Optimization Methods in Finance (Mathematics, Finance and Risk)

Gerard Cornuejols, Reha Tuuml;tuuml;ncuuml;
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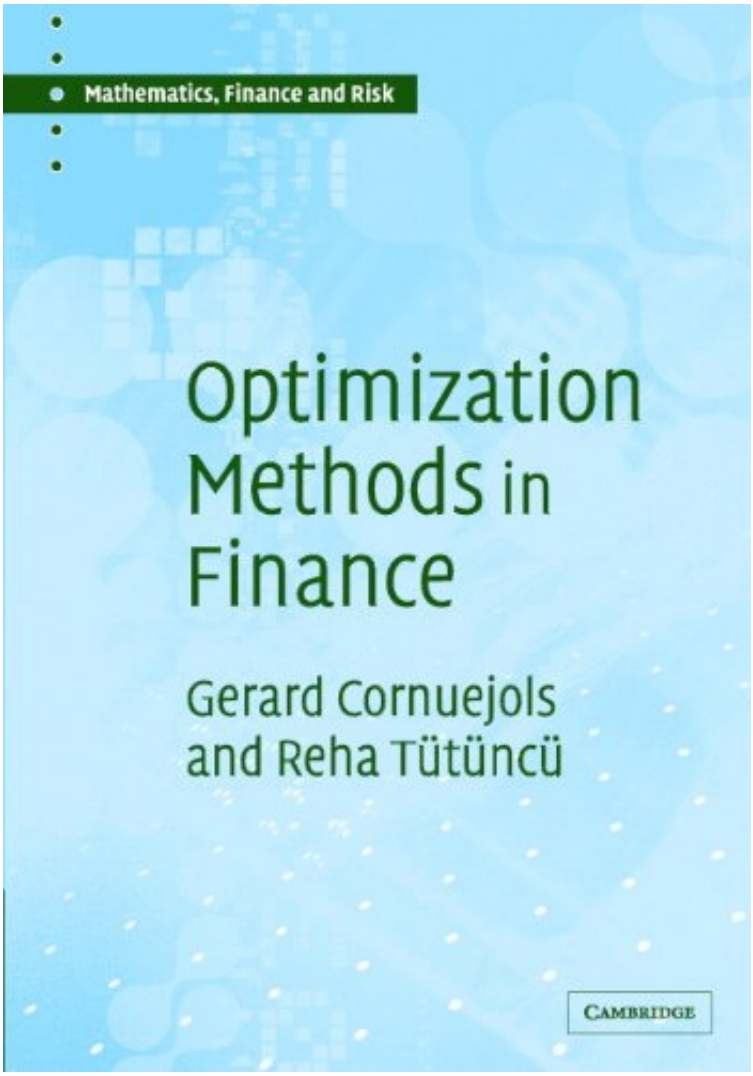

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Gerard Cornuejols, Reha Tuuml;tuuml;ncuuml; : Optimization Methods in Finance (Mathematics, Finance and Risk) before purchasing it in order to gage whether or not it would be worth my time, and all praised Optimization Methods in Finance (Mathematics, Finance and Risk):

1 of 1 people found the following review helpful. Useful book for self-studyBy J. Th van der PeetAs a retired practioner of quantitative finance who also programs the applications himself in Visual Basic, C++ and Java, it is often difficult to find useful books that are not only of importance for theorists but also for practioners. Cornejols'and Tuuml;tuuml;ncuuml;'s book fills this gap. I agree with a comment above that it would earn one or two stars more if it would contain worked-out examples, although with some more efforts it should be possible to work them out yourself, given the clear explanations in the book.Drs. Ir. J. Th. van der Peet10 of 12 people found the following review helpful.

Modern view, balanced coverage of optimization methods for quantitative financeBy tahoedenizenThis is a very up-to-date book featuring complete, balanced coverage of optimization methods used in quantitative finance. It should be a great resource for practitioners in financial engineering or portfolio management who need to know what methods to apply to different problems, and how to evaluate competing vendor claims, without going too deeply into the algorithmic details of each optimization method.The book has 20 chapters that alternate between an overview of a class of optimization methods, then a set of examples applying those methods to problems in quantitative finance:* Linear programming, with applications to asset/liability cash flow matching and arbitrage detection* Nonlinear programming, with applications to volatility estimation* Quadratic programming, with good coverage of mean-variance portfolio optimization* Conic optimization, with several applications: index tracking, approximating covariance matrices, recovering risk-neutral probabilities from option prices* Integer programming, with applications to index fund construction and combinatorial auctions* Dynamic programming, with applications to pricing American options* Stochastic programming, with applications that minimize Conditional Value at Risk, and manage assets and liabilities over multiple periods* Robust optimization, with models to deal with estimation risk in portfolio optimizationIt's difficult to find another book with this breadth of coverage of optimization methods, especially with a focus on quantitative finance. It's also difficult to find another book that treats modern methods of conic optimization and robust optimization, which have growing importance in finance.Granted, the treatment of the different applications is not meant to be comprehensive -- it's really just enough to give the reader an idea of how each problem can be approached, with appropriate references to the academic literature to learn more. There are some references to available software for the different methods, but this is a brief and partial snapshot; commercial software for the newer methods is getting better all the time.Appendices provide brief, helpful introductions to four key technical topics in optimization: Convexity, cones, probability, and the revised Simplex method. An understanding of convexity and cones is essential to an appreciation of modern methods of conic and robust optimization, and certainly anyone working in this field needs an understanding of probability and the Simplex method for linear programming.I believe this book fills a need that has existed for some time: For the quantitative finance practitioner with way too much technical literature to deal with, it provides a comprehensive, modern introduction to optimization methods that makes efficient use of the reader's time. It's well worth the price for someone working in this field.3 of 4 people found the following review helpful. Wonderful book with lots of financial applicationsBy LOVThis book is very well-written with some theories and tons of financial applications. I hadn't thought that a GARCH model for estimating stochastic volatility can be seen as a nonlinear programming application. It touches some relatively modern/advanced topics such as robust optimization and cone optimization. It's just a wonderful optimization book for financial engineers and people in the financial industry.

Optimization models play an increasingly important role in financial decisions. This is the first textbook devoted to explaining how recent advances in optimization models, methods and software can be applied to solve problems in computational finance more efficiently and accurately. Chapters discussing the theory and efficient solution methods for all major classes of optimization problems alternate with chapters illustrating their use in modeling problems of mathematical finance. The reader is guided through topics such as volatility estimation, portfolio optimization problems and constructing an index fund, using techniques such as nonlinear optimization models, quadratic programming formulations and integer programming models respectively. The book is based on Master's courses in financial engineering and comes with worked examples, exercises and case studies. It will be welcomed by applied mathematicians, operational researchers and others who work in mathematical and computational finance and who are seeking a text for self-learning or for use with courses.

"This book will be useful as a textbook for students in financial engineering at the MS level.... The book will also be of interest to researchers and graduate students in optimization who are interested in applications of optimization to financial problems."Brian Borchers, Journal of Online Mathematics and its Applications 'This book would certainly appeal to someone with a mathematical background, perhaps in operations research, wishing to update and apply their knowledge to the financial world.' Mathematics TODAYAbout the AuthorGerard Cornuejols is an IBM University Professor of Operations Research at theTepper School of Business, Carnegie Mellon University.Reha Tuuml;tuuml;ncuuml; is a Vice President in the Quantitative Resources Group at Goldman Sachs Asset Management, New York.