Chapter 2: Discussion Questions and Problems

1. Differentiate the following terms/concepts:

a. Systematic and nonsystematic risk

Nondiversifiable or systematic risk is risk that is common to all risky assets in the system and cannot be diversified. Diversifiable or unsystematic risk is specific to the asset in question and can be diversified.

b. Beta and standard deviation

Beta is the CAPM's measure of risk. It takes into account an asset's sensitivity to the market and only measures systematic, nondiversifiable risk. The standard deviation is a measure of dispersion that includes both diversifiable and nondiversifiable risks.

c. Direct and indirect agency costs

Agency costs arise when managers' incentives are not consistent with maximizing the value of the firm. Direct costs include expenditures that benefit the manager but not the firm, such as purchasing a luxury jet for travel. Other direct costs result from the need to monitor managers, including the cost of hiring outside auditors. Indirect costs are more difficult to measure and result from lost opportunities.

d. Weak, semi-strong, and strong form market efficiency

With weak form market efficiency prices reflect all the information contained in historical returns. With semi-strong form market efficiency prices reflect all publicly available information. With strong form market efficiency prices reflect information that is not publicly available, such as insiders' information.

2. A stock has a beta of 1.2 and the standard deviation of its returns is 25%. The market risk premium is 5% and the risk-free rate is 4%.

a. What is the expected return for the stock?

$E(R) = .04 + 1.2(.05) = .10$

b. What are the expected return and standard deviation for a portfolio that is equally invested in the stock and the risk-free asset?

$E(R_p) = .5(.10) + .5(.04) = .07$, $\sigma_p = (.5)(.25) = .125$

c. A financial analyst forecasts a return of 12% for the stock. Would you buy it? Why or why not?

If you believe the source is very credible, buy it as it is expected to generate a positive abnormal (or excess) return.

3. What is the joint hypothesis problem? Why is it important?

If when testing one hypothesis another must be assumed to hold, a joint-hypothesis problem arises. For us, this is of particular interest when we are testing market efficiency because of the need to utilize a particular risk-adjustment model to produce required returns, that is, to risk-adjust. This would not be a problem if we knew with certainty what the correct risk adjustment model is, but unfortunately we do not. If a test rejects the EMH, is it because the EMH does not hold, or because we did not properly measure abnormal returns? We simply do not know for certain the answer to this question.

4. Warren Buffett has been a very successful investor. In 2008 Luisa Kroll reported that Buffett topped *Forbes Magazine*'s list of the world's richest people with a fortune estimated to be worth $62 billion (March 5, 2008, "The world's billionaires," *Forbes*). Does this invalidate the EMH?

Warren Buffett's experience does not necessarily invalidate the EMH. There is the possibility that he is just lucky: given that there are numerous money managers, some are bound to perform well just by luck. Still many would question this here because Buffett's track record has been consistently *strong.*

5. You are considering whether to invest in two stocks, Stock A and Stock B. Stock A has a beta of 1.15 and the standard deviation of its returns has been estimated to be 0.28. For Stock B, the beta is 0.84 and standard deviation is 0.48.

a. Which stock is riskier?

Stock A is riskier, though stock B has greater total risk.

b. If the risk-free rate is 4% and the market risk premium is 8%, what is the expected return for a portfolio that is composed of 60% A and 40% B?

$R_p = .6(.132) + .4\ (.1072) = .12208$

c. If the correlation between the returns of A and B is 0.50, what is the standard deviation for the portfolio that includes 60% A and 40% B?

$\sigma_p^2 = (.6)^2(.28)^2 + (.4)^2(.48)^2 + 2*.5(.6)(.4)(.28)(.48) = 9.7\%$, $\sigma_p = 31.2\%$