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Real Options Analysis

Tools and Techniques for Valuing Strategic Investments and Decisions

SECOND EDITION

CD-ROM contains

Super Lattice Solver and Risk Simulator trial software for Real Options Analysis, Monte Carlo Simulation, Forecasting, and Optimization

JOHNATHAN MUN

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Preface

Real Options Analysis, Second Edition, provides a novel view of evaluating capital investment strategies by taking into consideration the strategic decision-making process. The book provides a qualitative and quantitative description of real options, the methods used in solving real options, why and when they are used, and the applicability of these methods in decision making. In addition, multiple business cases and real-life applications are discussed. This includes presenting and framing the real options problems, as well as introducing a stepwise quantitative process developed by the author for solving these problems using the different methodologies inherent in real options. Included are technical presentations of models and approaches used as well as their theoretical and mathematical justifications.

The book is divided into three parts: the qualitative discussions of real options; the quantitative analysis and mathematical concepts; and practical software and business case applications. The first part looks at the qualitative nature of real options, providing actual qualitative business cases and scenarios of real options in the industry, as well as high-level explanations of how real options provide the much-needed insights in decision making. The second part of the book looks at the step-by-step quantitative analysis, complete with worked-out examples and mathematical formulae. The third part illustrates the use of the Real Options Valuation's Super Lattice Solver software and Risk Simulator software, both developed by the author and included in the enclosed CD-ROM (standard 30-day trial with extended academic license). In this section, more detailed quantitative business cases are solved using the software.

This second edition provides many updates including:

- A trial version and introduction to the Super Lattice Solver software that supersedes the author's older Real Options Analysis Toolkit software (all bugs and computational errors have been fixed and verified).
- A trial version and introduction to the Risk Simulator software for running Monte Carlo simulation, forecasting, and optimization also created by the author.

- Extended examples and step-by-step computations of American, Bermudan, European, and customized options (including abandon, barrier, chooser, contraction, expansion, and other options).
- More extensive coverage of advanced and exotic real and financial options (multiple-phased sequential compound options, complex sequential compound options, barrier options, trinomial mean-reverting options, quadranomial jump-diffusion options, pentanomial dual-asset rainbow options, multiple-asset with multiple-phased options, engineering your own exotic options, and so forth).
- Extended real options cases with step-by-step worked-out solutions using the Super Lattice Solver software.
- Several brand new case studies on applying real options in the industry (manufacturing, pharmaceutical, biotechnology, real estate, Department of Defense, and others).
- An extended discussion on volatility estimates, risk, and uncertainty.

This book is targeted at both the uninitiated professional as well as those well-versed in real options applications. It is also applicable for use as a second-year M.B.A. level textbook or introductory Ph.D. reference book.

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