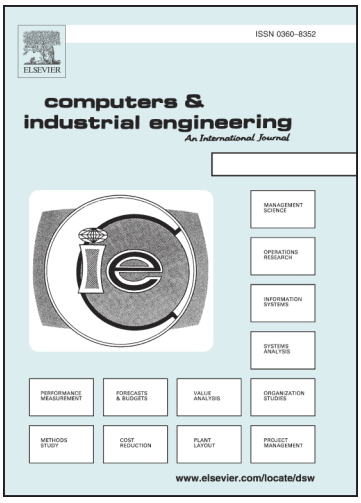

Does Entropy Model with Return Forecasting Enhance Portfolio Performance?

Jing-Rung Yu, Wan-Jiun Paul Chiou, Wen-Yi Lee, Kai-Cheng Yu

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Jing-Rung Yu
Department of Information Management, National Chi Nan University, Nantou, Taiwan
jennifer@ncnu.edu.tw

Wan-Jiun Paul Chiou*
Finance Group, Northeastern University, 360 Huntington Ave., Boston, MA, 02115-5000 USA
w.chiou@neu.edu

Wen-Yi Lee
Department of Technology Management, National Chiao Tung University, Hsinchu, Taiwan
bbooboo2.mt99g@nctu.edu.tw

Kai-Cheng Yu
Department of Information Management, National Chi Nan University, Nantou, Taiwan,
s102213545@ncnu.edu.tw

ABSTRACT

Traditional portfolio models such as the mean-variance framework lean to yield a concentration in a small amount of assets and uncertainty in outcomes due to its sensitivity to the bias in estimation. We develop a portfolio model that synthesizes the techniques improving investment diversity with return forecasting. Specifically, we integrate Yager (1995) entropy with autoregressive integrated moving average (ARIMA) model and evaluate the *ex post* performance of various models by using the data of the S&P 500 stocks. The results show that the entropy model yields higher performance, lower trading costs, and higher portfolio diversity than the corresponding MV model. Adding return forecasting in the entropy model increases portfolio efficiency to respond the market dynamics, especially during the market downturn. Due to its linearity, Yager entropy is more computationally efficient than the MV model and can be useful to asset management.

Keywords: Entropy; Portfolio selection; Forecasting; Multi-Objective; Rebalancing; Short selling; Transaction costs.

* Corresponding author