Publikationen der Kölner Forschungsstelle Rückversicherung
Band 4/2021

Proceedings of the Researchers‘ Corner for the 14th Annual Meeting of the Sponsoring Group Reinsurance 2021

Stefan Materne (Hrsg.)

ivwKöln
Institut für Versicherungswesen

Fakultät für Wirtschafts-
und Rechtswissenschaften

Technology
Arts Sciences
TH Köln

Table of Contents

Foreword

The 14th Annual Meeting of the Sponsoring Group Reinsurance was held 25 June 2021. Due to COVID-19, the event was held in an online format again this year. Some 80 representatives of the (re)insurance companies involved in the Sponsoring Group took part in the meeting, along with guests. Offered for the seventh time as part of the Annual Meeting, the Researchers' Corner gave the seven academic researchers at the Cologne Research Centre for Reinsurance an opportunity to deliver a presentation on the research project in which each is involved in 2021.

Over the course of three sessions, the most important results of the scientific studies by the Cologne Research Centre for Reinsurance were presented and discussed. The heterogeneity of the topics presented reflects the dovetailing of Cologne Research Centre with reinsurance practice.

Session 1

a) Frank Cremer (M.Sc., FCII, cand. PhD): Availability and Standardisation of Data on Cyber Risks

b) Jörg Dirks (M.Sc., FCII): Silent Cyber in Reinsurance – Challenges and Opportunities

c) Wolfgang Koch (M.SC., FCII): Assessment of the BaFin Guidance Notice on Dealing with Sustainability Risks in Risk Management

Session 2

a) Lihong Wang (M.Sc., FCII): The Impact of COVID-19 on the Chinese (Re)Insurance Industry

b) Robert Joniec (M.Sc., FCII, cand. PhD): The Reinsurance Market as an Allocation Mechanism – The Downside of the Traditional

Session 3

a) Fabian Lassen (M.Sc., FCII): Use of Auctions for Reinsurance placement

b) Fabian Pütz (PhD): Reinsurance Aspects of Ecosystems in the Automotive & Mobility Field

With the publication series, 'Proceedings of the Researchers' Corner', the Cologne Research Centre for Reinsurance meets the desire for publication of the research results of our researchers along with the related discussions. The titles are

reproduced in keeping with the above agenda of the Researchers' Corner for the 14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance].

We would like to express our deep gratitude to the sponsors with whose assistance

the activities of the Cologne Research Centre for Reinsurance, and the Annual Meeting of the Sponsoring Group Reinsurance in particular, are possible.

Cologne, October 2021 Prof. Stefan Materne

Cologne Research Centre for Reinsurance

The Professorship for Reinsurance was established in 1988; Prof. Stefan Materne received the first appointment to the professorship. The position was redesignated the Chair for Reinsurance by rectorate decision in 2008. The basis for this was the defined field of instruction and research comprised by reinsurance together with related topics such as alternative risk transfer, captives, insurance-linked securities, etc. In particular, the integration of the Chair of Reinsurance within the Institute of Insurance Studies at the Cologne University of Applied Sciences permits a focus on instruction and research in the field of reinsurance. The focus on the specialisation in reinsurance, in turn, promotes the international reputation of the chair and of the affiliated Cologne Research Centre for Reinsurance.

The Cologne Research Centre for Reinsurance currently employs seven academic researchers, an academic project manager, a research assistant and a student assistant and ensures the bidirectional transfer of knowledge between theory and practice. This takes place, firstly, through continuous, bilateral project cooperation as well as an exchange of views with the respective experts in the field, and secondly, through publications by the Cologne Research Centre for Reinsurance and the two major scientific events held each year (Cologne Reinsurance Symposium, Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance]).

Since 2004, the Cologne Research Centre for Reinsurance has hosted the Cologne Reinsurance Symposium free of charge, an annual event with more than 500 attendees. This event, with its top-flight presenters and international implementation with the aid of simultaneous interpreting, shapes the international reputation of our reinsurance-oriented activities.

The Cologne Research Centre for Reinsurance is fully financed by third-party funds provided from the Sponsoring Group Reinsurance, in which there are currently 88 companies involved. These are risk carriers (with an approx. 85% market share worldwide) as well as transferors and reinsurance-oriented service providers. Whether in the academic world or in the reinsurance market, there is no other institution similar to the Sponsoring Group Reinsurance.

Sponsoring Group Reinsurance

Current as at: Oct 2021.

The Annual Meeting of the Sponsoring Group Reinsurance is held once a year, offering another major scientific event for the Cologne Research Centre for Reinsurance. Participants include representatives of (re)insurance-company members of the Sponsoring Group Reinsurance along with invited guests. *Researchers' Corner*, a lecture event in which the seven current academic researchers of the Cologne Research Centre for Reinsurance present the results of their research, represents another important opportunity for interaction with practitioners.

The solid practical relevance of our research activities is manifested in their full financing by the Sponsoring Group Reinsurance – which is funded by the (re-)insurance industry – and in excellent attendance at the Cologne Reinsurance Symposium and the Annual Meeting of the Sponsoring Group Reinsurance.

We want to thank the Sponsoring Group Reinsurance, the University leadership and administration, ivw Köln [the Institute of Insurance Cologne] and the employees of the Cologne Research Centre for Reinsurance for all their support provided towards research projects and events.

Technology
Arts Sciences
TH Köln

ivwKöln
Institut für Versicherungswesen

14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance]
Researchers' Corner, 25 June 2021

Availability and Standardisation of Data on Cyber Risks

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

Motivation and point of departure

The magnitude of cyber risks

- 'NotPetya' ransomware attack caused approx. 10 billion US dollars in damage in 2017
- In 2017, 'WannaCry' led to damage of approx. 92 million pounds sterling
- Ransomware attack on the Colonial Pipeline
- 'Cybercrime cost the global economy an estimated 945 billion US dollars in 2020' (Maleks Smith et al., 2020)

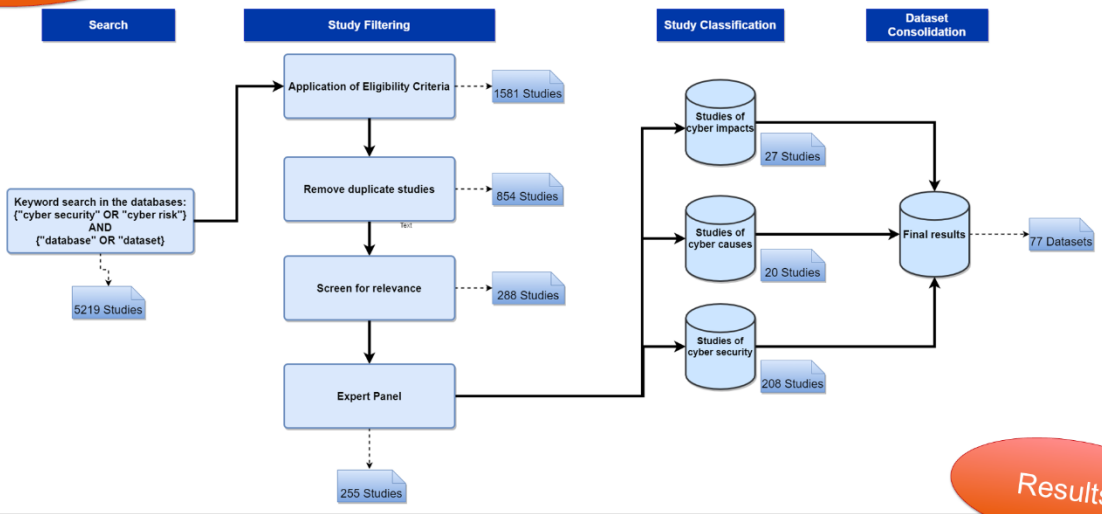
Data availability is limited

- Lack of data due to missing history
- Companies that have suffered cyber damage rarely publish this fact
- Cyber risks are dynamic and mutable

'The average cyber insurance claim increased from 145,000 US dollars in 2019 to 359,000 US dollars in 2020.'

(FitchRatings, 2021)

Methodology



Results

Publicly available data sets

Causes of cyber risks
- 14 data sets

Impact of cyber risks
- 25 data sets

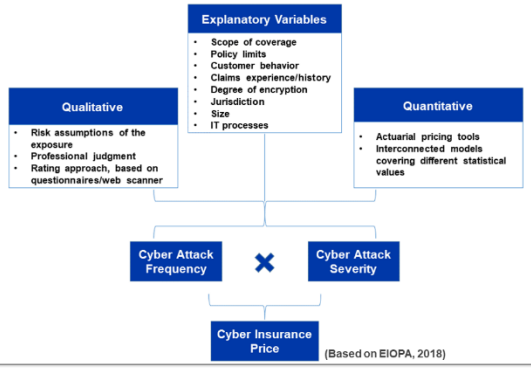
Cybersecurity
- 55 data sets

20 additional data sets on impacts via Google Dataset Search

Origin of the data sets
- 1. USA (53.3%)
- 2. Canada (10.7%)
- 3. Australia (5.3%)

Issue of standardisation
- Primarily from the USA
- Individual characteristics

Usability of the data sets for (re)insurers



14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

Availability and Standardisation of Data on Cyber Risks

Frank Cremer, M.Sc. / FCII

Frank Cremer (M. Sc., FCII) works as an academic staff member at the Cologne Research Centre for Reinsurance. Under a partnership with the University of Limerick, he is completing his doctorate on various aspects of the topic of cyber (cyber risks, risk transfer, cybersecurity). For the Cologne University of Applied Sciences, the doctoral research is being supervised by Prof. Dr. Michael Fortmann.

The frequency and the dimensions of cyber risks are forever growing in scale. The NotPetya ransomware attack in 2017 is one example of this. The damage totalled to 10 billion US dollars, as the ransomware exploited a vulnerability in the Windows system that permitted it to spread independently throughout the worldwide network. That same year witnessed the launch by cybercriminals of the WannaCry ransomware, which resulted in damage estimated at 92 million pounds sterling.

The Irish Health Service (HSE) fell victim to a ransomware attack just this year. The Irish Government was faced with a ransom demand of 20 million US dollars to restore services after the attack. A ransomware attack perpetrated on the Colonial Pipeline just a few weeks prior had had a significant impact on the US economy. The attack temporarily prevented some 45% of the US east coast from being supplied with diesel, petrol and kerosene. As a result, in the short term the average price in the US rose by 7 cents to $3.04 per gallon, the highest level in seven years. Colonial Pipeline also confirmed that it had paid a ransom of 4.4 million US dollars to the hacker group after the attack. Inadequate cybersecurity is estimated to have led to 945 billion US dollars in damage to the global economy in 2020.

Despite the threat on this order of magnitude, the availability of data on cyber risk is still very limited. Practitioners in the field and the academic literature on the topic list the following reasons for this limitation:

- Lack of data due to missing history

- Companies that have suffered cyber damage rarely publish this fact
- Cyber risks are dynamic and mutable

This lack of data poses problems for many companies. A sufficient basis of data is essential to insurers that seek to provide corresponding insurance cover as part of the risk transfer, as a sustainable calculation of the risk premium is more difficult in the absence of comprehensive data on cyber damage. The study by FitchRatings offers an example of the increased difficulty of carrying out sustainable calculations. In 2019, for example, the average level of insured cyber damage stood at 145,000 US dollars. By 2020, this amount had increased to 359,000 US dollars.

To compensate this shortage of data and offer some indication of the status quo on the data available on cyber risks, the researchers prepared a systematic overview to offer cyber risk stakeholders a database of publicly accessible data on cyber risks and cybersecurity. The study focussed on the data sets used in the academic literature.

In an effort to gain complete coverage of the literature, various databases were queried in search of relevant literature on the topic of cybersecurity and cyber risks. Given the overlaps discovered and a need for simplicity, the selection was confined to four databases.

Four academic databases were searched for relevant studies using the search string of cyber security OR cyber risk AND database OR dataset. The first run identified 5219 studies that met these search criteria. These studies were subsequently filtered using further criteria. Consideration was thus narrowed to studies published over the previous 10 years in peer-reviewed journals. Duplicates were eliminated, and a check for relevance was performed. This left 255 studies that were usable for further research.

These studies were divided into three different categories: The impacts of cyber risks, the causes of cyber risks and cybersecurity. As a final step, the data sets examined were consolidated. The research resulted in the identification of 77 unique and publicly accessible data sets.

