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Alternate Mathematical Approaches to Estimating Portfolio Efficiency: Incorporating a Multi-Asset Framework

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Message from the Guest Editors

This Special Issue is devoted to exploring alternative approaches to measuring portfolio efficiency. While the distinction between an optimal and efficient portfolio is clear, it is not yet well understood how various tests perform under a multi-asset framework. The distributions of equities, bonds, corporate bonds, REITs, commodities, and currencies are often different, yet most tests assume the standard Gaussian distribution while evaluating portfolio efficiency and optimization. The issue will look at papers that discuss/utilize any or all of the following in their portfolio test designs:

1. A multi-asset framework;
2. Non-normal distributions underlying the data generating processes for asset prices: Non-normal return distributions, such as Poisson distribution, Merton's jump-diffusion model, and others;
3. Statistical tests such as tests in mean-variance space that explore the trigonometric properties of the location of Markowitz-style efficient portfolios, tests utilizing GMM processes, or the likelihood ratio test and others;
4. Efficiency tests could then be factored into additional tests related to portfolio performance (Sharpe, Treynor, Jensen tests, and others).

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Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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