

Contents

Acknowledgments	v
List of Figures	xiii
List of Tables	xv
1 Introduction	1
1.1 Problem Definition	1
1.2 Research Objectives	5
1.3 Definitions	6
1.3.1 General Venture Capital Terms	7
1.3.2 Venture Capital Contracting Terms	12
1.3.3 Option Pricing Terms	21
1.4 Course of the Investigation	24
2 General Methodology	27
2.1 Screening Methodology	27
2.1.1 Scope of Analysis	27

2.1.2	Model Legal Documents	29
2.1.3	Explanatory Comments	31
2.2	Valuation Methodology	31
2.2.1	Specificities of Options Embedded in Venture Capital Contracts	31
2.2.2	Derivation of Risk-Neutrality	34
2.2.3	Choice of the Option Pricing Technique	34
2.3	Model Specification	37
2.3.1	Data Sources	37
2.3.2	Underlying Asset Path	38
2.3.3	Value Process of Embedded Options	47
2.3.4	Dependent Variables	49
2.3.5	Trigger Events	50
3	Venture Capital Contract Pricing Model	59
3.1	Provisions Defining the Payoff Functions	59
3.1.1	Mandatory Conversion and Piggyback Registration	60
3.1.2	Liquidation Preference	65
3.1.3	Optional Conversion Rights	75
3.1.4	Interaction of Optional Conversion and Liquidation	77
3.2	Provisions Influencing the Number of Shares	82
3.2.1	Preemption Rights	83
3.2.2	Anti-dilution Rights	84
3.2.3	Pay-to-play Penalties and Interaction Effects . . .	90

3.3	Provisions Granting Exercise Flexibilities to Preferred Holders	95
3.3.1	Shareholder and Board Voting Rights	95
3.3.2	Redemption, Demand Registration and Drag-along	108
3.4	Synthesis of the Contract Pricing Model	116
3.4.1	Exit Type and Timing	116
3.4.2	Evolution of the Numbers of Shares	117
3.4.3	Combined Payoff Functions	119
4	Application of the Pricing Model	121
4.1	Specification of Contract Terms	121
4.1.1	Specification of Price Terms	121
4.1.2	Specification of Non-price Terms	123
4.2	Specification of Base Scenarios	128
4.3	Simulation Results and Interpretation	128
5	Conclusion	139
5.1	Summary of the Findings	139
5.2	Directions for Further Scientific Research	141
	Appendixes	143
A	Chi-squared Goodness-of-Fit Tests	143
A.1	Chi-squared Goodness-of-Fit Test Applied to Distribution of Upward Jump Amplitudes	143

A.2 Chi-squared Goodness-of-Fit Test Applied to Distribution
of Downward Jump Amplitudes 144

References **147**