Financial Management
Homework 1

Given: Nov. 6, 2008
Due: Nov. 18, 2008

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1 Risk

Let r_p denote the return for the p portfolio formed by k assets. Answer the following questions.

1. Define risk of r_p.
2. Let $\mu = (\mu_1, \mu_2, \cdots, \mu_k)'$ be the mean vector of the k assets and Σ its covariance matrix. Find risk of r_p
3. Is it true that risk of r_p always decreases as number of assets k increase?
4. Could risk of r_p be completed removed by increasing k as high as possible? What could be the lowest possible risk? Explain your answer.
5. Define risk premium of stock returns.
6. Explain how you estimate the risk premium.

2 Markowitz's portfolio theory

1. Explain the term efficient portfolios
2. Briefly explain the term "risk-free rate of interest
3. Briefly explain the term "market portfolio.
4. Explain the term market risk
5. Briefly explain the term "security market line

3 CAPM

1. What is CAPM model? Write down the formula.
2. What does CAPM model imply? State the implications clearly in your own words.
3. State in your own words about deriving the CAPM model.
4. What are the assumptions behind CAPM?
5. How do you test with real data if CAPM model holds for Taiwanese stock market?

4 APT

1. What is APT? Write down the formula.
2. What does APT model imply? State clearly in your own words.
3. State in your own words about proving APT model.
4. What are the assumptions behind APT?
5. How do you implement APT for empirical analysis of Taiwanese stock market?
6. Briefly explain the Fama-French Three-Factor Model.
7. Briefly discuss how you would use Fama-French three-factor model to estimate the cost of equity for a firm.