

Summary of *Machine-learning the Skill of Mutual Fund Managers*

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1. What are the research questions?

- How to identify out-performed fund from under-performed ones?
- How to predict fund abnormal return through ML methods?

2. Why are the research questions interesting?

- Since US mutual funds assets is growing rapidly, it is important for investors to invest in out-performed funds instead of under-performed ones.

3. What is the paper' s contribution?

- the literature on factors predicting fund return
 - Existing literature: Fund flow and fund momentum can be explained by stock momentum hold by the fund.
 - Extension: Fund flow and fund momentum is important in the prediction model, and high investor sentiment strengthen their predictability.
- the literature of machine learning on predicting fund return
 - Existing literature: using only stock or fund characteristics.
 - Extension: predict fund abnormal return using both stock and fund characteristics, also considering macroeconomic environment.
- methodology of applying machine learning models to asset pricing
 - Former procedure: chronological sampling, equal-weighted portfolio analysis
 - Improvement: random sampling, prediction-weighted portfolios, interaction effects of fund-specific and stock-specific characteristics.

4. What hypotheses are tested in the paper?

- Fund flow and fund momentum combined are the most useful in predicting fund abnormal return.
- Their predictability is stronger with high investor sentiment.

a) Do these hypotheses follow from and answer the research questions?

- Yes, they are examining which predictor is the most useful in predicting fund abnormal return.

b) Do these hypotheses follow from theory? Explain logic of the hypotheses.

- They follow the theory of imperfect reallocation and marketing driven flow.

5. Sample: comment on the appropriateness of the sample selection procedures.

- The sample includes abundant observations across nearly 40 years, making it possible for machine learning modeling .

6. Dependent and independent variables: comment on the appropriateness of variable definition and measurement.

- Abnormal return is chosen as dependent variable, which exclude the influence by market factors.

7. Regression/prediction model specification: comment on the appropriateness of the regress/predict model specification.

- Applying non-linear neural network method captures the interaction effect of fund flow and fund momentum.

8. What difficulties arise in drawing inferences from the empirical work?

- It is tenable to draw inference that fund flow and fund momentum jointly are the most useful for predicting fund abnormal return.

9. Describe at least one publishable and feasible extension of this research.

- The same method can be applied to funds holding bonds, which means Analyzing bond characteristics and fund characteristics jointly.