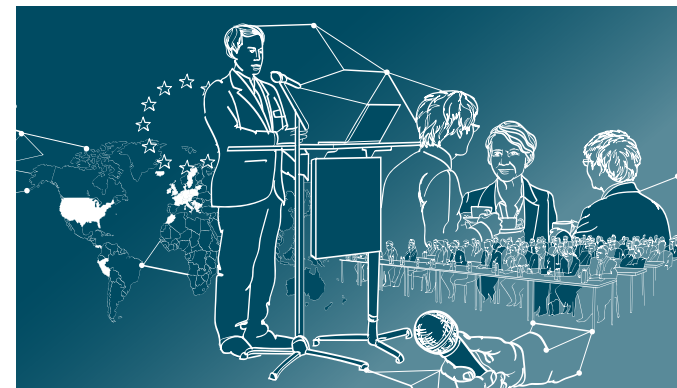
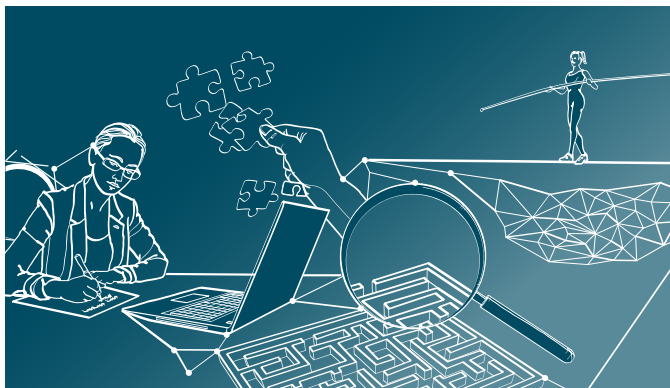


Annual Report 2016 ♦ 17



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Another year over, and a new one just begun ...

Welcome to the Annual Report of the International Center of Insurance Regulation (ICIR) covering its 7th year. For the ICIR this was another important year of its development with respect to its three goals: carrying out internationally visible research in the field of insurance regulation, contributing to training students in the area of insurance and insurance regulation, and providing a platform for academics, regulators, supervisors, and insurance practitioners to discuss and develop topics relating to insurance regulation.

I cordially invite you to read about our manifold activities, e.g. about our effort to provide more lectures and seminars at Goethe University with insurance and insurance regulation content, about the scientific workshop on systemic risk in the insurance industry we organized last November, or about the 5th Global Insurance Supervision Conference which has just taken place in September. It was co-organized with EIOPA, the World Bank, and the Research Center SAFE, and was a great success with more than 150 international participants.

The annual report provides an excellent opportunity to thank our funding partners, the boards of the ICIR, and our team: many thanks to the GDV and the State of

Hesse for sponsoring and supporting the ICIR in such a sustainable way. As part of the Goethe University, the ICIR is also very grateful for the enduring support of the University's Presidential Board, and for the fruitful cooperation with SAFE in the House of Finance.

My sincere thanks go to the colleagues both on the Executive Board and the Advisory Board of the ICIR for their continuous support and great commitment.

I also wish to thank the ICIR team members for their great work throughout the year. Without their commitment, none of the achievements reported here would have been possible.

We hope you will enjoy reading our Annual Report, and we look forward to welcoming you at the ICIR!

A handwritten signature in black ink, appearing to read 'H. Gründl'.

Prof. Dr. Helmut Gründl,
Managing Director of the ICIR

The Year at a Glance

February-April, 2017
New York, Boston,
Amherst, USA
Guelph, Canada
International
Research Exchange
Christian Kubitzka

March 15 – 16, 2017
Berlin, Germany
ICIR Research
Presentations at
Annual Congress of
the German Insurance
Science Association
2017

March 17, 2017
Beijing, China
“International Financial
Sector Forum” of the
China Association for
Promoting Development
Financing (CAPDF)
Prof. Dr. H. Gründl

April 7, 2017
Berlin, Germany
Workshop of SAFE and
the Federal Ministry
for Economic Affairs
and Energy
“Thoughts about
Development of the
Riester Retirement Plan”
Prof. Dr. H. Gründl

April 9 – 14, 2017
Frankfurt, Germany
ICIR, Goethe University
International
Research Exchange
Prof. Michael Hoy,
University of Guelph,
Ontario, Canada

May 5 – 7, 2017
Madison, USA
University of Wisconsin
ICIR Research
Presentation at
Risk Theory Society
Annual Seminar 2017
Irina Gemmo

June 21, 2017
Frankfurt, Germany
Brexit and Its Impact
on Insurance in Europe
Raj Singh, CRO Standard
Life and Aberdeen plc

August 6 – 9, 2017
Toronto, Canada
ICIR Research
Presentations at
2017 Annual Meeting of
the American Risk and
Insurance Association
(ARIA)

September 6 – 7, 2017
Frankfurt, Germany
5th Conference
on Global Insurance
Supervision (GIS)
“The Future (Re)
Insurance Landscape:
Different Perspectives,
Inspiring Dialogue”
in cooperation with
EIOPA, SAFE and the
World Bank Group

September, 2017
New York, USA
St. John's University
International
Research Exchange
Prof. Dr. Helmut Gründl

October 6 – 7, 2017
Ulm, Germany
University of Ulm
ICIR Research
Presentation at
24th Annual Meeting
of the German Finance
Association (DGF)

October 12 – 13, 2017
Vienna, Austria
Panel Participation of
Prof. Gründl at the
FMA Conference
“Current Challenges for
Insurance Markets and
Supervision in the Central,
Eastern and South Eastern
European Region”

The ICIR at Goethe University





ICIR Research Accompanies the Developments of European Insurance Regulation



Photo © Gaby Gerster

My work on the Advisory Board of the International Center for Insurance Regulation gives me a good insight into the very pleasing development of the ICIR since its foundation in 2010.

The ICIR, as part of the Goethe University, was set up by the State of Hesse, the GDV and the Goethe University with the primary goal of providing scientific support to the European Insurance and Occupational Pensions Authority (EIOPA), which was being established in Frankfurt at the same time.

Seven years on, it is clear that this goal has been met in every respect. The ICIR has become very closely integrated with EIOPA: exchanging ideas and knowledge on technical issues, including ICIR members on EIOPA committees, having EIOPA Chairman Gabriel Bernardino serve on the ICIR Advisory Board and holding the Conference on Global Insurance Supervision, which is taking place for the fifth time in September 2017 at the Goethe University in Frankfurt. The conference is jointly organised by the ICIR, EIOPA, SAFE and the World Bank.

As a result of Brexit, Germany and Frankfurt in particular are set to gain in importance as financial centres, both for the banking and the insurance industry. The potential relocation of the European Banking Authority EBA from

London to Frankfurt is currently under intense discussion, including the possible implications for Europe's financial supervisory architecture. As such, I believe it is paramount that Frankfurt has the benefit of the ICIR as an internationally oriented institution that helps – in close cooperation with the institutes at the House of Finance – to tackle issues of European and international insurance and financial services regulation on an independent, scientific basis.

One more point from a personal perspective: I am very impressed at the ICIR team's current effort to enable a young PhD student from Ghana to research aspects and developments of insurance regulation related to Africa. It goes to how the international approach of the Goethe University and the ICIR aligns with the promotion of international talent and cultural diversity.

I wish Professor Gründl and the entire ICIR team all the best for the future!

Dr. h.c. Petra Roth

ICIR

Its Three Pillars



Research

The International Center for Insurance Regulation (ICIR) is recognized as a leading scientific institution fostering independent research on insurance regulation and market solutions to regulatory questions. As an integral part of Goethe University in Frankfurt, the ICIR is committed to Goethe University's values and mission statement.

Education

The ICIR offers several lectures and seminars within the Bachelor and Master degree programs at the Faculty of Economics and Business Administration of Goethe University in order to increase professional knowledge in the field of insurance economics and insurance regulation.

Policy Platform

The ICIR provides an international and interdisciplinary platform for scholars, executives of the insurance industry, regulatory authorities, and policy makers to exchange ideas and shape strategic thinking about the future development of insurance and insurance regulation.