Cyber insurers can use the open data sets to improve their grasp and assessment of cyber risks. This way, data sets on impacts can be used to better measure financial effects and their frequency. These data could be combined with existing portfolio data from cyber insurers, and integrated with existing pricing tools and pricing factors, to assess cyber risks more effectively. A combined data set of portfolio data and external data sets can facilitate risk-adjusted pricing of cyber insurance, which in turn could also benefit policyholders. Stakeholders in cyber insurance can also use the data sets to identify patterns and improve the accuracy of their predictions; this would

be in the interest of more extensive cyber insurance cover. Furthermore, the data sets could help specify a standardised definition in an effort to promote transparency and clarity. Shared terminology could lead to a more sustainable cyber market in which cyber insurers take informed decisions about the amount of cover and policyholders understand their cover.

Discussion

- Is the increase in average loss the result of a targeting of larger enterprises, or is it the product of a more aggressive strategy on the part of the attackers?

  Depending on their configurations and skills, cybercriminals also target larger undertakings. Digital crime has increased as well, leading to a higher probability of attack. One reason often cited for this is the profitability that this sector has to offer for criminals.

- Specifically, what data do the data sets include, and how can insurers make use of them?

  The category of the impacts of cyber risks, for example, includes data on the frequency of attacks, their impacts and the average loss involved. Trends in the possible claims situation are discernible particularly in the case of ransomware attacks. The pricing tools previously used often tended to be more scenario-based and relied on inadequate data sets.

- Is it possible to trace the money flows behind cyber attacks?

  Attempts to trace the money flows have proven largely unsuccessful to date. In the case of the ransom payment (in Bitcoin) for the Colonial Pipeline, however, it was possible to recover 2.3 million US dollars with the aid of the FBI.

Please contact Frank Cremer (frank.cremer@th-koeln.de) with any questions or comments.

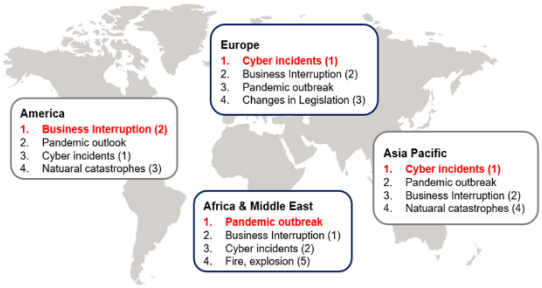
14th Annual Meeting of the Förderkreis Rückversicherung
[Sponsoring Group Reinsurance]
Researchers' Corner, 25 June 2021

Silent Cyber in Reinsurance – Challenges and Opportunities

Jörg Dirks, M.Sc. / FCII

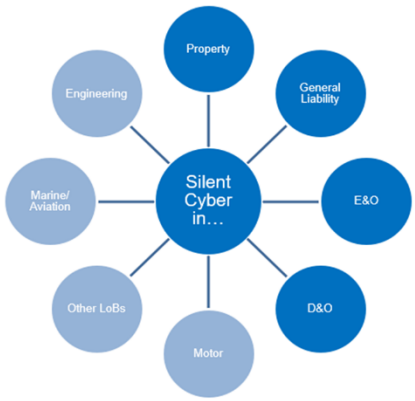
- Silent cyber: Risks from cyber exposure that primary and reinsurance companies 'either did not register at all or failed to sufficiently assess.' (Golling, 2018)
- Cyber is developing more dynamically than any other hazard.
- The greatest business risks are looming in the cyber sector.

The most important business risks: Global



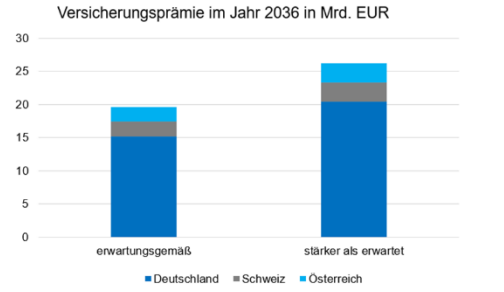
Quelle: Allianz Risk Barometer 2021

Silent Cyber Exposure



Quelle: Cyber Risks, Swiss Re, 2018

Prognose Bruttoprämie für Cyber-Versicherung



Quelle: KPMG / Digitalisierung / Studie 2017

Silent Cyber – Ausblick in die Zukunft…

Umfang der Risiken
- Artificial Intelligence
- 5G Technologie
- Cloud Service

Attacken durch…
- Ransomware
- Data Breach
- DDoS
- BEC-Scams

Steigendes Potenzial durch Betrug und Fälschung
- Deep fakes
- Social engineering
- Phishing
- Indentitätsdiebstahl

Steigerung des Risikobewusstseins
- Lieferketten
- Folgemärkte
- Behörden & Regulierungen
- Kunden & Partner

Quelle: Cyber Risks, Munich Re, 2020

MIND THE GAP

Absicherung von Silent Cyber

Herausforderungen
- Akkumulation
- Risikogerechtes Pricing
- Mangel an Daten (historische Schäden)
- Informations-Asymmetrie
- Kumulrisiko
- Explizites vs. Nicht explizites Cyber Szenario (Silent Cyber)
- Einheitliche Definition und Leistungen

Chancen
- Klare Definition von Leistungen
- Regelmäßige Überprüfung der Kalkulationsansätze
- Kontrolle der Kumulszenarien
- gezieltes Exposure-Management für eine effiziente Nutzung der Kapazitäten

14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

Silent Cyber in Reinsurance – Challenges and Opportunities

Jörg Dirks, M.Sc. / FCII

Jörg Dirks (M.Sc., FCII) is employed full-time at Hannover Re as an underwriter for aerospace reinsurance, where he supervises the Asian region. He is also a staff member at the Cologne Research Centre for Reinsurance at the Cologne University of Applied Sciences.

The 'cyber' threat is regarded as a growth area in the primary and reinsurance sectors worldwide and for the past five years has been developing more dynamically than any other hazard. This major topic concerns both primary and reinsurance companies in all areas, whether in property, liability, transport or accident insurance. Services (prevention, risk-based pricing models and claims processing, for example) present a global growth market for the reinsurance industry.

The complexity of the cyber threat and the evolving nature of the risk involved present a host of challenges for the design of insurance products, for underwriting, for risk management and for cumulative control – for both primary and reinsurance companies. Correct assessment of cyber risk is therefore indispensable, and the right approach must always be developed further. Special attention needs to be given to the variety of forms a cyber event can take. Thus, primary and reinsurance companies can incur not only the costs of data loss, but also the costs of reconstructing IT infrastructure, the costs of network and business interruptions, costs of crisis management, costs of reputational risk, and the costs of third-party liability claims.

The complexity of a risk, its assessment and, above all, the lack of data and understanding become decisive factors when considering the enormous cumulative potential of cyber policies. New, complex and dynamically evolving areas of threat call for solution approaches that extend far beyond classic primary and reinsurance cover.

Because connectivity and cyber technology are ubiquitous, a widespread single event can lead to a large number of cyber contracts. Silent cyber scenarios in particular need to be specially factored into risk-based pricing. Even if the cyber line presents considerable growth opportunities in the primary and reinsurance sector, underestimating the technical and risk-related complexities involved can lead to fatal consequences.

The word ‘silent’ or ‘non-affirmative’ must be understood as an issue that arises implicitly without explicit commentary or explanation. This thus comprises all insurance lines that define the insurance claim on the basis of an all-risks concept and do not explicitly exclude cyber risks.

Many conventional lines neither mention nor explicitly exclude cyber risks. By contrast, other lines define cyber risks but do not formulating them comprehensively, as in these lines:

- Property
- General Liability
- E&O
- D&O

Silent cyber exposures may remain a threat in the lines of technical or industrial insurance, in transport and aviation insurance, or in motor-vehicle insurance, as exclusions for cyber either are inadequately stated, or there are still no exclusions for these lines at all.

Hedging against silent cyber risks – risks that either have not yet been identified or have been inadequately assessed – confronts the reinsurance industry with challenges, but this can also create opportunities and revolutionise an industry.

Some of the challenges involved are:

- Accumulation
- Risk of change
- Risk-appropriate pricing
- Lack of data
- Cumulative risk
- Explicit vs. non-explicit cyber scenario (silent cyber)
- Uniform definition and services

In both the primary and reinsurance sectors, there is still uncertainty as to whether the risk of cyber attack might be hedged unnoticed or unintentionally through hedges outside the cyber line.

As a result of the increasing interconnectivity of the economy as well as monocultures of hardware and software, a cyber incident can hit many companies simultaneously and wreak considerable macroeconomic damage, particularly in critical infrastructures. Infrastructures are considered critical if the consequences of an outage cannot be remedied through claim payments in monetary form alone. In cases such as these, the transfer of risk with the aid of cyber reinsurance reaches its limits.

Alongside the challenges, however, silent cyber risks also pose opportunities for the reinsurance industry. Uncertainties in hedging could be eliminated through a sustainable underwriting concept, a clear and unambiguous definition of risk, through regular reviews of calculation approaches and through checks of accumulation scenarios. Forms of hedging through government and pool solutions, could also complete a holistic hedging of cyber risks, perhaps taking the form of close cooperation with primary insurers and reinsurers and in cooperation with government solutions. The idea is for primary and reinsurance firms to join forces with these to create ‘cyber risk pooling’ and provide full protection against cyber attacks.

Discussion

- Exactly how is ‘silent cyber’ defined? How should silent cyber risks be approached in existing forms of cover?

  According to a definition by Stefan Golling, Board of Management member at Munich Re, the term ‘silent cyber’ entails risks ‘that either have yet to be identified or have not been sufficiently assessed. This concerns a large number of conventional policies in which cyber risks go unmentioned, for example, or are not explicitly included or excluded, meaning they can also lead to exposure in property and liability portfolios’.

- Are silent cyber risks actually uninsurable, or what must a possible approach to hedging against them involve?

  There are loss scenarios that reinsurance companies might not be able to cover at all – or, if so, only to a very limited extent, such as a large-scale systemic failure of a critical infrastructure.

  Close interaction with primary insurers and reinsurers is an indispensable part of adequately assessing and insuring against cyber risks. It is also important to involve the end customer and external partners in an effort to arrive at a shared

understanding of how to deal with cyber risks. Uncertainties in hedging could be eliminated through a sustainable underwriting concept, a clear and unambiguous definition of risk, through regular reviews of calculation approaches and through checks of accumulation scenarios. Integral hedging of cyber risks could also be extended through state and pool solutions.

Please contact Jörg Dirks (joerg.dirks@th-koeln.de) with any questions or comments.

Technology
Arts Sciences
TH Köln

ivwKöln
Institut für Versicherungswesen

14th Annual Meeting of the Förderkreises Rückversicherung [Sponsoring Group Reinsurance]
Researchers' Corner, 25 June 2021

Reinsurance Market as Allocation Mechanism – The Downside of the Traditional

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

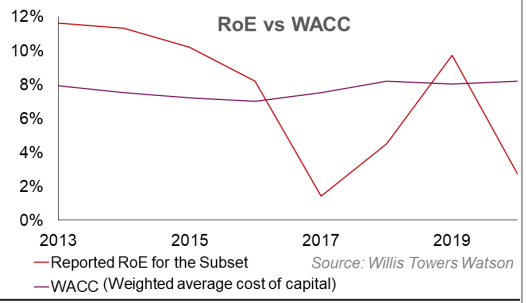
Theoretical background market design

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

- Market rules (allocation mechanism) influence participants' incentives and hence the overall outcome
- Labour market, mobile network (frequencies), organ transplants, financial markets… reinsurance

Reinsurers act as intermediaries / market makers of / for actuarial risk and capital

- Asset-liability management
- Product development
- Actuarial diversification



Intermediation, inventory, congestion, standardisation, barriers to market entry

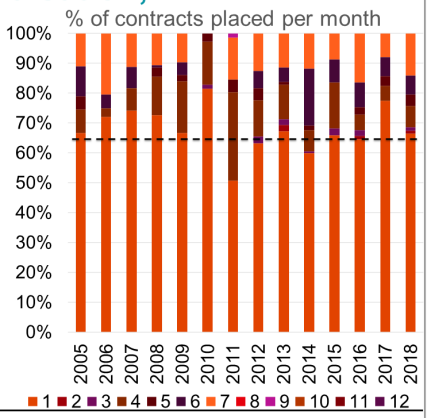
Tasks of an intermediary (Spulber, 1996)

- The main task of intermediaries is market clearing, i.e. pricing, so that purchases = sales (reinsurance cycle?)
- Generating information (R&D yes, but private?)
- Product and quality guarantee (Strong, but standardisation?)
- Monitoring and contractual services (Strong, but automation?)

