BBA325 PORTFOLIO MANAGEMENT Task brief & rubrics

Task: Final Assignment

You are asked to answer the 8 questions in the proposed case study. The weight of each question is specified in the case study.

This task assesses the following learning outcomes:

- Critically understand advanced theories and principles of Portfolio Management (from Units 1 to 6)
- Compute the expected return and risk of portfolios (Units 3 & 4)
- Calculate the Sharpe Ratio of individual securities (Unit 5)
- Construct a portfolio of one risk-free rate and a risky asset (Unit 4)
- Construct a portfolio of two risky assets (Unit 5)

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Submission file format: Word document with all the answers, clearly identifying every intermediate calculation separately.

Rubrics

	Descriptor
9-10	The student demonstrates an excellent understanding of the concepts. Correct answers are provided for each question.
8-8.9	The student demonstrates a good understanding of the concepts. Correct answers are provided for each question.
7-7.9	The student demonstrates a fair understanding of the concepts. Student identifies formula and correct data. However, the student fails to find the last final answer. Intermediate calculations are correct.
6-6.9	The student demonstrates some, but insufficient understanding of the concepts. Student identifies formula, correct data. Some errors are done in the calculations and the final answer is wrong. Also, for cases in which the answer is correct but not every intermediate calculation is shown.
3-5.9	The student demonstrates insufficient understanding of the concepts. They may mention some relevant ideas or concepts, although the relationship between them is not understood by the student. Student identifies correct data. Intermediate calculations and the final answer are wrong.
1-2.9	The student demonstrates insufficient understanding of the concepts and does not mention any relevant ideas or concepts.
0	The student leaves the question blank or cheats.

CASE STUDY: PORTFOLIO MANAGEMENT IN PRACTICE

You are a junior investment analyst at a boutique investment firm. While you know how to compute most of the key metrics used for portfolio construction, the data is obtained from third party providers. Every investment proposal goes through a quality review done by the firm' senior analysts. That way, every recommendation is personalized and appropriate to the client's return objectives and risk tolerance.

Investors' Facts:

You need to write a proposal of a suitable portfolio for each of the two clients. Consider that both prefer to directly investment in stocks but do not want to hold more than two stocks at the same time.

	Client 1	**Client 2**
Name	Jane	Daniel
Age	41- year- old	25- year- old
Constraints	Two dependents	None
***Risk Aversion Coefficient (A)**	**5**	**2**
Time Horizon	Medium to Long term	Long Term
Investment Goal	Funding education of her children	Maximize return for each unit of risk
Type of Investor	Moderate	Aggressive

*/ Utility Function

1. **Eligible Stocks:**

After a diligent study, the senior analyst gives you a short list of the eligible stocks for these clients. He wants to follow-up your investment decision reasoning, so he is allowing you to make some key decisions. Out of these five stocks, you must decide which stocks are suitable for each client.

Your decision must only consider the investors' facts and the beta of each stock. Remember you can only pick a pair of stocks per client. Elaborate your answer using the information provided.

(10 points)

	Apple	Disney	Nike	Starbucks	Caterpillar
Ticker	**AAPL**	**DIS**	**NKE**	**SBUX**	**CAT**
***BETA (5Y, monthly)**	**1.29**	**1.04**	**0.86**	**0.58**	**1.42**

*/Calculated with CAPM model

2. Sharpe Ratio:

To avoid any bias in your opinion, the senior analyst shows you another set of stock statistics in percentages, this time without any reference to the company name.

You must quantify the reward to risk ratio for this new set of eligible stocks. Show your partial calculations for the Sharpe Ratio and fill in the table your results. Risk free rate is 5%. **(2 points for each correct Sharpe ratio; total of 10 points)**

Ticker	Stock 1	Stock 2	Stock 3	Stock 4	Stock 5
E(r)	**7.52**	**12.34**	**10.98**	**16.28**	**8.38**
σ	**17.18**	**19.79**	**19.31**	**22.98**	**18.08**
Sharpe Ratio					

3. Evaluation of Sharpe Ratios:

Based on the Sharpe ratios that you have just calculated, which pair of stocks would you suggest to Daniel? Explain your answer **(10 points)**

4. Comparing Performance with the Market Index:

Years ago, Jane opened a mutual fund account to get exposure to the equity market index. Then, you deem appropriate to evaluate historical data of the market index to elaborate your investment advice.

At the Bloomberg Professional data platform, you found that rate of return on the S&P 500 portfolio over the past 25 years has averaged roughly 8% more than the Treasury bill return, and that the S&P 500 standard deviation has been about 20% per year. Assume these values are representative of investors' expectations for future performance and that the current T-bill rate is 5%.

Calculate the expected return and variance of portfolios invested in T-bills and the S&P 500 index with weights as shown in the table below. Show your calculations separately and fill in the table with your results. **(2.5 points per each correct statistic; total of 30)**

Weight in T-bill	**Weight in Market Index**	**Expected return of portfolio**	**Variance of Portfolio**	**Standard Deviation of Portfolio**
0	100%			
20%	80%			
40%	60%			
50%	50%			

5. **Maximization of Utility:**

Jane has become more concern about her financial constraints. She notifies you not to include single name stocks, but instead to construct her portfolio using T-Bills and S&P 500. The senior analyst reminds you that her Risk Aversion coefficient must be used to find her optimal portfolio.

Hint: Utility Maximization and Optimal portfolio framework

Fill in the chart with your results. **(10 points)**

	Weight in Risky Asset	Weight in Risk-Free Rate	**Expected return of portfolio**	**Standard Deviation of Portfolio**
Jane's portfolio				

6. **Jane's Portfolio**

Briefly explain to Jane the benefits of her portfolio. Compute the Utility function for this proposed portfolio. **(10 points)**

7. **Maximization of Reward-to-Risk ratio:**

Based on your answers for question 3, you can now construct the optimal risky portfolio with two-risky assets. Given Daniel's investor traits, you decide to maximize the Sharpe Ratio of his portfolio. Consider a covariance of 0.0089 between the two stocks and a risk-free rate of 5%.

Hint: Optimal Risky portfolio framework

Fill in the chart with your results. **(10 points)**

	Weight in First Risky Asset	Weight in Second Risky Asset	**Expected return of portfolio**	**Standard Deviation of Portfolio**
Daniel's portfolio				

8. **Daniel's Portfolio:**

Briefly explain to Daniel the benefits of his portfolio. Compute the Sharpe ratio of his portfolio. **(10 points)**