

# Contents

## Part I Financial Applications

<b>1 Using the Kelly Criterion for Investing</b> . . . . .	3
William T. Ziemba and Leonard C. MacLean	
<b>2 Designing Minimum Guaranteed Return Funds</b> . . . . .	21
Michael A.H. Dempster, Matteo Germano, Elena A. Medova, Muriel I. Rietbergen, Francesco Sandrini, and Mike Scrowston	
<b>3 Performance Enhancements for Defined Benefit Pension Plans</b> . . . . .	43
John M. Mulvey, Thomas Bauerfeind, Koray D. Simsek, and Mehmet T. Vural	
<b>4 Hedging Market and Credit Risk in Corporate Bond Portfolios</b> . . . . .	73
Patrizia Beraldi, Giorgio Consigli, Francesco De Simone, Gaetano Iaquinta, and Antonio Violi	
<b>5 Dynamic Portfolio Management for Property and Casualty Insurance</b> . . . . .	99
Giorgio Consigli, Massimo di Tria, Michele Gaffo, Gaetano Iaquinta, Vittorio Moriggia, and Angelo Uristani	
<b>6 Pricing Reinsurance Contracts</b> . . . . .	125
Andrea Consiglio and Domenico De Giovanni	

## Part II Energy Applications

- 7 A Decision Support Model for Weekly Operation of Hydrothermal Systems by Stochastic Nonlinear Optimization . . . . .** 143  
 Andres Ramos, Santiago Cerisola, Jesus M. Latorre, Rafael Bellido, Alejandro Perea, and Elena Lopez
- 8 Hedging Electricity Portfolio for a Hydro-energy Producer via Stochastic Programming . . . . .** 163  
 Rosella Giacometti, Maria Teresa Vespucci, Marida Bertocchi, and Giovanni Barone Adesi
- 9 Short-Term Trading for Electricity Producers . . . . .** 181  
 Chefi Triki, Antonio J. Conejo, and Lina P. Garcés
- 10 Structuring Bilateral Energy Contract Portfolios in Competitive Markets . . . . .** 203  
 Antonio Alonso-Ayuso, Nico di Domenica, Laureano F. Escudero, and Celeste Pizarro
- 11 Tactical Portfolio Planning in the Natural Gas Supply Chain . . . . .** 227  
 Marte Fodstad, Kjetil T. Midthun, Frode Rømo, and Asgeir Tomasgard
- 12 Risk Management with Stochastic Dominance Models in Energy Systems with Dispersed Generation . . . . .** 253  
 Dimitri Drapkin, Ralf Gollmer, Uwe Gotzes, Frederike Neise, and Rüdiger Schultz
- 13 Stochastic Equilibrium Models for Generation Capacity Expansion . . . . .** 273  
 Andreas Ehrenmann and Yves Smeers

## Part III Theory and Computation

- 14 Scenario Tree Generation for Multi-stage Stochastic Programs . . . . .** 313  
 Holger Heitsch and Werner Römisich
- 15 Approximations for Probability Distributions and Stochastic Optimization Problems . . . . .** 343  
 Georg Ch. Pflug and Alois Pichler

<b>16 Comparison of Sampling Methods for Dynamic Stochastic Programming</b> .....	389
Michael A.H. Dempster, Elena A. Medova, and Yee Sook Yong	
<b>17 Convexity of Chance Constraints with Dependent Random Variables: The Use of Copulae</b> .....	427
René Henrion and Cyrille Strugarek	
<b>18 Portfolio Choice Models Based on Second-Order Stochastic Dominance Measures: An Overview and a Computational Study</b> ...	441
Csaba I. Fábián, Gautam Mitra, Diana Roman, Victor Zverovich, Tibor Vajnai, Edit Csizmás, and Olga Papp	
<b>Index</b> .....	471

Stochastic Optimization Methods in Finance and Energy

New Financial Products and Energy Market Strategies

Bertocchi, M.; Consigli, G.; Dempster, M.A.H. (Eds.)

2011, XXIV, 476 p., Hardcover

ISBN: 978-1-4419-9585-8