9. Weiterbildungstag der DGVFM

“Cyber Risk and Insurance”

Datum: 18. März 2021
Beginn: 17:00 Uhr
Ende: 19:00 Uhr
Format: Online

Programm

17:00 Uhr  Begrüßung und Einführung
Prof. Dr. An Chen (Universität Ulm)
Prof. Dr. Stefan Weber (Leibniz Universität Hannover)

17:05 Uhr  Cyber Risk from Infancy to Growth
Dr. Jürgen Reinhart (MunichRe)

18:00 Uhr  Cyber Risk and Cyber Insurance: Actuarial Challenges and Modelling Accumulation Risk with Marked Point Processes
Gabriela Zeller (TU München)

18:50 Uhr  Fragen, Diskussion

Ca. 19:00 Uhr Ende der Veranstaltung

Vorträge

„Cyber Risk from Infancy to Growth“
Dr. Jürgen Reinhart (MunichRe)

The pandemic has changed our social environment dramatically. Everyone has experienced the impacts of globalization and the high degree of dependency of our economy on digital assets. With the high speed of digitalization also the cyber risk becomes more and more a topic that gets high management attention. Risk is the business model of insurance, so cyber risk is an opportunity but it is threat at the same time. In this presentation I will try to shed some light on the most pressing questions to the cyber insurance industry. After an introduction to the current status of the risk and the insurance you should get some insights into topics like coverage, ransomware and the recent SolarWinds incident as well as where we are and what needs to done in respect of accumulation risk modelling. The presentation will conclude with explaining the relevant playing fields for actuaries.
Recently, an increasing number of researchers and practitioners from different disciplines have analyzed cyber risk and proposed different approaches to understanding and quantifying it. Yet, an agreed-upon framework and a unified quantitative understanding of cyber risk and its underlying drivers is still at its infancy. Due to the particular properties of cyber risk such as lack of historical data, interdependence of risk and IT security and difficult impact determination (e.g. intangible losses due to data loss, business interruption or reputational damages), classical actuarial approaches face numerous challenges.

In this talk, we will highlight the challenging properties of cyber risk from an actuarial perspective, before using the identified characteristics as a basis to propose a new approach for modelling cyber risk using marked point processes. The resulting model is able to include the influence of key covariables, required to model frequency and severity of cyber claims, and the dynamic nature of cyber risk, while capturing accumulation risk in a realistic way.

It takes into account different types of cyber incidents (classified according to their compromise of defined information security goals) and their causes, namely malicious untargeted and targeted attacks as well as human and technical failure.

We will present some properties of the model and explain their relevance in an insurance context as well as apply the model to the pricing of cyber insurance and risk measurement.

The application is illustrated based on a simulation study, with particular focus on the importance of considering accumulation risk and prudent policy design in the cyber context.

The talk will conclude with an outlook on opportunities for future research in the cyber risk and insurance domain, such as the optimal design of cyber insurance products transcending mere risk transfer.

This talk is based on joint work with Prof. Dr. Matthias Scherer at the ERGO Center of Excellence in Insurance, an institution at the Chair of Mathematical Finance at the Technical University of Munich.