An MOEA/D-Based Strategy for Multi-Objective Portfolio Optimization in Capital Markets

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Abstract

The Markowitz mean-variance (MV) model has been a fundamental framework in modern portfolio investment theory, the goal of which is to choose an optimal set of weights that maximizes the expected return for a given level of risk. However, the MV model assumes that the returns in capital markets are normally distributed, which ignores the asymmetry of returns in real life. Recently, the mean-variance-skewness (MVS) portfolio framework has attracted more attention as it introduces the skewness of returns as an extension to the classical MV model. In this paper, based on the MVS portfolio framework, a novel approach is proposed to solve portfolio optimization problems in capital markets through using Multi-objective Evolutionary Algorithm Based on Decomposition (MOEA/D). Finally, several simulations are provided to illustrate the effectiveness of the proposed approach.

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