Funding and Partners

We would like to express our gratitude towards our funding partners, the university, cooperation partners, and all the people within our network, for their continuous trust and tremendous support shaping the ICIR's development.



The ICIR receives generous funding by the State of Hesse (Land Hessen) and the German Insurance Association (Gesamtverband der Deutschen Versicherungswirtschaft (GDV)) for a period of ten years.

Goethe University, a research-oriented university at the heart of Europe's financial center Frankfurt am Main, provides an outstanding and modern infrastructure located on the Campus Westend in the House of Finance.

Goethe University gives the ICIR a unique scientific environment for interdisciplinary research, especially through its research center "Sustainable Architecture for Finance in Europe" (SAFE).

In addition, the ICIR receives further research funding from the German Association for Insurance Studies (Deutscher Verein für Versicherungswissenschaft e.V.) in Berlin, the Frankfurt Association for the Promotion of Insurance Studies at Goethe University (Förderkreis für die Versicherungslehre an der Johann Wolfgang Goethe-Universität) and Goethe Finance Association e.V. (GFA).



Förderkreis für die Versicherungslehre e. V.

People at the ICIR



The ICIR Team



Prof. Dr. Helmut Gründl
Chair of Insurance and Regulation
Managing Director, ICIR



Prof. Dr. Jens Gal
Jun. Prof. for European Insurance Law



Jozefina Kontic
Associate Managing Director



Dea Lapi
Chair Management



Nana Adwoa Dekyem Amo-Mensah
Research Assistant and Doctoral Student



Irina Gemmo
Research Assistant and Doctoral Student



Christian Kubitza
Research Assistant and Doctoral Student



Fabian Regele
Research Assistant and Doctoral Student



Jan-Hendrik Weinert
Research Assistant and Doctoral Student

The ICIR Team



Arina Brutyan
Student Assistant



Lorenz Ebermann
Student Assistant



Nicolaus Jan Karol Grochola
Student Assistant



Laurin Sander Sponheuer
Student Assistant

The Executive Board



Prof. Dr. Helmut Gründl
Professor
Chair of Insurance and Regulation
Goethe University
.....
Managing Director
International Center for
Insurance Regulation (ICIR)

Prof. Karel Van Hulle
Honorary Professor
Goethe University
Associate Professor
KU Leuven
.....
Member of the Insurance & Reinsurance
Stakeholder Group (IRSG) of EIOPA
.....
Member
Public Interest Oversight Board (PIOB)

Prof. Dr. Manfred Wandt
Professor
Chair of Civil Law,
Commercial and Insurance Law,
Private International Law,
and Comparative Law
Goethe University
.....
Managing Director
Institute for Insurance Law
.....
Founding Director
International Center for
Insurance Regulation (ICIR)

Prof. Dr. Wolfram Wrabetz
Honorary Professor
Goethe University
.....
Representative of the Federal State of
Hesse for the Insurance Sector
.....
Founding Director
International Center for
Insurance Regulation (ICIR)

The Advisory Board



Gabriel Bernardino
Chairman, European Insurance and Occupational Pensions Authority (EIOPA), Frankfurt



Dr. Frank Grund
Chief Executive Director of Insurance and Pension Funds Supervision, Federal Financial Supervisory Authority BaFin, Bonn



David Hare, PhD
Partner, Actuarial & Advanced Analytics, Deloitte UK, Edinburgh



Dr. Monica Mächler
Member of the Supervisory Board of Directors of Deutsche Börse AG and of Zurich Insurance Group Ltd. (Chair of the ICIR Advisory Board)



Alberto Corinti
Member of the Board of Directors of IVASS - Istituto per la Vigilanza sulle Assicurazioni, Rome



Prof. Dr. Brigitte Haar
Vice President, Goethe University
.....
Chair of Private Law, German, European and International Business Law, Law and Finance, and Comparative Law, Goethe University



Dr. Denis Kessler
Chairman of the Board of Directors and Chief Executive Officer of SCOR SE, Paris



Prof. Dr. Hartmut Nickel-Waninger
Honorary Professor, Goethe University



Dr. Norbert Rollinger
CEO, R+V Group, Wiesbaden
(Vice-Chair of the ICIR Advisory Board)



Prof. Dr. Heinrich Schradin
Director of the Seminar for Business
Administration, Financial Economics,
Risk Management and Insurance,
University of Cologne, Cologne



Dr. Klaus Wiener
Member of the Management Board of
the German Insurance Association,
(Gesamtverband der Deutschen
Versicherungswirtschaft e. V. (GDV)), Berlin

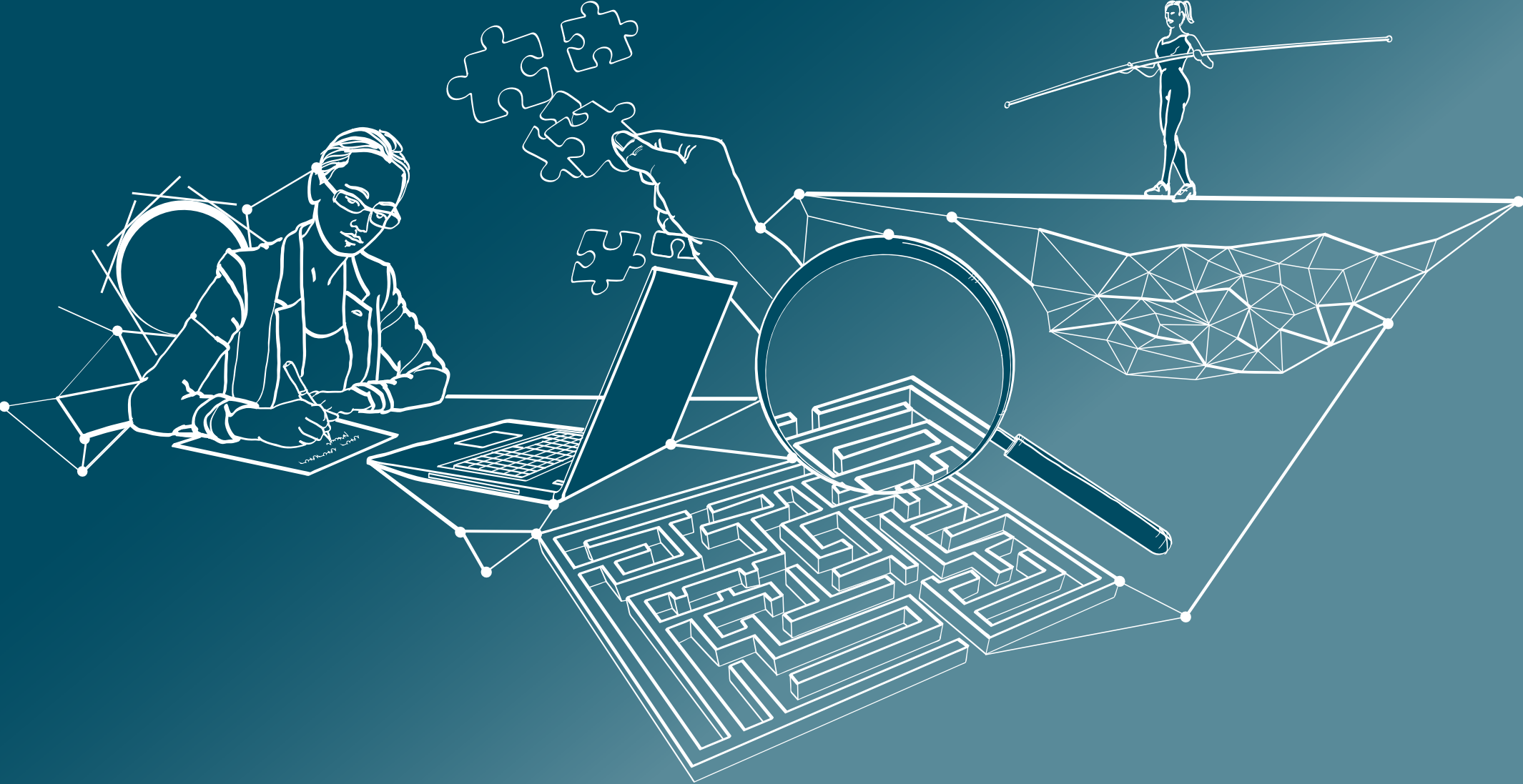


Dr. h.c. Petra Roth
Former Lord Mayor of Frankfurt am Main



Raj Singh
Group Chief Risk Executive Officer,
Standard Life Aberdeen plc, Edinburgh

Research Insurance. Risk. Regulation.

