

MScFE 560 FINANCIAL MARKETS

Group Work Project # 1

[See grading rubric here.](#)

Scenario

You and your team members have an investment company. You have to decide which of the following stocks to invest in:

- **Investment 1:** Bond
- **Investment 2:** Income Stock
- **Investment 3:** Cryptocurrency
- **Investment 4:** Equity ETF
- **Investment 5:** Crypto ETF

Tasks

Your group has to decide how to invest its funds in any, or all, of the 5 investments. In order to make an informed decision, you have to analyze each option and decide as a team.

How do you divide the work?

Each one of you will be responsible to run an analysis of the following portfolios:

	PORTFOLIO A	PORTFOLIO B	PORTFOLIO C
Team Member 1	Buy 1 asset and short 1 asset		
Team Member 2		Buy any number of assets (no shorting allowed)	
Team Member 3			Buy some assets and short some other assets . There should be 3 or more assets in the portfolio

Team Member 1 picks Portfolio A, Team Member 2 picks Portfolio B, and Team Member 3 picks Portfolio C.

Learn more about bonds

<https://www.finra.org/investors/investing/investment-products/bonds#:~:text=FINRA's%20Market%20Data%20Center%20offers,facts%20about%20a%20particular%20bond>.

<https://www.treasurydirect.gov/>

<https://investor.vanguard.com/investor-resources-education/understanding-investment-types/what-is-a-bond>

Learn more about income stocks

<https://www.fool.com/investing/stock-market/types-of-stocks/income-stocks/>

<https://www.thebalancemoney.com/resources-for-investors-dividend-paying-stocks-2388687>

<https://www.dividend.com/investor-resources/>

Learn more about Cryptocurrencies

<https://www.bankrate.com/investing/cryptocurrency-statistics/>

<https://corporatefinanceinstitute.com/resources/cryptocurrency/types-of-cryptocurrency/>

<https://www.sofi.com/learn/content/understanding-the-different-types-of-cryptocurrency/>

Learn more about Equity ETFs

<https://etfdb.com/etfs/asset-class/equity/>

<https://www.etf.com/channels/equity-etfs>

<https://www.trackinsight.com/en/education/what-are-equity-etfs>

Learn more about Cryptocurrency ETFs

<https://www.etf.com/channels/cryptocurrency-etfs>

<https://www.fool.com/investing/stock-market/market-sectors/financials/cryptocurrency-stocks/cryptocurrency-etf/>

<https://www.forbes.com/advisor/investing/cryptocurrency/best-bitcoin-etfs/>

In a group of two students, Team Member 1 picks Portfolio A, Team Member 2 picks Portfolio B, and both team members work on Portfolio C.

What do you need to know to make such a decision?

Each team member should follow these steps for their respective portfolio:

Step 1 - For each investment, produce the given statistics:

1. Average return
2. Volatility
3. Skewness
4. Kurtosis

Also, compute the correlation and covariance matrix of historical returns.

Note that a sample sheet is provided ([Link to Sample Calculations sheet](#)) that illustrates how to compute average, standard deviation, skewness, and kurtosis from sample data. Also, a sample correlation matrix and a covariance matrix are given.

You must compute the portfolio's average return and portfolio volatility. You do not need to compute the portfolio skewness and portfolio kurtosis.

Step 2 - Answer the following questions:

Each Team Member/Portfolio Manager will answer the following questions about their own portfolio:

1. Shorting
 - a. Can this portfolio be sold short? (Hint: Yes, but be sure to explain part b)
 - b. If it can be sold short, walk through the mechanics.
2. Credit Risk
 - a. Does this portfolio have credit risk?
 - b. If it has credit risk, explain what the credit risk is.
3. Portfolio Statistics
 - a. Compute the weighted return of the portfolio.
 - b. Compute the variance of the portfolio.
4. Diversification
 - a. Describe the diversification in words between the two assets.
 - b. Do you think this portfolio is well diversified or not?
5. Comparing Portfolios
 - a. How does your portfolio compare to the others in terms of risk?
 - b. How does your portfolio compare to the others in terms of return?

6. Assessing Risk
 - a. Describe economic conditions or scenarios that would affect your security. For example, the COVID-19 pandemic could disrupt travel and halt the production of new aircraft, hurting the demand for airline parts. (Note: this particular example CANNOT be used!)
 - b. Determine if similar events would hurt **one or both** members of a portfolio.
7. Performance
 - a. Now describe economic conditions or scenarios that would greatly improve each security. For example, increased business and vacation travel could increase the demand for airline parts (Note: this particular example CANNOT be used!)
 - b. Determine if similar events would help **one or both** members of a portfolio.
8. Disrupters
 - a. List the potential influence the central bank may have on the portfolio.
 - b. List the potential influence that investment banks may have on the portfolio.
9. Re-assessing Risk
 - a. Do the two investments in the portfolio have the same skew?
 - b. Is there a difference between the types of correlation?

