
Publikationen der Kölner Forschungsstelle Rückversicherung
Band 2/2023

Annual Report 2022 of the Cologne Research Centre for Reinsurance

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**Technology
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Foreword

The challenges facing the reinsurance industry remain considerable. For the reinsurance sector, 2022 was marked not only by the ongoing coronavirus pandemic and claims due to natural disasters but also by the war in Ukraine, the energy crisis and inflation.

The Cologne Research Centre for Reinsurance analyses the latest developments in the reinsurance market and, where appropriate, monitors these through research projects. In the process, the Research Centre for Reinsurance links its research activities with practices in the reinsurance sector. Hereby, and facilitated through organisation of the annual Cologne Reinsurance Symposium and the Annual Meeting of the Sponsoring Group Reinsurance [Förderkreis Rückversicherung], a bi-directional transfer of knowledge between theory and practice is pursued. Unfortunately the Cologne Reinsurance Symposium for 2022 had to be cancelled due to COVID-19.

The content of these two scientific events, as well as the completed research projects, are incorporated into scholarship and instruction at the Institute of Insurance Studies, rounding out practice-oriented training in the field of reinsurance.

There are eight researchers and four professors currently on the staff of the Cologne Research Centre for Reinsurance. Thereby, all material and personnel costs are fully financed by third-party funds provided by the Sponsoring Group Reinsurance. This funding helped facilitate the doctorate of Mr Frank Cremer, among other things.

At the 14th Annual Meeting of the Sponsoring Group Reinsurance held in 2021, the decision was taken to continue to provide financial support to the non-profit organisation ‘Hilfe für Guinea e.V.’ Through its annual donation to this project, the Cologne Research Centre for Reinsurance fulfils the criterion of ‘social commitment’ required of an official research focus. The donation will benefit the La Lumière Scolaire project. This project finances the construction and operation of schools for the children of disabled and homeless people in Guinea.

The Cologne Research Centre for Reinsurance is accredited as an official research focus of the Cologne University of Applied Sciences.

Cologne, January 2023

Prof. Stefan Materne, FCII
Chair for Reinsurance
Spokesman of the Cologne Research Centre for Reinsurance

Cologne Research Centre for Reinsurance

In this annual report, the Cologne Research Centre for Reinsurance documents its scientific research projects in detail, as a way of providing friends and supporters with a report on the research work carried out by the Research Centre.

The Cologne Research Centre for Reinsurance was founded in 2008. Through accreditation, in 2009 it was extended into a formal Research Focus.

Financing for the Cologne Research Centre for Reinsurance (personnel expenses for all employees, materials, literature, as well as travel expenses, etc.) is provided entirely through third-party funds made available by the Sponsoring Group Reinsurance, which currently comprises 88 participating member companies.



Research projects 2022

Below is a brief listing of the main research topics for the Cologne Research Centre for Reinsurance, together with the employees responsible for them.

Cremer, Frank: ‘Limits of (re-) insurance cover – An analysis of the exclusions of cyber conditions’



The significance of cyber insurance as a financial hedging tool for use in mitigating companies' mounting losses due to cyber risks is increasing. However, there is a lack of standardised wording and mutual understanding in cyber insurance policies. At less than one-third of the cybersecurity claims disbursed in the USA in 2017, a significant gap exists between the cybersecurity risks that firms need to cover and the risks actually covered by their cybersecurity policies. In 2018, Lloyds of London conducted an exercise using scenario-based models to determine the size of the insurance-cover gap for cyber risks. The exercise found that the gap in insurance cover stands at approximately 90%. The term refers to the difference between the insurance cover economically required and the cover actually purchased.

This research considered German cyber insurers offering cyber protection for small and medium-sized enterprises (SMEs). This research considered only the exclusions from cyber insurance. Additional, expandable inclusions or inclusions subject to charge were not considered. The research was based on a dataset formed using information from the German Federal Financial Supervisory Authority [BaFin]. Across multiple levels of segmentation, 50 cyber insurers were identified that offered cyber protection for SMEs. From among these 50 cyber insurers, 41 sets of cyber terms and conditions were used for the research project. The research employed an inductive qualitative content analysis to identify existing exclusions in the terms and conditions. The results were categorized and described. The analysis identified 15 categories of exclusion along with the frequencies of their occurrence in cyber conditions. These findings can help companies gain a sense of the things that might not be covered under cyber insurance. The descriptions also provide an information base that promotes an understanding of insurance cover and any exclusions.



Dirks, Jörg: ‘Retrocession within an ESG-compliant business orientation’

Sustainability criteria are subsumed under the acronym ‘ESG’ and are thus not confined to climate change alone. In essence, what are known

as 'ESG criteria' are defined as a standard of sustainable investing in the fields of Environment, Social and Governance. (Cf. Haberstock et al., 2019)¹

Primary insurers and reinsurance companies alike, as well as retrocession partners and investors, are increasingly factoring aspects of sustainability into their business decision-making. They consider the sustainability of investments of capital and the corresponding underwriting decisions, for instance, or the social commitment of a contractual partner. This is why a convincing sustainability profile can also gradually evolve into a competitive advantage.

The core business of the reinsurance industry is constantly shaped by new risks and global challenges.

An ESG-compliant business orientation and a corresponding adaptation to underwriting presents fresh challenges for the reinsurance and retrocession market, as certain ESG criteria present a hurdle to ongoing business activities in underwriting.

Implementing an ESG-compliant business orientation in retrocession involves recalibrating the appetite for risk and including uniform future ESG ratings that can lead to advantages as well as disadvantages in competitiveness.

If the ESG factors are compared between retrocedents and retrocessionaires, it can be seen that ESG factors are important for retrocedents in search of capacity. These factors are less important to the supply of capacity for retrocessionaires. This finding is justified by the fact that retrocedents already have to deal with ESG criteria in the upstream underwriting of risks assumed; as a result, they already have a more thorough overview of these factors. To maintain an ESG-compliant business orientation, retrocedents must also deal in detail with possible retrocessionaires and their respective ESG strategies.

An ESG-compliant business orientation and the consideration of ESG risks inevitably lead to an adjustment in business strategy, internal supervisory structures, risk management, as well as a change in the pricing of retrocession risks.

Fortmann, Michael: 'Cyber insurance for consumers and D&O insurance'



The focus of Prof. Fortmann's research in 2022 was on D&O insurance and cyber insurance for consumers. Beck-Verlag has published a volume dedicated to the latter topic and entitled 'Verbraucher-Cyberversicherungen'

¹ Gabler Wirtschaftslexikon, Prof. Dr. Philipp Haberstock (2019), ESG-Kriterien, <https://wirtschaftslexikon.gabler.de/definition/esg-kriterien-120056>, accessed 9 November 2022.

[‘Consumer Cyber Insurance’]. The D&O insurance addressed mainly involved the question of whether this is still up-to-date in its current form, or whether the way this insurance is designed needs to be revised.



Joniec, Robert: “Classic reinsurance placements and auctions – We know that we know nothing”

Taking the reinsurance of natural disasters (NatCat) as an example, it is evident that that essential elements of classic reinsurance transactions aim to reduce problems of information between primary insurers and reinsurers. At the moment, the literature of reinsurance gives no indication of a grasp of the ways in which the classic transaction process affects results, nor how auctions differ in their effects / the impacts they have on results. Hence, an important goal is to lay the groundwork for future development of a discussion of market design in the reinsurance context.

Existing findings in auction theory do not specify whether and in which cases uniform pricing or individual pricing would lead to better results for the sellers (insurers). Also still unclear is whether public auctions or blind auctions would yield better results.

One auction design that approximates classic broker placement is the Ausubel auction (Ausubel, 2004). Still, no general statements can be made as to whether classic placement or auctions constitute better allocation mechanisms (cf. Bulow and Klemperer 1996).

Taking climatic and socio-economic trends into account, a better grasp of the correlations described is increasingly urgent to a strengthening of the reinsurance market.



Koch, Wolfgang: ‘Taking climate-change scenarios into account in ORSA’

The following aspects can be identified in the context of this research:

- In the ORSA Report for 2022, reference to the climate-change scenarios of the ‘Network for Greening the Financial System (NGFS)’ (an association of supervisory authorities and central banks) offers an initial orientation.
- Based on the NGFS, further analysis is based on the choice between two different long-term (at least 30 years) scenarios for temperature rise (< 2°C and ≥ 2°C).

- A scenario with a high transition risk (e.g. ‘delayed transition’) and a scenario with a high physical risk (e.g. ‘current policies’) are appropriate for this purpose.
- In ORSA 2022, simple quantitative analyses provide a basis for deriving qualitative statements from these, e.g.:
 - Reassessment as of today (sensitivity analysis)
 - Stress test with instantaneous shocks (‘time travel’)
 - Projection (static or with management rules)
- Ultimately, the specificities of the different areas/lines must be factored in when deriving results:
 - Investments, for example, could be characterised by transition risks in the long term (e.g. rising energy prices)
 - Non-life/accident insurance is characterised by reformed construction law (climate-conscious construction)
 - Personal insurance is characterised by long contract periods.

Lassen, Fabian: ‘ESG criteria in reinsurers’ underwriting’

Heightened regulatory requirements have lent relevance to the topic of environmental social governance (ESG) in the reinsurance sector as well. The focus in the past has been on investments. Now, there are more and more ESG criteria with an impact on underwriting. The effects of these criteria on the reinsurance sector remain to be seen. Clearly, we are embarking on a long transformation. In future, ESG criteria will presumably be considered as another aspect in addition to the assessment of underwriting risk.





Materne, Stefan: 'Impacts of the EIOPA Opinion on the Evaluation of Risk-Mitigation Techniques (RMT)'

In 2021, the European Insurance and Occupational Pensions Authority (EIOPA) published its opinion entitled 'EIOPA's Supervisory Opinion on the Use of Risk Mitigation Techniques by Insurance and Reinsurance Undertakings'. The opinion mainly refers to reinsurance and the securitisation of actuarial risks.

In 2022, the research focus on reinsurance dealt with the following research questions (with the findings briefly summarised in *italics*):

- What is EIOPA's reason for introducing the term 'real risk transfer'?

According to its own disclosures, EIOPA seeks to reduce the credit, which in its view is too high for some reinsurance contracts, to an 'appropriate' level for the SCR calculation under the standard formula.

However, at no point is the term 'real risk transfer' defined.

- Will a new definition of (minimum) risk transfer be presented that affects the previous provisions on financial reinsurance (Art. 210 Finite Reinsurance, Directive 2009/138/EC (Solvency II), Section 167 Financial Reinsurance, German Insurance Supervision Act (VAG)), and, if so, how?

No, the EIOPA initiative does not appear to have an impact on the treatment of finite reinsurance.

- Does EIOPA propose a differentiated approach to reducing the Solvency Capital Requirement under the standard formula in Pillar 1 of Solvency II (which would constitute a departure from the previous 'binary' approach)?

This seems to be the aim of EIOPA. However, it does not present a coherent system to achieve this. In the examples presented by EIOPA, the 'SCR credit', which is perceived as too high, is addressed and its plausibility validated. Still, no proposal is presented as to what an appropriate level of SCR credit would be.

- Are there effects on intra-group reinsurance by insurance groups, and, if so, what are they?

If the ideas expressed in the EIOPA Opinion are implemented, (probably negative) effects would be expected for intra-group reinsurance by insurance groups; specifically, a smaller or even non-SCR-reducing effect for intra-group reinsurance contracts. As EIOPA does not specify the intended change in the SCR consideration of reinsurance contracts, however, these effects cannot be

anticipated. Nor does there seem to be any national implementation of the EIOPA Opinion that could be examined as a model.

- Have the national insurance supervisory authorities ('supervisors') – and here specifically BaFin in Germany – implemented this EIOPA Opinion in the individual countries, and if so: how?

No implementation of the EIOPA Opinion is known for any of the EU States – and specifically, no planning to this effect on the part of BaFin.

Materne, Stefan: 'Impacts of the European floods in 2021 on the reinsurance market'

In short, the European flood events of 2021 had the following impact on the reinsurance market in 2022:

- Substantial price increases, due not least to the risk carriers' turn away from the previously assumed attractiveness of European NatCat business (pricing actuaries have already questioned this assumption in the past).
- Trend towards an increase in cedent deductibles; this potentially results in an increase in cedents' net losses. In addition, an increase in the volatility of the deductible losses, which must be countered through suitable capital management, both economically and under Solvency II.
- The capacity for aggregate cover dried up nearly entirely in 2022.