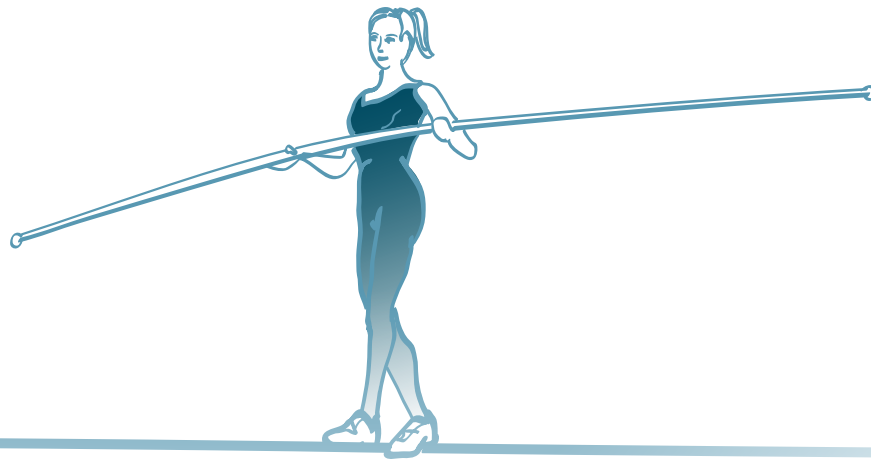




Life Insurance Surrender and Insurance Companies' Asset Allocation

✦ ICIR Working Paper
Gemmo, I., Götz, M., and Gründl, H. (2017).
Life Insurance Surrender Risk and Insurance
Companies' Asset Allocation. ICIR Working Paper
(forthcoming).

High life insurance surrender rates can pose a risk to life insurers' liquidity and solvency situation. For the empirically substantiated situation that surrender is predominantly interest rate driven, we investigate in what way a life insurer should adjust its asset allocation in order to mitigate the liquidity risk resulting from the obligation to pay the cash surrender value for terminated life insurance policies.



Life Insurance Surrender Risk is Important for the Stability of the Insurance Industry

Households buy life insurance as part of their liquidity management. These policies typically include a surrender option, i.e. the option to terminate the policy prematurely. They often ensure a cash surrender value for the policyholder that is paid out to him in case of surrender. Policyholders' decision to surrender their life insurance policies can have various effects on the insurer:

- A high surrender rate can induce reputational risk for the insurer: the negative effect of a high surrender rate on a life insurer's reputation could make other policyholders terminate their contracts as well and also harm new business. (See Eling and Kochanski (2013).)
- As surrender stops the premium inflow, the insurer might not earn enough premium income to cover the initial expenses it had before issuing the policy, such as costs of acquiring new business and underwriting.
- If the cash surrender value is sufficiently low, surrender can have a positive impact on a life insurer's profit situation. ▶



➤ Irina Gemmo

➤ Helmut Gründl

➤ Martin Götz

- In case of a high cash surrender value, a high rate of policy surrenders can cause liquidity problems for the insurer. If the insurer's asset allocation was determined without accounting for the surrender rate or by using an incorrectly estimated surrender rate, the insurer might not be able to liquidate a sufficient amount of assets to meet its obligations.

Therefore, it is of high importance for an insurer to have a realistic assessment of the surrender rate and its

The surrender rate can have a significant impact on insurers' optimal asset allocation

fluctuation over time when calculating the life insurance premium and deciding on the asset allocation.

Both the European Systemic Risk Board (2015) and the European Central Bank (2017) argue that since high surrender rates pose a risk to insurers' liquidity and solvency situation, they may even endanger financial stability.

Interest Rate Changes Affect Life Insurance Policyholders' Surrender Behavior

The option to surrender a life insurance policy can serve as a buffer when a household faces a liquidity need, especially in case of a high cash surrender value. However, academic research has shown that increasing interest rates are an important driver for life insurance surrender. Life insurance policies issued at current market rates become less attractive to policyholders when interest rates rise and alternative savings opportunities yield higher returns (see e.g. Berdin et al. (2017) and Feodoria and Förstemann (2015)).

Berdin et al. (2017) investigate the effects of life insurance surrenders on the profitability and solvency of insurance companies, focusing on the case of a sudden or gradual rise in interest rates. Based on empirical calibrations, they show that in the event of a strong and sudden increase in interest rates, the number of policyholders' surrenders sharply increases and the solvency position of the insurer deteriorates in the short run.

How Does Interest Rate Driven Surrender Behavior Impact the Optimal Investment Strategy of Insurance Companies?

In Gemmo et al. (2017), we analyze how the investment behavior of insurance companies relates to policyholders' life insurance surrender behavior that is driven

by the interest rate environment. Within a theoretical model, we examine the question in what way a life insurer should adjust its asset allocation in order to mitigate the liquidity risk resulting from the obligation to pay the cash surrender value for terminated endowment policies.

The common line of argument for short-term investments in the light of the surrender option is that it is costly to liquidate long-term investments.

A volatile interest rate environment leads to a reduction in interest rate risk bearing financial instruments

We add further theoretically derived and risk-based arguments that explain the trade-off between short-term and long-term investments for the empirically substantiated situation that surrender is predominantly interest rate driven but also depends on the level of the cash surrender value (see e.g. Russel et al. (2013)). In addition, we analyze in what way contract features like a guaranteed interest rate and a contractually agreed cash surrender value contribute to the asset allocation. ▶

We identify three essential components that determine the optimal fraction of insurers' short term investments:

- ♦ The traditional expected risk premium of an asset, combined with the riskiness of the investment and the insurers' risk attitude. This effect displays the usual line of reasoning for short-term investments in the light of the surrender option: insurers should invest more in short-term assets if it is costly to liquidate long-term investments.
- ♦ Contract parameters that contribute to the surrender probability, such as the cash surrender value, increase the optimal fraction of short-term investments. The more likely it is that policyholders will not terminate their contract prematurely, the higher is the investment in long-term assets and vice versa. Therefore, this effect implies a sort of duration-matching incentive.
- ♦ With an increasing volatility of the interest rate, the volatility of the surrender payments increases as well. A reduction of the fraction of short-term investments reduces this volatility effect. Therefore, a volatile interest rate environment leads to a reduction in interest rate risk bearing financial instruments and an increase in non-interest rate risk related financial instruments.

The surrender option of life insurance contracts creates opposing effects that contribute to the investment decision. As one might expect, a high cash surrender value that leads to a higher surrender rate increases the demand for short-term investment to avoid the liquidation of long-term investments. As a further effect, the interest rate sensitivity of surrender decisions induces additional riskiness to the insurers' portfolio realm. In the optimal asset allocation, this riskiness is compensated by an increase in the share of non-interest rate sensitive assets. Possible policy implications are that long-term investments can be steered by regulatorily determined cash surrender values, especially in times of a volatile interest rate environment. ♦

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Information Asymmetries and Transparency Aversion

Among the risks that digitalization poses for the insurance industry, there are also a lot of chances that stem from this development. Telemonitoring devices, such as wearables in health insurance or telematics systems in motor insurance, can serve to screen consumers' characteristics and to monitor their behavior. Therefore, they can be used to mitigate inefficient information asymmetries that lead to adverse selection and moral hazard in insurance markets. However, some consumers value their privacy and are not willing to share private information with insurers. The impact of digitalization on insurance market equilibria, social welfare and consumers' behavior with respect to loss prevention and loss reduction in this context heavily depends on consumers' valuation of privacy.

