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Portfolio selection triggered by multi-armed bandit algorithm
and their investment performance

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摘要

This study presents the theoretical concepts and purposes of multi-armed bandit problem briefly and discusses the pros and cons of UCB1(Upper confidence bound) algorithm in portfolio selection applications. In particular, this paper will focus on disadvantages such as poor selection of assets, information underutilized and other problems, and design investment strategies for each shortcoming, respectively. For example, this study classifies the assets by using Duncan test, treat the return as an independent binomial distribution, or as UCB1 assume that each asset has its own true mean, try to make sample mean converge to the true mean more quickly by using more information. The empirical results reveal that most of the methods perform better than UCB1 after using a little more information.

keywords : multi-armed bandit, portfolio selection, UCB1, Duncan test

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