The general trend was one of cedent dissatisfaction with the performance of reinsurance brokers used in the 2021/22 renewal:

- They were viewed as inadequately prepared for the 2021/22 renewal,
- They were surprised by its dynamics and developments, and
- They initially responded to this with the wrong strategy.

Rohlfs, Torsten: 'Value-Oriented Management of Insurance Companies'

Is it possible to analyse the value-oriented management of insurance companies based on external data? For this purpose, selected key figures will be examined with respect to various issues, with both commercial and regulatory reporting considered in combination. The project will be continued in 2023.



Rohlfs, Torsten / Kraus, Holger: 'Captives' (book project)

Project to draw up a manual for captives in Germany, for publication by Springer Verlag. The aim of the project is for individual practitioners to submit a book chapter for each relevant topic. The project will continue in 2023 and is set to be published by Springer Verlag in June 2023.



Schmidt, Jan-Philipp: 'Simulation, Analysis and Assessment of Reinsurance Structures'

Based on Monte Carlo simulations, insurance-specific key figures for various complex forms of risk-sharing are identified in an effort to improve pricing and risk management from the perspective of cedants and reinsurers. A video on this topic will be released in January 2023. The project will be continued in 2023.

Wang, Lihong: 'Developments in Chinese online insurance 2022'



Lihong Wang reported on the rapid expansion of Chinese online insurance. With the ongoing changes in lifestyle and demographics, online insurance is becoming one of China's key distributional and operational business models. More than 140 Chinese insurance companies had launched an online business by 2021, with a total premium of 298 billion Yuan (US\$45 billion) or 6% of the industry total. There are more than 7741 enterprises registered and involved in online insurance. Despite ongoing pandemic issues and lockdowns, online insurance became the accelerator for premium growth in China, especially in the life and health insurance sectors. While the opportunities are enormous, online insurers face a number of challenges, such as tightening regulations, a shortage of competent advisors, rising fraud and global recessions. With more than 900 million mobile users in China and a population that is ageing and witnessing a reduction in fertility, online insurance will continue to grow.



Winkler, Erik: 'Insurance Capital Standard (ICS)'

In the future, discussions around equivalence decisions and bilaterally negotiated agreements such as the 'Bilateral Agreement Between the United States of America and the European Union On Prudential Measures Regarding Insurance and Reinsurance' could be a thing of the past. An association of insurance authorities from more than 200 countries, the International Association of Insurance Supervisors (IAIS) has been working since 2013 to develop a risk-based, globally applicable capital standard (Insurance Capital Standard – ICS). The overall objective is to establish an overarching regulatory framework for large international insurance groups, complete with minimum standards for risk assessment and the resulting capital requirements.

It is in the nature of things that the effort to develop a global capital standard involves reconciling the interests of many different jurisdictions with different systems of their own (specifically, there is a collision between the different supervisory regimes from Europe and the United States). The IAIS aims to bring interest groups together while developing a global minimum capital standard for international insurance groups, yet without excluding the local supervisory regime in the respective jurisdictions.

As the ICS is calculated using the consolidation method, it resembles Solvency II in many respects. The US alternative approach is calculated under the aggregation method and is intended to provide results similar to those achieved applying the consolidation method.

In the end, the question for European (re)insurers is whether to accept that the US approach is equivalent to the ICS in the effort to establish the goal of a global capital standard as a level playing field.

Publications, lectures, interviews and webinars in 2022

Publications

During the period under report, the Cologne Research Centre for Reinsurance issued the following publications:

[Materne, Stefan \(Hrsg.\): Jahresbericht 2021 der Kölner Forschungsstelle Rückversicherung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 1/2022.](#)

[Materne, Stefan \(Hrsg.\): Annual Report 2021 of the Cologne Research Centre for Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 2/2022.](#)

[Cremer, Frank / Sheehan, Barry / Fortmann, Michael / Arash N., Kia / Mullins, Martin / Murphy, Finbarr / Materne, Stefan: Cyber risk and cybersecurity: A systematic review of data availability, The Geneva Papers on Risk and Insurance - Issues and Practice, 47, S. 698–736 \(2022\).](#)

[Humberg / Christian / Sheehan, Barry / Shannon, Darren / Fortmann, Michael / Materne, Stefan: Diversification and Solvency II: The Capital Effect of Portfolio Swaps on Non-life Insurers, The Geneva Papers on Risk and Insurance - Issues and Practice \(2022\).](#)

Fortmann, Michael: §§ 7a-7d VVG, BeckOK VVG, Hg.: Marlow/Spul (2022).

Fortmann, Michael: §§ 320-330 VAG, BeckOK VAG, Hg.: Erdmann/Diehl/Schradin (2022).

Fortmann, Michael: Verpflichtung zur vorläufigen Übernahme von PR-Kosten in der D&O-Versicherung, jurisPR-VersR 2/2022, Anmerkung 2.

Kaya, Hüseyin / Rohlfs, Torsten / Wenzel, Leonard: „Expected Profits Included in Future Premiums“ (EPIFP) bei Lebensversicherern – (k)eine Profitabilitätssicht? Zeitschrift für Versicherungswesen 06/2022, S. 162-164, 15.03.2022.

Fortmann, Michael: § 16. Vorsätzliche und grob fahrlässige Herbeiführung des Versicherungsfalls und § 20. Veräußerung der versicherten Sache, in: Martin/Reusch/Schimikowski/Wandt, Sachversicherung, 4. Aufl. 2022.

Fortmann, Michael: Verbraucher-Cyberversicherung, Beck: 1. Auflage 2022.

Fortmann, Michael: Kap. 14 Versicherungen, in: Meyer, Handbuch Immobilienwirtschaftsrecht, 1. Aufl. 2022.

Fortmann, Michael: Anmerkung zu einer Entscheidung des BGH, Urteil vom 26.01.2022 (IV ZR 144/21) - Zu Fragen zum Versicherungsschutz bei coronapandemiebedingten Betriebsschließungen, r+s 2022, S. 141-142.

Fortmann, Michael: Anmerkung zu dem Beschluss des OLG Nürnberg vom 11.4.2022 (5 W 2855/20) – zur Zulässigkeit einer Nebenintervention des KH-VR im Haftpflichtprozess auf Seiten des Geschädigten, r+s 2022, S. 325-327.

Materne, Stefan (Hrsg.): Proceedings des Researchers' Corner zur 15. Jahrestagung des Förderkreises Rückversicherung 2022. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 3/2022.

Materne, Stefan (Hrsg.): Proceedings of the Researchers' Corner for the 15th Annual Meeting of the Sponsoring Group Reinsurance 2022. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 4/2022.

Cremer, Frank / Sheehan, Barry / Fortmann, Michael / Mullins, Martin / Murphy, Finbarr: Cyber exclusions: An investigation into the cyber insurance coverage gap, in: Michael Lang, Séamus Dowling, Ruth Lennon: Multidisciplinary perspectives on cybersecurity research, practice and education: Proceedings of the 1st Cyber Research Conference Ireland, S. 25 – 32 (2022).

Cremer, Frank / Materne, Stefan: Das Cyber-Kumulsrisiko In: Institut für Versicherungswesen (Hrsg.): Risiko im Wandel als Herausforderung für die Versicherungswirtschaft, Springer Verlag (2022).

Cremer, Frank: Grenzen des (Rück-) Versicherungsschutzes – Eine Analyse der Ausschlüsse der Cyber-Bedingungen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 5/2022.

Dirks, Jörg: Retrozession innerhalb einer ESG-konformen Geschäftsausrichtung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 6/2022.

Joniec, Robert: Klassische RV-Platzierungen und -Auktionen – Wir wissen, dass wir nichts wissen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 7/2022.

Koch, Wolfgang: Berücksichtigung von Klimawandelszenarien im ORSA.
Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle
Rückversicherung, Band 8/2022.

Lassen, Fabian: ESG-Kriterien im Underwriting von Rückversicherern. Technische
Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung,
Band 9/2022.

Wang, Lihong: Die Entwicklung chinesischer Online-Versicherungen im Jahr 2022.
Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle
Rückversicherung, Band 10/2022.

Winkler, Erik: Insurance Capital Standard (ICS). Technische Hochschule Köln.
Publikationen der Kölner Forschungsstelle Rückversicherung, Band 11/2022.

Cremer, Frank: Limits of (re)insurance cover – An analysis of exclusions of cyber-
conditions. Technische Hochschule Köln. Publikationen der Kölner
Forschungsstelle Rückversicherung, Band 12/2022.

Dirks, Jörg: Retrocession within an ESG-compliant business orientation.
Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle
Rückversicherung, Band 13/2022.

Joniec, Robert: Classic reinsurance placements and auctions – We know that we
know nothing. Technische Hochschule Köln. Publikationen der Kölner
Forschungsstelle Rückversicherung, Band 14/2022.

Koch, Wolfgang: Accounting for climate-change scenarios in the ORSA.
Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle
Rückversicherung, Band 15/2022.

Lassen, Fabian: ESG criteria in reinsurer underwriting. Technische Hochschule
Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 16/2022.

Wang, Lihong: Developments in Chinese Online Insurance 2022. Technische
Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung,
Band 17/2022.

Winkler, Erik: Insurance Capital Standard. Technische Hochschule Köln.
Publikationen der Kölner Forschungsstelle Rückversicherung, Band 18/2022.

Heep-Altiner, Maria / Rohlfs, Torsten / Berg, Marcel / Schmidt, Jan-Philipp (Hrsg.): Klima- und Nachhaltigkeitsrisiken für die Versicherungswirtschaft, Wiesbaden: Springer Gabler (2022).

[Cremer, Frank / Bauer, Dan: Verfügbarkeit und Bewertung von Daten zu Renewal Rights, in: Zeitschrift für Versicherungswesen \(ZfV\), 17 | 2022.](#)

Fortmann, Michael: Lückenfüllung bei nicht wirksam einbezogenen AVB, jurisPR-VersR 7/2022 Anmerkung 3.

Fortmann, Michael: Auswirkung einer fehlenden Erlaubnis nach § 32 KWG in der Vermögensschaden-Haftpflichtversicherung des Finanzanlagevermittlers, jurisPR-VersR 8/2022 Anmerkung 2.

Fortmann, Michael: Ist das derzeitige Konzept von D&O-Versicherungen noch zeitgemäß?, PHi 2022, S. 142-149.

Kaya, Hüseyin / Röpke, Romina / Rohlfs, Torsten: Eine vergleichende Analyse von Solvenzquoten und Ratings – Update 2022, Zeitschrift für Versicherungswesen (ZfV), 24/2022, 15.12.2022.

Associate member:

Günther, Dirk-Carsten: Kriegsklausel in der Cyberversicherung, Krieg im Zeitalter der Digitalisierung, Podcast des STC Versicherungsmakler, Februar 2022.

Günther, Dirk-Carsten: Gespräch über das Silikonfugenurteil des BGH, Podcast des STC Versicherungsmakler, März 2022.

Günther, Dirk-Carsten: Interview zur Cyberversicherung und zum Ukrainekrieg, Tagesspiegel vom 20.04.2022.

Günther, Dirk-Carsten: Interview für das Magazin Inside Out, Ausgabe 59, Herbst 2021, S. 21.

Günther, Dirk-Carsten: Hier ist die Rechtsentwicklung noch nicht zu Ende, Interview mit VW heute am 31.01.2022 zur ersten BGH-Entscheidung wegen coronabedingter Betriebsschließung (Urteil vom 26.01.2022 – IV ZR 144/21).

Günther, Dirk-Carsten: Geheimhaltungsanordnung zu kalkulatorischen Unterlagen eines Krankenversicherers im Beitragsanpassungsprozess, Urteilsanmerkung zu BGH, Beschluss vom 10.11.2021 – IV ZB 29/20, beck-fachdienst Versicherungsrecht 25/2021 vom 16.12.2021.

