

**Law 7930-32  
Corporate Finance  
Jonathan Klick**

**Black Tuesday**

**April 24, 2007  
8:30-12:30  
Room 331**

**This final exam consists of 3 problems (each containing questions a, b, and c) and 3 short essay questions. Each of the 6 problems/questions will be given equal weight in determining your final grade.**

**This is an open book and open note exam. You may use your textbook, other texts and articles, class notes, commercial outlines, commercial supplements, lucky charms, and any other printed or written materials you believe will be helpful in completing your answers. You are also allowed to use your financial calculators.**

**You will be given four hours to complete this exam, and you may allocate your time among the questions as you see fit. There is no answer sheet for this exam. Write all of your answers in bluebooks. You may write as long or as short an answer as you believe is necessary to completely answer the test questions. If you need extra bluebooks or scrap paper, please quietly request them from the proctor. If you finish early, please submit your bluebooks to the exam proctor and quietly exit the room.**

**If you perceive an ambiguity or error in any test question, please proceed to answer it, noting the ambiguity/error and making any reasonable assumptions you believe are necessary to answer the question. Please state these assumptions in your answer and provide your justification for the assumption. Also, partial credit for incorrect answers in the problem section is only available for those who show their work.**

**Good luck and have a nice summer.**

1. You are part of an investment banking team charged with valuing an IPO. The team determines the number of shares that will be floated in the offering, and based on the best estimate, you determine that earnings per share are \$10 per year. Further, based on the firm's volatility and the industries volatility, you determine that the relevant discount rate is 15 percent per year. Recall that firms are assumed to be infinitely lived for valuation purposes.
  - a. If best estimates suggest that the firm's earnings will grow at 3 percent per year, what price will you suggest for each share in the offering?
  - b. Now assume, for some idiosyncratic reason (perhaps some regulations will have a known effect on earnings), you predict that earnings will be 10 per share in the first year of public trading, they will grow at 3 percent for each of the next 2 years, and then they will grow at 5 percent from then on. What price per share will you suggest for the offering?
  - c. Now assume that the firm's earnings in total are \$20 million this year. Continue to assume that 15 percent is the proper discount rate but now assume expected growth in earnings is zero. The owners of the firm wish to create a dual share arrangement where they hold 40 percent of the firm's ownership in shares that are not traded publicly where each of the private shares has the same dividend, voting, and liquidation rights as each of the publicly traded shares. If the IPO involves floating 1 million publicly traded shares, what offer price will you suggest for each of the shares to be offered publicly?
  
2. You observe the following returns for stocks FSU and VT, as well as for the market index:

FSU	.12	-.18	.20	.33	-.09
VT	.04	-.03	.09	.15	-.03
Market	.2	-.01	.04	.10	-.01

Use .02 for the risk free rate of return, and use the data in the table to compute all average returns.

- a. Compute the beta for a portfolio that is composed as follows (proportions are kept constant throughout by trading when necessary): 50 percent of the portfolio is FSU shares and 50 percent of the portfolio is VT shares.
- b. If the next period's market return is .05, what return does the CAPM predict for the portfolio described above, using the beta computed in 2.a?
- c. [Note that this part does not relate to the data or problems listed above]: If a given stock's beta is 6 and the covariance between that stock's return and the market return is 12, what is the standard deviation of the market return?

3. A given bond has a face value of \$5,000 and it pays 12 percent interest annually for 30 years.
  - a. If your discount rate for this bond is 20 percent annually, what are you willing to pay for this bond now and, if the bond currently trades for that amount in the market, do we say this bond trades at a **discount** or a **premium**?
  - b. Now assume that you discount the first 5 payments at 15 percent annually, the next 10 payments at 18 percent annually, and the remaining payments at 23 percent annually. What are you willing to pay for this bond now?
  - c. Now assume that the bond is a zero coupon bond (i.e., the bond does not make any payments each year, it merely pays the principal and total interest [i.e., take the 30 payments and simply sum them and add it to the principal] upon maturity). Using the relevant discount rate from 3.b, what are you willing to pay for this bond now?
4. Some people describe the trading of stock options as a zero sum game. That is, they believe the gains to the “winners” are exactly offset by the losses to the “losers.” Explain why this is only true if both sides of the option contract are held by speculators. If one or both of the sides are held by hedgers, explain how the trading of options is a positive sum game (i.e., the aggregate net benefits of the trade are positive).
5. Explain why a stock split does not lead to dilution of shareholder value. Explain how the issuance of employee stock options might lead to dilution of shareholder value. Under what circumstances might the issuance of employee stock options not lead to dilution of shareholder value?
6. Under the Modigliani-Miller theorem, why is dividend policy irrelevant? In reality, why might a firm’s dividend policy affect shareholder wealth?