What do robust equity portfolio models really do?

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Abstract Most of previous work on robust equity portfolio optimization has focused on its formulation and performance. In contrast, in this paper we analyze the behavior of robust equity portfolios to determine whether reducing the sensitivity to input estimation errors is all robust models do and investigate any side-effects of robust formulations. Therefore, our focus is on the relationship between fundamental factors and robust models in order to determine if robust equity portfolios are consistently investing more in the factors opposed to individual asset movements. To do so, we perform regressions with factor returns to explain how robust portfolios behave compared to portfolios generated from the Markowitz's mean-variance model. We find that robust equity portfolios consistently show higher correlation with the three fundamental factors used in the Fama-French factor model. Furthermore, more robustness among robust portfolios results in a higher correlation with the Fama-French three factors. In fact, we show that as equity portfolios under no constraints on portfolio weights become more robust, they consistently depend more on the market and large factors. These results show that robust models are betting on the fundamental factors instead of individual asset movements.

Robust portfolio optimization, Robustness of equity portfolios, Fundamental factors, Fama-French three factor model, Regression analysis

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