

## Accepted Manuscript

Portfolio optimization based on stochastic dominance and empirical likelihood

Thierry Post, Selçuk Karabatı, Stelios Arvanitis

PII: S0304-4076(18)30082-4

DOI: <https://doi.org/10.1016/j.jeconom.2018.01.011>

Reference: ECONOM 4510

To appear in: *Journal of Econometrics*

Received date: 5 June 2017

Revised date: 27 September 2017

Accepted date: 19 January 2018

Please cite this article as: Post T., Karabatı S.u., Arvanitis S., Portfolio optimization based on stochastic dominance and empirical likelihood. *Journal of Econometrics* (2018), <https://doi.org/10.1016/j.jeconom.2018.01.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Portfolio Optimization based on Stochastic Dominance and Empirical Likelihood\*

Thierry Post<sup>†</sup>, Selçuk Karabatı<sup>‡</sup> & Stelios Arvanitis<sup>§</sup>

January 21, 2018

## Abstract

This study develops a portfolio optimization method based on the Stochastic Dominance (SD) decision criterion and the Empirical Likelihood (EL) estimation method. SD and EL share a distribution-free assumption framework which allows for dynamic and non-Gaussian multivariate return distributions. The SD/EL method can be implemented using a two-stage procedure which first elicits the implied probabilities using Convex Optimization and subsequently constructs the optimal portfolio using Linear Programming. The solution asymptotically dominates the benchmark and optimizes the goal function in probability, for a class of weakly dependent processes. A Monte Carlo simulation experiment illustrates the improvement in estimation precision using a set of conservative moment conditions about common factors in small samples. In an application to equity industry momentum strategies, SD/EL yields important out-of-sample performance improvements relative to heuristic diversification, Mean-Variance optimization, and a simple ‘plug-in’ approach.

**Key words:** Stochastic Dominance, Empirical Likelihood, Portfolio optimization, Momentum strategies. **JEL Classification:** C61, D81, G11

---

\*We are grateful for the comments and suggestions by Yi Fang, Bogdan Grechuk, Campbell Harvey, David Hsieh, Jens Jackwerth, Miloš Kopa, Haim Levy, Meng Meng, Valerio Potì and participants in the Stochastic Dominance Theory and Applications Workshop of the Cambridge-INET Institute (15-16 September 2016) and research seminars at the Fuqua School of Business at Duke University (14 December 2016), Athens University of Economics and Business (30 March 2017) and the Research Center of Quantitative Economics at Jilin University (7 July 2017). Any remaining errors are our own.

<sup>†</sup>Post is Professor of Finance at the Graduate School of Business of Nazarbayev University; Astana, Kazakhstan; e-mail: thierrypost@hotmail.com.

<sup>‡</sup>Karabatı is Professor of Operations Management at Koç University; 34450 Sarıyer/Istanbul, Turkey; e-mail: skarabati@ku.edu.tr.

<sup>§</sup>Arvanitis is Assistant Professor at the Department of Economics of Athens University of Economics and Business; Athens; Greece; email: stelios@aueb.gr.

Download English Version:

<https://daneshyari.com/en/article/7357815>

Download Persian Version:

<https://daneshyari.com/article/7357815>

[Daneshyari.com](https://daneshyari.com)