

Solution Sheet on Problem Set 1

**Portfolio Choice and Mean-Variance Frontier**

Deadline: 18/10/2019

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

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| **Task** | **Answer** | **Points Eearned** |
| * 1. **warm-up question**   Why there are more than 500 stocks in the S&P500? |  |  |
| **1.2** daily and annualized µ, σ, and SR of the equally-weighted portfolio |  |  |
| **1.3** daily and annualized µ, σ, and SR of the actual S&P500 portfolio |  |  |
| **1.4** µ, σ, and SR of Portfolio with Leverage ratio at 1,3 and 5 |  |  |
| **1.5** What is the cumulative return (in %)? |  |  |
| **1.6** Insert your explanation to the right |  |  |
| **2. a)** Plot of MV frontier for MSFT and AAPL for the 4 cases (insert plots to the right) |  |  |
| **3.1** Report the weights of top10 largest stocks in the tangency portfolio  Comments: |  |  |
| **3.2** Report the weights of top10 largest stocks in the minimum-variance portfolio  Comments: |  |  |
| **3.3** Why is the variance of the MVP equal to the covariance of the MVP with the tangency portfolio? Report the value and provide your argumentation. |  |  |
| **3.4.\*** Report the weights of the indicated stocks inside the tangency portfolio made up from the entire S&P500 stocks  Comments: | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Stock | AAPL | AMZN | PEP | WMT | SBUX | CAT | MS | GPS | EXPE | | Weight |  |  |  |  |  |  |  |  |  | |  |