Stochastic Portfolio Theory: An Overview

Lectures by

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Abstract

Stochastic Portfolio Theory is a flexible framework for analyzing portfolio behavior and equity market structure. This theory was introduced by E.R. Fernholz in the papers (Journal of Mathematical Economics, 1999; Finance & Stochastics, 2001) and in the monograph Stochastic Portfolio Theory (Springer 2002). It was further developed in the papers Fernholz, Karatzas & Kardaras (Finance & Stochastics, 2005), Fernholz & Karatzas (Annals of Finance, 2005), Banner, Fernholz & Karatzas (Annals of Applied Probability, 2005), and Karatzas & Kardaras (2007).

This theory is descriptive, as opposed to normative; it is consistent with observable characteristics of actual portfolios and markets; and it provides a theoretical tool which is useful for practical applications. As a theoretical tool, this framework offers fresh insights into questions of stock market structure and arbitrage, and can be used to construct portfolios with controlled behavior. As a practical tool, Stochastic Portfolio Theory has been applied to the analysis and optimization of portfolio performance and has been the basis of successful investment strategies for over a decade.

References