

# **AN EMPIRICAL STUDY OF PERFORMANCE RATING AND DISTRIBUTION OF MUTUAL FUNDS UNDER THE FINITE MIXTURES OF NORMAL DISTRIBUTION HYPOTHESIS**

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University of Nebraska, 2003

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There are two purposes of this dissertation. The main purpose is to empirically find the set of superior performing mutual funds based on the portfolio management ability of fund managers. Under the percentile-based performance classification method that is typically used to cluster mutual funds, it might not yield the true superior performance set. In contrast to the percentile-based, in this study we propose a distribution-based performance classification method that is developed using the finite mixtures of normal distribution hypothesis. We find that the finite mixtures of normal distribution hypothesis is appropriate to describe the form of the empirical distribution of the cross-sectional excess-return Sharpe ratios. Assuming each excess-return Sharpe ratio represents the portfolio management ability of fund manager, we are able to classify mutual funds by the homogeneous-ability fund managers' groups. Mutual funds, which are classified into the superior-ability fund managers' group, can be treated as superior performers.

Another purpose is to empirically provide the descriptive validity of stable and mixtures of normal distribution hypothesis on mutual fund returns. Even the distribution of mutual fund returns has many implications for financial models and performance studies, it is typically proposed as the normal. Currently, the most convenient distribution assumption for describing the empirical distribution of actual common stock returns is the family of stable or the finite mixtures of normal. Therefore, we perform the validity tests of stability and mixtures of normality under the stability-under-addition property on the cross-sectional actual returns of randomly selected 50 mutual funds.

