FNCE 30001 – Investments

Performance Evaluation

Problem Set

Due 18 October 2021 at 10:00am

WARNING – TURNING IN YOUR TUTORIAL ASSIGNMENT IS MORE COMPLICATED THIS WEEK!

This week "Part B" is part multiple choice and part "do answers by hand and upload".

Yes, it is annoying. We're doing this to mimic how you will do the Final Exam, which will also be part multiple choice and part "do answer by hand and upload".

Part A

Part A is not required for your marks. It is still a really good idea to do it in order to (1) improve your understanding (2) help prepare you for the final exam.

A1 [question 13 on page 609 of Bodie, et al. *Essentials of Investments, 11*]

Conventional wisdom says one should measure a manager's investment performance over an entire market cycle. What arguments support this contention? What arguments contradict it?

A2. [Chapter 18: Question 11 on page 608 of Bodie, et al. *Essentials of Investments, 11*]

Please read section 18.6 in Bodie, et al. (2019). Consider the following information regarding the performance of a money manager in a recent month. The table presents the actual return of each sector of the manager's portfolio in column (1), the fraction of the portfolio allocated to each sector in column (2), the benchmark or neutral sector allocations in column (3) and the returns of sector indexes in column (4).

	(1) Actual return	(2) Actual weight	(3) Benchmark weight	(4) Index return
Equity	2.0%	0.60	0.50	2.5% (ASX200)
Bonds	1.0%	0.30	0.40	1.2%(Aggregate bond index)
Cash	0.5%	0.10	0.10	0.5%

a. What was the manager's return in the month? What was her over- or underperformance?
b. What was the contribution of security selection to relative performance?
c. What was the contribution of asset allocation to relative performance? Confirm that the sum of selection and allocation contributions equals her total 'excess' return relative to the bogey.

A3. [Chapter 18: CFA question 2 on pages 611-12 of Bodie, et al *Essentials of Investments, 11*]

Carl Karl, a portfolio manager for the Alpine Trust Company, has been responsible for the City of Alpine's Employee Retirement Plan, a municipal pension fund, since 2020. Alpine is a growing community and city services and employee payrolls have expanded in each of the past 10 years. Contributions to the plan in fiscal 2025 exceeded benefit payments by a three-to-one ratio.

The plan's Board of Trustees directed Karl five years ago to invest for total return over the long term. However, as trustees of this highly visible public fund, they cautioned him that volatile or erratic results could cause them embarrassment. They also noted a state statute that mandated that not more than 25% of the plan's assets (at cost) be invested in common stocks.

At the annual meeting of the trustees in November 2025, Karl presented the following portfolio and performance report to the Board.

Alpine employee retirement plan

Asset mix as of 30 September 2025	**At cost (millions)**		**At Market (millions)**	
Fixed-Income assets:				
Short-term securities	$4.5	11.0%	$4.5	11.4%
Long-term securities	26.5	64.7	23.5	59.5
Common stocks	10.0	24.3	11.5	29.1
	$41.0	100.0%	$39.5	100.0%

Investment performance

	Annual rates of return for periods ending 30 September 2025	
	5 years	**1 Year**
Total Alpine fund:		
Time-weighted	8.2%	5.2%
Dollar-weighted (internal)	7.7%	4.8%
Assumed actuarial return	6.0%	6.0%
US Treasury bills	7.5%	11.3%
Large sample of pension funds (average 60% equities, 40% fixed income)	10.1%	14.3%
Common stocks -- Alpine fund	13.3%	14.3%
Average portfolio beta coefficient	0.90	0.89
S&P 500 stock index	13.8%	21.1%
Fixed-income securities -- Alpine fund	6.7%	1.0%
Salomon Brothers' bond index	4.0%	-11.4%

