

Solution Sheet on Problem Set 1

**Return Calculations, Portfolio Choice and Mean-Variance Frontier**

Deadline: 19.10.2021

**Solved by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Task** |  | **Points Earned** |
| 1. **Return Comparison**   a)  Discrete vs. Log-Returns: mean, st.dev. and annualized  (6 points) |  |  |
| b)  Discrete vs. Log-Returns:  Plot and interpretation  (8 points) |  |  |
| c)  Usage of return type  (6 points) |  |  |
| d)  Investment value  (6 points) |  |  |
| 1. **Diversification Effect**   a)  Diversification using two stocks  (6 points) |  |  |
| b)  Diversification and portfolio volatility  (12 points) |  |  |
| c)  Visualization and interpretation of b)  (12 points) |  |  |
| 1. **Mean-Variance Frontier**   a)  Mean-Volatility Plot  (8 points) |  |  |
| b)  Efficient Frontier  (10 points) |  |  |
| c)  Minimum Variance Portfolio  (10 points) |  |  |
| d)  Tangency Portfolio  (10 points) |  |  |
| e)  Portfolio Choice  (6 points) |  |  |