Structural challenges in the reinsurance market

- Capital inventory vs underwriting inventory
- 1.1. Renewal congestion leads to lower 'thickness' among other things (approx. 65%, see)
- Globalism, competition over price and wording inhibit standardisation

Can the effects of the challenges be quantified?



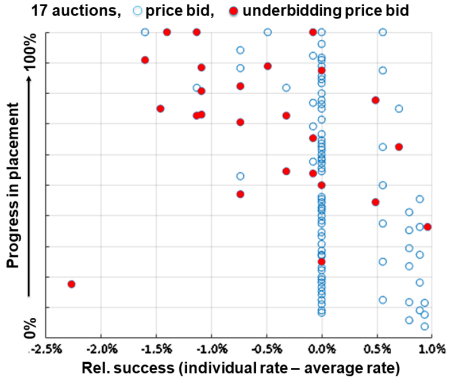
Electronic footprint of an auction placement

Reinsur. auction platforms

- Current providers: AON, GC, Tremor
- Auction platforms offer a glimpse into the relationship between allocation mechanism and placement
- Research helps establish facts
- More data are required
- Bidders do not apply strategies, but some could be identified depending on the rules

First insights into possible strategies, impact of rules

- First come, first served
- Subsequent participation forces underbidding
- Behaviour strongly influenced by individual rules



14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

The Reinsurance Market as an Allocation Mechanism – The Downside of the Traditional

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

Robert Joniec has been member of academic staff at the Cologne Research Centre for Reinsurance since 2017. In addition, he is a PhD student at the University of Limerick and is investigating the influence of alternative risk transfer on the market for reinsurance. His main occupation is as a member of the Strategic Advisory EMEA Team at Guy Carpenter & Company GmbH.

This year's research topic concerns the allocation mechanism in the reinsurance market and the potential disadvantages it can entail. The project can thus be classified in the discipline of 'market design', which builds upon microeconomics and game theory. As the project progresses, first the theoretical framework will be established and placed in the reinsurance context. The second part will offer insight into and an outlook upon current research questions.

Market design is a research field in which a market's architecture is combined with its objectives. The basic assumption holds that the rules of a market influence the incentives of market participants and hence the overall outcome (price, allocation). The totality of rules thus describes what is referred to as the 'allocation mechanism'. Even tiny differences in the allocation mechanism and in the motivation of market participants can have a major impact on results. This results in a very wide range of applications, e.g. from organ transplants to the labour market or financial markets, and hence the market for reinsurance as well. The link between the allocation mechanism in reinsurance and efficient allocation has not yet been sufficiently investigated. In the financial context, the ask-bid spread that arises during brokerage is used to measure a market's efficiency. The difference between capital costs and capital gains could be interpreted as a counterpart to this, assuming reinsurers act as brokers between risk and capital (at least in their asset-liability management). An additional dimension concerns the volatility of the actuarial risk, as this can strongly influence capital gains. The average spread between capital gains and capital costs

in the reinsurance market is high and relatively volatile over time – as already suggested, claims from major natural disasters play a role here as well. These claims are not necessarily the only explanation, however. To gain a better grasp of the situation, the role of reinsurers as brokers must be considered more closely.

The main tasks of a broker include:

- Market clearing, i.e. pricing with the aim of achieving a correspondence between purchases and sales,
- Generating information,
- The product and quality guarantee and
- Monitoring and contract services.

All of these tasks are also true of the work of reinsurers. They have greater success in fulfilling some of these tasks and less success in others. For example, the reinsurance cycle presents an obstacle to a particularly efficient market clearing. On the other hand, product and quality guarantees are very strong in the reinsurance sector (where some of the largest reinsurers have been operating for well over 100 years). Based on these tasks, we identify three challenges with regard to the allocation mechanism in reinsurance.

1. The moment they seek to maintain a predefined equity level while underwriting reinsurance business at the same time, reinsurers are exposed to inventory risk.
2. Backlogs of renewals – through information-dense interaction over a short period of time (renewal periods) – lead to an operational bottleneck as a result of which insurers and reinsurers might not be optimally paired (stable allocation) and the market will grow ‘thinner’.
3. The average degree of standardisation in reinsurance is very low.

One impact of these backlogs becomes evident with the aid of data from last year’s research project (‘How valid are research results?’). Only approx. 65% of the contracts (excesses for natural disasters from the USA) were effective 1 January. The remaining contracts were renewed on other reference dates – sometimes for historical reasons (thawing of the Bering Sea in spring), but also because better conditions are expected outside the main renewal period. Theoretically speaking, as many market participants as possible are desirable at any given time, as the number of participants has a positive impact on market efficiency.

With a reinsurance auction, we can take a first step in the direction of the research question that seeks to examine how challenges such as these affect allocation in reinsurance. Reinsurance auctions provide a laboratory-like setting in which clearly defined rules can be linked to recorded bidder behaviour and outcomes. Auctions are thus quite well-suited to the effort to determine which rules are appropriate to reinsurance, depending on the desired result.

The brokers AON, Guy Carpenter and Tremor currently offer auction platforms that they themselves have developed for reinsurance placement. With the aid of records from the Guy Carpenter platform, we gained an initial insight into 17 auctions and approx. 165 bids from reinsurers. At first glance, it is striking to note that none of the bidders pursued a clear strategy. Based on the rules and the results, however, it can also be seen that there may well be strategies in effect. Earlier participation is more likely to lead to success than later participation, for instance. Auctions remain open for 7 days, with success measured by a reinsurance premium that exceeds that of the bidders in the final allocation. Unfortunately, the information is not sufficient to generate meaningful results based on empirical studies. Further insights are needed (in our view, a game-theoretical study would be particularly exciting!) and highly relevant for the reinsurance market of the future. Further steps will develop potential rules for auctions, with their advantages and disadvantages in the reinsurance context. This is intended to help create a framework in which firms and researchers can undertake further investigations.

Discussion

- Why have the existing platforms been unsuccessful thus far?

  The reasons for this might involve the continued low level of standardisation and automation of the steps antecedent to pricing – modelling, contract negotiations (wording), etc. Market participants can view the ultimate placement as a final step for which no auction is required. This is particularly true if prices do not create a pressure to act during a soft market phase. Research also has an important role to play, however. Advantages and disadvantages at the enterprise and market level have not yet been sufficiently investigated.

  In response to the question of whether uniform contracts play an important role for company representatives, the premise of the question was underscored even further. Uniform contracts are a high priority for the companies.

Please contact Robert Joniec (robert.joniec@th-koeln.de) with any questions or comments.

Technology
Arts Sciences
TH Köln

ivwKöln
Institut für Versicherungswesen

14th Annual Meeting of the Förderkreises Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

Assessment of the BaFin Guidance Notice on Dealing with Sustainability Risks in Risk Management

Wolfgang Koch, M.Sc. / FCII

- Sustainability risks (ESG risks) in the 'Environment' area subdivided into **physical risks** and **transition risks**
- **Good practice approach:** 'Compendium of non-binding procedures'
- **Principle of proportionality:** Measures should be based on the type, magnitude and complexity of the risks involved

Delimitation into a separate risk type 'Sustainability risks' is not possible (Section 2.7)

Market risk / default risk	Actuarial risk Damage/accident	Actuarial risk Life/health	Reputational/ strategic risk	Operational risk
• Falling **share and bond values** of fossil-focussed companies • Physical damage to tangible **assets**	• Decline in motor-vehicle business due to **mobility transition** and **working from home** • **Physical damage** (frequency and intensity)	• **Heat effects** (mortality of older age groups) • Possibly **opposite effects** in longevity and mortality risk (diversification)	• Consequences of non-compliance with **climate-related specifications**	• Stiffer **regulatory requirements** (new expertise)

Requirements for risk management (Section 6)

Integration of risk-management process	• Expand **guidelines** and **escalation processes** for involvement of the management level • **Risk indicators** depending on risk appetite and risk-bearing capacity. Proposal: Risk indicators of the Network for Greening the Financial System (NGFS)
Methods	• Exclusion criteria / limits for companies (by means of heat maps) • Standards-based screening, e.g. Principles for Responsible Investment (PRI)
Risk-analysis method or risk-classification method	• Check whether transaction is **risky** based on heat maps • If so, **more intensive analysis**, e.g. through sustainability rating • **Risk classification**: Dialogue, contractually agreeing progress, rejection
Tools for risk inventory or portfolio analysis	• Use **available tools** for risk inventory or portfolio analysis • Conducting risk workshops is conceivable
In-house reporting	• Address sustainability risks **in the framework of existing reporting channels**, otherwise specific reporting • **ORSA**: Sustainability risks in the risk profile

Assessment of the Guidance Notice

- **Good practice**: Voluntary nature of the Guidance Notice must be stated more clearly and enacted by the supervisory authority.
- **Integration into the RM process**: Make proactive use of existing risk-management instruments and adjust them if necessary.
- **Heat maps** According to the Guidance Notice, heat maps could exclude entire industries from insurance cover. Case-by-case considerations are still necessary. Moreover, the **influence of the reinsurer** is not clear.
- **Proportionality:** Individual stress tests are challenging (data availability / methodological problems).

14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

Assessment of the BaFin Guidance Notice on Dealing with Sustainability Risks in Risk Management

Wolfgang Koch, M.Sc. / FCII

Wolfgang Koch is a member of academic staff at the Cologne Research Centre for Reinsurance at the Cologne University of Applied Sciences. He is also a Risk Manager at Deutsche Rückversicherung AG / VöV Rückversicherung KöR.

The elaboration of research addressed the sustainability risks identified in the BaFin Guidance Notice with regard to risk management. Sustainability risks (ESG risks) must be divided into the three areas: 'Environment', 'Social' and 'Governance'. 'Environment', which is potentially the largest area of the three, is divided again into physical risks and transition risks. Physical risks describe the possible impacts of extreme weather events, and transition risks are those that can arise as a result of the transition to a low-carbon economy (through political decisions or technological developments, for example). According to the BaFin, the Guidance Notice is a 'compendium of non-binding procedures' and the measures to be taken by the companies should be based on the type, magnitude and complexity of the risks involved (principle of proportionality).

In future, sustainability risks will be presented not as a separate type of risk but will instead be included in the existing risks (see Section 2.7 of the Guidance Notice).

The requirements for risk management are specified in Section 6 of the Guidance Notice.

To integrate these requirements into the risk-management process, management guidelines and escalation processes for inclusion of the management level need to be extended. Risk indicators must be selected based on the risk appetite and risk-bearing capacity of the entity; the risk indicators issued by the Network for Greening the Financial System (NGFS) have been proposed as the source for these. These indicators are essentially intended to serve as a template for central banks and supervisory authorities, but they can also serve as a source of ideas for (re)insurers.

Methodologically speaking, internal exclusion criteria/limits need to be defined that indicate the entities in which to invest (e.g. exclusion of firms that generate x% of their revenue from the extraction of coal). The Guidance Notice recommends the use of heat maps to determine internal exclusion criteria/limits. This is why the placement of reinsurance is considered inefficient and opaque in comparison to other financial products (e.g. the market for government bonds or automated issuance of securities). The rules are difficult for outsiders to understand and are not transparent in an auction context.

Another, more well-known method is standard-based screening, e.g. accession to the Principles for Responsible Investment (PRI).

According to the Guidance Notice, risk analysis should be carried out in three consecutive steps. First, a review must be performed to determine whether a selected transaction is risky under the criteria of the heat maps. If this is the case, a more in-depth analysis would have to be carried out, e.g. in the form of a sustainability rating of the company. Finally, in the last step, a risk classification is performed and an approach is derived based on the classification. The approach could involve entering into a dialogue with the entities, contractually agreeing to steps towards progress, or even outright rejecting transactions.

As concerns the tools for a risk inventory or portfolio analysis, use should be made of tools already on hand. Conceivably, risk workshops could be conducted with the various departments of the company to perform an initial qualitative assessment of the sustainability risks involved.

Finally, the Guidance Notice deals with internal reporting, addressing the sustainability risks within the framework of existing reporting channels and otherwise incorporating these risks into specific reporting. In future, sustainability risks must also be presented in the risk profile of the ORSA. From 2022, climate-change scenarios will also have to be integrated into the ORSA; from a quantitative perspective, this will pose a challenge for companies.

In terms of a personal assessment of the Guidance Notice, the following points should be mentioned:

Good practice approach: The voluntary nature of the Guidance Notice should be stated more clearly and ultimately enacted by the supervisory authority.

Integration into the risk-management process: The core message of the Guidance Notice should be that the existing tools for risk management are still sufficient, and that these should be proactively used or slightly modified.