Asymmetric Information in the Insurance Industry

The standard models in the context of adverse selection consider competitive insurers that offer an insurance product to risk-averse consumers who are either high risks or low risks. As insurers cannot identify the individuals' types, they have to either offer one contract for all individuals or offer two contracts, whereas each policy targets one of the two risk types and does not attract the other. In our analysis, we build on the framework developed by Wilson (1977), Miyazaki (1977), and Spence (1978) that yields the second-best efficient separating, cross-subsidizing, jointly zero-profit making Wilson-Miyazaki-Spence (WMS) contracts. The WMS insurance market equilibrium outcomes depend on the fraction of high-risk individuals. If this fraction exceeds a critical value, a cross-subsidizing contract does not attract low-risk consumers and therefore the market equilibrium is described by two self-selecting separating contracts. Within this framework, low risks forgo utility due to high premiums or high deductibles. In the context of Moral Hazard, insurance coverage can incentivize the policyholder to behave less cautiously and in a way that increases the probability and magnitude of losses.

The Use of Telemonitoring Devices in Insurance

Those inefficiencies can be mitigated by the use of new technology that is used to acquire, store and manage ▶



➤ Irina Gemmo

➤ Mark J. Browne

➤ Helmut Gründl

more information about consumers, aiming to price insurance policies more accurately according to the respective risk. One way to do so is using telemonitoring devices, such as wearables in health insurance or a telematics system in motor insurance. More and more health insurers in North America and Europe offer discounts on premiums, various rewards and free wearables to their policyholders. In motor insurance, the popular pay-as-you-drive contracts can be improved by black boxes in the car that collect information about the driver's behavior.

Are you Willing to Share Your Private Information?

However, as the public discussion about consumer protection shows, some consumers value their privacy and do not feel comfortable sharing too much information with public institutions or private companies, such as insurers. They exhibit a disutility from transparency or - in other words - a transparency aversion. The degree of this transparency aversion might differ among consumers but does not necessarily depend on their risk type. It is rather correlated with their valuation of privacy, their view on digitalization, cyber security, trust in companies and public institutions with respect to data abuse and related experience, and even their political orientation, e.g. views on consumer rights. The disutility a consumer might face when revealing private information might outweigh the utility increase

from a potential premium reduction or higher coverage. In Gemmo et al. (2017), we introduce an insurance policy that offers full coverage at a fair premium conditional on the revelation of private information and refer to this contract as the transparency contract. We assume that policyholders' utility from an insurance policy is not only determined by monetary wealth, but also takes into account the individuals' valuation of privacy. Individuals decide whether to purchase insurance and which policy they prefer by trading off the utility of monetary wealth against the disutility from sharing private information.

We show analytically how the introduction of such a transparency contract affects the WMS insurance market equilibria as well as social welfare, if consumers value their privacy.

Effects on Transparency-Averse Consumers

Our analysis shows that the choice of information disclosure with respect to revelation of private information can substitute deductibles for consumers whose aversion to share private information is sufficiently low.

However, if in the market equilibrium, low-risk individuals subsidize high risks, then cross-subsidization becomes more expensive for low-risk individuals who

value their privacy, if a transparency contract is offered and at least one consumer is willing to share his private information. As a consequence, transparency-averse low-risk individuals pay a higher deductible in order to reduce their costs of cross-subsidization. If the fraction of individuals who are willing to share their information is sufficiently high, then transparency-averse low-risk individuals are not willing to subsidize high risks any more and choose to pay a fair premium for a contract with an incentive-compatible deductible.

The effect that the availability of a transparency contract has on consumers' utility and social welfare is ambiguous and depends on the composition of individuals in the market, with respect to their risk type and transparency aversion (see Figure 1).

The right-hand side of each of the first three diagrams (the white area) illustrates the case in which non-transparency-averse low risks gain utility while high risks' and transparency averse low risks' utility is unchanged. Hence, this situation corresponds to a Pareto improvement of social welfare. This improvement is highest when there is just enough high risk in the market to exceed the critical fraction as displayed by the white area in the diagram on the bottom right. ▶

However, if all consumers are offered cross-subsidizing contracts as shown in the left-hand side of each diagram, consumers who exhibit a transparency aversion and high-risk individuals can be worse off due to the availability of a transparency policy. In this case, utility is shifted from individuals who choose not to reveal their private information to those who choose to reveal, and the change in social welfare is ambiguous.

The welfare loss is highest where the introduction of the transparency contract causes a change in the nature of the equilibrium from cross-subsidizing WMS contracts to self-separating RS contracts in the Rothschild-Stiglitz sense. This situation is illustrated by the black area in the heat diagram on the bottom right of Figure 1.

In the context of consumer protection, our analysis provides a theoretical foundation for the negative externalities that digitalization has on consumers who are not willing to take part in this development. It shows that new technologies bring new ways to challenge cross-subsidization in insurance markets, and the policies offered to each consumer depend on other consumers' valuation of private information.

Effect on Policyholders' Behavior

Focusing exclusively on utility stemming from monetary wealth, policyholders have an incentive to engage in ▶

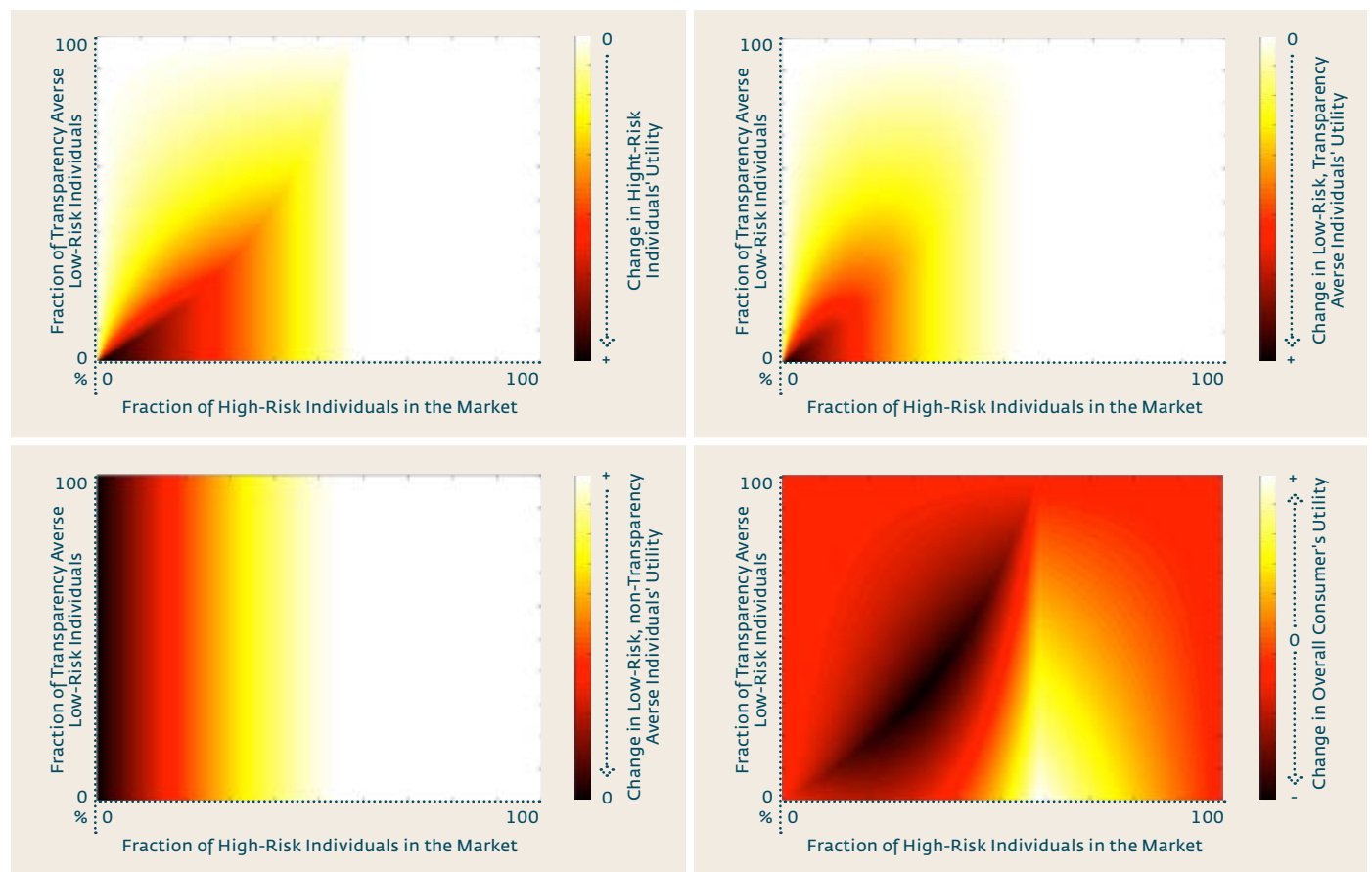


Figure 1

loss-preventing and loss-reducing activities if the insurer can observe such behavior and determines the premiums accordingly. Hence, when policyholder's behavior can be monitored using technological devices, they can have an extra incentive to engage in such activities. However, transparency-averse individuals who are not willing to share that information will only have an incentive to behave in the interest of the insurer if their losses are not fully covered by the insurer.

