

Contents

1	Introduction	1
1.1	Problem description and definition	1
1.2	Objective of the thesis	3
1.3	Methodology	3
2	Insurance Business and its Risk	5
2.1	Risk and insurance	5
2.1.1	Classification of risk faced by insurers	6
2.1.2	Classification of risk by insurance regulators	7
2.1.3	Peril and hazard	7
2.2	Insurance	9
2.2.1	The basics of insurance mathematics	9
2.2.2	Economical versus insured losses	15
2.2.3	The Criteria of insurability	16
2.2.4	Insurance, gambling and speculation	17
2.2.5	Evaluation and quantification of losses	18
2.3	Risk management	18
2.3.1	Objectives of risk management	18
2.3.2	Steps of the risk management process	19
2.3.3	Changes in risk management due to Solvency 2	21
2.4	Risk and return	23
2.4.1	Insurance pricing	23
2.4.2	Reserves	24
2.4.3	Investments of the insurance sector	28
3	The Insurance Industry	35
3.1	Primary insurance	36
3.1.1	Non-life insurance	38
3.1.2	Life insurance	40
3.2	Credit insurance and surety	41
3.3	Monoline insurance	43

3.4	Reinsurance	45
3.4.1	Non-life reinsurance	47
3.4.2	Life reinsurance	51
4	Methods of Risk Transfer	55
4.1	Traditional methods	55
4.1.1	Reinsurance and retrocession	55
4.2	Alternative risk transfer	65
4.2.1	Risk carriers	66
4.2.2	Finite solutions	70
4.2.3	Multi-risk products	73
4.2.4	Derivatives	76
4.2.5	Contingent capital	84
4.2.6	Reinsurance side-cars	87
4.2.7	Insurance-related securitisation	89
4.2.8	Summary and evaluation of ART instruments	90
5	Insurance Linked Securities	95
5.1	Securitisation	95
5.2	Life insurance securitisation	98
5.2.1	Reserve funding securitisation	98
5.2.2	Value-in-force securitisation	102
5.2.3	Residual commission securitisation	106
5.2.4	Risk transfer securitisation	107
5.2.5	Life settlement securitisation	110
5.2.6	Summary and evaluation of life ILS	114
5.3	Non-life insurance securitisation	117
5.3.1	Catastrophe bonds	117
5.3.2	Non-catastrophic insurance securitisation	120
5.4	Insurance related CDOs	124
5.4.1	Funding CDO pools	124
5.4.2	Catastrophe bond CDOs	125
5.4.3	Reinsurance receivable CDOs	127
5.4.4	Summary and evaluation of non-life ILS	130
6	The Perspectives of the Stakeholders	133
6.1	Accountants and regulators	133
6.1.1	The global approach to standardisation	133
6.1.2	International Financial Reporting Standards	134
6.1.3	Supervision - the changes due to Solvency 2	136
6.1.4	Quantitative assessment by means of Pillar 1	137
6.1.5	Digression: Value at Risk and Expected Shortfall	138
6.1.6	EU-harmonisation effects in respect of ILS	148

6.1.7	Accounting and supervision in the US	152
6.1.8	Outlook to further reforms	158
6.1.9	Results of the interviews regarding accountants and regulators .	161
6.2	Insurers and reinsurers as sponsors	167
6.2.1	The integrated management of risk and capital	167
6.2.2	Capital management	168
6.2.3	Asset-Liability-Management	168
6.2.4	Hybrid bonds and risk securitisation	177
6.2.5	Results of the interviews regarding sponsors	184
6.3	Rating agencies and risk modelers	190
6.3.1	Rating agencies' services	190
6.3.2	Importance of enterprise risk management and capital for in- surer's ratings	191
6.3.3	The rating agencies' rating methodologies for ILS	203
6.3.4	Risk modeling companies' services	208
6.3.5	Results of the interviews regarding rating agencies, risk model- ers, and monoliners	215
6.4	Investors	223
6.4.1	General market environment	223
6.4.2	Convergence of investor's and sponsor's interest	224
6.4.3	ILS as zero-beta assets	224
6.4.4	Pricing and returns	225
6.4.5	ILS triggers	230
6.4.6	Results of the interviews regarding investors	234
6.5	Arrangers of ILS	244
6.5.1	Banks	245
6.5.2	Reinsurance brokers	247
6.5.3	Reinsurance companies	248
6.5.4	Market	249
6.5.5	Pricing of ILS	250
6.5.6	Effects of the crisis and expected measurements	252
7	ILS Online Survey	255
7.1	Methodology	255
7.1.1	Basic questions	256
7.1.2	Market environment	257
7.1.3	About ILS	261
7.1.4	Corporate level	263
7.1.5	The banks' role	263
7.1.6	Final questions	265
7.1.7	Summary of the results of the ILS online survey	268

8	Recent Developments	269
9	Summary and Conclusion	273