Heat maps: According to the Guidance Notice, the use of heat maps could result in the exclusion of entire industries from insurance cover; this is unacceptable and

requires that determinations continue to be made on a case-by-case basis. In addition, the influence of the reinsurer is not clear, as it typically has no influence on the business model of its cedent and its selected contractual partners.

Proportionality: Given the shortage of available data and the methodological problems involved, individual stress tests and climate-change scenarios constitute a challenge. Consequently, the approach taken to climate-change scenarios in the ORSA will likely be incremental and qualitative in the first few years, until use can be made of valid quantitative methods.

Discussion

- Does BaFin also address ‘E’ (Environment) & ‘S’ (Social) in its Guidance Notice, in addition to ‘G’ (Governance)?

  While the paper offers no specific examples for S & G, the Guidance Notice applies to the entire array of ESG risks. ‘Women in management positions’ could be an example for the Social area, and ‘improved supervisory board structures’ an example in Governance.

- Because this topic could have impacts on the freedom to conduct a business: Has the German Insurance Association [GDV] already commented on this?

  GDV commented on this last year and fundamentally welcomes the Guidance Notice as an orientation guide. A recent workshop between BaFin and GDV concretised the substantive requirements relative to climate-change scenarios in the ORSA.

- How is this dealt with in-house, and what measures are in place to ensure that the topic will be applied throughout the company?

  Communication within companies is difficult at the moment as a result of the coronavirus pandemic. In-house risk workshops can still be conducted, however, in an effort to consolidate the results in the ORSA. Companies could also appoint a sustainability officer who would take the company-wide perspective.

Please contact Wolfgang Koch (wolfgang.koch@th-koeln.de) with any questions or comments.

Technology
Arts Sciences
TH Köln

ivwKöln
Institut für Versicherungswesen

14th Annual Meeting of the Förderkreis Rückversicherung
[Sponsoring Group Reinsurance]
Researchers' Corner, 25 June 2021

Use of Auctions for Reinsurance placement

Fabian Lassen, M.Sc. / FCII

1. Current relevance

- 2020 Nobel Prize in Economics for auction theory
- Trend towards automated placement (InsurTechs and market initiatives such as Ritablock and B3i) as well as increasing fields of application for blockchain technology
- Sustained competition and cost pressures in combination with low-interest-rate environment
- Auctions are proving to be a successful model

Examples of successful auctions
- Award of frequencies
- Subsidies for wind farms
- Energy prices

2. Auctions

What is an auction?
Mechanism for pricing and distributing goods based on a transparent procedure. By contrast, informal negotiations do not follow clear rules and are usually non-transparent.

Sealed bids	Open bids
(Bids are known only to the seller)	*(Bids are known to all bidders)*
Second-price auction	Ascending-bid auction
Highest-price auction	Descending-bid auction

3. Placement of reinsurance

- Direct or broker (often face-to-face)
- Informal negotiations on contractual components and prices
- Complex and at times lengthy negotiations

4. Advantages

- Tool for determining optimal prices and share allocation (e.g. divide and place programme into individual parts / layers)
- Transparency and greater control over the placement of the reinsurance programme
- Reinsurers can control their portfolio more accurately and have greater ease of access to new customers (higher competition)
- Optimising reinsurance costs (one-off effect?)

5. Disadvantages

- Price one-dimensional, hence consider other factors, such as a reinsurer's rating
- Effort to convert process
- Challenge with specific reinsurance programmes (standardisable reinsurance programmes, by contrast, good, e.g. NatCat programmes: however, problem with unclear wording in the event of loss)
- Contractual components must be defined before the auction begins → no longer flexible

6. Current developments and outlook

- Auctions not widespread in Europe, different auction methods in use
- New technologies such as blockchain can increase the degree of automation and attractiveness of auctions, as more complex processes can be mapped here and participants can be authenticated at the same time (smart contract)
- Reinsurers not only want to be a capacity supplier but also act as a service provider
- What does this mean for reinsurers? Is this a positive development with opportunities or more of a negative one with many risks? Which auction approaches are suitable?

14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

Use of Auctions for Reinsurance placement

Fabian Lassen, M.Sc. / FCII

Fabian Lassen (M. Sc. FCII) works as an underwriter at R+V Re (R+V Versicherung AG), where he is responsible for the Austrian and Swiss markets. He is also a staff member at the Cologne Research Centre for Reinsurance at the Cologne University of Applied Sciences.

The method of operation of auctions and their use in a variety of economic sectors is already well documented. Auctions are already in use for the placement of reinsurance on a small scale. So why is it important to revisit this field, which has already been studied in such considerable detail?

- Two researchers, Paul R. Milgrom and Robert B. Wilson of Stanford University, were honoured with the Nobel Prize in Economics in 2020 for their improvements in auction theory and the invention of new auction formats.
- A trend towards automation is in the placement of reinsurance is emerging. In this connection, a variety of InsurTechs and market initiatives, such as B3i and Ritablock, are dealing with various fields of application of blockchain technology.
- The persistent low-interest-rate environment, together with existing competition and cost pressures from primary insurers, mean that insurers are in search of savings potentials.
- Auctions are proving to be a successful model in many areas of the economy, e.g. in the allocation of frequencies in mobile communication, subsidies for wind farms or energy pricing.

Auction theory is a special field within game theory. What can generally be understood as an auction? An auction is a mechanism that can be deployed in the pricing and distribution of goods. In an auction, clear rules are laid down in advance, transparently explaining the group of participants, the exact procedure and the final distribution of the goods in question based on the bids submitted by the participants.

This is also the biggest difference to informal negotiations, which do not follow set rules. Over time, the well-known ‘rules’ of informal negotiations have taken shape as market practices. Auctions are distinguished based on whether the bids are sealed or submitted openly. ‘Open’ bids are disclosed to all participants (bidders). If, on the other hand, the bids are sealed, they are known only to the individual bidder and the seller.

There are many other ways in which to structure an auction; some can have a great impact on the course and outcome of the auction. Here we dispense with describing auctions in greater detail and refer instead to the existing literature on the subject.

The rather complex process involved in reinsurance placement is traditionally conducted within the framework of informal negotiations. Reinsurance placement has evolved over the years. Reinsurance cover is usually placed either through brokers or directly. The broker acts as the cedant’s representative and provides market transparency with regard to the conditions and prices of reinsurance. Brokers are also viewed as important sales partners for reinsurers.

The placement process traditionally occurs through informal negotiations, usually on an annual basis. The elements of the agreement – such as the contract structure and conditions, pricing and the distribution of shares – are negotiated among several reinsurers. These negotiations can be very complex and lengthy at times.

Ordinarily, the parties most involved in a reinsurance contract make an offer for the coming contract year. Based on the offers collected, the cedant or an intermediary broker identifies a price for the reinsurance programme at which enough reinsurers agree to carry a share of the reinsurance agreement. In most cases, not all stakeholders will be asked about pricing, often, a uniform price is ultimately chosen for all reinsurers.

This is why the placement of reinsurance is considered inefficient and opaque in comparison to other financial products (e.g. the market for government bonds or automated issuance of securities). The rules are difficult for outsiders to understand and are not transparent in an auction context.

In the reinsurance sector, auctions can also be used as a tool for determining optimal prices and share distributions. Here, reinsurance programmes can be divided into different parts or layers, so that all of the reinsurers taking part in the auction can bid for programme components that are optimal for them.

Auction rules ensure transparency for all participants. With the process already specified in advance, pricing and share allocation are more efficient than they would be under a traditional reinsurance-placement scheme.

The greatest positive effect for the cedant is that it can optimise its reinsurance costs. This arrangement also makes it possible to appeal to and involve a greater number of bearers of risk, hence involving greater market capacity. For reinsurers, auctions offer the potential to gain access to new customers. In addition, reinsurers can opt only to participate in certain elements of cover, depending on the strategy they pursue.

Auctions reduce the qualities of a bearer of risk to the price alone and are no substitute for the negotiation of cover or the structure of contractual arrangements. Depending on the design of the auction, the final allocation of shares is focussed on the price. The price, however, is quite one-dimensional and does not permit conclusions to be made about qualities such as financial stability or the rating of the bearer of risk. Such factors may be included as auction components, for example, in an effort to privilege reinsurers with a higher rating within the specified framework.

The transition from traditional placement to auctions involves effort on the part of all participants. As auctions are not sufficiently established in Europe at the moment, the transition is less worthwhile for reinsurers. Simplified access to cedants also increases competition amongst reinsurers.

Auctions are better-suited for frequently used reinsurance structures to cover natural disasters, such as NatCat excess-of-loss contracts, than they are for more specific cover concepts. This is evident particularly in discussions of contractual components. This is because these components must be determined prior to the auction. An auction can serve only to determine pricing and the allocation of shares, but not for the design of contractual clauses or the scope of cover. While this makes a portion of the placement significantly more efficient, the need for informal contractual negotiations remains.

Although auctions have not yet prevailed in reinsurance, technological progress can enhance their appeal. Auctions have led to significant efficiency gains in some sectors. These gains are sometimes not widespread in the reinsurance sector. At this point in time, auctions are used only very occasionally for the placement of reinsurance. One example of this is the Tremor platform, where placement is conducted digitally and automatically by means of an auction. In addition, some reinsurance brokers also offer simple round-based auction procedures.

Some very complex transactions are executed in the reinsurance industry. In principle, modern auction forms and technologies appear to offer a good tool with which to optimise the placement process in the area of pricing and share allocation. New technologies can enhance the attractiveness of auctions in future. Standardised processes, for example, could lead to cost advantages, with new business partners authenticated directly upon placement by means of a smart contract.

The medium-term trend for reinsurers would be one of increased competition. Moreover, some reinsurers not only seek to serve as suppliers of capacity but also want to use service offers to secure their market position. Auctions would stand in opposition to such a strategy.

Auctions have failed to prevail in the reinsurance sector in the past. New technologies and the continued pressure of competition may be drivers for this. A variety of factors will determine whether the use of auctions in reinsurance is set to increase in future. It is ultimately the cedants who must see the potential for this, and reinsurers must be prepared to get involved in this placement process.

Discussion

- Why haven't auctions prevailed in Europe yet?

  Some brokers are trying to place programmes in Europe via auction. The aim is to find the most economical price for the cedant. There has not been widespread acceptance of this placement process to date. This might owe, for example, to the effort involved in the transition, or to the fact that some market participants refuse to take part in auctions.

  In recent years, the trend in reinsurance placement in Europe has been towards greater complexity. The requirements for reinsurance underwriters have increased, with more and more subjectivities included in the contracts as a result. Consequently, nearly every reinsurer has terms and conditions of its own. Programmes such as these are, in turn, difficult to standardise – and correspondingly difficult to place through an auction.

  The problem with auctions is their focus on the price. In an industry that relies on long-term business relationships, an auction represents a rather short-term horizon. This is not commensurate with the long-term approach taken by most market participants.

Please contact Fabian Lassen (fabian_janbert.lassen@th-koeln.de) with any questions or comments.

Technology
Arts Sciences
TH Köln

ivwKöln
Institut für Versicherungswesen

14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

'Reinsurance Aspects of Ecosystems in the Automotive & Mobility Field'

Fabian Pütz, PhD / M.Sc.

Drivers of ecosystems in the 'automotive / mobility' field

Automation

Digitalisation / Interconnectivity

Sustainability

Sharing economy

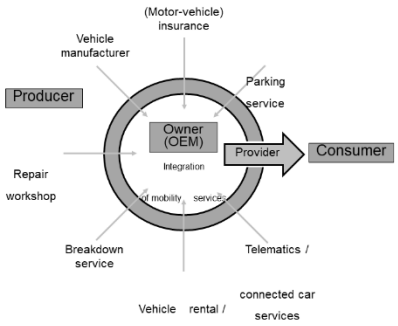
Roles in the ecosystem

A business ecosystem is 'an economic community [in which] individuals coevolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies.' (Moore, 1996)

- *The 'owner'* is a central stakeholder who performs the governance of the ecosystem
- *The 'provider'* furnishes the (technological) interface or platform
- *The 'producers'* offer products/services within the ecosystem
- *The 'consumer'* uses the ecosystem to meet his or her needs

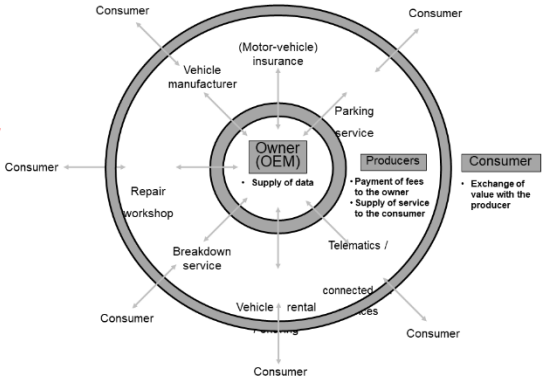
'Physical dominator' vs. 'Value dominator' approach

'Physical dominator'



vs.

