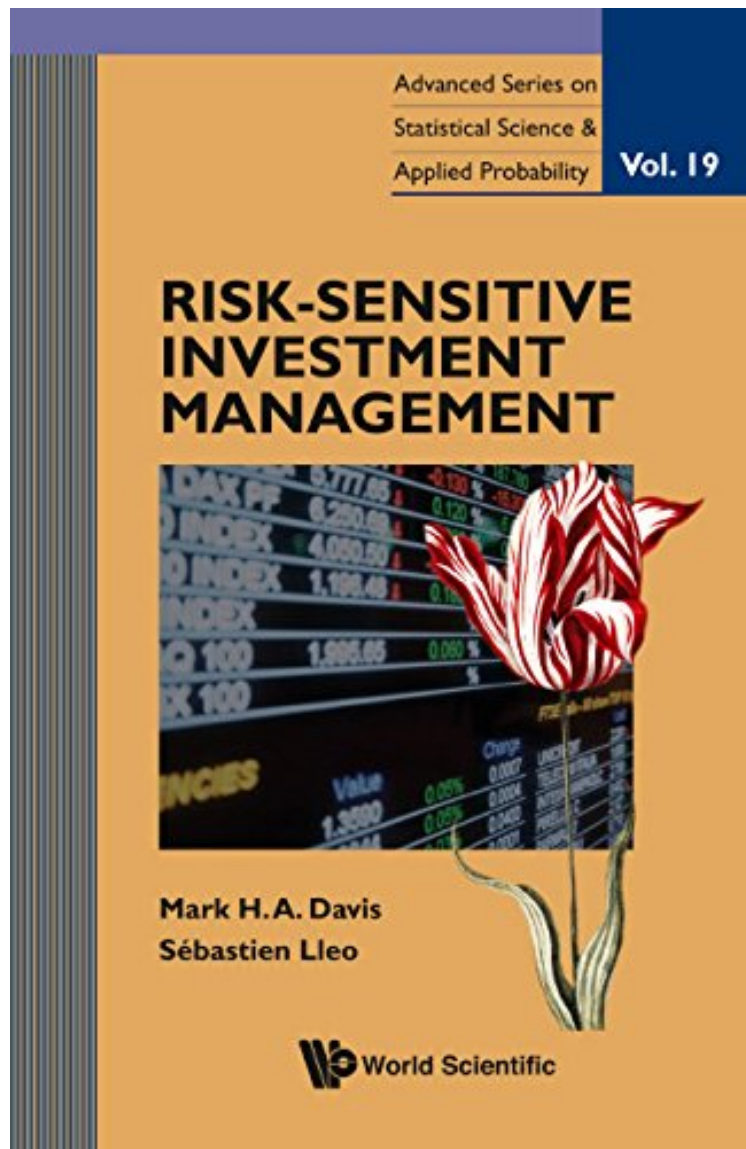


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Risk-Sensitive Investment Management: Volume 19 (Advanced Series on Statistical Science and Applied Probability)

Mark H A Davis, Sbastien Lleo

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and Applied Probability):

Over the last two decades, risk-sensitive control has evolved into an innovative and successful framework for solving dynamically a wide range of practical investment management problems. This book shows how to use risk-sensitive investment management to manage portfolios against an investment benchmark, with constraints, and with assets and liabilities. It also addresses model implementation issues in parameter estimation and numerical methods. Most importantly, it shows how to integrate jump-diffusion processes which are crucial to model market crashes. With its emphasis on the interconnection between mathematical techniques and real-world problems, this book will be of interest to both academic researchers and money managers. Risk-sensitive investment management links stochastic control and portfolio management. Because of its distinct emphasis on integrating advanced theoretical concepts into practical dynamic investment management tools, this book stands out from the existing literature in fundamental ways. It goes beyond mainstream research in portfolio management in a traditional static setting. The theoretical developments build on contemporary research in stochastic control theory, but are informed throughout by the need to construct an effective and practical framework for dynamic portfolio management. This book fills a gap in the literature by connecting mathematical techniques with the real world of investment management. Readers seeking to solve key problems such as benchmarked asset management or asset and liability management will certainly find it useful.

Contents: Diffusion Models: The Merton Problem Risk-Sensitive Asset Management Managing Against a Benchmark Asset and Liability Management Investment Constraints Infinite Horizon Problems Jump-Diffusion Models: Jumps in Asset Prices General Jump-Diffusion Setting Fund Separation and Fractional Kelly Strategies Managing Against a Benchmark: Jump-Diffusion Case Asset and Liability Management: Jump-Diffusion Case Implementation: Factor and Securities Models Case Studies Numerical Methods Factor Estimation: Filtering and Black-Litterman

Readership: Professionals, researchers, academics and graduate students in the field of investment management, stochastic optimization, stochastic analysis and probability, and quantitative finance.

Key Features: Integrates advanced theoretical concepts into practical dynamic investment Discusses practical issues that will be relevant to practitioners, including parameter estimation, investment benchmarks, asset and liabilities management (ALM), investment constraints, and the Kelly criterion Presents a thorough treatment of jump diffusion models, including latest developments regarding classical solutions to jump diffusion control problems Written by professors with extensive experience on risk sensitive asset management and the relevant financial industry experience

From the Inside Flap Over the last two decades, risk-sensitive control has evolved into an innovative and successful framework for solving dynamically a wide range of practical investment management problems. This book shows how to use risk-sensitive investment management to manage portfolios against an investment benchmark, with constraints, and with assets and liabilities. It also addresses model implementation issues in parameter estimation and numerical methods. Most importantly, it shows how to integrate jump-diffusion processes which are crucial to model market crashes. With its emphasis on the interconnection between mathematical techniques and real-world problems, this book will be of interest to both academic researchers and money managers. Risk-sensitive investment management links stochastic control and portfolio management. Because of its distinct emphasis on integrating advanced theoretical concepts into practical dynamic investment management tools, this book stands out from the existing literature in fundamental ways. It goes beyond mainstream research in portfolio management in a traditional static setting. The theoretical developments build on contemporary research in stochastic control theory, but are informed throughout by the need to construct an effective and practical framework for dynamic portfolio management. This book fills a gap in the literature by connecting mathematical techniques with the real world of investment management. Readers seeking to solve key problems such as benchmarked asset management or asset and liability management will certainly find it useful.

About the Author Mark Davis is Distinguished Research Fellow in the Department of Mathematics at Imperial College London. He is also Quantitative Research Adviser to Hanover Square Capital (UK) Ltd, in connection with India-related investment funds. From 2000–2009, he was Professor and Head of the Mathematical Finance group at Imperial College. His research concentrates on stochastic analysis, control theory and financial mathematics; current topics include modelling stochastic volatility, model-free arbitrage bounds on the value of derivative securities, and foundations of risk management. From 1995–1999, he was Head of Research and Product Development at the investment bank Tokyo-Mitsubishi International (now Mitsubishi UFJ Securities International plc), leading a front-office group providing pricing models and risk analysis for fixed-income, equity and credit-related products. Dr Davis holds a PhD in electrical engineering and computer science from the University of California, Berkeley and a ScD in mathematics from Cambridge University. He is the author of five previous books on stochastic analysis, optimisation and finance, the most recent one being *Louis Bachelier's Theory of Speculation* (Princeton University Press, 2006), written with Alison Etheridge. He was Editor-in-Chief of the journal *Stochastics* (1977–1994), and founding co-editor of the journal *Mathematical Finance* (1990–1993). He was awarded the Naylor Prize in Applied

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