

Risk Management in Insurance

Advanced Seminar (WS 2015/16)

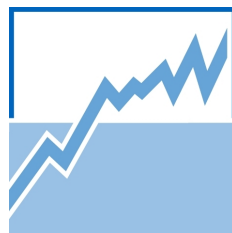
Prof. Dr. Matthias Scherer

Tobias Bienek

Markus Wahl

Chair of Mathematical Finance

Technische Universität München



Risk Management in Insurance

Schedule and Organizational Matters

Kickoff

Monday, 20th July 2015

Presentations

January 2016

Projects

- You may choose your top 3 from 6 different projects
- The projects will be assigned based on these choices and your prior knowledge

Grades

Your grade will be based on

- Your comprehension of the problem statement and the proposed solution
- The quality of your presentation
- Your ability to work independently

Risk Management in Insurance

Projects - Prof. Dr. Matthias Scherer

1. Operational Risk

Prerequisites: Knowledge of Extreme-Value-Theory

- Chavez-Demoulin, V., Embrechts, P. and Hofert, M.: *An extreme value approach for modeling Operational Risk losses depending on covariates*, to appear in Journal of Risk and Insurance, 2015
- Embrechts, P. and Hofert, M.: *Practices and issues in operational risk modeling under Basel II*, Lithuanian Mathematical Journal, Vol. 50, No. 2, 2011

2. Risk Aggregation: The SCR Square Root Formula

Prerequisites: Knowledge of Copula theory

- Pfeifer, D. and Straburger, D.: *Solvency II: Stability problems with the SCR aggregation formula*, Scandinavian Actuarial Journal, Vol. 2008, No. 1, 2008
- Embrechts, P., McNeil, A. and Straumann, D.: *Correlation: Pitfalls and alternatives A short, non-technical article*, RISK Magazine, 1999

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Projects - Tobias Bienek

3. Solvency II: Standard Formula vs. Internal Risk Models

Prerequisites: Continuous Time Finance, Fixed Income Markets

- Gatzert, N. and Martin, M.: *Quantifying credit and market risk under Solvency II: Standard approach versus internal model*, Insurance: Mathematics and Economics, Vol. 51, No. 3, 2012

4. Solvency II: The Best Estimate of Liabilities

Prerequisites: Continuous Time Finance, Fixed Income Markets

- Aas, K., Neef, L. R., Raabe, D. and Varli, I. D.: *A Simulation-Based ALM Model in Practical Use by a Norwegian Life Insurance Company*, In: Modern Problems in Insurance Mathematics, Eds.: Silvestrov, D. and Martin-Lf, A., pp. 155-170, Springer, 2014
- Aas, K., Neef, L. R., Williams, L. and Raabe, D.: *Interest rate model comparisons for participating products under Solvency II*, Working paper, 2015

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Projects - Markus Wahl

5. Liability Driven Investments

Prerequisites: Portfolio Analysis

- Sharpe, W. F. and Tint, L. G.: *Liabilities - A new Approach*, Journal of Portfolio Management, Vol. 16, No. 2, 1990
- Keel A. and Müller, H. M.: *Efficient Portfolios in the Asset Liability Context*, ASTIN Bulletin, Vol. 25, No. 1, 1995
- Barton Waring, M.: *Liability-Relative Investing II*, The Journal of Portfolio Management, Vol. 31, No. 1, 2004

6. Portfolio Optimization under Solvency II

Prerequisites: Portfolio Analysis

- Braun, A., Schmeiser, H. and Schreiber, F.: *Portfolio Optimization under Solvency II: Implicit Constraints Imposed by the Market Risk Standard Formula*, Working Papers on Risk Management and Insurance No. 130, University of St. Gallen, 2013



Thank you for your attention.