Portfolio Theory: A Review

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Abstract

Pioneered by the Nobel-prize-winning economist Harry Markowitz over half a century ago, portfolio theory is one of the oldest branches of modern financial economics, and consists of methods for allocating funds among financial assets to achieve certain objectives, e.g., the highest possible risk-adjusted expected return, or the minimum-variance portfolio. In this monograph, we review the fundamentals of portfolio theory, and then summarize the most important innovations in this literature over the past three decades, including the impact of estimation error, alternate measures of risk and reward, Bayesian methods, robust optimization, and resampling techniques. We also provide extensive empirical examples and Monte Carlo simulations to compare and contrast the different methods, and conclude with some recommendations for practical applications.

Keywords: Portfolio Theory; Portfolio Optimization; Mean-Variance Analysis.

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