Günther, Dirk-Carsten: Hybride Kriegsführung und Ausschluss für Kriegsschäden am Beispiel des russisch-ukrainischen Konflikts, VW 04/2022, S. 68 ff.

Günther, Dirk-Carsten: Keine Deckung für Schließungen wegen COVID-19 in der Betriebsschließungsversicherung, Urteilsanalyse von BGH, Urteil vom 26.01.2022 – IV ZR 144/21, FD-Versicherungsrecht 2/2022 vom 28.01.2022.

Günther, Dirk-Carsten: Betriebsschließungsversicherung wegen Covid-19, NJW 2022, S. 818 ff.

Lectures

The following lectures were given by members of the Research Centre during the reporting period:

Cremer, Frank: Cyber insurance exclusions: An analysis of general terms and conditions, Online-Präsentation in der Seminarreihe „KBS Spring Series“ an der Kemmy Business School der University of Limerick, Irland, 5. April 2022

Cremer, Frank: Cyber exclusions: An investigation into the cyber insurance coverage gap, 1. Cyber Research Conference Ireland, Galway, 25. April 2022

Cremer, Frank: Grenzen des (Rück-) Versicherungsschutzes – Eine Analyse der Ausschlüsse der Cyber-Bedingungen, Online-Präsentation auf der 15. Jahrestagung des Förderkreises Rückversicherung, 24.06.2022

Dirks, Jörg: Retrozession innerhalb einer ESG-konformen Geschäftsausrichtung, Online-Präsentation auf der 15. Jahrestagung des Förderkreises Rückversicherung, 24.06.2022

Joniec, Robert: Klassische RV-Platzierungen und -Auktionen – wir wissen, dass wir nichts wissen, Online-Präsentation auf der 15. Jahrestagung des Förderkreises Rückversicherung, 24.06.2022

Koch, Wolfgang: Berücksichtigung von Klimawandelszenarien im ORSA, Online-Präsentation auf der 15. Jahrestagung des Förderkreises Rückversicherung, 24.06.2022

Lassen, Fabian: ESG-Kriterien im Underwriting von Rückversicherern, Online-Präsentation auf der 15. Jahrestagung des Förderkreises Rückversicherung, 24.06.2022

Wang, Lihong: The Chinese Online Insurance Development 2022, Online-Präsentation auf der 15. Jahrestagung des Förderkreises Rückversicherung, 24.06.2022

Winkler, Erik: Insurance Capital Standard (ICS), Online-Präsentation auf der 15. Jahrestagung des Förderkreises Rückversicherung, 24.06.2022

Rohlfs, Torsten: Wertorientierte Steuerung und Unternehmensanalyse, Vortrag bei der User Group Rechnungswesen der Versicherungsforen Leipzig, 22.11.2022.

Interviews and webinars

The 15th Annual Meeting of the Sponsoring Group Reinsurance in 2022 had to be adjusted to an online format, which meant a shortening of the time available; the unfortunate result of this was that the traditional interviews had to be cancelled.

Prof. Materne conducted the following webinar:

- Webinar hosted by ivw academy: Reinsurance News, 25 May 2022.

Quality assurance in publications

To ensure the quality of the publications of the Research Focus on Reinsurance, the suitability of submitted texts is subject to advance critical review by an independent, external expert (Mr Ingo Wichelhaus), and by Prof. Stefan Materne. Any comments in which their reviews result must be incorporated by the respective author prior to publication.

Quality assurance for the research activities of the Research Focus on Reinsurance also takes the form of feedback on lectures at the Researchers' Corner presented at the annual meeting of member companies of the Sponsoring Group Reinsurance.

Scientific events in 2022

Cologne Reinsurance Symposium

Due to the special circumstances resulting from COVID-19, the Cologne Reinsurance Symposium unfortunately had to be cancelled.

With this in mind, please find below the description of the 18th Cologne Reinsurance Symposium 2021.

Incidentally, the 19th Cologne Reinsurance Symposium will be held again in person on 4 May 2023.

18th Cologne Reinsurance Symposium 2021

This year, the 18th Cologne Reinsurance Symposium had to be held online due to the circumstances. But with 818 participants, the event was a success nonetheless. The symposium took place on 5 May 2021 and was devoted to the topic of 'Reinsurance 2021 – What are the political / regulatory framework conditions?'.

Professor Stefan Materne, holder of the Chair for Reinsurance, opened the event with a report on the activities of the Institute of Insurance Studies as well as the work of the four research centres located there: FaRis (Financial and Actuarial Risk Management), Reinsurance, Insurance Market and Insurance Law. He also introduced the current research topics of the eight academic staff of the Cologne Research Centre for Reinsurance (KFSRV).



Foto: KFSRV v. l. n. r. Rafe Courage (Britischer Generalkonsul), Prof. Stefan Materne

chapter in EU-UK relations.

In the first interview, Mr Rafe Courage (British Consul-General), speaking of the ratification of the EU-UK Trade and Cooperation Agreement in May 2021, emphasised: 'The agreement now gives us the clarity we all need: businesses, retailers and the citizenry.' The 'Brexit' agreement marks the beginning of a new

As Mr Courage pointed out, the first two months following Brexit were unsatisfactory for a variety of reasons (pandemic, initial situation, adjustments), but he saw a strong upturn in the following two months of March and April. While he did not want to credit

the current vaccination successes of the British to Brexit alone, he did not completely rule out a link to the autonomous steps the British had taken during the transitional period. The main thing, however, he pointed out, is that the situation in both the EU and the UK will soon be back to normal.

Asked about tensions on the border between Ireland and Northern Ireland, Mr Courage emphasised that no one wanted to return to the situation that prevailed prior to the Good Friday Agreement. This, he indicated, is something that has been stressed multiple times by the UK and Irish governments along with the EU Commission. Still, the events of recent weeks showed how sensitive and tense the situation is. While there was no easy solution, it was nevertheless a top priority to remain calm and peaceful in an effort to finally come up with solutions. Majorities of voters in Scotland and Northern Ireland voted to remain in the EU, yet every effort would be made to ensure that both countries remain a part of the United Kingdom. This applies in particular to the union with Scotland, which dates back more than 300 years.

With regard to the financial services sector, Mr Courage emphasised that the Brexit transition period through the end of 2020 came to a close without significant interruptions, thanks to multi-year preparations by authorities and the private sector. A number of steps had been taken on both the UK and European sides to maintain access to various financial services for clients, thereby minimising risks to financial stability.

Furthermore, March 2021 marked the conclusion of talks with the EU Commission on the Memorandum of Understanding (MoU). This, he observed, will provide a framework for voluntary regulatory cooperation in the financial-services sector between the UK and the EU and will establish the Joint UK-EU Financial Regulatory Forum. The aim of the Forum is to create a platform to facilitate dialogue around issues relating to financial services. With the formalities already completed, the text outlining the Forum could soon be signed.

With regard to Solvency II, Mr Courage first pointed out that UK insurers had undertaken a restructuring prior to the end of the transitional period to ensure that they could meet most of their EU liabilities. A review by the Bank of England currently in progress aimed to create appropriate ways to adapt the structural characteristics of the UK insurance sector and the UK supervisory approach to the requirements of Solvency II. Adaptation of certain aspects would not preclude the granting of equivalency by the EU, he noted. The UK Treasury, he observed, had provided extensive answers extending to more than 2,500 pages to an EU Commission questionnaire that was more than 1,000 pages long. This gave the EU all the information it needed to make a determination on any equivalency petition issuing

from the United Kingdom. At the same time, he concluded, the UK remained open to further discussions with the EU.

In the second interview, Prof. Materne discussed the regulatory framework and challenges in the (re-)insurance sector with Dr. Frank Grund (Executive Director

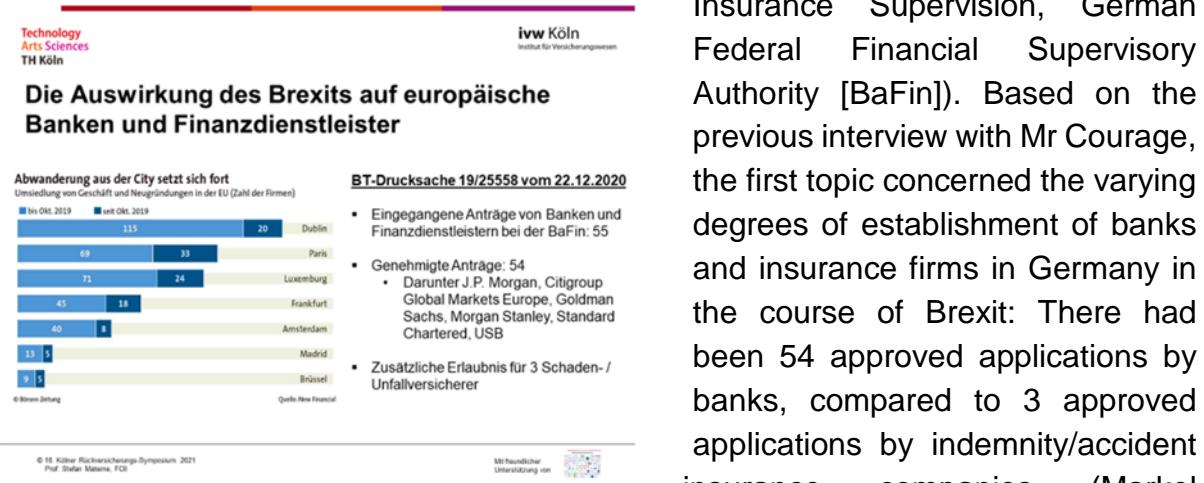


Abb. 1: 18. Kölner Rückversicherungs-Symposium am 5. Mai 2021.

Company, Domestic and General Insurance). Dr. Grund specifically highlighted the outstanding significance of Frankfurt as a business location in the banking sector, although the insurance sector in Germany lacked a comparable location. Nor does the topic play a major role for reinsurers, as access to the UK reinsurance market is secured through EU reinsurer Lloyd's Brussels. He also expected the UK to seek general recognition of equivalency. While he could not provide information on the precise state of negotiations, he assumed that this was not a technical issue but a political one instead: 'In substantive terms, there can be no doubt that the supervisory regime in the UK today is equivalent to European standards. There is, however, a political question as to how long this will last and how the supervisory systems will diverge.'

Dr. Grund added that measures were in place for the grandfathering of prior rights. Still, '... on the other hand, things look bad for new business', unless correspondence insurance is maintained along with the restrictions it involves. He assumed that the tool of correspondence insurance would remain available in future if it is not excessively abused and would be operated systematically as a business model: 'It's not about how long we continue to allow correspondence insurance [...]; the question is whether what you do is still correspondence insurance.' The best thing is to be careful, not to use correspondence insurance systematically, and not to use it for canvassing purposes. Where approvals of business operations by third-country reinsurers in Germany were concerned, Dr. Grund defended as a completely comprehensible legal assessment the occasionally stricter interpretations of European requirements by BaFin.

Apart from this, a solution had been found for the USA in the form of the Covered Agreement that went into effect in April 2018. By way of clarification in Section 67 (1) of the German Insurance Supervision Act (VAG), six American reinsurers have been fully registered to date (and 12 companies have submitted documents). The observation period for evaluation and implementation in American federal law runs from 1 March 2021 to 1 September 2022. If the two model laws developed are not implemented in each state by 1 September 2022, the Federal Insurance Office (FIO) can ensure implementation under what is known as ‘pre-emption authority’. Eight states had implemented both model laws to date, he noted. The first of the model laws had already been implemented by 25 states, while 20 others were still in the process of implementation. The second model law had been implemented by 8 states, while 6 others were still engaged in consultations. Dr. Grund stressed that the Commission was following implementation of these measures very closely and that the Covered Agreement was on track. On the other hand, even if US ratification were to fail, he could not imagine a ‘rescission ab initio’ of existing reinsurance contracts with US reinsurers.

