Tutorial Assignment 3 - Due 16 Aug at 10:00am (Start of Week 4) - Portfolio Theory

Plagiarism declaration

By submitting work for this quiz I hereby declare that I understand the University's policy on **academic integrity (https://academicintegrity.unimelb.edu.au/)** and that the work submitted is original and solely my work, and that I have not been assisted by any other person (collusion) apart from where the submitted work is for a designated collaborative task, in which case the individual contributions are indicated. I also declare that I have not used any sources without proper acknowledgment (plagiarism). Where the submitted work is a computer program or code, I further declare that any copied code is declared in comments identifying the source at the start of the program or in a header file, that comments inline identify the start and end of the copied code, and that any modifications to code sources elsewhere are commented upon as to the nature of the modification.

Due Aug 16 at 10:00 **Points** 15 **Questions** 15
Available Jul 16 at 8:00 - Aug 16 at 10:01 about 1 month **Time Limit** None
Allowed Attempts Unlimited

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 15 questions and you will be awarded $\frac{1.25}{15} = 0.08333$ 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 (16-Aug at 10:00 am) 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.

This quiz was locked Aug 16 at 10:01.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	28 minutes	14 out of 15

Score for this attempt: **14** out of 15
Submitted Aug 13 at 1:13
This attempt took 28 minutes.

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

Asignment3A_PortfolioTheory.pdf

This part is UNMARKED, but will be discussed during your tutorial during the week of 16 August.

(This explanatory text is for the next 6 questions)

Assume that you manage a risky portfolio with an expected rate of return of 17% and a standard deviation of 27%. The T-note rate is 7%. Your client chooses to invest 70% of a portfolio in your fund and 30% in a T-note cash fund.

Question 1

1 / 1 pts

What is the **expected return** of your client's portfolio?

Answer in percent ***and*** ***round to 1 decimal place*** *(i.e. 2.3, not 0.023). Do not use the "%" sign. The margin for error is 0.1.*

Correct!

14

orrect Answers

14 (with margin: 0.1)

Question 2

1 / 1 pts

What is the **standard deviation** of the return of your client's portfolio?

Answer in percent ***and*** ***round to 1 decimal place*** *(i.e. 2.3, not 0.023). Do not use the "%" sign. The margin for error is 0.1.*

Correct!

18.9

orrect Answers

18.9 (with margin: 0.1)

Question 3

1 / 1 pts

Suppose your risky portfolio includes the following investments in the given proportions:

	Proportion of A, B, & C in your risky portfolio	Proportion of overall portfolio
T-note	0%	30%
Share A	27%	18.9
Share B	33%	23.1
Share C	40%	

28.0

What are the investment proportions of your client's overall portfolio, including the position in T-notes ?

Please fill in the three (3) answers above. List your answer in percent, **rounding to 1 decimal place, with or without the % sign - it does not matter for this question**. Do not list more than 1 decimal place (i.e. 2.3, not 2.30) - when there are multiple answers, this program is not smart enough to realise they are the same. There is no margin for error.

Answer 1:

Correct! 18.9

orrect Answer 18.9%

orrect Answer 18.90

orrect Answer 18.90%

Answer 2:

Correct! 23.1

orrect Answer 23.1%

orrect Answer 23.10

orrect Answer 23.10%

Answer 3:

Correct! 28.0

orrect Answer 28.0%

orrect Answer 28

orrect Answer 28%

orrect Answer 28.00

orrect Answer 28.00%

Question 4

1 / 1 pts

What is the reward-to-volatility ratio (S) of your risky portfolio and your client's overall portfolio? (*Hint - these two had better be the same. This is why you have only one space for an answer. If they are not the same, you made an error.*)

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

Correct!

0.3704

orrect Answers

0.3704 (with margin: 0.0003)

Question 5

0 / 1 pts

Suppose the client decides to invest in your risky portfolio a proportion (y) of his total investment budget so that his overall portfolio will have an expected rate of return of 15%. What is the proportion y?

List your answer in percent, ***rounded to 2 decimal places*** *(i.e. 3.29, not 0.0329). Do not use a percent (%) sign. The margin for error is 0.02.*

ou Answered

0.8

orrect Answers

80 (with margin: 0.02)

Question 6

1 / 1 pts

Suppose the client prefers to invest in your portfolio a proportion (y) that maximises the expected return on the overall portfolio subject to the constraint that the overall standard deviation will not exceed 20%. What is the proportion y?

*List your answer in percent, **rounded to 2 decimal places** (i.e. 3.29, not 0.0329). Do not use a percent (%) sign. The margin for error is 0.02.*

Correct!

74.07

orrect Answers

74.07 (with margin: 0.02)

[Chapter 6: CFA questions 3a, 3b, 3d &3e on page 185-186 of Bodie, et al *Essentials of Investments*]

(This explanatory text is used for the next 8 questions.)

Anne Grace has a $900 000 diversified portfolio. She subsequently inherits ABC Company common stock worth $100 000. Her financial adviser provided her with the following estimates:

Risk and return characteristics

	Expected monthly returns %	Standard deviation of monthly returns %
Original portfolio	0.67	2.37
ABC Company	1.25	2.95

The correlation coefficient of the ABC stock returns with the original returns is 0.40.

