FINC460 - Midterm Exam

NAME: ______________________________ SECTION: ____________

1. Please do not open this exam until directed to do so.
2. This exam is 1 1/2 hours long.
3. Please write your name and section number on the front of this exam, and on any examination books you use.
4. Please show all work required to obtain each answer. Answers without justification will receive no credit.
5. State clearly any assumptions you are making.
6. This is a closed book exam. No books or notes are permitted, except for a formula sheet. Calculators are permitted. Laptops are permitted but you are only allowed to use Excel and a blank worksheet.
7. Brevity is strongly encouraged on all questions.
8. The exam is worth 110 points.
9. Relax, and good luck!

Hints:

1. *Think through problems before you start working. Draw pictures.*
2. *If you get stuck on part of a problem, go on to the next part. You may need to use answers from earlier parts of the question to calculate answers to the later parts. If you weren't able to solve the earlier part, assume something.*
3. *Remember, setting up the problem correctly will get you most of the points.*

Short questions (40pts)

Assess the validity of the following statements (True, False or Uncertain) and explain your answers. Each question is worth 8pts.

1. Even if the CAPM holds, two assets with the same market betas need not have the same expected returns.

2. The CAPM implies that all investors should hold a combination of the risk-free asset and the S&P 500 index.

3. All assets should have zero alpha with respect to the mean-variance efficient portfolio.

4. Empirical evidence suggests that firms that raise money by issuing new shares tend on average to have lower returns after their secondary offering than before. The fact that stock issuance predicts future returns is evidence against market efficiency.

5. The Fama-French 3 factor model implies that an asset's expected return is linearly related to it's market beta, it's market capitalization and it's ratio of book equity to market equity.

Question 2 (70pts)

For parts 1-6 of this question, assume the CAPM properly prices all assets. There are only 3 stocks in this economy: A, B and C. You have the following data available to you:

Security	Expected Return	Beta	Standard Deviation	Market Capitalization
Risk-Free Asset		0.0	0%	-
Market Portfolio				100b
Stock A	6.5%		25%	30b
Stock B	8.6%		30%	50b
Stock C	7.0%		35%	20b

The blank entries in the table are intentional! You should assume that the risk-free rate is the same for borrowing or lending, **and that assets A, B and C are uncorrelated with each other**.

Recall that portfolios on the minimum-variance frontier are those consisting *only* of risky assets which, for a given level of expected return, achieve the lowest possible level of volatility.

1. (10 points) Which of these assets (if any) lie on the capital allocation line?
2. (10 points) Find the expected return and standard deviation of the market portfolio.
3. (10 points) Find the betas of stocks A, B and C.
4. (10 points) Find the risk-free rate.

5. (10 points) Assuming you have a risk aversion coefficient of 3, what combination of the assets above should you hold? Specify the fraction of your wealth that you will put in each of the five assets.

6. Again assume that you have a risk aversion coefficient of 3. Now assume that you can only hold one of the three risky assets (A, B or C) in combination with the risk-free asset.

   (a) (5 points) Which of the three should you hold, and why? (Just specify A, B or C and explain).

   (b) (5 points) How would your answer change if your risk aversion coefficient were very large? (Specify A, B or C and explain)

7. (10 points) You are about to launch a new private equity fund, that will look for value opportunities in privately held firms abroad. You believe that you will have a beta of 0.8 with the market portfolio, a standard deviation of 50%, yet be able to offer your investors an average return of 8.1% per year. Your investors can invest freely in all assets apart from your fund. What is the maximum fee you can charge your investors?

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