In contrast to the Covered Agreement, an attempt is made to develop a global capital standard under the Insurance Capital Standard (ICS). The aim is to create a level

playing field for international insurance groups with this global capital standard once the observation phase concludes in late 2024. Not all of the eligible insurance groups were taking part in the observation phase, however. French (reinsurance) insurers, for example, were apprehensive of unequal competitive conditions due to different supervisory regimes. This criticism is likely directed specifically at the aggregation method used by the Americans. In this context, Dr. Grund

emphasised his great gratitude to the German companies involved (Allianz, Hannover Rück and Munich Re) for participating in the observation phase, although he knew that their effort ‘... is not painless and costs money, too.’ The effort is worthwhile, however, in Dr. Grund’s view: ‘It strengthens the role of those involved in negotiations there if their own market takes part’. The objective remained to establish an Insurance Capital Standard that is not so divergent from Solvency II: ‘Ultimately, Solvency II is the gold standard.’

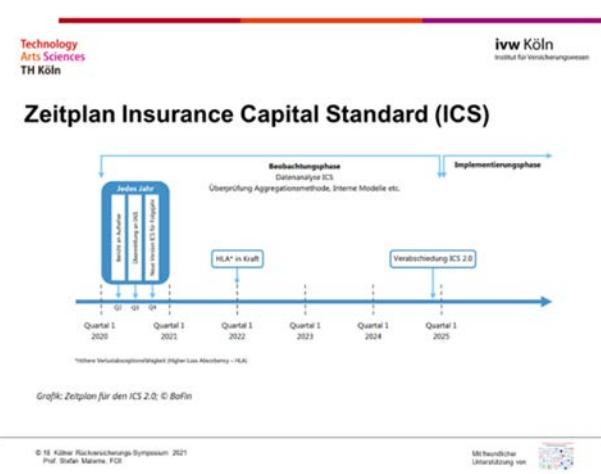


Abb. 2: 18. Kölner Rückversicherungs-Symposium am 5. Mai 2021.

According to Dr. Grund, the ‘Statement on the use of risk mitigation techniques by insurers and reinsurers’ issued in September 2020 by EIOPA is clearly designed to prevent arbitrage via reinsurance: ‘Ultimately, the aim is to prevent tailor-made reinsurance contracts [for SCR relief, ed.] without having the corresponding economic impact.’ For EIOPA, as the European supervisory authority, to address these issue and raise awareness is perfectly acceptable. Given optimisation not only of the SCR calculation under the standard formula but also of the corresponding

transfer of risk, there are no difficulties involved in unrestricted recognition of reinsurance in the corresponding modules.

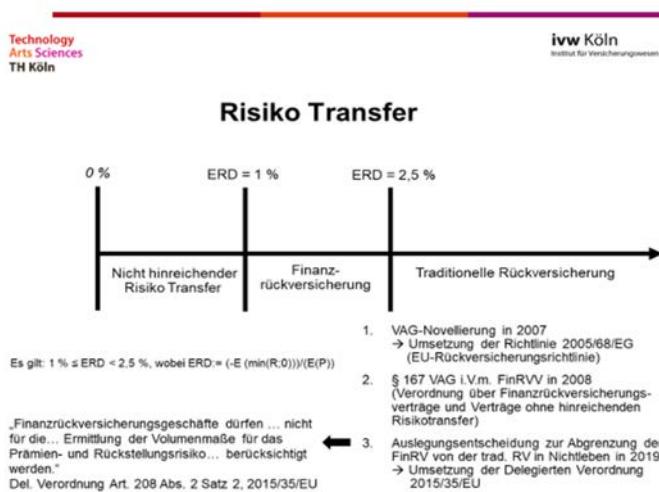


Abb. 3: 18. Kölner Rückversicherungs-Symposium am 5. Mai 2021.

transfer of actuarial risk were very well understood within the industry. A delimitation of financial reinsurance is indicated under Art. 208 (2) (2) of Commission Delegated Regulation (EU) 2015/35.

As in the previous year, the EIOPA recommendation on the waiver of distributions of dividends will be implemented again in 2021. BaFin, he pointed out, was very conscientiously considering on a case-by-case basis whether, given their risk-bearing capacity, companies can afford to distribute dividends. Dr. Grund saw no added value in the debate around transforming EIOPA into a supervisor with direct oversight of insurance companies that operate internationally. He also saw questions about whether the legal conditions were in place to create an institution similar to the ECB in the insurance sector.

BaFin would comment on price levels in reinsurance and present an interim report at year’s end. At the moment, however, neither a threat to reinsurers’ stability nor a special need for supervisory action beyond the normal level of risk is discernible: ‘Reinsurance contributes to stability in financial markets.’

At the end of the interview, Dr. Grund gave an outlook and discussed the role of the new BaFin President Mark Branson, among other things. A banker by training, Mr Branson knew that insurance companies are not banks, and he will be certain to take

the risks specific to the insurance industry into account. According to Dr. Grund, these continue to manifest themselves in environment of low interest rates and in adequate supervisory and regulatory reflection. Mr Branson will continue to pursue a practice-oriented approach to regulation.

Below you will find the panellists of the 17th Cologne Reinsurance Symposium 2020, which had to be cancelled due to COVID-19, as well as the impressions of the 16th Cologne Reinsurance Symposium 2019, which was held with participants in attendance.

17. Kölner Rückversicherungs-Symposium 2020



Andreas Berger
CEO
Swiss Re Corporate Solutions



Dr. Markus Eugster
CEO
Korean Re Switzerland



Dr. Edgar Puls
CEO
HUI Global



Mick Knauff
Börsenkorrespondent



Dr. Alexander Mahnke
Vorstandsvorsitzender
GVNW



Laurent Rousseau
Deputy CEO
SCOR Global P&C



Mike Sapnar
President & CEO
TransRe



Roland Oppermann
CFO
SV SparkassenVersicherung



Bernd Zens
CFO
DEVK RE



Dr. Marc Surminski
Zeitschrift für
Versicherungswesen



Herbert Fromme
Süddeutsche Zeitung

Abgesagt wegen Covid-19

Impressions of the Cologne Reinsurance Symposium



Handing out name tags



Lecture by Prof. Materne



Roll-up banners



Auditorium



Information material



Foyer



President of the Cologne University of Applied Sciences and students



Get-together



Get-together



Get-together



Bachelor students in the 4th and 6th semester with a concentration in reinsurance and employees of the Cologne Research Centre for Reinsurance

15th Annual Meeting of the Sponsoring Group Reinsurance

The 15th Annual Meeting of the Sponsoring Group Reinsurance was held on 24 June 2022. Due to COVID-19, the event was held in online format once again.



Prof. Stefan Materne opened the year's annual conference for 2022 in front of 146 attendees and announced that the companies in attendance represented around 90 percent of reinsurance premiums worldwide. In this context, he recited a cartel pronouncement prohibiting price fixing, collusion concerning market behaviour, etc. Following this formal order of business, Prof. Materne presented the activities of the Cologne Research Centre for Reinsurance and the Chair for Reinsurance. He reported on

- current research projects,
- online scientific events:
- participation by academic staff members in various online events:
 - Annual Meeting of the German Association for Insurance Sciences (DVfVW),
 - external market conferences.
- Unfortunately, due to the coronavirus pandemic, activities held in the past had to be cancelled in 2021:
 - the traditional seminar on Presentation Skills in English, led by Colin Brett,
 - excursions,
 - and the summer festival of the Cologne Research Centre for Reinsurance.

As in years past, the academic staff members proceeded to present their research topics as part of the Researchers' Corner. It was possible to retain the format of the events held in person within the original framework, similar to Clostermanns Hof: Over the course of three rounds, three or two parallel presentations were given in break-out sessions, after which the respective lectures were discussed (See the following page for lecture topics.).

A presentation of the activities of the previous year was followed by the first of the three sessions of the Researchers' Corner, with presenters Erik Winkler, Lihong Wang und Jörg Dirks.

Following the first lectures, Prof. Materne thanked the companies involved in the Sponsoring Group Reinsurance for their valuable support, which had made it possible to finance the various events and scientific work of the Research Centre throughout the year. He made special mention of the financial support of the excursions, without which some students would have been unable to participate. The Sponsoring Group Reinsurance also provided full financing for the employment of staff members and their research. This also includes work in pursuit of the doctoral degree by Mr. Frank Cremer, in cooperation with the University of Limerick. The Sponsoring Group Reinsurance also supports two students each year with a concentration in reinsurance as part of the Germany Scholarship.

This was followed by the second session of the Researchers' Corner, featuring presenters Robert Joniec und Wolfgang Koch. The report on proper use of funding was followed by the third and final session of the Researchers' Corner, with Frank Cremer und Fabian Lassen.

15th Researchers' Corner

Once again, the Researchers' Corner was offered as an additional form of knowledge transfer. Seven of the researching members of the Research Centre presented their latest findings, each in a brief lecture followed by a discussion:

Session 1

- a) Erik Winkler (LL. B.): Insurance Capital Standard (ICS)
- b) Lihong Wang (M.Sc., FCII): Developments in Chinese online insurance 2022
- c) Jörg Dirks (M.Sc., FCII): Retrocession within an ESG-compliant business orientation

Session 2

- a) Robert Joniec (M.Sc., FCII, cand. PhD): Classic reinsurance placements and auctions – We know that we know nothing
- b) Wolfgang Koch (M.Sc., FCII): Consideration of climate-change scenarios in the ORSA

Session 3

- a) Frank Cremer (M.Sc., FCII, cand. PhD): Limits of (re)insurance cover – An analysis of the exclusions of cyber conditions
- b) Fabian Lassen (M.Sc., FCII): ESG criteria in underwriting by reinsurers

At the conclusion of the sessions, Prof. Materne reported on the 'Help for Guinea' project. The Sponsoring Group Reinsurance decided to continue its support of this project in 2022.

Afterwards, the employees of the Cologne Research Centre for Reinsurance celebrated the successful annual meeting with the obligatory after-show party – that this year's iteration had to be held in the virtual space scarcely detracted from the mood.

Frank Cremer: 'Limits of (re)insurance cover – An analysis of exclusions of cyber-conditions' (see also project description, p. 5).

15th Annual Meeting of the Förderkreis Rückversicherung
[Sponsoring Group Reinsurance]
Researchers' Corner, 24 June 2022

**Limits of (re)insurance cover –
An analysis of exclusions of cyber-conditions**

Frank Cremer, M.Sc. / PhD cand. / FCII

Financial loss due to cyber risk is increasing		A look at cyber insurance
<ul style="list-style-type: none"> Cybercrime is estimated to have caused around \$1 trillion in damage to the global economy in 2020¹ In Germany, the damage caused by cybercrime in 2020 totalled to approx. EUR 223 billion² According to Lloyd's, the Cyber Risk Protection Gap currently stands at approx. 90 percent³ <p>[1] Maicks, Smith et al. 2020 [2] Bitkom 2021 [3] Schanz 2018</p>		<p>Motivation and point of departure</p> <ul style="list-style-type: none"> The share of cyber insurance premium in the US was less than 1 percent in 2020⁴ Only 28.4 percent of the cyber claims filed in 2018 were insured⁵ <p>[4] Insurance Institute 2021 [5] A.M. Best 2018</p>
<p>Methodology</p> <pre> graph LR A((1303)) --> B((694)) B --> C((593)) C --> D((50)) D --> E[41 Data sets] </pre>		<p>A look at cyber insurance</p> <ul style="list-style-type: none"> Companies do not know or understand their own cyber risks Companies do not understand the relevant cyber insurance products
<p>Overall procedure</p> <ol style="list-style-type: none"> Identifying the conditions Creating a data set Analysis Evaluation 		<p>Results</p>
<p>Excerpt from the exclusions identified</p> <ul style="list-style-type: none"> War, terror and political hazards (97.5%) Infrastructure failure (92.5%) Hardware, software data (87.5%) Intellectual property and trade secrets (87.5%) Losses caused by cyber criminals (57.5%) Personal injury and property damage (35%) <p>Summary of the findings</p> <ul style="list-style-type: none"> Only isolated approaches of standardised terms and conditions were identified No uniform terms / definitions Unclear / imprecise wording Insurance cover often fails to reflect companies' need for cyber cover 		<p>Projecting the results to cyber scenarios</p> <ul style="list-style-type: none"> Type of exclusions leaves cumulative risks uninsured Scope of exclusions leaves many cyber scenarios uninsured For many companies, exclusions constitute gaps in cyber cover that would need to be insured <p>Conclusions for cyber insurance</p> <ul style="list-style-type: none"> Gaps in cyber insurance currently need to be closed elsewhere Policy-makers will become more involved within the scope of risk transfer and cybersecurity Solutions are needed to fill insurance gaps

Jörg Dirks: 'Retrocession within an ESG-compliant business orientation' (see also project description, p. 5).

