Assignment 2: Mean–Variance analysis (part 2)

Purpose of the assignment:

- Export gams results to excel.
- Draw efficient frontiers and optimal portfolio compositions.
- Add diversification constraints to the Markowitz model.

The steps:

1. Study and run the gams file MeanVar_Write2Excel.gms if you have a windows machine and the file MeanVar_Write2TxtFile.gms if you have a mac. You should now have an excel file MeanVarianceFrontier.xls (for windows) and MeanVarianceFrontier.csv (for mac) in your project directory.
2. Based on the results that you get in the output files draw an efficient frontier and the corresponding optimal portfolio composition.
3. Does a linear change in the value of λ indicate a linear change in the actual level of risk observed (the portfolio variance in this case)? Reformulate the model and the loop structure around the solve statement so that you obtain 11 optimal portfolios with equidistant levels for portfolio variance. Use the data from the new model to draw an efficient frontier and the optimal portfolio composition and compare results with the old formulation.
4. Edit the gams file MeanVar_DivCon.gms - the diversification constraints are missing. Run the completed program and compare results with the unconstrained model.