'Value dominator'



I. The future trend for ecosystems in the 'mobility' field is still unforeseeable (technology and social acceptance)

II. Scope and 'ownership' of ecosystems still unclear

III. Strategic positioning of the (re)insurer (?)

Integration of reinsurance services / expertise

❖ (Data-based) ***pricing***

❖ ***'White-label'*** platforms (products and services)

❖ Risk management & ***risk transfer*** (b2b)

I. Holistic strategic cooperation possible with platform operators as sources of supply for products and capacity

II. Reinsurers with less competition at the direct customer interface ('b2b2c')

III. International support of platform operators required (?)

14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

Reinsurance Aspects of Ecosystems in the Automotive & Mobility Field

Fabian Pütz, PhD

Fabian Pütz (PhD) has been a member of academic staff at the Cologne Research Centre for Reinsurance since 2014. His doctorate, completed in 2020 at the Cologne University of Applied Sciences/University of Limerick, involved an analysis of the effects of networked, automated vehicles on the insurance industry. In the field he works for Echo Re within the DEVK Group.

The brief lecture addresses reinsurance-relevant aspects of ecosystems in the automotive and mobility field. Specifically, the following aspects will be considered:

- Definition and description of the roles within an ecosystem, paying particular attention to the role of insurance companies;
- Status and potential drivers of evolving automotive and mobility ecosystems;
- Opportunities for the strategic positioning of reinsurance companies.

By way of introduction, it is noted that the term '(business) ecosystem' has been in use in academic literature for several decades as a way to analyse market dynamics and relationships between market participants. The definitions used diverge where the level of abstraction and the underlying perspective are concerned. While some definitional approaches tend to describe ecosystems more from the consumers' point of view, other definitional approaches mainly concern themselves with competitive relationships on the supplier side. As an example of the latter approach, consider the following definitional approach according to Moore (1996):

A business ecosystem is "an economic community [in which] individuals coevolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies."

As reasons of time and space prevent a detailed analysis of the definition, for purposes of the short presentation, specific mention is made of the fact that the

definitional approach quoted permits derivation of the various supplier-side roles and relationships within an ecosystem. Accordingly, the following roles are defined:

- The ecosystem 'owner' is a central stakeholder who performs the governance of the ecosystem;
- The 'provider' furnishes the (technological) interface or platform;
- The 'producer' offers products/services within the ecosystem;
- The 'consumer' uses the ecosystem to meet its needs.

While it is true that the term 'ecosystem' has a very long history of use in the academic literature, the practice-oriented literature tends to describe the emergence of ecosystems as a novel development. This contrast is specifically ascribed to the fact that the growing importance of central digital platforms has shown that the role of 'owner' or 'provider' within a successful ecosystem can quickly lead to a market-dominating position on the part of individual providers.

Ecosystems in other sectors of the economy have already led to material changes in the competitive environment, but given the status quo in the mobility market, it can be concluded that this market remains a relatively fragmented one, characterised by a lack of (dominant) position on the part of a central owner. On the one hand, demand for 'mobility' as a service is still met mainly through motor-vehicle ownership (possession-oriented private transport). On the other hand, there is intense competition on the part of a host of different suppliers in the various sub-sectors (vehicle sales/repair and maintenance/insurance, etc.). As a result, the customer interfaces for the individual providers in the sub-sectors are often fragmented and not centrally orchestrated.

Given the technological advancements towards vehicle interconnectivity and automation, however, the once-limited motor vehicle can now be developed to offer network capabilities as a 'connected smart device'; hence, the customer can be offered additional capabilities, services and functionalities by means of the digital interface thus created. This could potentially lead to increasing competition by the vehicle provider with third-party providers of services from downstream sub-sectors (e.g. maintenance and repair or insurance). The increasing automation of motor vehicles permits the emergence of ecosystems not based any longer on individual vehicle ownership but instead offering 'Mobility as a Service (MaaS)' (e.g. ride hailing via robotaxis).

In summary, increasing interconnectivity could integrate additional services using the vehicle as a digital interface, even introducing competing mobility concepts through increasing automation. This could result in a massive shift in ecosystems in the automotive and mobility sectors. An added difficulty for strategic planning, however,

is that the ultimate scope of technological development, and of the social acceptance of these innovations, is not entirely foreseeable at the moment.

Still, as is already discernible, (re)insurers themselves do not occupy the core product or the central digital interfaces to the customer in the automotive and mobility sector. From this it can be deduced that ownership of these ecosystems tends not to be in the hands of (re)insurers, and that these must thus position themselves more as strategic partners to the main stakeholders.

The possibility of positioning in this direction, however, is also a function of the strategic approach that the ecosystem owner takes to the task of structuring the ecosystem. The literature describes two particular approaches in this regard:

- Physical dominator: The owner occupies the technological platform, with the customer interface and services simply 'supplied' by external partners. Here, the range of services and products is offered under an own brand.
- Value dominator: The owner opens up the platform to other service providers that can use it to offer services of their own (possibly in exchange for payment of a fee).

These different approaches can be seen in the still-unfinalized discussions between automobile manufacturers, on the one hand, and third-party providers on the other with regard to access to data from the networked vehicle. From this lecturer's perspective, however, this discussion only has real strategic relevance if it is assumed that mobility patterns will not shift in favour of MaaS services anyway in the medium to long term. In this case, for example, the MaaS provider would deploy a smartphone app to provide mobility services complete with modules for downstream services (e.g. insurance).

Under this scenario, insurance-oriented services and the relevant expertise remain just as important and intrinsic. Nevertheless, one cannot hope that the mobility market will not undergo a long-term structural shift. Instead, integrated strategic planning should also incorporate an analysis of the possible future key stakeholders under novel ecosystems. Based on this, these stakeholders' potential needs can be described in an effort to build up the resources needed to successfully position themselves as strategic partners.

Possible products and services might include expertise in the field of data-based pricing, white-label products for mobility providers and expertise in the management and transfer of risks of the mobility provider itself. This development might mean that primary insurers would run the risk of losing the original interface to the end customer, but it could also present an opportunity for reinsurers in particular to broaden their own business models. Offering white-label products, for example, could grow the

business model into a ‘b2b2c’ business model by strategically partnering with a platform operator. Reinsurers would expand their role as a result, no longer simply allocating reinsurance capacity to primary insurers but also making a closer approach to risk and ecosystem owners through relevant services. What makes a targeted strategic orientation particularly difficult are the uncertainty and ambiguity of developments in the underlying mobility sector. Early strategic positioning is considered necessary, however, particularly due to the ‘key-account’ risk, as successful ecosystems can quickly lead to consolidation on the provider side.

Discussion

- Can the findings around strategic positioning in the automotive and mobility fields be transposed to other fields as well?

  From the lecturer’s perspective, these considerations can in principle be transferred to other areas as well. The individual cases must, however, first investigate the extent to which ecosystems are directly or indirectly linked to insurance-relevant content. Generally speaking, because insurance-based service and product modules also play a role in other areas (travel, smart home, warranty extensions for individual retail products, etc.), for example, ecosystems can be developed as business fields through the use of white-label products and the downstream administration of insurance services. Still, it seems questionable whether the ecosystems in the other sectors, like those in the mobility sector, could lead to a real, profound and holistic impact on the interlinked insurance sector

Please contact Fabian Pütz (fabian.puetz@th-koeln.de) with any questions or comments.

Technology
Arts Sciences
TH Köln

ivwKöln
Institut für Versicherungswesen

14th Annual Meeting of the Förderkreises Rückversicherung
[Sponsoring Group Reinsurance]
Researchers' Corner, 25 June 2021

COVID-19 Impact on the Chinese (Re)Insurance Industry

Lihong Wang, M.Sc. / FCII

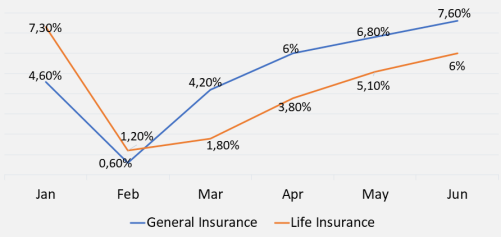
Introduction

COVID-19 dominates headlines in global media. The insurance market has been greatly impacted by the outbreak of the COVID-19 pandemic. China is the first country to impose a lockdown on a big scale and the first one to make an economic recovery. With the further economic slowdown and more structural and systematic shifts in its society, China finds its population facing rapid changes in their insurance demand. The event has also become a test case for (re)insurance operations.

Statistics

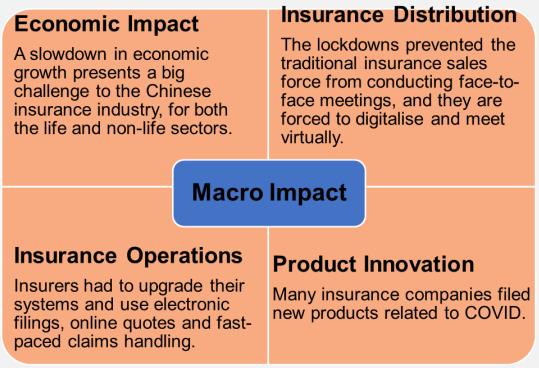
After a sharp decline in Feb 2020, growth of insurance premiums in China continues and displays resilience. The annual growth rate reached 6.1%, a further strong increase (7.8%) in GWP in the first quarter of 2021, as China's economy continues to recover.

2020 YTD Insurance Revenue Growth Compared to 2019



Source: https://www.pwccn.com/en/insurance/publications/how-china-recovering-its-implications-mainland-insurers-sep2020.pdf

Impact of COVID-19



Impact on Lines of Business

Life Insurance
Life insurance grew over the period from January to December 2020, however, growth has slowed down significantly while showing signs of financial stress.

Non-Life Insurance
Motor as the dominant line of business in P&C lines of business and thus Non-Life were initially hard-hit due to the decline in automobile sales and further corporate budget cuts.

Accident & Health Insurance
Increasing living standards and rising healthcare costs fuel the rising demand. The health insurance sector has seen a surge of demand for cover, including via online platforms and social media.

Impact on Reinsurance
COVID claims in China mostly impact the life and health lines, rather than the BI aspect, unlike Europe, the UK or the US, where BI claims are serious concerns.

Outlook

Grow	The insurance industry benefits from the positive image built up during the COVID-19 crisis and an economic recovery in China.
Transform	Insurers and intermediaries will have to rapidly transform their operational and distributional aspects and utilise social media and platforms for further digitalisation.
Connect	Insurers will accelerate the use of technologies to connect their systems and third-party providers into the new ecosystems.

14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance] Researchers' Corner, 25 June 2021

COVID-19 Impact on Chinese (Re)Insurance Industry

Lihong Wang, M.Sc. / FCII

My name is Lihong Wang; I have been working as a part-time researcher at the Cologne Research Centre of Reinsurance for 11 years. My current full-time job is consultant and manager at International Risk Solutions Ltd, based in London, an independent Lloyd's Insurance and Reinsurance Broker 1065. I am also responsible for our European office in Cyprus.

This presentation briefly introduces my research project: the Covid-19 impact on the Chinese insurance and reinsurance industry. In the following, I will give you some background information, an overview of the macro implications and some details on the impact on each line of business. Finally, I will end with an outlook for the industry following COVID-19.

COVID 19 has been with us for almost 18 months now and dominates headlines all over the world. It was initially discovered in Wuhan, China. Consequently, China became the first country to introduce large-scale lockdown; millions of people were restricted in their movement and a severe lockdown imposed. But China was also the first country to lift the lockdown and make an economic recovery. Of course, COVID 19 has changed many people's lives and many businesses in the world. When we look at the statistics in China, firstly, we can see a sharp decline immediately following the outbreak of the pandemic. At the beginning of 2020, the year-on-year insurance premium growth dropped to only 1.2% and 0.6% of its 2019 figure. This rate was unlike the trend in the past when insurance premiums always outgrew the GDP growth rates. It significantly slowed down. Secondly, the graph also shows a continuous increase over the period. Annual premium growth in 2020 reached 6.1%. It still outperformed the GDP growth rate of 2.3%.