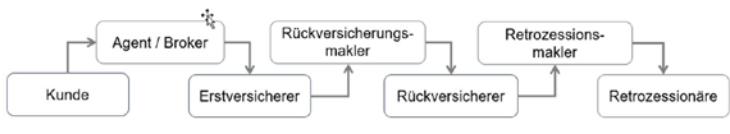
15th Annual Meeting of the Förderkreis Rückversicherung
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Researchers' Corner, 24 June 2022

Retrocession within an ESG-compliant business orientation

Jörg Dirks, M.Sc. / FCII

<ul style="list-style-type: none"> ▪ ESG (Environmental Social Governance) criteria are to be understood as a broader term for CSR (Corporate Social Responsibility) ▪ Contribution to sustainable development by the business community ▪ BaFin, EIOPA, Green Deal & EU taxonomy ▪ Principles of Sustainable Insurance/UNEP ▪ Net-Zero Insurance Alliance 	 <p>Environmental (Umwelt)</p> <ul style="list-style-type: none"> - Klimaschutzstrategien - Umweltschutz - Emissionsreduktion - Biodiversität - [...] 	 <p>Social (Soziales)</p> <ul style="list-style-type: none"> - Menschenrechte - Gesundheitsschutz - Arbeits sicherheit - Faire Arbeitsbedingungen - [...] 	 <p>Governance (Aufsichtsstrukturen)</p> <ul style="list-style-type: none"> - Compliance - Risikomanagement - Ethisch vertretbare Unternehmensführung - Verhinderung von Korruption - [...]
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Analyse der potenziell vorhandenen ESG-Risiken



The influence of ESG in retrocession:

- Investment strategy
- Underwriting
- Appetite for risk
- Product development

Advantages & disadvantages

- Recalibration of appetite for risk
- ESG rating
- Competitiveness

ESG-konforme Geschäftsausrichtung



Retrozedenten vs. Retrozionäre

ESG- Faktoren sind für **Retrozedenten** bei der Kapazitätssuche wichtig

ESG- Faktoren sind für **Retrozionäre** weniger wichtig, wenn sie Kapazität anbieten



Taking ESG risks into account:

- Business strategy
- Internal governance structures
- Risk management
- Pricing

Robert Joniec: 'Classic reinsurance placements and auctions – We know that we know nothing' (see also project description, p. 7).

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**Classic reinsurance placements and auctions –
we know that we know nothing**

Robert Joniec, M.Sc. / FCII / PhD cand.

Theoretical background: Market design (lecture '21)

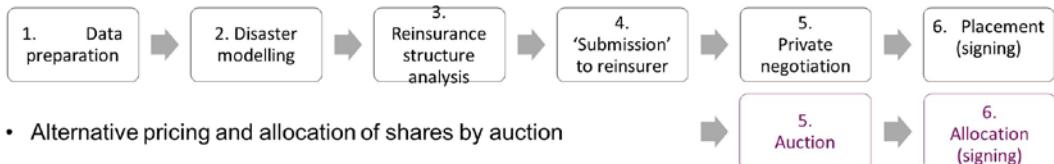
Market design is a discipline in economics that combines the architecture of a market with its goals and builds on game theory

- Market rules (allocation mechanism) influence behaviour and hence the overall outcome
- Labour market, mobile network, organ transplants, financial markets ... reinsurance



Reinsurance transactions (NatCat)

- The design of reinsurance transactions eliminates information problems between insurers and reinsurers
- In classic reinsurance transactions, how motivated are reinsurers to disclose the expected returns?
→ Competition alone is not a decisive argument; cf. market design and auction theory
- Classic and alternative reinsurance transactions are based on the classic transaction design



Reinsur. contracts as auction items

- Common value → actuarially expected loss
- Private value → covariance with reinsurer inventory
- Multi-unit → divisible homogeneous units
- Bidders with heterogeneous and limited capacities ('leading' reinsurers and 'followers')
- Inelastic demand (Weiss & Chung 2004)
- Convex cost of capital (Froot & O'Connell 2008)
- Knowledge transfer

Auction features

- Unit prices vs. individual prices in the panel
→ Unit prices potentially wrongly preferred in the past (see Binmore & Swierzbinski 2000)
- Public vs. private auctions
→ Collusion vs. strategic uncertainty (see Binmore & Swierzbinski 2000; Rothkopf & Harstad 1995); consensus-building and lowering barriers to entry
- Reinsurance auction platforms:
→ Aon, Guy Carpenter, Tremor, (Ausubel)

We know that we know nothing – an outlook

- › Are negotiations or auctions 'better'? (see Bulow & Klemperer 1996)
- › Technological progress and more cost-effective 'environments' reduce prices in the long term
- › Focussing research on transaction rules (see Madhavan 2000; Budisch, Cramton & Shim 2015)
- › Better grasp of design, taking climatic and socio-economic urgency into account.

Wolfgang Koch: ‘Consideration of climate-change scenarios in the ORSA’ (see also project description, p. 7).

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Accounting for climate-change scenarios in the ORSA

Wolfgang Koch, M.Sc. / FCII

- According to the German Federal Financial Supervisory Authority (BaFin), climate-change scenarios in the ORSA are a focus for oversight this year
- Specific EIOPA/BaFin requirements:
 - Proportionality principle (depending on the companies' risk profile)
 - At least two long-term (min. 30 years) scenarios of temperature increase ($< 2^{\circ}\text{C}$ and $\geq 2^{\circ}\text{C}$)
- The disclosures required in ORSA are currently under discussion (e.g. GDV working group)

①
Scenario selection by the ‘Network for Greening the Financial System’ (NGFS):

②
Different methodological approaches for assessing climate scenarios:

- **Revaluation as of today (sensitivity analysis)**
- Stress test with instantaneous shocks ('time travel')
- Projection (static or with management rules)

Bestand	per	Zukunft	Bilanz	SCR	GSB
2021	2021	Referenz	vorhanden	vorhanden	vorhanden
2021	2021	Szenario_1	neu	neu	neu
2021	2021	Szenario_2	neu	neu	neu

③
Impact on **investment**, personal and non-life/accident insurance:

Inflationsrate in Deutschland

④
Critical discussion:

Kürzerer Zeithorizont	Längerer Zeithorizont
<ul style="list-style-type: none"> - Eigenmittel - SCR - Gesamtsolvabilitätsbedarf 	<ul style="list-style-type: none"> - Strategie und Geschäftsmodell - Geschäftsbetrieb - Anpassungsfähigkeit

↓ ↓

Mögliche Maßnahmen und Managemententscheidungen

Source:
German
Insurance
Association
(GDV)

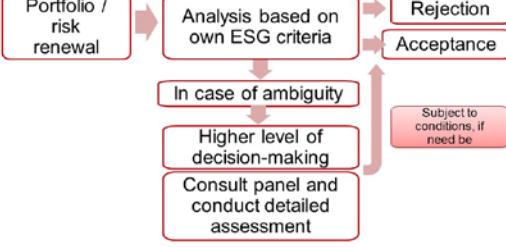
- ORSA 2022: simple, quantitative analyses as a basis for deriving qualitative statements
- The climate-change scenarios developed by the NGFS can serve as a guide
- Investing: Particularly characterised by transition risks
- Personal insurance: Long contract terms
- Non-life/accident insurance:
 - Short-term adjustment options (premiums, scope of cover, etc.)
 - The frequency and losses due to natural hazards will increase
 - Changes due to amended construction law (climate-conscious construction)

Fabian Lassen: 'ESG criteria in underwriting by reinsurers'
 (see also project description, p. 8).

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 [Sponsoring Group Reinsurance]
 Researchers' Corner, 24 June 2022

ESG criteria in reinsurer underwriting

Fabian Lassen, M.Sc. / FCII

Introduction	Challenge for reinsurers
<ul style="list-style-type: none"> › ESG criteria widespread in the investment sector, abundant literature available › Approaches are gradually developing in primary insurance underwriting 	 Reinsurer concludes a framework agreement with primary insurer  under which all agreed risks may be underwritten. Reinsurer participates in a portfolio with many risks. <u>Exception:</u> optional reinsurance solutions → each risk is considered individually <i>me</i> How are ESG criteria taken into account?
What can these criteria be?	
 Environmental <ul style="list-style-type: none"> • Greenhouse gas emissions • Natural-hazard risks • Environmental pollution • Biodiversity loss • ... 	 Social <ul style="list-style-type: none"> • Human rights • Working conditions • Healthcare • Preventing slavery, child labour • ...
 Governance <ul style="list-style-type: none"> • Unethical practices • Corruption • Lack of transparency • Non-compliance with regulations • ... 	
Information procurement	Underwriting process
 Underlying information generally available (form of government, political stability, social justice, human rights, working conditions, etc.)  Enterprises' ESG ratings can also help → Qualitative findings are summarised in a score  Information through primary insurers and transparency about the covered portfolio, e.g. top risks	 <pre> graph TD A[Portfolio / risk renewal] --> B[Analysis based on own ESG criteria] B --> C[Rejection] B --> D[Acceptance] C --> E[In case of ambiguity] D --> E E --> F[Higher level of decision-making] E --> G[Consult panel and conduct detailed assessment] F --> H[Subject to conditions, if need be] </pre>
Conclusion	
<ul style="list-style-type: none"> › We are at the beginning of a long transformation → proactive design › Create awareness of the topic and promote transparency › Consider ESG criteria as a further aspect alongside the actuarial risk › Over time, increase requirements for the underwriting decision, e.g. initially increase the need for information, introduce higher levels of decision-making, consult panels › Help shape transformation and work together with cedants, reinsurers and brokers on market-specific solutions › How do you view this topic? How do you approach it in your company?  	

**15th Annual Meeting of the Förderkreis Rückversicherung
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Researchers' Corner, 24 June 2022**

Developments in Chinese Online Insurance 2022

Lihong Wang, M.Sc. / FCII

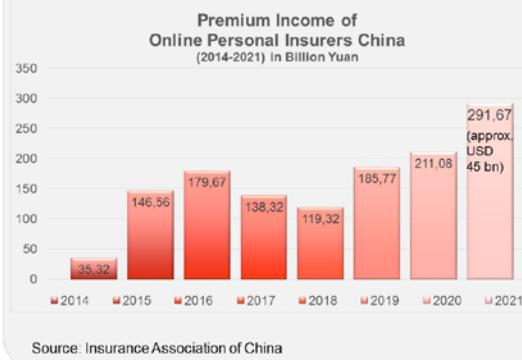
Introduction

Online insurance has evolved from a pure distributional channel to a technology-embedded ecosystem in China. With the impact of COVID-19 and the lockdowns, by the end of 2020, more than 140 Chinese insurance companies had launched online businesses, generating about 6% of the industry total, according to the May 2021 report by Chinese regulators (CBIRC).

Growth of Online Insurance in China

With the ongoing demographic changes (i.e., an ageing population, declining fertility, and the previous one-child policy) and China's more than 850 million active mobile users, online insurance is set to be the mainstream distributional and operational model.

In 2021, the insurance premiums of Chinese online insurers reached 292 billion yuan. After years of significant growth between 2014 and 2016, the value of premiums decreased in the following two years. However, in 2021, the online personal insurance market recovered and grew by around **38 per cent**.



Online Insurance in China

Socioeconomic

As in the West, the demand for protection of assets and life/health grows with an increase in wealth, a decline in fertility and an ageing population.

Entrepreneurship

A total of 7,741 enterprises involved in online insurance were registered with Chinese authorities in 2020, according to a data report.

Macro Environment

Evolving Regulations

With the changes in the insurance sector, regulators are quickly identifying problems and changing laws to tighten loopholes.

Technologies

The availability of advanced technologies forces insurers to operate in a fully digitized and AI-enabled environment in order to save time and money.

Challenges that Online Insurers Face

Regulations

Since August 2021, the CBIRC has issued new laws and regulations to counter irregularities in the online insurance sector, making multiple corrections and deadlines for companies to comply, or alternatively face fines and shutdowns.

