A mean-absolute deviation-skewness portfolio optimization model

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Abstract

It is assumed in the standard portfolio analysis that an investor is risk averse and that his utility is a function of the mean and variance of the rate of the return of the portfolio or can be approximated as such. It turns out, however, that the third moment (skewness) plays an important role if the distribution of the rate of return of assets is asymmetric around the mean. In particular, an investor would prefer a portfolio with larger third moment if the mean and variance are the same. In this paper, we propose a practical scheme to obtain a portfolio with a large third moment under the constraints on the first and second moment. The problem we need to solve is a linear programming problem, so that a large scale model can be optimized without difficulty. It is demonstrated that this model generates a portfolio with a large third moment very quickly.

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