Consumer Protection and The Use of Private Information in Insurance

There are quite a few open questions when it comes to consumer protection in the context of digitalization. One of the most important ones is whether it should be possible to enforce transparency. One can, for instance, think of a case where transparency becomes a conditional requirement for the insurance contract to come into effect, for instance if automobile producers pre-install monitoring devices in all vehicles. When full transparency is enforced, information is symmetric and the insurer can price individuals according to their respective accident probabilities. This setting raises the question whether high-risk individuals are still insurable when they have to reveal their risk type. Further, in this case, there can be two possible scenarios: (1) If it is possible not to purchase insurance at all, e.g. by not buying a car, individuals with high transparency aversion will choose to do so, and the

market composition of risks depends on the correlation between the accident probability and transparency aversion. (2) If the individual has to be insured, the enforced transparency leads to a substantial welfare loss resulting from the disutility policyholders obtain by sharing private information. However, policy-holders are incentivized to engage in loss preventing and loss reducing activities. Another important question is what kind of data insurers should be allowed to use for pricing. Especially in health insurance, it may be socially undesirable when individuals have to reveal their genetic predisposition that might make them uninsurable. A possible solution to this would be to distinguish between regulation with respect to data on individuals' characteristics and data on individuals' behavior. ♦

The research work was presented at the following academic conferences:
October, 2017
24th Annual Meeting of the German Finance Association (DGF), Ulm, Germany

September, 2017
44th Seminar of European Group of Risk and Insurance Economists (EGRIE), London United Kingdom

August, 2017
Annual Meeting of the American Risk and Insurance Association (ARIA), Toronto, Canada

March, 2017
Annual Congress of the German Insurance Science Association (DVFVW), Berlin, Germany

May, 2017
Annual Seminar of the Risk Theory Society (RTS) Madison, Wisconsin, USA

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Do Consumers Benefit from Better-Informed Firms?

The amount of data in the business world has been exploding. Companies retrieve trillions of pieces of information about their customers, competitors, and the general market environment. Due to globalization and digitalization, this volume of information is growing faster than ever. More than 90% of all available data was generated during the last 5 years.¹ This massive amount of information can be employed in various ways to enhance economic growth. For example, it can support operational efficiency and administration for firms as well as governments, or reduce losses from fraud.

In a recent working paper², I study the impact of information on the uncertainty that insurance companies face about expected policyholder losses. As insurers need to estimate the future indemnity payments to policyholders in order to determine the price for insurance coverage, they rely on information about the insured risks. This information might, for example, include observations of historical losses as well as expert opinions, experimental evidence or surveys. The more information an insurer obtains about a particular risk, the less uncertain and volatile is the resulting estimate about expected losses (i.e., the smaller is the estimation error).

Insurance for cyber risk provides an illustrative example of the impact of an insurer's estimation uncertainty. With companies in general becoming more dependent on computational advancements, they also face a larger risk of losses due to attacks on their cyber infrastructure. In a recent policy report, Lloyd's and Cyence³ estimate that large cyber-attacks can have a similar impact as hurricanes in terms of economic losses. Thus, the potential market for cyber insurance is very large.

However, the cyber insurance market is still largely untapped. Lloyd's and Cyence estimate that only 17% of economic losses in case of a hack that takes down a cloud service provider, and 7% in case of a mass vulnerability due to an error or weakness in a software code are ▶





Christian Kubitza

covered by insurance as of 2017. A decisive reason for the lacking supply of cyber insurance is the large uncertainty regarding its impact. For example, Lloyd's and Cyence estimate a 95% confidence interval for the industry-wide loss in the scenario of a cloud provider hack as between \$15.6bn and \$121.4bn. This high level of uncertainty results in particular from the lack of data and data sources about cyber risk and the dependence on various risk factors. The same applies to operational and reputational risks as well as rare disasters such as hurricanes and earthquakes.

Hence, more information about cyber risks is likely to increase the supply of cyber insurance, since it would decrease insurers' uncertainty about the expected loss of cyber-attacks and, thus, price volatility. However, the effect of better-informed insurers on consumer welfare is not unambiguous: While less price volatility benefits risk-averse consumers, these might also speculate on insurers underestimating the expected. If insurers underestimate the expected loss, demand increases, and vice versa. In Kubitza (2017) I show that in this situation the net present value of insurance is zero ex ante only if insurers require an upfront loading for uncertainty about expected losses, i.e. an uncertainty loading. The resulting price for insurance is the ex ante fair premium.

In a theoretical model, I show that consumers always benefit from better-informed insurers if premiums are fair ex ante. The reason is that the uncertainty loading diminishes potential gains from speculating on the insurer underestimating the expected loss. However, if prices are smaller than the ex ante fair premium, then less risk-averse consumers benefit from less informed insurers. The intuition behind this result is that these consumers substantially gain from increasing demand if insurers underestimate expected losses but do not

Consumers always benefit from better-informed insurers if premiums are fair ex ante

suffer to the same extent if insurers overestimate expected losses. From the theoretical model, the central question arises as to whether insurance prices are ex ante fair in practice. To adjust prices to be ex ante fair, insurers would need to anticipate their estimation error and the corresponding reaction in consumer demand.

An analysis of one of the largest insurance lines in Germany, private passenger auto liability insurance, reveals that estimation errors are not at all negligible. In contrast, due

to the pooling of consumers according to numerous risk factors (e.g. age or geographical region), there are only few observations of historical losses available for estimation. Thus, the resulting estimation error even in private passenger auto liability insurance is likely to be substantial – and much larger in smaller lines of business such as catastrophe insurance.

A comprehensive empirical analysis of the US property and casualty insurance market, however, shows that insurance prices are in many cases not fair ex ante but considerably smaller. A possible explanation is a high degree of competition that prevents insurers from requiring a positive uncertainty loading. As a result, a substantial number of insurers offers insurance products with a positive net present value ex ante for consumers, while the insurance companies themselves are forced to cross-subsidize ex ante expected losses in these insurance lines by profits in other lines of business (for example asset management or advisory business).

In summary, our results indicate that more (less) risk-averse consumers indeed (do not) benefit from more-informed US property & casualty insurers. ♦

- 1 In 2013, 90% of all data was generated in the previous two years, see <https://www.sciencedaily.com/releases/2013/05/130522085217.htm>
- 2 Kubitza (2017): Do consumers benefit from better-informed firms? ICIR Working Paper 32/2017
- 3 Lloyd's and Cyence (2017). Counting the cost - cyber exposure decoded. Emerging Risks Report (Technology)

Diversification Potential of Insurance Activities and Systemic Risk

Insurance activities like life or non-life insurance business exhibit substantial differences in characteristics influencing the propagation of economic shocks from an insurance company to other institutions and vice versa. We find that for an insurance group engaged in both insurance activities, a diversification effect emerges that can minimize the group's spillover risk and, consequently, increases overall financial stability. We present a theoretical model showing that a counterparty's credit risk exposure to an insurance group substantially depends on the relative proportion of the insurance group's life and non-life business. Furthermore, our empirical analysis confirms this finding with respect to several measures for spillover risk. Our research provides valuable arguments for improving the activity-based macro-prudential regulation approach regarding the mitigation of systemic risk.