Qualified advisors

With the unprecedented demand, there is a major shortage of insurance professionals, which are expensive to recruit and train. The growth of online insurance requires a supply of educated graduates, as well as continuous professional development (CPD) programmes.

Fraud

The increase of fraud operations by the insured or third parties through insurance has impacted personal insurers, especially, challenging the claims procedures. The costs of combating fraud are significant and necessary to the effort to meet regulatory requirements and profit projections.

Global Recession

The negative economic outlook puts pressure on corporations and individuals in respect of their spending. The insurance industry is facing the challenge of rising costs that are proportionally higher than operational profits.

Summary

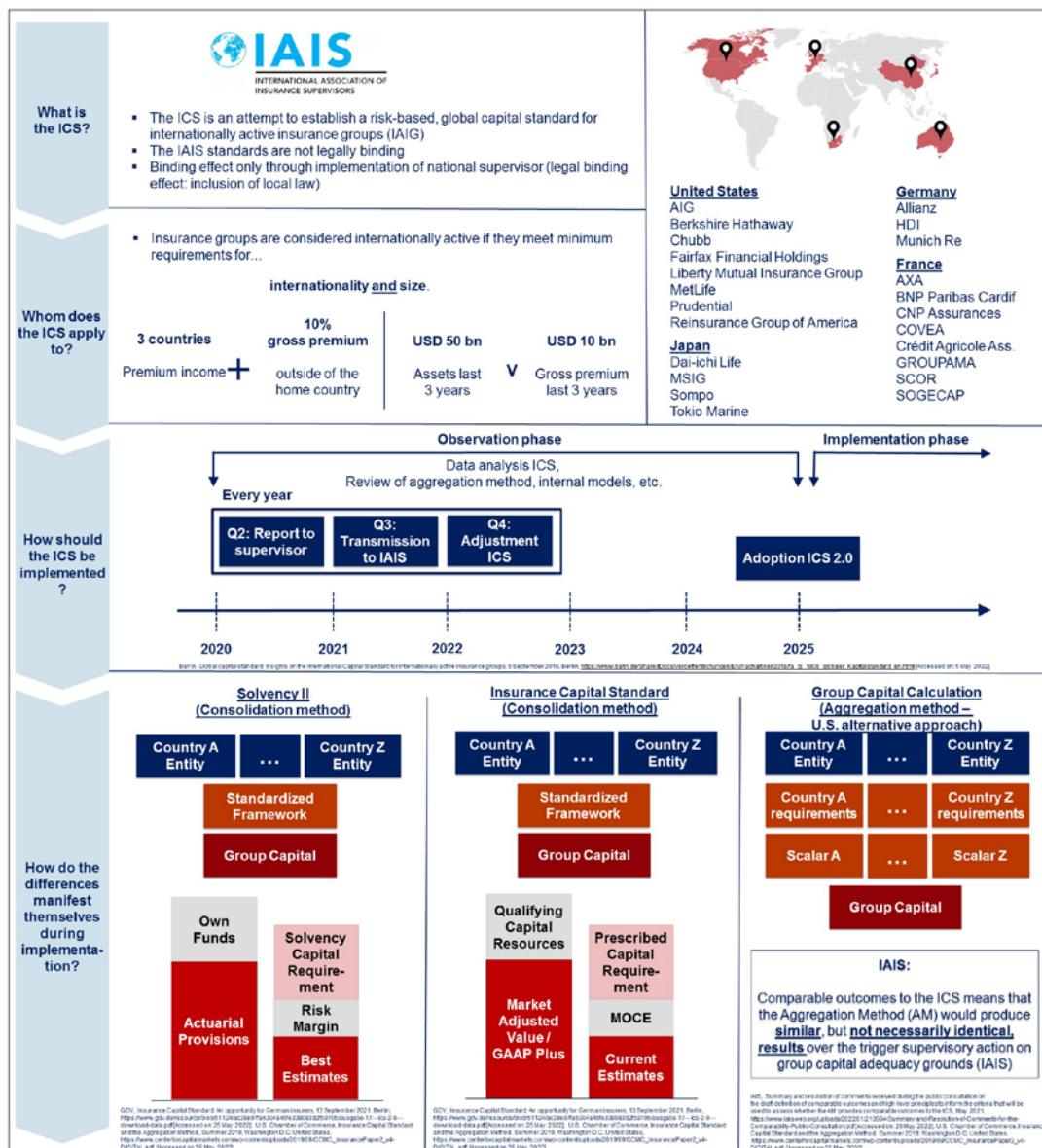
The rise of online insurance is one of the key trends in insurance development in China. With the aid of advanced technologies, it is the fastest growing line of business. Despite multiple challenges, several significant socioeconomic factors will continue to drive online insurance growth.

Erik Winkler: ‘Insurance Capital Standard (ICS)’
(see also project description, p. 12).

15th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 24 June 2022

Insurance Capital Standard (ICS)

Erik Winkler, LL. B.



Summer Re Workshop

Due to the coronavirus restrictions in place in recent years, it was not possible to hold the annual meeting of the Sponsoring Group Reinsurance, which also provides an opportunity for an internal interaction, with in-person attendance. This eliminated an important opportunity for internal interaction and knowledge transfer. As a result, 9 July 2022 the Summer Re Workshop was held on quality assurance in scientific research and the coordination of the strategic orientation of the research focus on reinsurance with the corresponding research projects.

This technical workshop was designed for employees of the research focus on reinsurance, the participating professors as well as supporters on the part of Cologne University of Applied Sciences and the Sponsoring Group Reinsurance.

In addition to interactions at a substantive level, the Summer Re Workshop also offered an opportunity to express gratitude towards the group of participants described above for their cooperation and support.

Following introductions of notable guests, including Prof. Dr. Stefan Herzig (President of the Cologne University of Applied Sciences) and Dr. Winfried Heinen (former Chairman of the Sponsoring Group Reinsurance), the academic staff presented their research projects in short lectures and discussed their results with the interested attendees.

The scientific portion of the event was followed by an informal portion that included with a highly-praised flying buffet, music and drinks. The informal atmosphere offered an opportunity in which to share ideas and discuss future projects.

Impressions of the Summer Re Workshop 2022



(Reception before the lectures, from left to right: Evelyn Hartrampf (member of academic staff), Prof. Dr. Jan-Philipp Schmidt (Institute of Insurance Cologne) with his wife, Sandra Schmidt, Prof. Dr. Reimers-Rawcliffe (Institute of Insurance Cologne))



(Presentation by Prof. Stefan Materne)



(Short lecture by Fabian Lassen)



(during the short lectures, from left to right: Prof. Dr. Stefan Herzog (President of the Cologne University of Applied Sciences), Fabian Lassen (member of academic staff), Prof. Dr. Reimers-Rawcliffe (Institute of Insurance Cologne), Wolfgang Koch (member of academic staff), Dr. Winfried Heinen (former Chairman of the Sponsoring Group Reinsurance), Sarah Kramm (Business



(Platform for exchange for academic staff)



(Celebration following the official portion)

Doctorates

At the Cologne Research Centre for Reinsurance, Mr Frank Cremer is currently preparing his cumulative doctorate (PhD) in cooperation with the University of Limerick.

The doctorate is supervised by Prof. Dr. Michael Fortmann, Dr. Barry Sheehan and Prof. Martin Mullins.

The doctoral thesis consists of several publications in scholarly journals on the topic of 'Risk transfer of cyber risks'. Publications to date are:

- Cremer, Frank / Sheehan, Barry / Fortmann, Michael / Arash N., Kia / Mullins, Martin / Murphy, Finbarr / Materne, Stefan: Cyber risk and cybersecurity: A systematic review of data availability, *The Geneva Papers on Risk and Insurance - Issues and Practice*, 47, pp. 698–736 (2022).
- Cremer, Frank / Sheehan, Barry / Fortmann, Michael / Mullins, Martin / Murphy, Finbarr: Cyber exclusions: An investigation into the cyber insurance coverage gap, in: Michael Lang, Séamus Dowling, Ruth Lennon: Multidisciplinary perspectives on cybersecurity research, practice and education: Proceedings of the 1st Cyber Research Conference Ireland, pp. 25-32 (2022)

Mr. Cremer is currently working on the following publications:

- Cremer, Frank / Fortmann, Michael / Sheehan, Barry / Mullins, Martin: The German cyber insurance landscape: A mixed methods study (In progress)
- Cremer, Frank / Fortmann, Michael / Sheehan, Barry / Mullins, Martin: Cyber warfare from the cyber insurance perspective: A qualitative mixed method study (In progress)

The doctorate is financed entirely through third-party funds acquired by the Cologne Research Centre for Reinsurance (Sponsoring Group Reinsurance). This financing covers the full-time position of Mr Cremer as a member of academic staff (50% CRCR, 50% doctorate) as well as all other costs. These include, for example, the costs of

empirical research and data preparation, literature and software costs, publication costs, tuition and course fees, conference fees, travel costs, etc.

Prof. Dr. Michael Fortmann also supports the doctoral studies of a visiting Turkish researcher in the field of product-liability insurance.

Dr. Robert Joniec completed his PhD at the University of Limerick with a dissertation entitled 'Natural Catastrophe Reinsurance: Essays on Market Design, Risk Modelling, and Innovation'.

External events and excursions 2022

Following a long hiatus due to the coronavirus pandemic, the Sponsoring Group Reinsurance was in a position to facilitate largely in-person participation in several excursions and events concerning the (re)insurance market by members of academic staff at the Cologne Research Centre for Reinsurance and students with a concentration in reinsurance. In 2022, these events consisted of the following:

- Virtual annual meeting of the German Association for Insurance Sciences (DVfVW) on 16 and 17 March 2022.
- Excursion to Liberty Mutual Reinsurance on 13 October 2022 in Cologne (report hereinafter).
- Reinsurance Conference 2022, 23-24 October 2022 in Baden-Baden (report hereinafter).

Excursion to Liberty Mutual Re on 13 October 2022

Following a long interruption due to the coronavirus pandemic, on 13 October 2022 the student body for insurance was able to offer an excursion to an insurance company in the cathedral city once again. Together with Erik Winkler, who recently completed the Master's programme in 'Risk and Insurance' and is now working as an Underwriting Assistant at Liberty Mutual Reinsurance, students from the Cologne University of Applied Sciences had an opportunity to gain insights into the reinsurance business of Liberty Mutual Reinsurance. Twelve students in all, including the reinsurance course of Prof. Materne, Frank Cremer and several employees of Liberty Mutual Re convened for the excursion on a Thursday evening at Klapperhof.



Following a warm welcome, we were first given a tour of the newly renovated office, which can shine with state-of-the-art equipment and a host of opportunities for teamwork and personal interaction. Of course this 'get-together' also featured substantive input: Mr **Jens Voges**, Underwriting Manager and Product Leader International Marine & Energy at Liberty Mutual Re, introduced us to

Liberty in general and the location in Cologne in particular. The focus there is on retrocession and the primary-insurance business in Germany. Mr **Dieter Winkel**, President of Liberty Mutual Reinsurance and Board Member of Liberty Specialty Markets, also joined us briefly and welcomed us all warmly. Subsequently, Mr **Bernd Burelbach** (Head of London Market Risks) introduced us to the different product types in retrorecession and the trend in available capacity in the market. In this, he addressed the magnitude and significance of retrocession in the insurance market. He visualised that, as of 1 January 2022, Liberty, together with just 10 of its competitors, led the market and accounted for 63% of the market for Retro CAT XL per occurrence. With an estimated market size of \$12.5 bn, this corresponds to a premium volume of \$7.9 bn.

The event came to a successful conclusion with freshly tapped Kölsch beer and delicious food. This informal atmosphere offered an opportunity to learn more about reinsurance, on the one hand, and on the other hand to address topics such as the expectations that we students have of our future employers. This resulted in a lively and interesting exchange among all those in attendance.

As a student, and on behalf of the student body, as well as the course on reinsurance, I would like to thank you once again for the insights into Liberty Mutual Reinsurance, for the hospitality, the informative discussions as well as the food and drinks served. I would also like to thank Prof. Materne once again for this opportunity.

