

Quiz 4 Solutions

Security Analysis - Finance 40610
Professor Shane A. Corwin
Fall Semester 2007

Instructions: Please answer all of the questions completely and show all of your work. You may use a formula sheet and a calculator. The quiz is worth 25 points.

1. (16 points) You are valuing a firm using a free cash flow to equity (FCFE) model. In 2007, the firm had the following characteristics:

Net Income	1235 mil
Capex	612 mil
Depreciation	320 mil
Change in Working Capital	110 mil
Acquisition Costs	100 mil
Debt-to-Capital Ratio	43%
ROE	11%

- a) (7 points) Calculate the Equity Reinvestment Rate for this firm in 2007.

$$\text{Equity Reinvestment Rate} = \frac{(612 - 320 + 110 + 100)(1 - 0.43)}{1235} = 23.17\%$$

- b) (5 points) You expect ROE in 2008 to drop to the industry average of 10%. Estimate the fundamental growth rate in Net Income for 2008.

$$g = (0.2317)(.10) + \left(\frac{.10 - .11}{.11} \right) = 2.317\% - 9.091\% = -6.774\%$$

- c) (4 points) Estimate the fundamental growth rate in Net Income in 2009, assuming ROE remains 10% and the equity reinvestment rate is stable.

$$g = (0.2317)(.10) = 2.317\%$$

2. (9 points) You are valuing a firm that had operating earnings last year of \$250 million. You expect earnings to grow at a rate of 12% for the next six years. Beyond year six, you expect the firm to be in a stable growth stage, with an annual growth rate of 4% and a return on capital (ROC) equal to the industry average of 9%. The firm has a tax rate of 38%.

Based on these assumptions, calculate the required reinvestment rate and the free cash flow to the firm (FCFF) in year 7.

$$Req. ReinvestmentRate = \frac{g}{ROE} = \frac{.04}{.09} = 44.444\%$$

$$EBIT_7 = 250(1.12)^6(1.04) = \$513.194$$

$$FCFF_7 = EBIT_7(1 - T)(1 - ReinvRate) = 513.194(1 - .38)(1 - .44444) = \$176.768$$