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Real Options Illustrated

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Real Options Illustrated

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About the Author

Linda Peters is PhD Candidate in the field of Applied Economics at the University of Antwerp. As a PhD candidate, she is involved in the application of Real Options theory to Global Public Policy and her research contributes to bridge the gap between theory and practice. Her research interests include Real Options, Global Public Policy, Social Protection, Models of Decision-Making, and Probability Distributions.

Introduction

Large investment projects with a long time horizon are subject to many internal (i.e., technical) and external (i.e., market) uncertainties. In a process of project evaluation, practitioners traditionally use capital budgeting techniques, such as net present value, decision tree-, scenario- and sensitivity analysis. Unfortunately, these methods cannot fully quantify these uncertainties. Real options analysis (ROA) does provide the necessary tools and techniques to deal with uncertainty and is much appreciated as a complement to traditional valuation methods.

ROA literature is usually filled to the brim with partial differential equations, probability density functions and simulation techniques, which is supposed to convince us of the added value of ROA. Unfortunately, practitioners are not convinced about the applicability of ROA. They experience difficulties regarding the implementation of the method and perceive ROA as a black box. This has not been much of a surprise since ROA is complex and incorporates many restrictive assumptions. So, how can we prevent ROA to be just another forgotten paradigm in the world of finance?

Standard ROA literature usually incorporates the headlines of the methodology, whereas practitioners seek for an in-depth explanation in order to reproduce and apply it to their own field. We believe this is the key to improve the accessibility of ROA for practitioners. Therefore, this book explains the standard ROA literature step by step, without the use of complex math. Practitioners are provided with a real options framework and are encouraged to study the methodology in-depth instead of giving up after reading the introduction. The reader will have a better grasp about how ROA works and will be able to provide his or her judgment about ROA, since all the basics of ROA and its pros and cons are discussed in this book.

Don't expect to be an expert of ROA or to develop new and complex ROA methodologies after reading this book. However, you are sufficiently equipped with the ROA basics and its framework, which enables you to perform independent future research. From this, you can judge whether or not ROA is of any value to your field. We wish you good luck and have fun while reading this introductory book about Real Options Analysis.

This book is structured as follows. Chapter 1 discusses the basic concepts of real options analysis. Chapter 2 provides a comparative study between real options and other traditional capital budgeting techniques and from this it is shown that traditional valuation models cannot capture the flexibility to adapt an investment decision in response to the uncertainty. Chapter 3 discusses the most widely used real option models in an accessible way and also highlights the important strengths and weaknesses of these models. Chapter 4 explains and addresses the importance to study the impact of probability distributions on real options valuation. Chapter 5, the final chapter, provides a glossary of terms that are commonly used on the field of real options.