Gross written premiums increased by 7.8% in the first quarter of 2021. Over the same period, Chinese GDP growth was over 10%. The insurance industry clearly needs more time to recover.

A slowdown in economic growth presents a significant challenge to the Chinese insurance and reinsurance industry. The effect of recession can be felt by the whole economy, including both life and non-life sectors. This is mainly due to the combined effects of large cuts in corporate budgets and the population's reticence to return to pre Covid spending habits.

The lockdowns prevented the traditional sales force from conducting face-to-face personal and group meetings, i.e. seminars, workshops etc. The offices and public venues were closed, and people had to work from home. The intermediary had to digitalize and meet virtually. In a society such as China, which is based very much on relationships, this is a considerable challenge. Also, The Chinese insurers had to upgrade their systems and processes to incorporate digital methods of filing, administration, quotation provision, handling claims etc. Millions of people are now turning to Wechat or online platforms. Insurers also face new challenges to maintain, manage and develop their personnel.

The pandemic has forced insurers to invest in product innovation and provide covid-19 related cover. The public and the government are imposing mounting pressure on the insurance companies in this respect. Companies have had to change their strategies in order to manage their reputations and public relationships output.

In the wake of the rising demand for COVID-19 related cover, many insurance companies have had to innovate and develop new products for the general and health care workers. In the past, China was dominated by motor insurance but now must expand with more accident and health and life insurance offerings.

The most severely felt damage was done to the Chinese life insurance sector. Although the life insurance sector grew in 2020, the growth rate has slowed down significantly, showing clear signs of financial stress. The contributing factors include people's feelings of uncertainty in the workplace, changes in their lives, cautious financial planning, and lack of confidence in investment-related products.

In the non-life sector, motor insurance remains the dominant line of business. The market share of motor is over 70%. In difficult times, people cut back their spending, leading to the decline of new motor sales. Corporations are examining their budgets and cutting costs. Consequently, growth will continue to recover slowly.

By way of contract, the accident and health sector has benefited from the positive influences of awareness of increased living standards and rising healthcare costs. The demand for insurance is increasing for both individuals and families. Having more offerings on social media and online platforms, China expects to see more growth in these areas.

For reinsurance, covid claims are not as big of a concern in China as in Europe, the UK or the US. While the western countries are seeing more legal battles on business interruption claims, China has minimal property BI exposure and thus less aggregated claims for reinsurers.

The industry has managed to attract more attention and raise awareness of the need for insurance. In this regard, COVID-19 is a milestone and has changed the industry and the risk landscape.

However, as China recovers economically, the insurance and reinsurance industry is well-positioned to grow. Also, the Chinese insurance industry has built up a positive image during the pandemic; people in China will continue to learn to use insurance as a risk management tool and drive the insurance premiums growth.

It is a rapidly transforming process. The insurers, intermediaries, and third-party service providers must upgrade their systems and operations to cope with the changes. They must further digitalize and use social media to grow their business on a large scale and at a much faster pace.

Using technologies, all related parties will have to connect their systems and streamline their processes effectively. The connectivity will then form a new ecosystem.

Discussion

- Do Chinese people and companies purchase business interruption insurance?

  Yes, many commercial property policies have business interruption elements. However, the cover is usually very basic: many policies only cover standing charges. Unlike the western BI policies, the coverage will not extend to cover relating to revenue or profits. In addition, the property line of business does not have a significant share in the total non-life insurance premiums (only about 10%, while the motor's share is around 60-70%).

- Is there any indication that Chinese companies want to have Business Interruption cover?

  There is no clear trend yet, as the country is still recovering.

- Is motor insurance a profitable line of business short term?

  Due to lack of activities, the motor insurance was indeed very profitable. In the past, the motor line of business has always had combined ratios over 100% due to fierce competition and standard wordings. Many insurers will value their premium growth over net profits. As the country reopens, the results in 2021 and onwards will remain to be seen.

- As you mentioned the decline of motor sales, will the motor insurance premiums grow further?

  The decline of new motor sales slows down the non-life insurance premium growth. However, there is still a steady growth because China's rising middle class continue to purchase new cars as a status symbol, rather than simply a means of getting from A to B.

Would you like to comment or ask any questions? Please feel free to contact Lihong Wang (Lihong.wang@th-koeln.de).

Publications of the Cologne Research Centre for Reinsurance

Stand: Oktober 2021

2021

Materne, Stefan (Hrsg.): Jahresbericht 2020 der Kölner Forschungsstelle Rückversicherung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 1/2021

Materne, Stefan (Hrsg.): Annual Report 2020 of the Cologne Research Centre for Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 2/2021

Winkler, Erik / Cremer, Frank: 18. Kölner Rückversicherungs-Symposium: Rückversicherung 2021 – Was sind die politischen/regulatorischen Rahmenbedingungen?, in: Die VersicherungsPraxis (VP) 06/2021, S. 40 – 42.

Materne, Stefan (Hrsg.): Proceedings des Researchers‘ Corner zur 14. Jahrestagung des Förderkreises Rückversicherung 2021. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 3/2021.

Materne, Stefan (Hrsg.): Proceedings of the Researchers’ Corner for the 14th Annual Meeting of the Sponsoring Group Reinsurance 2021. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 4/2021.

Cremer, Frank: Verfügbarkeit und Standardisierung von Daten zu Cyber Risiken. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 5/2021.

Dirks, Jörg: Silent Cyber in der Rückversicherung – Herausforderung und Chancen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 6/2021.

Joniec, Robert: Allokationsmechanismus RV-Markt – Die Schattenseite des Traditionellen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 7/2021.

Koch, Wolfgang: Einschätzung des BaFin Merkblattes zu Nachhaltigkeitsrisiken im Risikomanagement. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 8/2021.

Lassen, Fabian: Einsatz von Auktionen zur Platzierung von Rückversicherung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 9/2021.

Pütz, Fabian: RV-Aspekte von Ökosystemen im Bereich Automotive & Mobility. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 10/2021.

Wang, Lihong: COVID-19 Impact on Chinese (Re)Insurance Industry. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 11/2021.

Cremer, Frank: Availability and Standardisation of Data on Cyber Risks. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 12/2021.

Dirks, Jörg: Silent Cyber in Reinsurance – Challenges and Opportunities. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 13/2021.

Joniec, Robert: The Reinsurance Market as an Allocation Mechanism – The Downside of the Traditional. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 14/2021.

Koch, Wolfgang: Assessment of the BaFin Guidance Notice on Dealing with Sustainability Risks in Risk Management. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 15/2021.

Lassen, Fabian: Use of Auctions to Optimise Reinsurance Costs. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 16/2021.

Pütz, Fabian: Reinsurance Aspects of Ecosystems in the Automotive & Mobility Field. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 17/2021.

Wang, Lihong: Auswirkungen der COVID-19-Pandemie auf die chinesische Erst- und Rückversicherungswirtschaft. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 18/2021.

Dirks, Jörg: Cyberrisiken in der Rückversicherung – Versicherbar auf parametrischer Basis und durch künstliche Intelligenz?, in: Zeitschrift für Versicherungswesen (ZfV), 21 | 2021, S. 673-677.

2020

Materne, Stefan (Hrsg.): Jahresbericht 2019 der Kölner Forschungsstelle Rückversicherung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 1-2/2020, 2. Auflage.

Materne, Stefan (Hrsg.): Annual Report 2019 of the Cologne Research Centre for Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 2-2/2020, 2. Auflage.

Fortmann, Michael: Rechtliche Gefahren für Manager im Zusammenhang mit Cybervorfällen, in: Zeitschrift für Versicherungswesen (ZfV), 9 | 2020, S. 273 – 276.

Fortmann, Michael: Managerhaftung und deren Deckung in Zeiten des Coronavirus SARS-CoV-2, in: juris PraxisReport Versicherungsrecht (jurisPR-VersR) 5 | 2020 Anmerkung 2

Fortmann, Michael: Betriebsschließungsversicherungen in der Coronakrise, in: Zeitschrift für Versicherungswesen (ZfV), 10 | 2020, S. 300

Materne, Stefan (Hrsg.): Proceedings des Researchers‘ Corner zur 13. Jahrestagung des Förderkreises Rückversicherung 2020. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 3/2020.

Materne, Stefan (Hrsg.): Proceedings of the Researchers’ Corner for the 13th Annual Meeting of the Sponsoring Group Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 4/2020.

Dietmann, Manuel: Präventive Sanierungsplanung bei Versicherungsunternehmen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 5/2020.

Dirks, Jörg: Cyberrisiken in der Rückversicherung – Versicherbar auf parametrischer Basis und durch künstliche Intelligenz? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 6/2020.

Joniec, Robert: Kapital ist fungibel, der Markt wird effizienter – Doch wie valide sind Forschungsergebnisse? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 7/2020.

Koch, Wolfgang: Entwicklung der Sovereign Cat Pools in Schwellen- und Entwicklungsländern. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 8/2020.

Lassen, Fabian: Environmental Social Governance – Ein Blick auf die Rückversicherer. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 9/2020.

Pütz, Fabian: RV-Aspekte von Produktrückrufen im Automobilbereich. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 10/2020.

Dietmann, Manuel: Preventive recovery planning for insurance companies. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 11/2020.

Dirks, Jörg: Cyber risks in reinsurance – Insurable on a parametric basis and through artificial intelligence? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 12/2020.

Joniec, Robert: Capital is fungible, the market is growing more efficient – But how valid are research results? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 13/2020.

Koch, Wolfgang: Trend in sovereign cat pools in emerging and developing economies. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 14/2020.

Lassen, Fabian: Environmental social governance – A look at the reinsurer. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 15/2020.

Pütz, Fabian: Reinsurance aspects of product recalls in the automobile sector. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 16/2020.

Wang, Lihong: China’s Belt and Road Initiative (BRI) – Its impact on the global (re)insurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 17/2020.

Materne, Stefan (Hrsg.): Die Rückversicherung nach HIM. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 18/2020.

Pütz, Fabian / Materne, Stefan: Transfer von Naturkatastrophenrisiken von Schwellenländern über Cat-Bonds (I.), in: Zeitschrift für Versicherungswesen (ZfV), 15-16 | 2020, S. 499-503.

Fortmann, Michael: Coronakrise und Betriebsschließungen – noch kein Ende der Unsicherheit in Sicht, in: Zeitschrift für Versicherungsrecht, Haftungs- und Schadenrecht (VersR), 17 | 2020, S. 1073-1081.

Pütz, Fabian: Das Risiko von Produktrückrufen im Zeitalter von vernetzten automatisierten Fahrzeugen, in: Versicherungspraxis (VP), 9/2020, S. 17-22.

Pütz, Fabian / Materne, Stefan: Transfer von Naturkatastrophenrisiken von Schwellenländern über Cat-Bonds (II.), in: Zeitschrift für Versicherungswesen (ZfV), 17 | 2020, S. 532-538.

Fortmann, Michael: Managementhaftung und Eigenschadenabsicherung – Eine gute Kombination für Manager?, in: Neue Juristische Wochenschrift (NJW), 42 | 2020, S. 3064 – 6068.

Fortmann, Michael: Organhaftung und Versicherungsschutz bei Ansteckungsrisiken, in: Arbeitsschutz in Recht und Praxis, 12 | 2020, S. 384-386.

Fortmann, Michael: Betriebsschließungsversicherung – ein Update, in: recht und schaden (r+s), 12 | 2020, S.665 – 675.

2019

Materne, Stefan (Hrsg.): Jahresbericht 2018 der Kölner Forschungsstelle Rückversicherung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 1/2019.

Materne, Stefan (Hrsg.): Annual Report 2018 of the Cologne Research Centre for Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 2/2019.

Materne, Stefan (Hrsg.): Proceedings of the Researchers' Corner for the 11th Annual Meeting of the Sponsoring Group Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 3/2019.

Wang, Lihong: Rising Middle Class in China and the impact on insurance and reinsurance, in Versicherungswirtschaft (VW), Nr. 02/2019, S. 30-32.

Pütz, Fabian: Reinsurance aspects of connected automated vehicles: Motor Insurance, in Versicherungswirtschaft (VW), Nr. 03/2019, S. 90-96.

Pütz, Fabian: Reinsurance aspects of connected automated vehicles: Product Liability and Product Recall Insurance, in: Zeitschrift für Versicherungswesen (ZfV), 05|2019, S. 153-156.

Pütz, Fabian: Führt das automatisierte Fahren zu einer materiellen Verlagerung von Haftungskosten auf die Herstellerseite?, in Versicherungspraxis (VP), 5/2019, S. 8-12.