$\beta = 0.9$

$\alpha = 13.3 - (7.5 - 0.9)(13.8 - 6.7)$

$\approx 0.13\%$

Karl was proud of his performance and was chagrined when a trustee made the following critical observations:

i. 'Our one-year results were terrible and it's what you've done for us lately that counts most.'
ii. 'Our total fund performance was clearly inferior compared to the large sample of other pension funds for the last five years. What else could this reflect except poor management judgments?'
iii. 'Our common stock performance was especially poor for the five-year period.'
iv. 'Why bother to compare your returns to the return from Treasury notes and the actuarial assumption rate? What your competition could have earned for us or how we would have fared if invested in a passive index (which doesn't charge a fee) are the only relevant measures of performance.'
v. 'Who cares about time-weighted return? If it can't pay pension, what good is it!'

Appraise the merits of each of these statements and give counterarguments that Mr Karl can use.

Part B

Please download the template answer sheet and put all the answers on the template. This is very similar to what you will have to do for the final exam.

Step 1: If you haven't done so already, please download the app "**Scannable**" for Apple/iOS devices from the Apple app store or "**Genius Scan**" for Android devices from the Google Play store. You will use these to create one PDF file of your answers.

If you do not like using "Scannable" or "Genius Scan", try using the University's suggested method: https://lms.unimelb.edu.au/students/student-guides/gradescope-converting-images-to-pdf

Step 2: Please read the directions for scanning (*same as for Assignment 6*). Please use white paper and black/dark ink.

Step 3: Download the answer template. ALL Answers must be written on the template in the space provided for each question.

Step 4: Print the template to write your answers for Part B or pull the PDF on to a tablet, where you can write directly on the PDF electronically (if you write your answers electronically on a table, you obviously do not need to worry about scanning).

Step 5: Write your name and Student ID number in the marked boxes on the first page.

> *Your name and ID number will be read by computer program (Gradescope), so please make sure you write your name and ID # very clearly on the first page of the template.*

Step 6: Write up good attempts at each of the questions on the assignment for full credit.

> *Please use white paper and black/dark ink.*

Step 7: Upload your scanned answers as **one PDF file** to Gradescope question, using the link in the Canvas Quiz.

If the link doesn't work for you, you can also access the file upload by (a) Clicking the "Gradescope" menu item in the LMS (b) Logging into Gradescope (c) Choosing this subject "FNCE30001_2021_SM2" (d) Choosing "Tutorial Assignment 10 – Performance Evaluation – Due 18 Oct at 10:00am" (e) uploading your scanned template.

> *Please use the apps "**Scannable**" or "**Genius Scan**" do not upload photos.*

B0. There is a multiple-choice question in the Quiz for Assignment 10 that you need to attempt for full credit.

B1.

Could portfolio A show a higher Sharpe ratio than that of another portfolio B and at the same time a lower M^2 measure? Explain.

B2.

Based on current dividend yields and expected capital gains, the expected rates of return on portfolios A and B are 11% and 14%, respectively. The beta of A is 0.8, while that of B is 1.5. The T-note rate is currently 3.5%, while the expected rate of return of the S&P/ASX 200 index is 5%. The standard deviation of portfolio A is 10% annually, while that of B is 31% and that of the index is 20%.

a. If you currently hold a market index portfolio, would you choose to add either of these portfolios to your holdings? Explain.

b. If instead you could invest *only* in notes and *one* of these portfolios, which would you choose?

B3.

The chairman provides you with the following data, covering one year, concerning the portfolios of two of the fund's equity managers (manager A and manager B). Although the portfolios consist primarily of common stocks, cash reserves are included in the calculation of both portfolio betas and performance. By way of perspective, selected data for the financial markets are included in the following table.

	Total return	**Beta**
Manager A	24.0%	1.0
Manager B	30.0	1.5
S&P 500	21.0	
A national bond index	31.0	
91-day Treasury bills	12.0	

a. First calculate the alphas and Treynor ratios of the two managers and then compare the risk adjusted performance of these two managers relative to each other and to the S&P500.

b. Explain at least *two* reasons the conclusions drawn from this calculation may be misleading.