Introduction

The recent financial crisis 2007 – 2008 revealed that insurance companies are an important determinant for financial stability, which mainly results from their roles as large-scale financial investors and intermediaries (Thimann (2014)). In this regard, the EU insurance sector, for example, manages assets equivalent to 60% of EU GDP (European Systemic Risk Board (2015)), and as an intermediary, it provides essential services to the economy and society by assuming, pricing, transferring and diversifying risks. This economically central role of insurance companies coincides with a high level of interconnectedness by nature which, in addition, has been increasing during the last decades (Billio et al. (2012)). Therefore, the potential impairment of the insurance sector is likely to exert severe destabilizing effects for other connected institutions and the real economy as well.

In this respect, the increasing level of interconnectedness provides a substantial transmission channel for the spillover of shocks and financial contagion from and to the insurance sector, which can ultimately result in systemic risk.

The Financial Stability Board describes this risk as the threat of a "disruption to the flow of financial services that is (i) caused by an impairment of all or parts of the ►



➤ Christian Kubitzka

➤ Fabian Regele

financial system; and (ii) has the potential to have serious negative consequences to the real economy.” (Financial Stability Board (2009)). In order to mitigate systemic risk, the focus of regulatory approaches currently shifts towards activity-based regulation, for example, by designating global systemically important insurers according to certain activity indicators. Our research contributes to this shift in focus by showing that insurance companies can minimize their spillover risk by an optimal insurance business allocation and thus increase financial stability.

Magnitude of Spillover Risk and Insurance Activities

Although traditional insurance activities like life or non-life insurance are commonly not seen as a major determinant for systemic risk (European Systemic Risk Board (2015), International Association of Insurance Supervisors (2011)), there are substantial differences in their relation to financial stability. Recent literature shows that the magnitude of an insurance company’s spillover risk substantially depends on the insurance activities assumed in terms of life and non-life business (Bierth et al. (2015), Berdin and Sottocornola (2015), Weiß and Mühlnickel (2014), Cummins and Weiss (2014)). We argue that this disparity emerges from clear differences in these insurance activities regarding the propagation of shocks.

Life insurance contracts usually have a long duration with fixed annual premiums, which can, on the one hand, act as a financially stabilizing component due to the long-term cash flows involved, but they also impede a quick business adjustment to shocks. Resulting from the relatively long business horizon and the predominant provision of insurance products focusing on asset accumulation, the financial stability of life insurance companies also reacts more sensitively to market risk and interest rate risk than that of non-life insurance

Impairment of large non-life insurer can have severe consequences on policyholders

companies (Cummins and Weiss (2016)). In this regard and according to the European Systemic Risk Board (2015), the scenario of a prolonged low-interest rate environment in conjunction with a drop in asset prices is considered to be one of the most destabilizing events for EU life insurers.

Non-life insurance business, in contrast, comprises mainly short-term oriented contracts that provide short-

term liquidity to the insurance company. Moreover, non-life insurer are also subject to a significant payout tail, which refers to the period of time after which a claim is finally settled and its total amount known (Cummins and Weiss (2016)). On the one hand, non-life insurance business is due to these characteristics more volatile than the long-term life insurance business, which has a rather destabilizing impact on the insurance company. On the other hand, it also benefits from flexible contract adjustments, resulting in a faster adjustment of its business to shocks. Furthermore, non-life insurance risks are usually not correlated with the economic business cycle and financial market risks, which makes runs on non-life insurers almost impossible (Cummins and Weiss (2016), International Association of Insurance Supervisors (2011)). Additionally, non-life insurance products might be difficult to be substituted in the short run, which mainly comprises heavily specialized insurance products due to their complexity, e.g. medical malpractice or directors and officers liability insurance (Cummins and Weiss (2014), International Association of Insurance Supervisors (2011)). However, the impairment of a large non-life insurer can have severe consequences on policyholders that, for example, financially depend on the insurance company’s payments from salary continuance policies or that require liability coverage to practise a certain profession (e.g. the collapse of the Australian insurance company HIH ▶

and its consequences; Australian Government – The Treasury (2015)).

The differences between these two insurance activities have a substantial influence on the role of insurance companies as regards the spillover of shocks and thus systemic risk.

In this context, we postulate the following: insurance business volatility is smaller for life insurance companies due to the long-term nature of their assets and liabilities in comparison to that of non-life insurers. However, this long-term nature also increases the persistence of shocks for life insurance companies, which destabilizes them for a longer period of time than non-life insurers.

Since insurance groups typically comprise several operating companies that conduct life and non-life insurance business simultaneously, the propagation of economic shocks from and to insurance groups is strongly affected by the trade-off between business volatility and the persistence of shocks of these operating companies. If the life insurance business is larger relative to the non-life insurance business, the volatility of the group's entire business decreases, but the persistence of a shock within the group increases. Additionally, because of the general fungibility of equity capital within insurance groups, the financial condition at a

consolidated group level ultimately determines the group's role for the propagation of shocks. Therefore, in our research project we study the question of how the allocation of insurance activities and their diversification potential affect the spillover risk of insurance groups.

Theoretical and Empirical Analysis

In our theoretical model, we set up an insurance group consisting of two insurance companies, i.e. one life and one non-life insurer. The idea is that life business in-

The persistence of shocks for life insurance companies increases due to the long-term nature of assets

creases the persistence of past shocks on the assets and liabilities, but decreases the volatility of the insurance business, which both ultimately influence the insurance group's ability to serve a predetermined counterparty's claim. In this regard, we employ a simplifying model of counterparty credit risk that can lead to financial contagion between institutions, which is an important source for financial stability and systemic risk (Benoit et al. (2017)). If the insurance group is not able to provide sufficient funds to repay the claim subsequent to a shock, the

counterparty suffers a loss. Accordingly, the shock to the insurance group propagates to the counterparty in terms of a financial loss, which might subsequently amplify or cause a cascade of losses for other institutions that could ultimately result in a destabilization of the entire system.

Possible shocks to the insurance group can occur on the assets due to a drop in asset prices and on the liabilities due to, for example, mortality and longevity risks for the life insurance company or catastrophe as well as premium and reserve risks particularly for the non-life insurance company. Caused by the long contract duration with fixed premiums, a life insurance company's portfolio of contracts adjusts very slowly to such shocks and, therefore, shocks have a very persistent negative impact on the assets and liabilities. In contrast, non-life insurance contracts and premiums are usually adjusted annually, which implies the possibility of a relatively quick adjustment to shocks and hence, a less persistent negative impact on the assets and liabilities. Finally, due to the trade-off between business volatility and the persistence of shocks, the insurance group can minimize the counterparty's exposure and, consequently, the potential spillover of a loss by an optimal allocation of its life and non-life insurance business.

We test the implications of our theoretical model by empirically studying the relation between life and non-life ▶

insurance business and several measures for spillover risk for the years 2007 to 2015 by means of a panel regression. We employ the marginal expected shortfall (MES) as introduced by Acharya et al. (2017), the dependence consistent conditional Value at Risk (ΔCoVaR) as introduced by Mainik and Schaanning (2014) and Adrian and Brunnermeier (2016), the Average Excess Conditional Shortfall Probability (CoSP) as introduced by Kubitzka and Gründl (2017), and the CAPM beta factor. Regarding the contribution and exposure to spillover risk, we

A non-trivial fraction of life business between zero and one minimizes the insurance group's spillover risk

distinguish between the global financial sector and the American non-financial sector.

Results

Our theoretical model shows that the exposure of a counterparty's claim to the stylized insurance group critically depends on the ratio between life and non-life insurance business. In general, a non-trivial fraction of life business between zero and one minimizes the insurance group's spillover risk. The model also implies

that a larger persistence of life business decreases the optimal proportion of life business that minimizes the counterparty's exposure, because a higher fraction of life business decreases the group's expected cash flows after a shock. Moreover, a smaller proportion of life business can reduce the counterparty's exposure in case of highly levered insurance groups, since the higher volatility of the non-life business increases the insurance group's chance to overcome the shock.

The empirical results strongly confirm the implications of our theoretical model, in particular underpinning the u-shaped relation between insurance activities and spillover risk.