Hartramph, Evelyn: 16. Kölner Rückversicherungs-Symposium, Rückversicherung 2019 – Ausnahmezustand oder neue Normalität?, in Versicherungspraxis (VP), 6/2019, S. 31-33.

Hartramph, Evelyn: Ausnahmezustand oder Neue Normalität in der Rückversicherung?, in Zeitschrift für Versicherungswesen (ZfV), 12|2019, S. 366-367.

Materne, Stefan (Hrsg.): Proceedings des Researchers‘ Corner zur 12. Jahrestagung des Förderkreises Rückversicherung 2019. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 4/2019.

Koch, Wolfgang / Materne, Stefan: Informationsasymmetrien zwischen Rückversicherungsmaklern und Zedenten, in Zeitschrift für Versicherungswesen (ZfV), 21|2019, S. 648-654.

Materne, Stefan (Hrsg.): Proceedings of the Researchers' Corner for the 12th Annual Meeting of the Sponsoring Group Reinsurance 2019. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 5/2019.

Dietmann, Manuel: Zunehmende Bedeutung der Risikomanagementfunktion in Versicherungsunternehmen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 6/2019.

Dirks, Jörg: Unbemannte Fluggeräte – Evolution des Luftfahrt (Rück-) Versicherungsmarktes. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 7/2019.

Joniec, Robert: Wie geht es dem Rückversicherung-Zyklus? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 8/2019.

Knocks, Kai-Olaf: Der ILS-Markt 2019 – abgeschreckt oder abwartend. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 9/2019.

Koch, Wolfgang: Informationsasymmetrien zwischen Rückversicherungsmaklern und Zedenten. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 10/2019.

Lassen, Fabian: Senkung der Volatilität durch Einsatz eines versicherungstechnischen Swaps. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 11/2019.

Pütz, Fabian: Transfer von Cat-Risiken von Schwellenländern aus volkswirtschaftlicher Perspektive. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 12/2019.

Dietmann, Manuel: The increasing importance of the risk-management function in insurance companies. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 13/2019.

Dirks, Jörg: Unmanned aircraft – Evolution of the market for aviation (re-)insurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 14/2019

Joniec, Robert: How is the reinsurance cycle doing? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 15/2019.

Knocks, Kai-Olaf: The ILS market in 2019 – discouragement or wait-and-see? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 16/2019.

Koch, Wolfgang: Information asymmetries between reinsurance brokers and assignors. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 17/2019.

Lassen, Fabian: Reducing volatility through use of an insurance swap. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 18/2019.

Pütz, Fabian: Transferring cat risks from emerging markets from a macroeconomic perspective. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 19/2019.

Wang, Lihong: China InsurTech Development. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 20/2019.

Dirks, Jörg: Wandel der Geschäftsbeziehungen – Wird durch die Distributed-Ledger-Technologie die direkte Beziehung zwischen Erst- und Rückversicherungsunternehmen gestärkt?, in Versicherungspraxis (VP), 11/2019, S. 17-19.

2018

Böggemann, Jan: Optimierung des Einkaufs von Rückversicherung im Industrieunternehmen, Die VersicherungsPraxis, Fachzeitschrift für die versicherungsnehmende Wirtschaft, Ausgabe 6/2018, ISSN 0170 - 24 4 0, S. 6-7.

Materne, Stefan (Hrsg.): Jahresbericht 2017 der Kölner Forschungsstelle Rückversicherung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 1/2018.

Materne, Stefan (Hrsg.): Annual Report 2017 of the Cologne Research Centre for Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 2/2018.

Materne, Stefan (Hrsg.): Proceedings of the Researchers' Corner for the 10th Annual Meeting of the Sponsoring Group Reinsurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 3/2018.

Schumann-Kemp, Brigitte: Bericht zum 15. Kölner Rückversicherungs-Symposium Rückversicherung 2018 – Retrozession 2018 – nach Harvey, Irma und Maria? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 4/2018.

Materne, Stefan / Seemayer, Thomas: Rückversicherung, in: Halm/Engelbrecht/Krahe (Hrsg.): Handbuch des Fachanwalts Versicherungsrecht, 6. Auflage, Köln.

Materne, Stefan (Hrsg.): Proceedings des Researchers' Corner zur 11. Jahrestagung des Förderkreises. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 5/2018.

Joniec, Robert: Wetterrisiko – Entwicklung und Standardisierung neuer Deckungskonzepte, Die VersicherungsPraxis, Fachzeitschrift für die versicherungsnehmende Wirtschaft, Ausgabe 8/2018, ISSN 0170 - 24 4 0, S. 20-21.

Lassen, Fabian, Eich, Markus, Materne Stefan: Tausche Risiko, biete Entlastung - Wie die Senkung der Volatilität durch den Einsatz eines versicherungstechnischen Swaps gelingt, in Versicherungswirtschaft (VW), Nr. 11/2019, S. 70-73.

Joniec, Robert: Weather Derivative Design in Wine Production: A Preliminary Study for Mediterranean Grapes, 1. November 2018 / Zeitschrift für Versicherungswesen (ZfV) 21|2018, S. 659-662.

Pütz, Fabian: Was bedeutet das autonome Fahren für Herstellerhaftung und Opferschutz?, in VGA Nachrichten, Jahrgang 67,2018 – Nr. 3, ISSN 0170 – 96660, S. 111-112.

Pütz, Fabian: Die Auswirkungen automatisierter Fahrzeuge auf das Geschäftsmodell der Kfz-Versicherung: Die Wirkung von Rechts- und Motivationsaspekten auf das Regressverhalten des Kfz-Versicherers 15. November 2018 / Zeitschrift für Versicherungswesen (ZfV) 22|2018, S.697-700.

Lassen, Fabian / Eich, Markus / Materne, Stefan: Entwicklung eines länderübergreifenden Versicherungspools und anderer risikopolitischer Maßnahmen zur Reduzierung der Volatilität von lokalen Naturgefahren. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 6/2018.

Dietmann, Manuel: Interne Überprüfung des Governance-Systems in der Praxis. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 7/2018.

Dirks, Jörg: DLT – Wandel der Geschäftsbeziehungen zwischen Erst- und Rückversicherungsunternehmen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 8/2018.

Knocks, Kai-Olaf: Die Drohnen-Verordnung und ihre (möglichen) Auswirkungen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 9/2018.

Koch, Wolfgang: Risikotransfer in Schwellen- und Entwicklungsländern. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 10/2018.

Lassen, Fabian: Pooling von lokalen Naturkatastrophen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 11/2018.

Pütz, Fabian: RV-Aspekte des (vernetzten) automatisierten Fahrens. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 12/2018.

Dietmann, Manuel: Internal Review of the Governance System in practice. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 13/2018.

Dirks, Jörg: DLT – Change in Business Relationships between Primary Insurers and Reinsurance Companies. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 14/2018.

Knocks, Kai-Olaf: The Drone Regulation and Its (Possible) Impacts. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 15/2018.

Koch, Wolfgang: Risk Transfer in Emerging and Developing Countries. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 16/2018.

Lassen, Fabian: Pooling of Local Natural Disasters. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 17/2018.

Pütz, Fabian: Reinsurance Aspects of (Networked) Automated Driving. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 18/2018.

Wang, Lihong: The Rising Middle Class in China and Its Implications for (Re)Insurance Industry. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 19/2018.

2017

Materne, Stefan (Hrsg.): Jahresbericht 2016 der Kölner Forschungsstelle Rückversicherung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 1/2017.

Materne, Stefan (Hrsg.): Forschungsbericht 2016 des Forschungsschwerpunkts Rückversicherung. In: Forschungsbericht für das Jahr 2016, Schriftenreihe Forschung am ivwKöln, Band 1/2017.

Hoos, Sebastian: Die (Rück-)Versicherung von Flüchtlingsunterkünften unter dem Blickwinkel der Terrorismusregelungen in der deutschen Sachversicherung, Zeitschrift für Versicherungswesen (ZfV) 01/2017, S. 25-27.

Kaiser, Lucas: Bedeutung von Ratings für Rückversicherungsunternehmen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 2/2017.

Schumann-Kemp, Brigitte: Bericht zum 14. Kölner Rückversicherungs-Symposium 2017 – Protektionismus durch Regulierung? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 3/2017.

Pütz, Fabian / Wichelhaus, Ingo / Materne, Stefan: Konzeption eines proportionalen Solvency Bonds zur Reduktion des vorzuhaltenden Risikokapitals für das Prämien- und Reserverisiko unter Solvency II, Zeitschrift für Versicherungswesen (ZfV) 21/2017, S. 660-662.

Materne, Stefan (Hrsg.): Proceedings des Researchers‘ Corner zur 10. Jahrestagung des Förderkreises Rückversicherung am 7. Juli. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 4/2017.

Materne, Stefan: Chinas Rückversicherungsmarkt stagniert aufgrund zunehmender Regulierung. Interview in Versicherungswirtschaft (VW) 12/2017, S. 49.

Wang, Lihong: Dragon with Endurance – How China’s Economic Slowdown Impacts the Insurance Industry, Versicherungswirtschaft (VW) 12/2017, S. 48-50.

Materne, Stefan: Die US-Schäden testen die ILS-Investoren. Interview in Versicherungswirtschaft heute, 04.12.2017, http://versicherungswirtschaftheute. de/maerkte-vertrieb/chinas-ruckversicherer-leiden-unter-regulierung.

Pütz, Fabian / Materne, Stefan: Alternative Capital und Basisrisiko in der Standardformel (non-life) von Solvency II. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 5/2017. Auch erschienen in der Schriftenreihe Forschung am ivwKöln, Band 8/2017.

Böggemann, Jan: Optimierung des Einkaufs fakultativer Rückversicherung eines Idustrieversicherers. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 6/2017.

Dietmann, Manuel: SFCR: Erkenntnisse zur erstmaligen Veröffentlichung. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 7/2017.

Hoos, Sebastian: Kritische Analyse der Praxisanwendung der Ereignisdefinition. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 8/2017.
Joniec, Roboert: Acturial Swap. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 9/2017.

Kaiser, Lucas: Auswirkungen verschiedener Determinanten auf das Rating von Rückversicherungsunternehmen. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 10/2017.

Knocks, Kai-Olaf: Autonomes Fahren – Evolution oder Revolution?. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 11/2017.

Lassen, Fabian: Beschäftigte in der Rückversicherungsindustrie – Deutschland und USA. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 12/2017.

Pütz, Fabian: Alternative Capital und Basisrisiko in der Standardformel (non-life) von Solvency II. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 13/2017.

Böggemann, Jan: Optimizing the Purchase of Optional Reinsurance by industrial Insurer. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 14/2017.

Dietmann, Manuel: SCFR: Findings for Initial Publication. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 15/2017.

Hoos, Sebastian: Critical Analysis of the Practical Application of the Definition of an Event. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 16/2017.

Joniec, Robert: Acturial Swap. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 17/2017.

Kaiser, Lucas: The Impact of Different Determinants on the Rating of Reinsurance Companies. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 18/2017.

Knocks, Kai-Olaf: Autonomes Driving: Evolution or Revolution? Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 19/2017.

Lassen, Fabian: Employees in the Reinsurance Industry: Germany and the USA. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 20/2017.

Pütz, Fabian: Alternative Capital and Basic Risk in the Standard Formula (NonLife) of Solvency II. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 21/2017.

Wang, Lihong: Chinese Automobile Vehicle Recall Insurance. Technische Hochschule Köln. Publikationen der Kölner Forschungsstelle Rückversicherung, Band 22/2017.

2016

Hoos, Sebastian: Die (Rück-)Versicherung von Flüchtlingsunterkünften unter dem Blickwinkel der Terrorismusregelungen in der deutschen Sachversicherung, Zeitschrift für Versicherungswesen (ZfV) 24/2016, S. 779-782.

Lassen, Fabian: Offshore Windparks und Rückversicherung, Zeitschrift für Versicherungswesen (ZfV) 21/2016, S. 658-660.

Pütz, Fabian / Engling, Matthias / Materne, Stefan: Die Bedeutung der Ereignisdefinition im Underwriting-Prozess des Rückversicherers Technische Hochschule Köln. Forschung am ivwKöln, Band 9-2/2016 (2.Auflage). https://cos.bibl.th-koeln.de/frontdoor/index/index/docId/379

Lassen, Fabian / Kaiser, Lucas: Ist die Rückversicherung noch der Fels in der Brandung? Zeitschrift für Versicherungswesen (ZfV) 12/2016, S. 379.

Lassen, Fabian / Kaiser, Lucas: Ist die Rückversicherung noch der Fels in der Brandung? Versicherungspraxis (VP) 8/2016, S. 28.

