Spring 2005 Name:

Quiz 3: Equity Instruments

Answer all questions and show necessary work. Please be brief. This is an open books, open notes exam.

1. You have just run a regression of enterprise value to EBITDA multiples across all steel companies listed globally. Your regression is summarized below:

   EV/EBITDA = 2.26 + .1513 (Tax Rate) + .2156 (Return on Capital) – .1335 (Percent of Revenues from Emerging Markets)

   The R squared of the regression is 41%. (All of the values were entered as absolute numbers. For example, a tax rate of 30% would be entered as 30)

a. Given the relationship between fundamentals and the EV/EBITDA multiple, which of the independent variables has the wrong sign on the coefficient in the regression above? (1.5 points)

   i. Tax Rate
   ii. Return on capital
   iii. Percent of revenues from emerging market
   iv. None of the above

b. Assume that you are trying to value a Spanish steel company with a tax rate of 38% and a return on capital of 15%, which derives 25% of its revenues from emerging markets. What enterprise value to EBITDA multiple would you expect this firm to trade at, given the regression above? (1.5 points)

2. State News Insurance company has a market value of equity of $ 1.8 billion and is expected to report net income of 1.5 billion next year. The firm is in stable growth and is expected to grow 4% a year in perpetuity, with a cost of equity of 10%. Assuming that the market is pricing this stock correctly, what return on equity is the market assuming for the company in perpetuity? (3 points)

3. You have been asked to value Tiddly Winks Toys, a privately held firm. In the most recent financial year, Tiddly Winks Toys reported after-tax operating income of \$ 12 million and earned an after-tax return on capital of 12% on invested capital. Tiddly Winks has no debt, but the unlevered beta of publicly traded toy companies is 1.20 (and the average R-squared across these companies is 16%). The riskfree rate is 5% and the risk premium is 4%.

a. Value Tiddly Winks Toys for sale as a private business, run as is. (You can assume that the return on capital will remain unchanged and that the firm will grow 3% a year in perpetuity). (2 points)

b. Assume now that a publicly traded firm is considering bidding for 51% of Tinker Toys. Assuming that the public traded firm continues to fund its operations entirely with equity and that it can increase the after-tax return on capital to 18% on future investments (but not on existing investments), estimate the maximum price that can be paid for 51% of Tiddly Winks Toys. (2 points)