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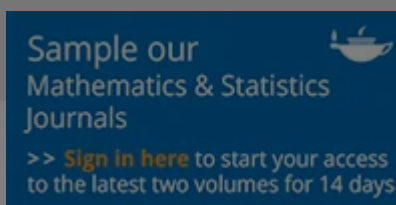
Portfolio Management

The Impact of Skewness and Fat Tails on the Asset Allocation Decision

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Abstract

The authors modeled the non-normal returns of multiple asset classes by using a multivariate truncated Lévy flight distribution and incorporating non-normal returns into

the mean-variance portfolio optimization problem. The results show that the M-CVaR series of the M-CVaR conditional distribution would be distributed for the M-CVaR conditional distribution. In a series of simulations, the mean-variance portfolio optimization problem is solved for the first four

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In our first example, in which returns are symmetrically distributed and have uniform tails, the MVO and the M-CVaR lead to the same results. When there are varying levels of skewness and kurtosis in the opportunity set of assets, the MVO and the M-CVaR lead to significantly different asset allocations. In particular, the combination of a negative skewness and a fat tail has the greatest impact on the optimal asset allocation weights. Intuitively, the M-CVaR prefers assets with higher positive skewness, lower kurtosis, and lower variance.

An out-of-sample test showed that the M-CVaR outperformed the MVO in the financial crisis of 2008, with excess gains ranging from 0.84 percentage point to 1.44 percentage points across the efficient frontier. This outperformance suggests that higher-moment information embedded in historical returns had some predictive power in the crisis.

Although the impact of asset allocation on asset returns is a critical factor in the portfolio management process, the impact of asset allocation on asset returns is a critical factor in the portfolio management process.



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