The Ant colony Pseudocode for Mean-Variance-CVaR model of Multi-Portfolio Optimization

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Abstract:

The portfolio selection problem refers to form a good portfolio. It is complicated to choose which assets should be selected because of the doubt on their returns. In this paper we present a adaptive Mean-Variance-CVaR (MVC) model of multi-portfolio optimization . The present study uses to optimize the portfolio problem via ACO approach. To this idea, after we explain mathematical formulation of the problem, we will present a mew Simulated Pseudocode. It helps to recognize the details of the problem and finally Ant Colony procedure will propose to solve the MVC problem. ACO optimization leads to making the simplified and dependable and solvable problem.

Keywords: Ant colony, Multi-objective, portfolio optimization, Pseudocode

1. Introduction

The portfolio selection problem refers to form a good portfolio. It is complicated to choose which assets should be selected because of the doubt on their returns. The central purpose in a portfolio selection Problem is to find optimal proportions of the stock for creating a portfolio which complements the investor's preferences presumptuous that the investors' wish to strike a balance between maximizing the return and minimizing the risk of their investment [1].
The aim of solving the multi-objective portfolio optimization problem is finding the set of Pareto optimal that in this set we can find the balancing point of minimum risk and maximum return [7]. We can see the details of an objective hierarchy [3] from the classical Markowitz model for multi criteria decision making.

The rest of this paper is as the following. In next section explain the multi-objective portfolio optimization based on mathematical approach. Then discuss about multi-objective portfolio optimization based on ACO approach based on literature and recent studies. Next we present the MVC model of portfolio optimization based on ACO. Finally, results and some future works are presented at the conclusion.

2. Multi-Objective Portfolio Optimization