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Optimization; 2.1 INTRODUCTION; 2.2 UNCONSTRAINED OPTIMIZATION; 2.3 CONSTRAINED OPTIMIZATION; 2.4 SUMMARY; BIBLIOGRAPHY; Chapter 3 Probability Metrics; 3.1 INTRODUCTION 3.2 MEASURING DISTANCES: THE DISCRETE CASE 3.3 PRIMARY, SIMPLE, AND COMPOUND METRICS; 3.4 SUMMARY; 3.5 TECHNICAL APPENDIX; BIBLIOGRAPHY; Chapter 4 Ideal Probability Metrics; 4.1 INTRODUCTION; 4.2 THE CLASSICAL CENTRAL LIMIT THEOREM; 4.3 THE GENERALIZED CENTRAL LIMIT THEOREM; 4.4 CONSTRUCTION OF IDEAL PROBABILITY METRICS; 4.5 SUMMARY; 4.6 TECHNICAL APPENDIX; BIBLIOGRAPHY; Chapter 5 Choice under Uncertainty; 5.1 INTRODUCTION; 5.2 EXPECTED UTILITY THEORY; 5.3 STOCHASTIC DOMINANCE; 5.4 PROBABILITY METRICS AND STOCHASTIC DOMINANCE; 5.5 SUMMARY; 5.6 TECHNICAL APPENDIX; BIBLIOGRAPHY Chapter 6 Risk and Uncertainty 6.1 INTRODUCTION; 6.2 MEASURES OF DISPERSION; 6.3 PROBABILITY METRICS AND DISPERSION MEASURES; 6.4 MEASURES OF RISK; 6.5 RISK MEASURES AND DISPERSION MEASURES; 6.6 RISK MEASURES AND STOCHASTIC ORDERS; 6.7 SUMMARY; 6.8 TECHNICAL APPENDIX; BIBLIOGRAPHY; Chapter 7 Average Value-at-Risk; 7.1 INTRODUCTION; 7.2 AVERAGE VALUE-AT-RISK; 7.3 AVaR ESTIMATION FROM A SAMPLE; 7.4 COMPUTING PORTFOLIO AVaR IN PRACTICE; 7.5 BACKTESTING OF AVaR; 7.6 SPECTRAL RISK MEASURES; 7.7 RISK MEASURES AND PROBABILITY METRICS; 7.8 SUMMARY; 7.9 TECHNICAL APPENDIX; BIBLIOGRAPHY Chapter 8 Optimal Portfolios 8.1 INTRODUCTION; 8.2 MEAN-VARIANCE ANALYSIS; 8.3 MEAN-RISK ANALYSIS; 8.4 SUMMARY; 8.5 TECHNICAL APPENDIX; BIBLIOGRAPHY; Chapter 9 Benchmark Tracking Problems; 9.1 INTRODUCTION; 9.2 THE TRACKING ERROR PROBLEM; 9.3 RELATION TO PROBABILITY METRICS; 9.4 EXAMPLES OF r.d. METRICS; 9.5 NUMERICAL EXAMPLE; 9.6 SUMMARY; 9.7 TECHNICAL APPENDIX; BIBLIOGRAPHY; Chapter 10 Performance Measures; 10.1 INTRODUCTION; 10.2 REWARD-TO-RISK RATIOS; 10.3 REWARD-TO-VARIABILITY RATIOS; 10.4 SUMMARY; 10.5 TECHNICAL APPENDIX; BIBLIOGRAPHY; Index

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## Sommario/riassunto

This groundbreaking book extends traditional approaches of risk measurement and portfolio optimization by combining distributional models with risk or performance measures into one framework. Throughout these pages, the expert authors explain the fundamentals of probability metrics, outline new approaches to portfolio optimization, and discuss a variety of essential risk measures. Using numerous examples, they illustrate a range of applications to optimal portfolio choice and risk theory, as well as applications to the area of computational finance that may be useful to financial engineers.

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