1.08)^2(1.035)}{(1.07)^2(0.07-0.035)} = \$42.44$$

4. Recalculate the value of the stock referred to in Question 3, but now assume that the growth rate declines gradually from the initial growth rate of 8% to the long-term sustainable growth rate of 3.5% over 5 years.

A. $28.85
B. $29.99
C. $43.28
D. $72.13

$$V_0 = \frac{D_0(1+g_L)}{r-g_L} + \frac{D_0 H(g_S-g_L)}{r-g_L}$$

$$= \frac{2.20(0.6)(1.035)}{0.07-0.035} + \frac{2.20(0.6)(2.5)(0.08-0.035)}{0.07-0.035}$$

$$= \$43.28$$

5. You are a securities analyst. You have been asked by one of your clients to estimate the value of a stock, because the client is planning a takeover bid and needs to know the value of the stock in order to decide how much to offer the company's existing shareholders. The company's earnings have been growing at a constant 4% p.a., which is considered to be a sustainable long-term growth rate. It pays dividends and has a constant payout ratio of 70%.

Which of the following valuation models would be most appropriate for valuing this company for your client?

A. The Dividend Discount Model
B. The Free Cash Flow Model (because the valuation is from a control perspective)
C. Neither of the above models is appropriate
D. Both A and B are equally appropriate

6. The financial statements of a company provide the following information:
   - Cash flow from operations = \$99,400,000
   - Depreciation expense = \$15,200,000
   - Interest expense = \$18,700,000
   - Fixed capital investment = \$9,000,000
   - Working capital investment = \$4,500,000
   - The corporate tax rate is 30%

   What the free cash flow to the firm?

   A. \$98,990,000
   B. \$103,490,000
   C. \$114,190,000
   D. \$118,690,000

$$FCFF = CFO + Int(1 - t_c) - FCInv$$
$$= 99.4 + 18.7(1 - 0.3) - 9$$
$$= \$103,490,000$$

7. A company has FCFF of \$140 million and FCFE of \$120 million. The WACC is 9% and the cost of equity is 12%. The long-term sustainable growth rate is 4%. What is the value of equity?

   A. \$1,560 million
   B. \$1,820 million
   C. \$2,496 million
   D. \$2,912 million

$$\text{Equity value} = \frac{FCFE_0(1+g)}{r-g}$$
$$= \frac{120(1.04)}{0.12 - 0.04}$$
$$= \$1,560 \text{ million}$$

EQUITY SECURITIES **Semester 1, 2012: Quiz 3**

SOLUTIONS

1. **A** **B** **C** ~~**D**~~
2. **A** **B** **C** ~~**D**~~
3. **A** **B** ~~**C**~~ **D**
4. **A** **B** ~~**C**~~ **D**
5. **A** ~~**B**~~ **C** **D**
6. **A** ~~**B**~~ **C** **D**
7. ~~**A**~~ **B** **C** **D**