Materne, Stefan: Rückversicherung: Anpassung des Geschäftsmodells ähnelt Kursänderung eines Tankers, Bericht vom 31. Mai 2016, in: Versicherungswirtschaft-Heute, Tagesreport.

Materne, Stefan (Hrsg.): Jahresbericht 2015 des Forschungsschwerpunkts Rückversicherung. Köln: Technische Hochschule Köln. (Forschung am ivwKöln, 2/2016). https://www.th-koeln.de/mam/downloads/deutsch/hochschule/fakultaeten/wirtschafts_und_rechtswissenschaften/fsrv_jahresbericht_02_2016_v2_webversion.pdf

Materne, Stefan (Hrsg.): Forschungsbericht 2015 des Forschungsschwerpunkts Rückversicherung. Köln: Technische Hochschule Köln. (Forschung am IVW Köln, 1/2016). https://www.th-koeln.de/mam/downloads/deutsch/hochschule/fakultaeten/wirtschafts_und_rechtswissenschaften/webversion_01_2016.pdf, S. 3-9.

2015

Axer, Jochen / Medert, Heiko Klaus / Voß, Birgit: Versicherungsteuergesetz – Kommentar, Karlsruhe: Verlag Versicherungswirtschaft GmbH, 2015.

Pütz, Fabian: Die Bedeutung der Ereignisdefinition im Underwritingprozess des Rückversicherers, Zeitschrift für Versicherungswesen (ZfV) 21/2015, S. 711-712.

Wang, Lihong: Competitive Market - Employer's Liability Business in China, Versicherungswirtschaft (VW) 11/2015, S. 40-42.

Knocks, Kai-Olaf / Materne, Stefan: Risiko Drohnen: Unbemannte Fluggeräte in der Haftpflichtversicherung, Zeitschrift für Versicherungswesen (ZfV) 18/2015, S. 587-590.

Materne, Stefan / Seemayer, Thomas: Rückversicherung, in: Halm/Engelbrecht/Krahe (Hrsg.): Handbuch des Fachanwalts Versicherungsrecht, 5. Auflage, Köln, 2015, S. 2359-2399.

Materne, Stefan: Rückversicherer vor substantiellen Fragen: Hurrikane nicht das Thema. Bericht vom 12. Mai 2015, in: Versicherungswirtschaft-Heute, Tagesreport.

Hoos, Sebastian: Das Geschäftsmodell der Rückversicherer – den Herausforderungen gewachsen?. Bericht zum 12. Kölner Rückversicherungs-Symposium vom 12. Mai 2015, in: Zeitschrift für Versicherungswesen (ZfV), Nr. 11/2015, S. 342-343.

Hoos, Sebastian: Das Geschäftsmodell der Rückversicherer – den Herausforderungen gewachsen?. Bericht zum 12. Kölner Rückversicherungs-Symposium vom 12. Mai 2015, in: Versicherungspraxis (VP), Nr. 7/2015, S. 34.

Materne, Stefan: Im Bereich der Rückversicherung gibt es keinen Kopierschutz, in: Versicherungswirtschaft (VW), Nr. 9/2015, S. 18-19.

2014

Materne, Stefan: Paradigmenwechsel bei Rückversicherern möglich, Interview zum 11. Rückversicherungs-Symposium in Köln, vom 15.05.2014, in: Versicherungswirtschaft-Heute, Tagesreport.

Hoos, Sebastian: Risikotransfer 2.0 – welche Rolle spielen die Rückversicherer?, Bericht zum 11. Kölner Rückversicherungs-Symposium vom 15. Mai 2014, in: Zeitschrift für Versicherungswesen (ZfV), Nr. 12/2014, S. 355-356.

Hoos, Sebastian / Materne, Stefan / Wichelhaus, Ingo: Die Verbriefung von Langlebigkeitsrisiken durch Longevity Bonds - Darstellung anhand zweier Praxisbeispiele (I.), in: Zeitschrift für Versicherungswesen (ZfV), Nr. 11/2014, S. 327-331.
Hoos, Sebastian / Materne, Stefan / Wichelhaus, Ingo: Die Verbriefung von Langlebigkeitsrisiken durch Longevity Bonds - Darstellung anhand zweier Praxisbeispiele (II.), in: Zeitschrift für Versicherungswesen (ZfV), Nr. Nr. 12/2014, S. 365-368.

Hoos, Sebastian / Heep-Altiner, Maria: Vereinfachter Nat Cat Modellierungsansatz zur Rückversicherungsoptimierung, in: Forschung am IVW, März 2014.

Knocks, Kai-Olaf: Kapitalzufluss im Cat-Bond-Markt – Günstiges Umfeld für Risikosponsoren.

2013

Wang, Lihong: Positive increase of insurance density and penetration in China, in: Versicherungswirtschaft (VW), Heft 22/2013, S. 36 - 38.

Knocks, Kai-Olaf: Das Ende der Zyklen, in: Versicherungswirtschaft (VW), Heft 12/2013, S. 69.

Materne, Stefan / Seemayer, Thomas: Mitrückversicherung, in: Lüer, Dieter / Schwepcke, Andreas (Hrsg.): Rückversicherungsrecht, München, Verlag C.H. Beck, 2013, S. 693-730.

2012

Knocks, Kai-Olaf / Seemayer, Thomas: Geschäftsmodelle in der Rückversicherung - für die Zukunft gerüstet?, Das 9. Kölner Rückversicherungs-Symposium, in: Zeit-schrift für Versicherungswesen (ZfV), Heft 13-14/2012, S. 415-416.

Wang, Lihong: Case Study Passenger Carrier Liability (PCL) Insurance in China, in: Zeitschrift für Versicherungswesen (ZfV), Heft 21/2012, S. 687-690.

2011

Reimers-Rawcliffe, Lutz: Eine Darstellung von Rückversicherungsprogrammen mit Anwendung auf den Kompressionseffekt, in der Publikationsreihe Forschung am IVW, Nr. 5/2011.

Knocks, Kai-Olaf / Materne, Stefan: Kosten von Catbonds – Einflussfaktoren und aktuelle Tendenzen, in: Zeitschrift für Versicherungswesen (ZfV), Heft 21/2011, S. 707-714.

Knocks, Kai-Olaf / Materne, Stefan: Positive Aussichten für Katastrophenanleihen, in: Versicherungswirtschaft (VW), Heft 15/2011, S. 1075-1081.

Knocks, Kai-Olaf / Seemayer, Thomas: Wendepunkt in der Rückversicherung? Das 8. Kölner Rückversicherungs-Symposium, in: Zeitschrift für Versicherungswesen (ZfV), Heft 12/2011, S. 422-423.

Materne, Stefan / Seemayer, Thomas: Rückversicherung, in: Halm / Engelbrecht / Krahe (Hrsg.): Handbuch des Fachanwalts Versicherungsrecht, 4. Auflage, Köln, Luchterhand, 2011, S. 2545-2586.

2010

Seemayer, Thomas: Die EU-Sektoruntersuchung zu den Unternehmensversicherungen: Meistbegünstigungsklauseln in Rückversicherungsverträgen unter Berücksichtigung des Kartellrechts, in Zeitschrift für die gesamte Versicherungswissenschaft (ZVersWiss) (2010) 98, S. 603 – 612.

Delbrück, Hans-Helmuth / Seemayer, Thomas: D&O im Versicherungskonzern – Lücken im Selbstbehalt?, in Versicherungswirtschaft (VW), Heft 21/2010, S. 1512-1514.

Materne, Stefan / Schnusenberg, Oliver: Sprechen Sie Bias? An investigation of cultural differences in behavioral finance biases between Germany and the United States, in: Journal of Behavioral Studies in Business <http://www.aabri.com/jbsb.html> (19. September 2010).

Axer, Jochen / Seemayer, Thomas: Die Neuausrichtung der Vorstandsvergütung bei Versicherungsunternehmen: Idee, Regelungsgehalt und Zielsetzung (I.), in Zeitschrift für Versicherungswesen (ZfV), 2010, Nr. 14 S. 510 ff.

Axer, Jochen / Seemayer, Thomas: Die Neuausrichtung der Vorstandsvergütung bei Versicherungsunternehmen: Idee, Regelungsgehalt und Zielsetzung (II.), in Zeitschrift für Versicherungswesen (ZfV), 2010, Nr. 15/16 S. 552-555.

Knocks, Kai-Olaf / Materne, Stefan: Grenzen und Herausforderungen bei der Verbriefung von Versicherungsrisiken, in: Zeitschrift für Versicherungswesen (ZfV), Heft 11/2010, S. 767-771.

Seemayer, Thomas: Der Ereignisbegriff in Schadenexzedentenverträgen in der Rückversicherung von Haftpflichtrisiken, Schriftenreihe des Instituts für Versicherungswesen der Fachhochschule Köln, Karlsruhe, Verlag Versicherungswirtschaft, 2010.

Seemayer, Thomas / Materne, Stefan: Viele Ereignis-Begriffe verderben die Rückdeckung in Haftpflicht, in Versicherungswirtschaft (VW), Heft 5/2010, S. 356-360.

Seemayer, Thomas: Entwendungstatbestände in der Fahrzeug-Kaskoversicherung – zugleich Anmerkung zu OLG Köln vom 22. Juli 2008 in: Recht und Schaden (r+s) 2010, S. 6-11.

Materne, Stefan / Knocks, Kai-Olaf: Verbriefung von Versicherungsrisiken – Alternativer Risikotransfer für Industrieunternehmen?, in: Die VersicherungsPraxis, Heft 1/2010, S. 4-9.

2009

Materne, Stefan / Seemayer, Thomas: Die kartellrechtliche Behandlung der Praxis der Meistbegünstigung in der EU-Sektoruntersuchung, in: VersicherungsRecht (VersR) 2009, Heft 28/2009 S. 1326-1333.

Knocks, Kai-Olaf: Auch im K-Markt kann sich Verbriefung von Risiken lohnen – Bilanzielle Auswirkungen am Beispiel der Sparc Europe, in: Versicherungswirtschaft (VW), Heft 14/2009, S. 1124-1126.

Materne, Stefan / Seemayer, Thomas: Die Aufsicht über Mixed Insurance Companies nach dem VAG, in: Zeitschrift für Versicherungswesen (ZfV), Heft 14/2009 S. 466-467.

Seemayer, Thomas: Höhere Preise, mehr Eigendeckung, Wunsch nach Vielfalt: Die Rückversicherer und die Finanzkrise, in: Zeitschrift für Versicherungswesen (ZfV), Heft 13/2009, S. 428-430.

2008

Materne, Stefan / Diehl, Frank: Rückversicherung, in: Halm / Engelbrecht / Krahe (Hrsg.): Handbuch des Fachanwalts Versicherungsrecht, 3. Auflage, Köln, Luchterhand, 2008.

Seemayer, Thomas: Rückversicherer – Ruhe vor dem Sturm?, in: Zeitschrift für Versicherungswesen (ZfV), Heft 13/2008, S. 423-424.

Seemayer, Thomas: Verbriefung von Versicherungsrisiken – Zum Vortrag von Prof. Stefan Materne, in: Versicherungsbetriebswirt (VB), Heft 4/2008, S. 115.

Publisher's details

This document has been issued as part of a series of publications by the Cologne Research Centre for Reinsurance. A complete overview of all previous publications can be found at the end of this publication

Publikationen der Kölner Forschungsstelle Rückversicherung, Band 4/2021
ISSN 2567-6652.

Prof. Stefan Materne (Hrsg.): Proceedings of the Researchers' Corner for the 14th Annual Meeting of the Förderkreis Rückversicherung [Sponsoring Group Reinsurance].

Schriftleitung / editor's office:

Prof. Stefan Materne, FCII

Lehrstuhl Rückversicherung
Chair of Reinsurance

Direktor der Kölner Forschungsstelle Rückversicherung
Director of the Cologne Research Centre for Reinsurance

Institut für Versicherungswesen /
Institute for Insurance Studies

Fakultät für Wirtschafts- und Rechtswissenschaften /
Faculty of Business, Economics and Law

Technische Hochschule Köln /
Cologne University of Applied Sciences

Gustav Heinemann-Ufer 54
50968 Köln / Cologne
Germany

Mobile +49 171 7789 265
Mail stefan.materne@th-koeln.de
Web www.th-koeln.de

Gutachter / reviewer:

Ingo Wichelhaus

Vorstand BVZL International
Executive Board, BVZL International

Mobile + 49 171 5642 673
Mail ingo.wichelhaus@bvzl.de

Oktober 2021