Author: Marcel Vonderbank (Bachelor's student, 'Risk and Insurance', concentration: Reinsurance, 5th semester)

Baden-Baden – Reinsurance Symposium 2022, excursion on 23 October 2022

As he has for many years, Prof. Materne made it possible for the students with a focus on reinsurance (programme towards the Bachelor's degree in Risk and Insurance at the Cologne University of Applied Sciences) to take part in the excursion to the reinsurance conference in Baden-Baden this year.

Because the event had to be held online during the past two years due to the coronavirus situation, some students in the programme towards the Master's degree were also permitted to participate this year, as they had not had an opportunity to do so in previous years. Thus, a total of 13 students from the Institute of Insurance Cologne [ivwKöln] made their way to Baden-Baden on 23 October 2022. Thanks to the support of the Sponsoring Group Reinsurance as well as the organisational assistance of Frank Cremer, planning was straightforward for all who had embarked on the trip.

The agenda on Sunday was devoted to 'Rising to the exposure challenge': Guy Carpenter invited attendees to a shared exchange in the Kongresshaus venue and welcomed not only the students but also several names of renown from the reinsurance sector.

Having arrived at the Kongresshaus and visited the registration desk where everyone picked up his or her name tag, it quickly became apparent that the Reinsurance Symposium is a very international event. In addition to English, languages that included French, Italian and Spanish were also heard. The diversity of insurers was

impressive as well. In addition to conversations with underwriters from Munich Re, attendees also had the opportunity to overhear a thing or two from SCOR, Berkshire Hathaway or Gallagher Re.



4:30 p.m. The opening remarks were delivered by **Massimo Reina**, CEO Europe Guy Carpenter. He stressed that this event would be the first major event after the 'Covid break' and would emphasise maintaining and updating longstanding working relationships. In general, he noted that the capital in the reinsurance market remained

The opening for the event took place at

stable and had survived the crisis well, but that the future could still be expected to hold a tough and challenging market in store. It was also clear, he continued, that the USA would continue to play one of the largest roles in the market overall.

Sophie Roberts, Content Editor at The Insurer, introduced the speakers who were to follow. This began with **by Jean-Jacques Henchoz**, CEO Hannover Re. The core of his lecture was devoted to the topic of inflation, which he indicated would exert even more pressure on the industry in future. The issue of uninsurability in the realm of natural events could also be expected to grow in importance. All in all, however, he also pointed out that the demand for reinsurance was very high and would continue to increase.

Ann Haugh, CEO Axis Re, reported on the complexity of the current market. She saw challenges more as an opportunity and in her presentation emphasised the importance of investing in up and coming talent. In her view, the issue of sustainability was set to grow in importance. She described the ESG criteria as a key element for closing the gap between 'call' and 'action'.

The third speaker, **Thierry Derez**, CEO Covéa, had some uplifting things to say along with his extremely informative lecture that afternoon. Like Ann Haugh, he spoke to the new generation and pointed out that people had no further interest in working in an office in the wake of the previous two years' events. This fact warranted a closer look at the demands that these people would be placing on the insurance world. He concluded his lecture with an extremely powerful sentence, underlining once again the competition prevalent in the industry: 'If we don't do it, someone else will.' This recapitulated the key message of the emerging risks and challenges that (re)insurers face.

The respective speakers were then available to respond to questions from attendees. The event hosted by Guy Carpenter concluded at 6:30 p.m. with a cocktail reception during which students had an opportunity to get acquainted with all of the industry leaders.

This did not mark the end of the evening for the ivwKöln students, however: AON invited them to a dinner at Hamilton in Baden-Baden. There, accompanied by delicious finger food and drinks, lots of interesting conversations were held in an informal setting. Students also had a chance to network with a wide variety of practitioners in reinsurance, which may also result in some specific insights into the field of reinsurance. It was particularly encouraging that two students were additionally invited

to attend AON's breakfast briefing on Monday morning, where they were provided with additional input.

It was quite impressive to participate in the Baden-Baden Reinsurance Conference, one of the most important meetings in the industry, and to take lots of experiences and fresh food for thought home with them.

We would like to thank Guy Carpenter for the interesting symposium and the delightful cocktail reception. We would also like to thank AON for inviting us to Hamilton. Finally, a special thank-you goes to Prof. Materne and the Sponsoring Group Reinsurance, who made it possible for us students to participate in these events in the first place.

*Author: Johanna Grete Striowsky
(Students in the Master's programme: 'Risk and Insurance')*



Jacqueline Nedu (student, ivwKöln), Ann Haugh (CEO, AXIS Re), Georgi Demirov (student, ivwKöln), Jean-Jacques Henchoz (CEO, Hannover Re)

Planned research projects and events in 2023

Planned research projects:

The following research projects are expected to continue in 2023, in some cases with the publication of findings:

Cremer, Frank: 'Cyber warfare – From a cyber insurance point of view'

Given their unpredictability and their wide-ranging impacts, cyber risks, and cyber warfare in particular, pose a significant problem for trade, politics, the economy and society. From an insurance point of view, losses incurred in connection with wars are not insured due to the war exclusion clause. The problem with this exclusion clause is that the definition of the term 'war' is interpreted differently in different jurisdictions, depending on understanding, cultural norms and attitudes. Nor is there a global consensus at this point in time with respect to the exact behaviour or criteria that define a cyber event as terrorism or war. Against the backdrop of this problem, this study contributes to a better understanding with the aid of a qualitative mixed-methods analysis, and draws upon newly acquired data deriving from a content analysis of insurance conditions along with structured interviews of experts in cyber insurance.

Cremer, Frank: 'The cyber insurance market – An analysis of the cyber landscape in Germany'

Exclusions in cyber insurance were considered in 2022; the focus in 2023 will be on an analysis of insurance cover and assistance benefits. The sets of cyber conditions designed for small and medium-sized enterprises are examined in greater detail within the scope of this research. By combining the results of cover provisions and exclusions, the aim is to paint a clearer picture of the German market for cyber insurance. Another component of this research consists of an overview of the service providers with which cyber insurers partner with in the cyber insurance context. This research examines the cooperation of service providers with regard to preventive and reactive measures. The results of the research are also identified as part of a mixed-methods analysis and supplemented by semi-structured interviews. The interviews are conducted with experienced cyber experts from primary insurers and reinsurers, as well as brokers. The raw data are evaluated by means of a thematic analysis. The overall results are suitable for use in comparisons with other research contributions to international cyber insurance markets.

Frank Cremer will present this research, which forms part of his doctoral project, at the **Annual Meeting of the German Association for Insurance Sciences from 22 – 23 March 2023** in Coburg, Germany.

Dirks, Jörg: 'Captives: Rising importance due to market hardening in reinsurance'

The primary and reinsurance market is in a state of upheaval. Rising inflation, the depreciation of the euro against the US dollar, the onset of the turnaround in interest rates and the significantly higher claims burdens, particularly in the wake of natural disasters, pose new imponderables for the industry. Alongside these central changes, special features of the insurance business have also contributed to the emergence of 'alternative risk transfer' – or 'ART' for short.

With market conditions hardening and falling capacities in primary insurance and reinsurance, the approach to risk management is being rethought; risks that were not insured in the past (e.g. cyber, reputational and pandemic-related risks) are now being re-analysed. Alternative risk transfer remains a popular approach, as captives in particular are designed to reduce fluctuation and risk through assumption of increased deductibles.

Shortages of capital and rising costs add to the focus on captives, particularly for SMEs that have viewed this form of risk transfer as uneconomical or inefficient in the past.

The hardening primary and reinsurance market offers risk managers in industrial firms an opportunity to review their insurance needs, and to acquire limits with these needs in mind. Corporate groups need to see to it that their capital is invested in harmony with their needs and requirements. In their simplest form, captives allow companies to use their equity and supplement the capacity available in the traditional market.²

The ability of a captive to manage the fluctuations of small business units is particularly important at a time when primary insurance and reinsurance are forcing significantly higher levels for deductibles.

The research will offer a general overview of the traditional reinsurance market and the ART market. It will also analyse whether a hardening reinsurance market leads to increased acceptance of captives.

Taking the cycles for primary insurance and reinsurance into account, the advantages and disadvantages of ART will be analysed and assessed in comparison to traditional reinsurance cover.

Fortmann, Michael: 'Cyber insurance for businesses'

² Cf. <https://versicherungswirtschaft-heute.de/politik-und-regulierung/2022-09-26/rueckversicherer-rechnen-mit-marktverhaertung-durch-inflation-und-euro-schwaechen/>

A large share of Prof. Fortmann's research in 2023 will consider the topic of cyber insurance for businesses. Specifically, the planned revision of the model conditions of the German Insurance Association [GDV] will play a central role. Publication of a book on this topic is planned as well.

Joniec, Robert: 'Who wants a round of reinsurance? – ... No, I always lose!'

Actuarial research enlists approaches in game theory to investigate strategic negotiations and premium structures in relationships of primary insurers and reinsurers. The findings provide few tangible insights for market participants and have not completed a transition to more practical approaches to market design. In the coming year, in spite of a lack of experience/training, the research project will consider debates such as these that problematise practical observations in the approach typical to game theory/market design. The principal focus will be on changes that occur with stiffening markets:

- The more difficult the market for reinsurance, the more equal placements in an Ausubel auction.
- As 'hardness' increases, the uniformity in agreed conditions for the same layer can be expected to decrease.

What conclusions can be drawn from these simple observations about the decisions by market participants and the assumptions with regard to the market environment?

Hence, an important aim is to explain the Ausubel auction in greater detail and to point up simple differences (possibly based on a simple model) to classic FOT placement.

Lassen, Fabian: 'Disaster insurance without premium payment'

Around 15% of buildings in Switzerland are insured against the risk of earthquakes. Unlike other natural hazards, earthquake insurance is not categorised as compulsory insurance. Private insurers have identified this hazard as a new source of growth in recent years, but the penetration is still quite low. To date, efforts to integrate earthquakes into compulsory insurance have failed. Under a new proposal, there would be no premium payment for potential compulsory insurance. Instead, all building owners would contribute a portion towards damage cover in the event of an earthquake. This constitutes a departure from premium-based insurance. The work will describe the functioning of the new compulsory insurance, along with its advantages and disadvantages. Further fields of application are also being investigated.

Materne, Stefan: 'Potential capacity bottleneck in property NatCat reinsurance'

Prior to the 2022/23 renewal, concerns were raised with regard to a capacity bottleneck in Property NatCat Reinsurance – specifically for Europe. These concerns were justified on the basis of

- The increase in demand for capacity stemming from
 - The European flood events of 2021;
 - Changes in models;
 - General and insurance-specific inflation;
- The – full or partial – market exit from this line by individual risk carriers, as well as the wait-and-see stance of nearly all other reinsurers;
- The reluctance on the part of hopeful ‘substitute reinsurers’, e.g. ‘Asian capacity’;
- The dreaded withdrawal of capital market investors from the ILS sector, specifically from ‘collateralized reinsurance’.

The research questions in this connection are:

- To what extent have the fears come true?
- What are the consequences?
- How can this development be counteracted or its consequences offset?

Materne, Stefan: 'Impacts of the rise in inflation on reinsurance and industrial primary insurance'

A massive increase in inflation that began not later than September 2021 was further fuelled by the effects of the Russian war against Ukraine – in the energy sector in particular – and by the shortage of skilled workers in 2022.

In this context, it would seem interesting to make a comparison

- Of the approach by primary industrial insurers on the one hand and reinsurers on the other; and
- Of the contractual instruments of primary industrial insurers and reinsurers to counter the effects of inflation.

The research questions on this topic are:

- What strategy do reinsurers use to tackle the inflation problem?
- What strategy do primary industrial insurers use to tackle the inflation problem?
- Do industrial primary insurers adopt instruments from reinsurance to ward off the effects of inflation?

Rohlfss, Torsten: 'Value-oriented management of insurance companies'

The project from 2022 is ongoing. Is it possible to analyse the value-oriented management of insurance companies based on external data? For this purpose, selected key figures will be examined with respect to various issues, with both commercial and regulatory reporting considered in combination.

Rohlfss, Torsten / Kraus, Holger: 'Captives' (book project)

The project from 2022 is ongoing. Project to draw up a manual for captives in Germany, for publication by Springer Verlag. The aim of the project is for individual practitioners to submit a book chapter for each relevant topic.