Life and non-life insurance business display significant diversification effects, leading to optimal fractions of life business, for example, in terms of 50% of total premiums to minimize spillover risk to the global financial sector and 52% to the American non-financial sector (both regarding ΔCoVaR). Furthermore, our analysis shows that the persistence of insurance activities is a main driver for this diversification effect. We can also underpin that a smaller fraction of life business is optimal for highly leveraged insurers as indicated by our theoretical model. Finally, we find that the interaction between life and active reinsurance business tends to lower the magnitude

of spillover risk, which results from additional diversification between both insurance activities.

Concluding Remarks

Since our research provides an optimal fraction of insurance business to minimize spillover risk to a counterparty, it provides valuable arguments to increase financial stability through mitigating financial contagion between counterparties by benefiting from the natural diversification effect of insurance business activities.

Life and non-life insurance business display significant diversification effects

Regarding macro-prudential regulation in terms of an activity-based approach, the diversification effect should be considered, for example, when designating global systemically important insurance companies and their potential to impose systemic risk. According to the IAIS' indicator-based model, the weights for the indicators regarding the counterparty and the macroeconomic exposure in the interconnectedness category should be re-evaluated, because insurance companies can actively lower their spillover risk by means of an optimal ▶

insurance business allocation (International Association of Insurance Supervisors (2016)). In addition, this diversification potential could also be applied to mitigate the counterparty default risk according to Solvency II if the connected counterparty as an insurance group aims for optimizing its business allocation. This might be of particular relevance for reinsurance contracts. Overall, our findings argue in favor of lowering capital requirements for other financial institutions like banks

Persistence of insurance activities is a main driver for the diversification effect

or brokers with exposures subject to the counterparty credit risk of optimizing insurance groups.

However, this optimal fraction does not necessarily imply an optimal business allocation regarding other business aims, for instance, the group's risk-return performance or its total regulatory capital requirement. Moreover, since it provides an incentive for pure mono-line insurance companies to conduct multi-line insurance business in order to reduce spillover risk, it

could lead to substantial additional costs, for instance, in terms of the provision of further equity capital, personnel or regulatory processes. Nevertheless, and against the backdrop of the recent financial crisis and its consequences, our findings help to improve financial stability and to mitigate systemic risk stemming from the insurance sector. ♦

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The Modern Tontine

Despite the great success of tontines in the 17th century, their decline started at the end of the 18th century when some fund holders began embezzling means. This even prompted the US government to prohibit those products. However, more and more researchers today start thinking about a reintroduction of tontines when looking at the large number of existing problems our pension systems are currently facing, like the increasing old age underfunding problem and the prevailing low interest rate environment. Undeniably, those products have to meet changed requirements and, as a consequence, have to be equipped with certain more modern characteristics.

What is a Tontine?

A traditional tontine is a financial instrument granting increasing amounts of money to survivors at the expense of those who died early. In this sense, a tontine provides a mortality-driven, age-increasing payout structure. The main idea of a tontine is that surviving members of the pool receive the payments of deceased members in addition to their own fixed coupon payments, which results in an age-increasing payout structure. This means that with relatively small investments, one can obtain large payouts in late years of retirement in the case of survival. These payouts can be used to finance the age-increasing care costs and medical expenses, like the purchase of a stair lift or a floor-level bathroom. Although an insurer can easily replicate such a payout structure, the tontine has the big advantage of its simplicity and low costs. While traditional insurance products entail large safety and administrative cost loadings, a tontine can be offered at low additional costs. This is because in contrast to traditional annuities, where longevity risk is transferred from the insured to the insurer (and covered by its risk management instruments), in a tontine the risk that a single participant might live longer than expected is fully borne and shared by the other tontine holders, who in this case receive lower cash flows than expected. Therefore, no equity capital backing is needed to cover longevity risk, and the tontine can be offered without a risk-cost loading. However, the ▶



tontine has the disadvantage of volatile payouts. The accurate prediction of deceased members is difficult, which also involves that it is not known in advance who will die when, which contributes to the volatility of tontine payouts in the sense that the investment volumes of each member in the tontine differ. Therefore, neither the exact amount of money available for distribution to the pool nor the exact timing when the money is distributed is known in advance, resulting in volatile tontine payouts.

The tontine has the big advantage of its simplicity and low costs

The Cost of a Tontine

Against this backdrop we analyze in the paper “Comparing the Cost of a Tontine with a Tontine Replicating Annuity” a simple and transparent tontine, which provides age-increasing payouts at the implicit costs of volatile payouts. We compare the tontine with a life annuity, which mimics the payout structure of the tontine but provides those payouts with certainty at the explicit costs of a loading. We quantify the costs of both products and estimate their expected utility for retirees. The main difference between

both products is that a tontine-replicating annuity provides guaranteed payouts in exchange for a safety loading and therefore is not exposed to longevity risk unlike a tontine. If more people are alive than anticipated, then the same amount of money is distributed among more surviving participants in a tontine, which reduces the individual payout. We argue that both products can be offered best via an insurance company because of its credible commitment to existing in the long run and its know-how. Hence, in the analysis we neglect costs incurred for both products on a similar level and focus on economic and regulatory costs, which affect both products differently. The former is mostly driven by systematic mortality shocks, while the latter is a result of regulatory requirements imposed by Solvency II.

We introduce a systematic mortality shock, which describes the systematic enhancement of survival prospects throughout the population. A systematic mortality shock is mainly caused by advancements in medical care and changes in general lifestyle, like the invention of penicillin in the 1930s and the decreasing societal acceptance of smoking. A systematic mortality shock therefore extends the expected lifetime of virtually the whole population (Figure 1).

Tontines are affected by a systematic mortality shock in a way that payouts decline. In contrast, there is no ▶

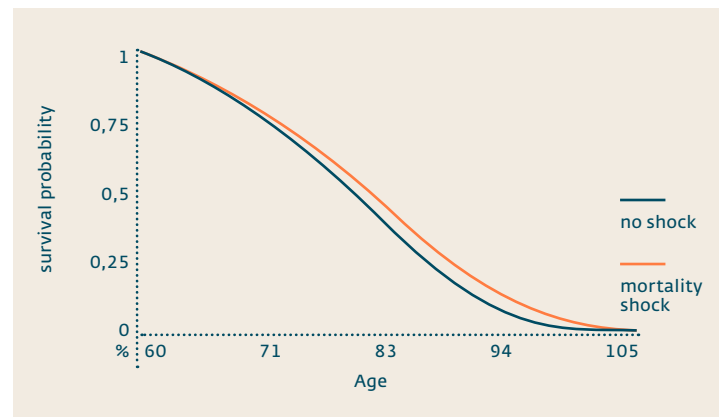


Figure 1: Conditional survival probability curve

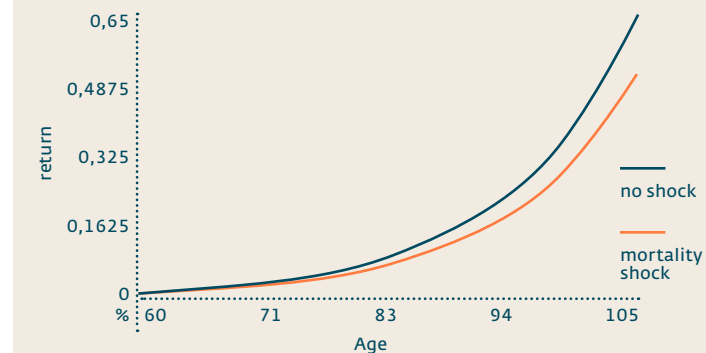


Figure 2: Return per unit invested

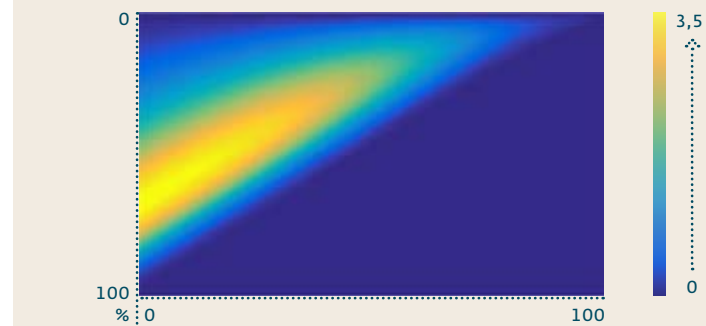


Figure 3: Difference of tontine utility and tontine replicating annuity with economic loading utility



✦ Jan Hendrik-Weinert

Book Chapters:

Konferenzband Tontinen: Zweite Konferenz zur vergleichenden Geschichte des Versicherungsrechts in Europa - Ch. 23 - Tontines in Europe Today
Weinert, J. (2017, forthcoming)

downward size adjustment in payouts of a tontine-replicating annuity due to its payout guarantees. As a consequence, the provider is exposed to the risk that the available funds are not sufficient to provide a lifelong rent of guaranteed size (Figure 2). Therefore, a tontine-replicating annuity requires a loading on top of the fair premium to mitigate this risk. The loading depends on the size, timing and probability of a mortality shock, as well as on the individual characteristics of the policyholder. Insurers charge risk cost loadings to satisfy the solvency capital requirements under Solvency II or charge an economic loading that compensates the provider of the guarantee.

