

Using Real Options and Monte Carlo Analysis

## RICHARD RAZGAITIS



John Wiley & Sons, Inc.

## **Contents**

CHAPTER 1	
ntroduction	1
Why Another Negotiating Book?	1
Dealmaking™	3
High Significance, High Ambiguity Contexts	4
The "So What?" Question	8
Valuation, Pricing, and Negotiation	8
Tangible and Intangible Content/Value and the New Economy	9
The Dealmaking Process	10
Organization of the Book	13
CHAPTER 2	15
Negotiation People, Language, and Frameworks	AND OPPORTUNITION OF THE PARTY NAMED IN
Negotiation People	15
A Quest	21
The Nut, the Number, the Bogie, and the Toe Tag	23
Quantification, Rationality, and Hyperrationality	24
CHAPTER 3	
The Box and the Wheelbarrow: What Am I Selling (or Buying)?	31
The Box	31
The Wheelbarrow	36
Dealmaking's Spine	41
The Term Sheet	42
Methods and Tools	42

CHAPTER 4	
Discounted Cash Flow Analysis and Introduction to Monte Carlo Modeling	45
Discounted Cash Flow Analysis	45
Scenario (DCF) Analysis	50
Monte Carlo Method: An Introduction	64
Closure and Application to Negotiation	72
CHAPTER 5	
Monte Carlo Method	77
A Model Cash Flow Template	78
Income and Cash Flow Statements: 3M Example	79
Monte Carlo Assumption Tools	91
Uniform Distribution: Highest Uncertainty Between	
Certain Bounds	91
Triangular Distribution	94
The Normal Distribution	97
Other Distribution Functions	100
Monte Carlo Model of the DCF Template	102
Combined CAGR and Cost Ratio Uncertainty Distributions	102
Correlating Assumptions	105
Additional Assumption Distributions	107
Twentieth (and Other) Percentile Valuations	108
Comparison of Monte Carlo Results with DCF (RAHR) Method	114
Scenario Modeling in Monte Carlo	115
Monte Carlo Tools for Determining Variable Significance Final Points on the Monte Carlo Model	120 121
Appendix 5A: Crystal Ball Report Corresponding to the Results Presented in Exhibit 5.15 for a Uniform Cost	121
Distribution Assumption	126
Appendix 5B: Crystal Ball Report Corresponding to the Results Presented in Exhibit 5.16 for a Double-Humped	
Cost Distribution Assumption	135
CHAPTER 6	
Introduction to Real Options	147
Perspective 1: Discounted Cash Flow (DCF) View of the	
Six-Scenario Opportunity	148
Perspective 2: Real Option View of the Six-Scenario Opportunity	151

Perspective 3: A Model for a Buyer's Counteroffer	154
Black-Scholes Equation for Option Pricing	156
The Black-Scholes Equation Applied to an Option to a	130
Share of Yahoo!	157
What Do Equations Represent? "What Is Truth?"	161
Using Black-Scholes for an Opportunity Valuation	167
Summary of Real Option Realities versus Black-Scholes	171
CHAPTER 7	
Real Options Applied to Dealmaking	175
Beyond Black-Scholes	177
Emergence of Real Options Analysis	17.9
Introducing the Binomial Lattice for Real Options	186
Calculating Option Values from Binomial Matrices	192
Calculating Option Values Using Decisioneering's Real	
Options Analysis Toolkit	196
Using Real Options Analysis Toolkit Software in Dealmaking	201
Calculating (or Estimating) Option Volatility	204
Calculating the Option Value of Options on Options	210
Conclusions and Observations	212
Appendix 7A: Real Options Equations	215
CHAPTER 8	
Knowledge and Unertainty	219
Future Knowledge	219
Dealing with Uncertainty	221
Standards	226
What About Truth?	229
CHAPTER 9	
Deal Pricing	233
Simple Pricing	233
Box Pricing	235
Wheelbarrow Pricing	236
Total Cash Payment	236

xvi	Contents
Cash When	. 239
Cash Maybe	239
Cash As	′ 240
Cash Substitutes	240
Term Sheets	241
CHAPTER 10	
Negotiation Perspectives and Dynamics	243
Negotiation Perspectives	243
Negotiating Sequencing	246
Issue Explosion ?	249
Negotiating Values	252
Deal/Agreement Complexity	' 252
CHAPTER 11	
Plan B	255
Auctions and Betrothals	255
Plan B Analysis and Tools	257
Plan B Implementation	265
Plan B Caution	266
Plan B from the Buyer's Perspective	267
Plan B and Life	267
CHAPTER 12	
Conclusion	273
In Theory, In Practice	273
Value Creation by Dealmaking	274
A Final (True) Story	278
Bibliography	281
Index	283