**DSA302 Group Project, 2021/22 T1**

**Guidelines**

A fund manager has been given a mandate by a national pension fund to invest USD10 million in a portfolio of international assets. The possible asset classes and subclasses (by geographical denomination) are as follows:

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| **Asset class** | **Possible subclass** |
| Equity | US, Europe, Asia |
| Bond (government and/or corporate) | US, Europe |
| Real estate | US, Europe |
| Currency | USD, Euro, Yen |

The fund is US based and returns are measured in USD. There are certain restrictions imposed by the sponsor that the fund manager must follow:

1. There should be no short selling of any asset subclass.
2. Certain subclasses should not exceed given percentages (e.g., Asian equities must be less than 5%)
3. There must be at least 15% US equities and 10% US government bonds.

Choose 6 to 12 asset subclasses. For each asset subclass, choose a suitable index to represent the subclass. Collect historical data for the indices.

Use the mean-variance portfolio management approach to analyze the data and present your analysis to the sponsor. Your analysis should include fund performance based on different measures. You may incorporate into your report scenarios of additional assumptions such as minimum targeted portfolio return and inflation rate.

You may vary the restrictions in (2) and (3) and study the outcomes under different scenarios.

**Report and Evaluation**

This project constitutes 20% of course assessment. Each group will submit a report of no more than 10 pages (A4 single line spacing) and deliver a presentation of no more than 30 min, inclusive of 5 min of Q&A. R codes will be submitted separately (not inclusive in the 10-page report). The presentation will be in Week 13 (Week 8 is recess).

The report must have the following declaration, signed by all group members:

“Each member of this group contributes honestly and fairly to the completion of this report.”

**References**

Investopedia: <https://www.investopedia.com/articles/credit-loans-mortgages/090116/what-do-pension-funds-typically-invest.asp>

OECD Report: <https://smu-my.sharepoint.com/:b:/g/personal/yktse_smu_edu_sg/EYRXtzYRieZKuzmczGNe5R4BZb9LnDTyrM3Q0fipz3KotQ?e=7byLvg>