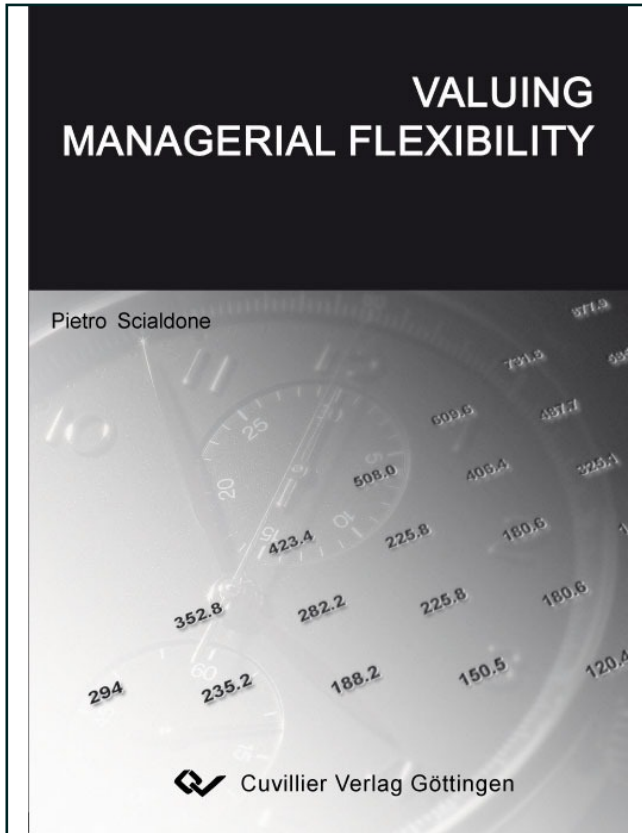




Pietro Scialdone (Autor)
Valuing Managerial Flexibility



<https://cuvillier.de/de/shop/publications/1683>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,
Germany

Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>

Table of Content

Preface and acknowledgments	VII
Contents Overview	IX
Table of Content.....	XI
Index of Figures.....	XV
Index of Tables	XIX
Tables in the Appendices	XXIII
List of Abbreviations.....	XXV
1 Introduction	1
1.1 Outline of the dissertation	1
1.2 Objectives of the dissertation	3
1.3 Structure of the dissertation.....	4
2 Valuing Flexibility	7
2.1 What does flexibility mean?.....	7
2.2 Why is it important to value flexibility in project evaluation?.....	13
2.3 Overview of techniques addressing flexibility valuation	18

2.3.1	Net Present Value.....	18
2.3.2	Rules of thumb.....	20
2.3.3	Sensitivity and scenario testing.....	23
2.3.4	Monte Carlo simulation.....	24
2.3.5	Decision Tree Analysis.....	25
3	Fundamentals of the Real Option Theory.....	33
3.1	Introduction.....	33
3.2	Fundamentals of the Real Option Analysis idea.....	39
3.2.1	Comparison of the Real Option Analysis and the Net Present Value.....	40
3.2.2	Constitutive characteristics of real option value.....	45
3.2.2.1	Uncertainty.....	47
3.2.2.2	Irreversibility.....	55
3.2.2.3	Potential of flexible actions.....	58
3.3	Option pricing theory as a starting point for the ROA.....	61
3.3.1	Factors affecting the value of an option.....	64
3.3.2	Valuation of call and put options.....	67
3.3.2.1	The binomial option pricing model.....	67
3.3.2.2	The Black-Scholes option pricing model.....	71
3.3.3	Comparison between financial options and real options.....	73
3.4	Categorization of real options.....	79
3.4.1	Classic types of common real options according to Trigeorgis.....	80
3.4.1.1	Option to defer.....	82
3.4.1.2	Option to alter operating scale (expand/contract).....	84
3.4.1.3	Option to stage (time-to-build option).....	85
3.4.1.4	Option to abandon.....	87
3.4.1.5	Option to switch.....	88
3.4.1.6	Option to grow.....	90
3.4.1.7	Multiple interacting options.....	91
3.4.2	A review of different real option categorizations.....	96
3.5	Real option valuation approaches and their practical implications.....	102
3.5.1	The classic approach.....	105
3.5.2	The subjective approach.....	106
3.5.3	The MAD approach.....	107
3.5.4	The revised classic approach.....	109
3.5.5	The integrated approach.....	112
3.6	Cutups of the real options approach.....	114
3.6.1	Theoretical critiques.....	115

3.6.1.1	Problems deriving from market incompleteness	115
3.6.1.2	Complexity problems	118
3.6.1.3	Endogeneity problem	120
3.6.1.4	Implicit distribution.....	120
3.6.1.5	Counterparty risk.....	121
3.6.2	Implementation problems.....	121
3.6.2.1	Mental models	122
3.6.2.2	Methodology and modeling	124
3.6.2.3	Input parameters.....	124
3.6.2.4	Managing the real options	126
3.6.2.5	Communicating real options value.....	127
3.6.3	Reputational problems	127
3.7	Overview on ROA application areas.....	130
4	Valuing Flexibility in Practice: The Swiss Case – An Exploratory Survey....	139
4.1	Introduction	139
4.2	Review of existing studies.....	141
4.3	Scope of our survey.....	148
4.4	Methodology	149
4.4.1	Design of the questionnaire.....	149
4.4.2	Sample data collection	151
4.5	Results	153
4.5.1	Techniques used in project valuation.....	153
4.5.2	Valuation of different types of managerial flexibility.....	156
4.5.3	Application of the Real Options Analysis.....	160
4.5.4	Constitutive characteristics of real option value	165
4.5.4.1	Uncertainty.....	165
4.5.4.2	Irreversibility.....	169
4.5.4.3	Potential of flexible actions.....	172
4.5.4.4	Potential of real option value	181
4.5.5	Limitations on the interpretation of survey data	184
4.6	Conclusion.....	185
5	Assessing the Relevance of the Real Options Analysis.....	189
5.1	Introduction	189
5.2	Prerequisites of real option value	195
5.2.1	Level of irreversibility	195
5.2.2	Competition.....	199
5.2.3	Linkage between uncertainty and flexibility.....	201
5.2.3.1	Relevant uncertainties	204

5.2.3.2	Relevant types of managerial flexibilities	208
5.2.3.3	The Real Option Value Grid (ROVG)	214
5.3	Quick estimation of real option value.....	218
5.3.1	Linking NPV and option value	219
5.3.2	A gardening metaphor: options as tomatoes	225
5.4	Communication of the flexibility value.....	229
5.5	Application example.....	233
5.5.1	Setup of the problem and NPV calculation.....	234
5.5.2	Checking the relevance of a Real Options Analysis	236
5.5.2.1	The CO2 emission reduction project in the ROVG.....	236
5.5.2.2	The CO2 emission reduction project in the option space.....	240
5.5.2.3	Additional information and summary of the flexibility analysis.....	243
5.5.3	Applying the ROA to the CO2 emission reduction project	245
5.6	Conclusions and critical discussion of the framework	252
6	Summary and Conclusions	255
	Bibliography	265
	Appendices	283
Appendix A.:	Survey questionnaire - English version	283
Appendix B.:	Test results for equality of population median.....	296
Appendix C.:	Differences in ROA utilization	300
Appendix D.:	Exposure of specific industry to specific risk category	301
Appendix E.:	Filtering companies with high “real option’s value potential”	302
Appendix F.:	The flexibility appropriation request.....	303
	Curriculum Vitae	307