عنوان مقاله:

Ant Colony Optimization for Optimal Portfolio Model Based on Mean-Variance-CVaR

محل انتشار:

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خلاصه مقاله:

This paper presents a novel approach for mean-variance-conditional value at risk (MVC) model of portfolio optimization using an ant colony optimization (ACO) algorithm, which is termed as a modified ACO. This modified algorithm is obtained by hybrid of weighted sum method (WSM) as a classic optimization method and using the ACO algorithm is known as a meta-heuristic approach. The output from the MVC model is a set of optimal solutions of portfolio that leads to minimization of the risk and maximization of the return. To this end, the both procedure flowchart and ACO algorithm of MVC model of portfolio be presented. The procedure flowchart stabilises the connection between the mathematical model of MVC and ACO algorithm. To examine the proposed approach, the same portfolio based on the current approach like the WSM and proposed hybrid technique that includes two assets (USD, GBP) from Bank Negara Malaysia (from 2012 to 2013) was considered. This paper showed the ACO helps to increase the convergence of the optimal solution. Also, it leads to reduce the elapsed time of running through MATLAB. The hybrid approach reveals a significant improvement in the portfolio optimization accuracy.

کلمات کلیدی:

Portfolio optimization; meta-heuristic method; Ant colony optimization

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