

國立高雄大學統計學研究所  
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題目：The General Portfolio Selection Problem under Several Different  
Risk Measures Considerations

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出處(1)：The Journal of Financial and Quantitative Analysis, 8(4):  
621-636, 1973

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出處(2)：Management Science, 44(5): 673-683, 1998

摘要：

We first present the evolution of the modern portfolio theory, from Markowitz's mean-variance model, Sharp's single index model, extended mean-variance model, to the mean-variance-skewness model that could be approximated by a linear programming model.

Then we introduce an alternative principle for choosing portfolios based on historical returns data; the optimal portfolio based on this principle was the solution to a simple linear programming problem. This principle used minimum return rather than variance as a measure of risk. In particular, the portfolio was chosen that minimized the maximum loss over all past observation periods, for a given level of return. This objective function avoided the logical problems of a quadratic (nonmonotone) utility function implied by mean-variance portfolio selection rules. The resulting minimax portfolios were diversified; for normal returns data, the portfolios were nearly equivalent to those chosen by a mean-variance rule. Framing the portfolio selection process as a linear optimization problem also made it feasible to constrain certain decision variables to be integer, or 0-1, valued; this feature facilitated the use of more complex decision-making models, including models with fixed transaction charges and models with Boolean-type constraints on allocations.

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