

Sample Exam II

(Note: the objective of this sample exam is to show the format of the questions in the exam, this sample is not a full length exam.)

Part I. Short answer questions (5 questions, 40 points total)

1. (10 points) Comment on the following statements using the Efficient Market Hypothesis. Identify the form of EMH that applies to this case.

“The sales of retailing firms, such as department stores, are very seasonal. A very large fraction of sales occur in November and December. Because of this we expect that the stock returns of these firms will be high in November and December and low in January and February.”

2. (10 points) Are the following statements true or false? Briefly Explain.

- a) If a stock has a beta of 1.0 ($\beta = 1.0$), then it must be perfectly correlated with the market.
- b) If all securities are fairly priced, all must offer equal expected rate of return.

Part II Comprehensive Questions (60 points total)

Show all work. If you get stuck on one part, either make assumptions that allow you to answer the remaining parts, or carry on even if you think your answers are incorrect.

1. CAPM Question (30 points)

1. (20 points) In 2000, the yield on short-term government securities (perceived to be risk-free) was 5%. Suppose the expected return required by the market for a portfolio with a beta of 1.0 is 12%. According to the CAPM:

- What is the expected return on the market portfolio?
- What would be the expected return on an asset with beta of -1? Does anyone want to hold this asset? Explain.
- What is the expected return of a stock with Beta of 1.5? If the stock's actual return is 13% for the year, is the stock over or under-valued at the beginning of the year?

2. Portfolio Performance Evaluation (30 points total)

Consider the following statistical information on the historical performance of three large Vanguard funds based on *monthly excess returns* for 5 years. Excess returns are computed net of the monthly yield on Treasury bills. The benchmark index is the value-weighted total market index. The average market excess return is 1.00 % with a standard deviation of 3.9%. CAPM model is used for performance evaluation.

| Fund | α | β | Mean Excess Return | Std Dev. |
|----------------|----------|---------|--------------------|----------|
| Century Growth | ? | 1.39 | 0.8% | 6.50% |
| Windsor Fund | ? | 0.78 | 1.03% | 4.20% |
| Decatur Fund | ? | 0.72 | 0.9% | 3.78% |

- Calculate the Sharpe Ratio, Treynor Ratio, and Jensen's Alpha for each fund. Are the rankings based on the Sharpe index different from Jensen's alpha provided in the table?
- If you choose to hold only one fund in your investment, which measure do you use to evaluate the funds, why?
- Briefly explain what market timing skills are.