PORTFOLIO OPTIMIZATION PROBLEMS WITH LINEAR PROGRAMMING MODELS

Hyunsun Song

Department of Mathematics, Yonsei University, Seoul 03722, KOREA

ABSTRACT

This work investigates the portfolio optimization problem by constructing a perturbed portfolio and using a benchmark. We consider two computationally efficient portfolio optimization models, the mean-absolute deviation risk [1] and Dantzig approach [2], which can be solved using linear programming. These portfolio models push the benchmark toward the efficient frontier through sparse and stable asset selection. We implement these models on two benchmarks, a market index and the equally-weighted portfolio. We carry out an extensive out-of-sample analysis with 11 empirical datasets and simulated data. Our findings show that the proposed portfolios outperform the benchmark in terms of various performance measures, including the mean return and Sharpe ratio. This is a joint work with Seyoung Park and Sungchul Lee.

ACKNOWLEDGEMENT

This work was supported by the National Research Foundation of Korea (NRF) grants funded by the Korea government of MSIP (No. NRF-2017R1A2B20005661).

REFERENCES