Time to make a decision!

Step 4 - Once you have individually finished the analysis of your respective portfolio, get together with your team members and discuss your findings. Think about how the answers to issues like shorting, financing, volatility, correlation, etc., appeal to or discourage potential investors.

For example, discuss these questions:

- How does your portfolio's volatility compare to the volatility of other portfolios?
- How important is it that your portfolio has high volatility? For example, if your targeted investor base is conservative, you will want lower volatility rather than higher volatility. On the other hand, if your targeted investor base is risk-seeking, you may want to recommend the portfolio with higher volatility.

Step 5 - As a group, **write the two items described below**. These investors understand fundamental principles of return and risk for individual securities but need to understand those concepts as they pertain to the specific portfolio:

1. **Write a marketing piece**¹ to promote the advantages of one of the portfolios. Based on the conversation you've had as a team, be sure to explain why it is better than the other portfolio. **Length:** 1 slide (PPT or Google Sheets)
2. **Write an email** to discourage someone from investing in one of the portfolios. Based on the conversation you've had as a team, be sure to explain how there may be better portfolios out there. **Length:** 250-300 words

Note: In each piece, be sure to use terms discussed in the notes, including:

- Shorting
- Financing
- Volatility
- Correlation

Here are some examples of websites that will elaborate on these topics. Feel free to use other sites, because there are many places to find this information.

Shorting: <https://www.schwab.com/learn/story/ins-and-outs-short-selling>

Financing: <https://financetrain.com/short-selling-and-stock-borrowing-costs>

Volatility: <https://www.morganstanley.com/articles/how-to-handle-volatility>

Correlation:

<https://www.guggenheiminvestments.com/mutual-funds/resources/interactive-tools/as-set-class-correlation-map>

Submission requirements and format

One team member submits on behalf of the entire group the following:

1. **1 PDF document*** including individual answers from Steps 1 to 3
 - a. Use the available Report Template and fill out the required information on the first page

¹ A **marketing piece** will address the features and benefits of a specific type of portfolio. For example, an interest-only loan is more affordable. Marketing can focus on any of the following criteria: 1) price 2) quality 3) innovation. There may be other criteria, but these are the main ones

2. **1-2 slides presentation in PDF format**** for the marketing piece completed as a group (Step 5)
3. **1 PDF document*** with the email completed as a group

** **Use Google Docs to collaborate.** Start by uploading the Report Template provided in the Course Overview. Once your report is completed, click File → Download → PDF Document (.pdf) to obtain the copy for your submission.*

** **Use Google Slides to collaborate.** Once completed, click File → Download → PDF Document (.pdf) to obtain the copy for your submission*

Rubric

Your instructor will evaluate your group submission for GPW1 using the following rubric:

Quantitative Analysis (open-ended questions)	Technical and Non-technical Reports	Writing and Formatting
40 Points	30 Points	20 Points
<p>The group is able to apply results, formulas, and their knowledge of theory to real-life finance scenarios by doing the following:</p> <ul style="list-style-type: none"> • Providing all the necessary information to support their arguments. • Presenting arguments that reflect group discussion and research. • Using authoritative references to support a position and provide updated information • Concluding with practical takeaways for more insightful financial decision-making 	<p>Technical Reports contain 3 parts:</p> <ol style="list-style-type: none"> 1) summary of key results; 2) interpretation of results; and 3) the recommended course of action that can reasonably follow from those results and interpretations. <p>Note: Technical reports will include the technicalities of models, such as names, methods of estimation, parameter values, etc. and exclude generalities about the work done. It should NOT include the names of Python code that was used.</p>	<p>A submission that looks professional should include:</p> <ul style="list-style-type: none"> • The axes labels and scales in graphs. • No significant grammar errors or typos. • Organized, clear structure, and easy to read document. • Proper citations and bibliography using MLA format.
	<p>Non-technical Reports contain 3 parts:</p> <ol style="list-style-type: none"> 1) clear explanation of results; 2) the recommended course of action that follows; and 3) the identification of factors that impact each portfolio. <p>Note: AVOID all references to model names, algorithms, unnecessary details, and focus on the investment decision.</p>	

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