Tutorial Assignment 4 - Due 23 Aug at 10:00am (Start of Week 5) - Managed Funds and Index Models

Started: Aug 21 at 20:02

Quiz Instructions

Please note: this is marked by a computer program. I have built in an allowance for rounding, but it is not a big allowance. It is safest to NOT round intermediate results and do all rounding at the very end.

This tutorial assignment is marked and worth 1.25 marks toward your final mark in this subject. There are 13 questions and you will be awarded $\frac{1.25}{13} = 0.09615$ marks toward your final mark for EACH question.

Please note that your tutorial assignment consists of 2 parts -

Part A is unmarked - you can download the questions as a PDF from the first question of the quiz.

Part B is marked by Canvas - it is the on-line quiz you are about to take now. Please print a pdf or take a screen shot of your answers to the computer-based quiz (Part B) at the end. This is insurance in case you write something that the program thinks is an error, but it is not really an error. **Your only time limit is the due date and time. Please note, that only your last attempt of the Quiz is saved and marked.**

Q: What if I do not have time to finish in one sitting?

A: You are permitted multiple attempts, but your **last** attempt before the due date and time is the one that is marked. Canvas, appears to save your answers after you enter them, but you might want to make note of them just in case of a computer glitch.

By the way: This on-line quiz portion of your tutorial assignment is in a very similar format to your Mid-Semester Test.

Please download this PDF of Part A of your tutorial assignment.

Assignment4A_ManagedFundsAndIndexModels.pdf

This part is UNMARKED, but will be discussed during your tutorial during the week of 23 August.

Question 1

1 pts

Consider a single-index model. The alpha of a stock is 0%. The return on the market index is 12%. The risk-free rate of return is 5%. The stock earns a return that exceeds the risk-free rate by 7% and there are no firm-specific events affecting the stock's performance. Find the beta of the stock.

*List your answer in decimal form **rounded to 2 decimal places** (i.e. 3.29). The margin for error is 0.03.*

This text applies to the next 2 questions, i.e., Questions 2 and 3. [Question 5 on page 181 of Bodie, et al. (2019) *Essentials of Investments*]

The standard deviation of the market index portfolio is 20%. Share A has a beta of 1.5 and a residual standard deviation of 30%.

Question 2

1 pts

What should make for a larger increase in the share's variance: an increase of 0.15 in its beta from 1.5 to 1.65 or an increase of 3% in its residual standard deviation from 30% to 33%?

- ◯ Both changes would have the same impact on the share's standard deviation (variance).
- ◯ The increase in beta would have a larger impact on the share's standard deviation

(variance).

- ◯ The increase in the residual standard deviation would have a larger impact on the share's standard deviation (variance).

Question 3

1 pts

An investor who currently holds the market-index portfolio decides to reduce the portfolio allocation to the market index to 90% and to invest 10% in share A. Which of the changes above (a change beta from 1.5 to 1.65 or a change in the residual standard deviation from 30% to 33%) would have a greater impact on the portfolio's standard deviation?

It is enough to answer this question with good economic intuition, but you can also prove it with math. Just use the fact that: $\beta_A = \frac{Cov(\tilde{r}_A - r_f, \tilde{r}_M - r_f)}{\sigma_M^2}$*, when the regression model is* $(r_{A,t} - r_f) = \alpha_A + \beta_A[r_{M,t} - r_f] + e_{A,t}$.

- ◯ Both changes would have the same impact the portfolio's standard deviation.
- ◯ The change in beta would have a greater impact on the portfolio's standard deviation.
- ◯ The change in the residual standard deviation would have a greater impact on the portfolio's standard deviation.

The following information is for Questions 4, 5, 6, 7, 8, 9, 10, and 11.

Consider the following results for two stocks, A and B:

$$r_A - r_f = 0.04 + 0.4(r_M - r_f) + e_A$$

$$r_B - r_f = -0.05 + 0.9(r_M - r_f) + e_B$$

$$\text{Regression } R_A^2 = 0.40$$

$$\text{Regression } R_B^2 = 0.15$$

$$\sigma_M = 0.35$$

Question 4

1 pts

Find the standard deviation of stock A's return.

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0005.*

Question 5

1 pts

Find the standard deviation of stock B's return.

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0005.*

Question 6

1 pts

Separate the variance of each stock into the systematic and firm-specific components of variance (not standard deviation).

What's the systematic variance of stock A's return?

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0003.*

Question 7

1 pts

What's the systematic variance of stock B's return?

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0003.*

Question 8

1 pts

Separate the variance of each stock into the systematic and firm-specific components of variance (not standard deviation).

What's the firm-specific variance of stock A's return?

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0003.*

Question 9

1 pts

What's the firm-specific variance of stock B's return?

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0003.*

Question 10

1 pts

Find the covariance between each stock and the market index. *The following hint will be very helpful* $\beta_A = \frac{Cov(\tilde{r}_A - r_f, \tilde{r}_M - r_f)}{\sigma_M^2}$.

Please calculate the covariance between the returns of stock A and the market index and report your answer below.

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0003.*

Question 11

1 pts

Find the covariance between each stock and the market index. *The following hint will be very helpful* $\beta_A = \frac{Cov(\tilde{r}_A - r_f, \tilde{r}_M - r_f)}{\sigma_M^2}$.

Please calculate the covariance between the returns of stock B and the market index and report your answer below.

*List your answer in decimal form **rounded to 4 decimal places** (i.e. 0.2946). The margin for error is 0.0003.*

Question 12

1 pts

Which is more tax efficient, a high-turnover fund or a low-turnover fund?

- ◯ A high turnover fund
- ◯ A low turnover fund

Question 13

1 pts

A closed-end fund has a portfolio currently worth $200 million. It has $3 million in liabilities and 5 million shares outstanding. What is the NAV per share?

*List your answer in decimal form **rounded to 2 decimal places** (i.e. 2.36). The margin for error is 0.02.*

No new data to save. Last checked at 20:02

Submit Quiz