Schmidt, Jan-Philipp: ‘Simulation, Analysis and Assessment of Reinsurance Structures’

The project from 2022 is ongoing: Based on Monte Carlo simulations, insurance-specific key figures for various complex forms of risk-sharing are identified in an effort to improve pricing and risk management from the perspective of cedants and reinsurers.

Wang, Lihong: “The rise of insurance third party administrators (TPAs) in China – 2023’

Lihong Wang aims to study the third party administrators (TPAs) industry in China and its development, especially for health claims. While the insurance market grows, more international and domestic insurers seek TPA services to better control and manage insurance claims in China. In recent years, a large number of TPAs have begun getting involved as third-party administrators (TPAs) in the health insurance business. Many investors have viewed this as a new opportunity and established further new enterprises. The research project will look at major players, key trends, their involvement in the insurance industry, the services they offer, and their strengths and weaknesses. The rise of TPAs will have an impact on the Chinese insurers' business operations.

Winkler, Erik: “Restructuring a marine & energy treaty portfolio by underwriting risks in renewable energy’

A restructuring of marine & energy portfolios is unavoidable for reinsurers in light of pressure by investors, rating agencies and legislators to establish an ESG-compliant underwriting policy. A gap that will emerge through the elimination of coverage of controversial oil, gas and coal risks that are controversial from an ESG standpoint could be breached through increased underwriting of the risks of renewable energy. There are a variety of challenges involved in underwriting risks from renewable energies, which at times differ significantly from risks in the underwriting of conventional energy sources.

The aim of this work is to highlight the challenges involved in underwriting the risks of renewable energies, the extent to which the challenges changed in the past and the steps that this requires for profitable underwriting in the future.

Planned scientific events

- **19th Cologne Reinsurance Symposium 2023**

The 19th Cologne Reinsurance Symposium will be held on 4 May 2023 in the auditorium of the Cologne University of Applied Sciences.

- **16th Annual Meeting of the Sponsoring Group Reinsurance 2023**

The 16th Annual Meeting of the Sponsoring Group Reinsurance will be held on 16 June 2023.

A note on our own behalf

Staff members of the Cologne Research Centre for Reinsurance

Including Spokesman Prof. Stefan Materne, the work of the Research Centre is carried out by a total of four professors, the other three being Prof. Dr. Michael Fortmann, Prof. Dr. Jan-Philipp Schmidt and Prof. Dr. Torsten Rohlf.

The strong practical orientation of the Cologne Research Centre for Reinsurance is ensured particularly through the research of Ms Lihong Wang and Messrs Jörg Dirks, Robert Joniec, Fabian Lassen and Erik Winkler. In addition to their involvement with the Research Centre, each of these (part-time) members of the academic staff is also employed full-time position in the reinsurance sector.

Frank Cremer also contributes to these research activities and is equally responsible for science management at the Research Centre for Reinsurance and for his doctorate in cooperation with the University of Limerick.

Science management remains in the capable hands of Evelyn Hartrampf, who in March 2022 returned from parental leave, and Frank Cremer. Specifically, activities include

- organisation and coordination of all research and knowledge-transfer activities, including the two major scientific events: the Cologne Reinsurance Symposium and the Annual Meeting of the Sponsoring Group Reinsurance, and
- office management at the Cologne Research Centre for Reinsurance.

The employees of the Cologne Research Centre for Reinsurance have a range of roles to fulfil. Each role contributes to the achievement of shared objectives and is indispensable to shared success. To this end, we are committed to treat one another in a spirit of partnership. For the Research Centre for Reinsurance – and for the Cologne University of Applied Sciences – the active implementation of equality of opportunity for all genders is an integral part of sustainable development. To us, equality of opportunity means ensuring equality and balanced participation of the genders in all aspects of the Cologne Research Centre for Reinsurance, together with equal wages and working conditions.

The Cologne Research Centre for Reinsurance supports and expressly encourages applications by women; to date, unfortunately, the Cologne Research Centre for Reinsurance has received only a few applications from women for the vacancies that have been announced. Given equal qualifications, and in the event that it is not

possible to hire multiple candidates, applications by women would be given preferential consideration.

Memberships and activities of participating professors

Prof. Stefan Materne, FCII

Prof. Materne participates in the committee of the German Association for Insurance Sciences (DVfVW) and the advisory boards of the European Insurance Supervisory Authority (EIOPA) (Insurance and Reinsurance Stakeholder Group, IRSG), the Hamburg Association for the Advancement of Insurance (HGFV) and ARIAS Germany.

In addition, Prof. Materne is a Fellow of the Chartered Insurance Institute (FCII) and a member of the International Insurance Society (IIS).

Prof. Dr. Michael Fortmann

Prof. Dr. Michael Fortmann is a member of the Working Group on Insurance Law of the German Bar Association. From 1 January 2023, he will also be a member of the board of editors of 'recht und schaden', the independent magazine for insurance law and damages.

He is also the supervisor for the cumulative doctorate of Mr Frank Cremer in cooperation with the University of Limerick on the topic of risk transfer of cyber risks, which is financed by the Cologne Research Centre for Reinsurance.

He is also assisting with the doctorate of a Turkish visiting scholar in the field of product liability insurance.

Prof. Dr. Torsten Rohlfs

Prof. Dr. Torsten Rohlfs is an associate member of the Promotionskolleg NRW, a member of the Scientific Advisory Board of the Association of the German Insurance Industry (GVNW) and a cooperation partner of the ‘Solvency kompakt’ competence platform.

He is also a member of the Board of Examiners for Auditors (Prüfungskommission für Wirtschaftsprüfer) and participates in the Rating Committee at ASSEKURATA Assekuranz Rating-Agentur GmbH.

Prof. Dr. Jan-Philipp Schmidt

Prof. Dr. Jan-Philipp Schmidt is Vice President of the German Society for Insurance and Financial Mathematics (DGVFM) and a member of the Expert Committee of the German Society for Insurance and Financial Mathematics (DGVFM).

He also heads the Board of Examiners for Actuaries of the German Association of Actuaries (DAV).

He also serves as an expert for professional journals: Annals of Actuarial Science, Der Aktuar, European Actuarial Journal and Zeitschrift für die gesamten Versicherungswissenschaft.

Staff news



We congratulate Mr. Erik Winkler on the successful completion of his Master's degree and look forward to his continuing affiliation with the Cologne Research Centre for Reinsurance, now as a member of academic staff.

His Master's thesis, which earned marks of 'Very Good', addressed the topic of '[The impact of the environmental, social, and governance \(ESG\) principles on the underwriting process in the Marine & Energy reinsurance](#)'.

Mr Wolfgang Koch left the Cologne Research Centre for Reinsurance in October 2022. We would like to thank Mr Koch for five years of very successful, constructive and pleasant cooperation – and his ever-welcome sense of humour. We wish him all the best, both professionally and personally.



The Cologne Research Centre for Reinsurance warmly congratulates Dr. Robert Joniec on the successful completion of his PhD at the University of Limerick. His dissertation was entitled 'Natural Catastrophe Reinsurance: Essays on Market Design, Risk Modelling, and Innovation'.

In May 2022, our former member of academic staff, Dr. Fabian Pütz, assumed the position of CEO of Echo Re. We wish him all the best and much success in this role.



The Cologne Research Centre for Reinsurance is pleased to welcome Prof. Dr. Dirk-Carsten Günther as an associate member.

Societal and social responsibility

As part of our social commitment, through an annual donation the Cologne Research Centre for Reinsurance supports the La Lumière Scolaire project in Guinea, which assists with the construction and ongoing operation of schools for children of disabled and homeless people. The lives of these children on the streets of Guinea are fraught with risk. They are the targets of social discrimination and are subject to deep-seated prejudices. Lacking the necessary school fees and confronted with a variety of barriers that prevent them from attending school, they would never attend public school otherwise. The project wants to change this situation, because every child has a right to receive an education. Interested parties are encouraged to visit <https://hilfe-fuer-guinea.de> for further information.

Since its inception, the Cologne Research Centre for Reinsurance has created full-time jobs for its academic staff members and part-time jobs (50%) for its research assistants; this amounts to a total of 15 (full-time) and 34 (part-time) employment agreements, respectively.

Again in 2022, the Cologne Research Centre for Reinsurance dealt with the topics of climate protection and sustainability within the scope of its social and environmental responsibility. Because these topics are at once global, national and individual missions, the Cologne Research Centre for Reinsurance developed the ideas to date and took measures to actively practice climate protection and sustainability. Prof. Dr. Torsten Rohlf, together with fellow colleagues from the Cologne Institute of Insurance Studies, has taken the topic of sustainability and climate change as an opportunity to consider the prospects of risk from the insurers' point of view. Under the title 'Klima- und Nachhaltigkeitsrisiken für die Versicherungswirtschaft' ['Climate and Sustainability Risks for the Insurance Industry'], in 2022 Prof. Dr. Torsten Rohlf, Prof. Dr. Maria Heep-Altiner, Prof. Dr. Jan-Philipp Schmidt and Marcel Berg published a contribution to the academic literature in the field of insurance studies in which the authors systematically discuss the opportunities and risks that these factors pose for the insurance industry.

Re-evaluation of the research focus on reinsurance

The Cologne Research Centre for Reinsurance has held the status of an accredited research focus at the Cologne University of Applied Sciences since 2009. The following figure shows the criteria established for a research focus by the Cologne University of Applied Sciences:

Overview of Criteria for a Research Focus

- Cooperation in research of at least 3 professors (no retired professors) interdisciplinary, across institutes and/or faculties
- Cooperations with business and science
- Direction by professor of the University of Applied Sciences
- Publications per professor: at least 3 in the last 3 - 5 years (peer-reviewed, published in recognized journals)
- PhDs per professor - external funding per professor:
 - More than €100,000 per year on average over the last three to five years in the life, natural and engineering sciences
 - More than €50,000 per year on average over the last three to five years in all other specialties
- Total applications submitted (overview)
- Patents (optional)
- Expert opinions, etc.
- Social engagement (activities and networking with partners from civil society, culture and politics)
- Innovative, forward-looking research topic
- Reference to the university's profile topics
- Term 5 years

Among the criteria shown above, the criterion of 'Social Commitment' is explained in greater detail by the annual donation to the La Lumière Scolaire project in Guinea, as discussed in the next chapter of this Annual Report.

A re-evaluation of the research focus was completed in 2022. This effort involved preparation of an evaluation report and a presentation, followed by a discussion, before the internal Senate Commission 2 at the Cologne University of Applied Sciences, under the chairmanship of Prof. Dr.-Ing. Klaus Becker, Vice-President for Research and Knowledge Transfer. As indicated by the feedback provided by Senate Commission 2, the Cologne Research Centre for Reinsurance fulfills all of the criteria of a research focus, as set forth above.

Sponsoring Group Reinsurance

The Cologne Research Centre for Reinsurance is fully financed by third-party funds provided from the Sponsoring Group Reinsurance, in which there were 88 companies involved in 2022. These are 48 risk carriers (with an approx. 85% market share in reinsurance premiums worldwide) as well as 39 cedants and reinsurance-oriented service providers.

Förderkreis Rückversicherung



Current as at 31 December 2022

The Cologne Research Centre for Reinsurance ensures bidirectional knowledge transfer between theory and practice, in particular to the Society for the Promotion of Reinsurance. It accomplishes this, firstly, via broad personal contacts by Prof. Materne and the academic staff; ongoing, bilateral project cooperation; and the exchange of views with the respective experts in the field; and secondly, via the two major scientific events held each year.

The Sponsoring Group Reinsurance finances all costs (personnel, materials, travel, etc.) arising from the activities of the Cologne Research Centre for Reinsurance,

together with the excursions and the Germany Scholarships awarded to students with a research focus in reinsurance.

The Cologne Research Centre for Reinsurance would like to express its sincere thanks to the companies participating in the Sponsoring Group for their continuous support and the independence that this support provides.

Directory of publications of the Cologne Research Centre for Reinsurance

Current as at: February 2023

2023

Lassen, Fabian: ESG-Kriterien im Underwriting von Rückversicherern in: Die VersicherungsPraxis (VP), 12/2022 | 1/2023, S. 31-32.¹

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