

Abstract

Numerical Methods and Optimization in Finance

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Results of the project B-123 Combinatorial Algorithms for computationally intensive econometric problems of Förderverein WWZ, University of Basel with Professor Dietmar Maringer and Dr. Marc Hoffmann

This textbook teaches readers steps for solving specific problems in finance and applying them to other problems. After a short introduction about numerical analysis, the authors devote two sections to pricing financial models and simulation to prepare readers for the book's core subject, optimization. Assuming that a model is only as good as its results, they provide a comprehensive overview and treatment of heuristic optimization techniques, only briefly touching upon standard methods. Arguing against judging models by the elegance of their math or whether it fits nicely into a theoretical framework, they advocate a pragmatic approach: implementing models to gain intuition about them. They provide sample code in the text, primarily Matlab and R, and offer code for download at the book's website. This practical textbook can serve equally well as a self-contained desk reference.