

Skilled Mutual Fund Selection: False Discovery Control under Dependence *

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Abstract

Selecting skilled mutual funds through the multiple testing framework has received increasing attention from finance researchers and statisticians. The intercept α of Carhart four-factor model is commonly used to measure the true performance of mutual funds, and positive α 's are considered as skilled. We observe that the standardized OLS estimates of α 's across the funds possess strong dependence and nonnormality structures, indicating that the method in the seminal paper [Barras, Scaillet and Wermers \(2010\)](#) is inadequate for selecting the skilled funds. We recommend a multiple testing procedure based on the probability of each fund not being skilled conditional on the information across all of the funds in our study. To model the distribution of the information used for the testing procedure, we consider a mixture model under dependence and propose a new method to fit the parameters. Empirical studies show that our selected skilled funds have superior long-term and short-term performance, e.g., our selection strongly outperforms the S&P 500 index during the same period.

Keywords: Mutual Fund, Carhart Four-factor Model, Multiple Testing, Mixture Model, Dependence

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