Please answer with monthly expected returns and monthly standard deviations: you do not need to annualise the expected returns or standard deviations.

Question 7

1 / 1 pts

The inheritance changes Grace's overall portfolio and she is deciding whether to keep the ABC stock. Assuming Grace keeps the ABC stock, calculate the **expected return of her new portfolio which includes the ABC stock.**

*List your answer in percent, **rounded to 3 decimal places** (i.e. 3.294, not 0.03294). Do not use a percent (%) sign. The margin for error is 0.002.*

Correct!

0.728

orrect Answers

0.728 (with margin: 0.002)

Question 8

1 / 1 pts

The inheritance changes Grace's overall portfolio and she is deciding whether to keep the ABC stock. Assuming Grace keeps the ABC stock, calculate the **covariance of ABC stock returns with the original portfolio returns.**

*List your answer in decimal form, **rounded to 4 decimal places** (i.e. 0.0329, not 3.29% or 329%^{2}). The margin for error is 0.0002.*

Correct!

2.7966

orrect Answers

0.0003 (with margin: 0.0002)
2.7966 (with margin: 0.1)

Question 9

1 / 1 pts

The inheritance changes Grace's overall portfolio and she is deciding whether to keep the ABC stock. Assuming Grace keeps the ABC stock,

calculate the **standard deviation of her new portfolio which includes the ABC stock**.

*List your answer in percent, **rounded to 2 decimal places** (i.e. 3.29, not 0.0329). Do not use a percent (%) sign. The margin for error is 0.02.*

Correct!

2.27

orrect Answers

2.27 (with margin: 0.02)

Question 10

1 / 1 pts

If Grace sells the ABC stock, she will invest the proceeds in risk-free government securities yielding 0.42% monthly. Assuming Grace sells the ABC stock and replaces it with the government securities, calculate the **expected return of her new portfolio** which includes the government securities.

*List your answer in percent, **rounded to 3 decimal places** (i.e. 3.294, not 0.03294). Do not use a percent (%) sign. The margin for error is 0.002.*

Correct!

0.645

orrect Answers

0.645 (with margin: 0.002)

Question 11

1 / 1 pts

If Grace sells the ABC stock, she will invest the proceeds in risk-free government securities yielding 0.42% monthly. Assuming Grace sells the ABC stock and replaces it with the government securities, calculate the **covariance of the government security returns** with the original portfolio returns.

*List your answer in decimal form, **rounded to 4 decimal places** (i.e. 0.0329, not 3.29% or 329%^{2}). The margin for error is 0.0002.*

Correct!

0

orrect Answers

0 (with margin: 0.0002)

Question 12

1 / 1 pts

If Grace sells the ABC stock, she will invest the proceeds in risk-free government securities yielding 0.42% monthly. Assuming Grace sells the ABC stock and replaces it with the government securities, calculate the **standard deviation of her new portfolio** which includes the government securities.

*List your answer in percent, **rounded to 2 decimal places** (i.e. 3.29, not 0.0329). Do not use a percent (%) sign. The margin for error is 0.02.*

Correct!

2.13

orrect Answers

2.13 (with margin: 0.02)

Question 13

1 / 1 pts

Based on conversations with her husband, Grace is considering selling the $100 000 of ABC stock and acquiring $100 000 of XYZ Company common stock instead. XYZ stock has the same expected return and standard deviation as ABC stock. Her husband comments, 'It doesn't matter whether you keep all of the ABC stock or replace it with $100 000 of XYZ stock.' State whether her husband's comment is correct or incorrect and why.

<Choose the BEST answer>

- No. The husband's comment is ignoring losses due to transaction costs of selling ABC to buy XYZ.

Yes. This is correct. When placing all our money/wealth in an investment what matters is the total risk of the portfolio, i.e. standard deviation or variance. Since the standard deviations are the same, we are indifferent.

Correct!

No. It depends on what the correlation between returns of ABC, XYZ, and the original portfolio are.

Question 14

1 / 1 pts

In a recent discussion with her financial advisor, Grace commented, 'If I just don't lose money in my portfolio, I will be satisfied.' She went on to say, 'I am more afraid of losing money than I am concerned about achieving high returns.' Describe *one* weakness of using standard deviation of returns as a risk measure for Grace.

<Choose the BEST answer>

Standard deviation does not measure the risk of the individual asset.

Standard deviation does not measure the total risk of the portfolio.

Correct!

If returns are not symmetric, standard deviation does not reflect differences in positive and negative price movements.

Question 15

1 / 1 pts

Consider the following table, which gives a security analyst's expected return on two stocks for in different states of the economy:

State	Probability	Aggressive Stock (r_A)	Defensive Stock (r_D)

Boom	.3	32%	8%
Normal	.5	10%	5%
Bust	.2	-3%	7%
	E[r]	?	?
	σ	12.77%	1.35%

What is the correlation between the returns on the Aggressive and Defensive stocks?

*List your answer in decimal form, **rounded to 3 decimal places** (i.e. 0.032, not 3.29%). The margin for error is 0.005.*

Correct!

0.545

orrect Answers

0.545 (with margin: 0.005)

Please **print a pdf or take a screen shot** of your answers at the end before submitting. This is insurance in case you write something that the program thinks is an error, but it is not really an error.

Quiz Score: **14** out of 15