Diversification of a portfolio can result in less risk to an investor, with the possibility of not giving up much in returns, since the returns of multiple securities are not perfectly correlated. If there were a longer time series of returns, I would expect the weights of the portfolio optimization strategy to change, since the data would be different. The time period of returns matter as well monthly returns as used in this example filters out a lot of the noise that would be associated with using daily returns. The point of optimizing your portfolio is to maximize gains while minimizing risks to capital invested.

When solving for a portfolio to maximize the average return while minimizing variance, my portfolio had an average return of 1.468%, versus equally balanced of 1.494%. The variance of my portfolio had a variance of 0.122%, versus equally balanced of 0.146%. When solving for a portfolio to maximize the average return, my portfolio had a return of 2.711% versus equally balanced of 1.494%. The variance of the portfolio was 0.529% versus equally balanced of 0.146%. It highlights the assumption that a portfolio with higher returns is also subject to greater risk.