The regulatory loading for a tontine-replicating annuity decreases in age of the policy holder. However, results show that the regulatory loading is set too high for younger and too low for older policyholders compared to the fair economic loading.

We furthermore compare the expected utility of a tontine and a tontine-replicating annuity with economic loading. Results show that the tontine provides as least as much expected utility as the tontine-replicating annuity with economic loading. The reason is that the implicit costs of the tontine only accrue in the case of a mortality shock, while the costs of a tontine-replicating annuity accrue in any

event. Therefore, the tontine is more flexible and can provide the highest expected utility if a mortality shock occurs around the age of 70 (Figure 3).

Moreover, we compare the expected utility of a tontine and a tontine-replicating annuity with regulatory loading. We distinguish between different timings of the mortality shock. An early systematic mortality shock in a person's life indicates that a tontine should be preferred to a tontine-replicating annuity with regulatory loading. However,

A natural tontine provides a higher expected utility than a tontine-replicating annuity

since the regulatory loading is set too high in early years and is set too low in late years, the advantage of the tontine diminishes with age, eventually yielding a lower expected utility for older ages. As a result, a tontine-replicating annuity yields higher expected utility for older ages. The difference in expected lifetime utility is mainly driven by too high regulatory loadings for younger ages and too low regulatory loadings for older ages. However, if we relax the assumption of the immediate mortality shock occurrence, the disadvantage of the tontine

decreases in the timing of shock occurrence, and thus, the tontine should be preferred.

In summary, in most cases a natural tontine provides a higher expected utility than a tontine-replicating annuity with a loading, and therefore can serve as an efficient instrument to mitigate the costs of current demographic changes.

The Fair Surrender Value of a Tontine

However, since the risk of a tontine is shared and borne directly by the pool of participants without an intermediary risk carrier, the individual payout pattern for the tontine members is directly impacted by the composition of the pool as well as by individual decisions. The composition is described by the characteristics of the tontine members (e.g. risk preferences, survival probability and investment volume) and mainly determines the payout volatility. Individual decisions can be an increase or a decrease of the personal stake in the tontine. While an additional investment can be easily attributed to the tontine participant, determining a fair payout in the case of premature contract termination is much more difficult, because funds would be removed that belong to the pool. Therefore we analyze the effects of an early surrender in the paper "The fair Surrender Value of a Tontine" and derive a fair and an equitable surrender value of a tontine. ▶

The surrender decision basically has two counteracting effects. On the one hand, it increases the volatility of payouts. On the other, it decreases the number of tontine holders to whom the payments of deceased members can be redistributed. In our paper, we show that although the expected tontine return is not affected by surrender, there should still be a discount on the fair surrender value. This is because surrender can unexpectedly decrease the size of a tontine and therefore it consequently increases the volatility of future payouts, which can in turn adversely affect the utility of risk-averse tontine holders. In general, we can balance this reduction in expected utility of remaining members by increasing the expected payout of the remaining tontine members at the expense of the surrender. In other words, we can compensate the remaining tontinists for bearing higher risks with higher future returns, financed by a fraction of the fair surrender value.

Another important feature of surrender is that its impact on the remaining tontinists is amplified if the size of a tontine is relatively small, whereas for large pools single surrender decisions have a minor impact. Naturally, the size of a tontine pool decreases over time due to the decease of participants yielding higher discounts on the fair surrender value. However, a larger discount on the fair surrender value provides protection

against tontine runs, since under these conditions staying in the tontine provides a higher expected utility than surrendering and receiving only a very small surrender value. Instead it is more beneficial to raise additional capital on the capital market rather to surrender the tontine. The discount on the fair surrender value is negatively correlated with the size of the pool and positively correlated with the level of risk aversion of the tontinists: the fewer people are in the

A larger discount on the fair surrender value provides protection against tontine runs

tontine and the more risk-averse they are, the higher the discount needs to be.

Furthermore, a surrender decision might be based on private information. In case of a severe disease of a policyholder, it is beneficial to surrender the contract. The policyholder would take money out of the tontine that actually belongs to the pool. In this case, the fair surrender value should be adjusted accordingly, such that the policyholder is indifferent to surrender or not.

Academic Conferences:

October, 2017
24th Annual Meeting of the German Finance Association (DGF), Ulm, Germany
The Fair Surrender Value of a Tontine

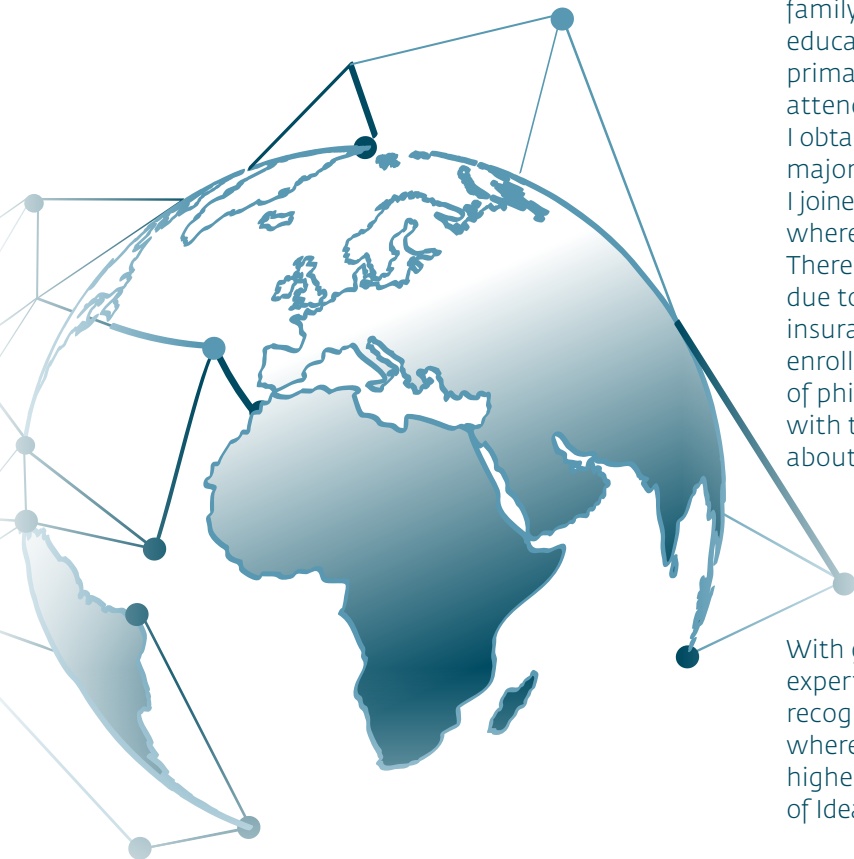
August, 2017
2017 Annual Meeting of the American Risk and Insurance Association (ARIA), Toronto, Canada
Comparing the Cost of a Tontine with a Tontine Replicating Annuity

March, 2017
Annual Congress of the German Insurance Science Association 2017, Berlin, Germany
The Fair Surrender Value of a Tontine

To do so, medical underwriting is required to determine the true survival prospects.

Although the tontine is a very simple product in its original form, which is easy to understand, it is challenging to design it in a modern way to provide an adequate and fair alternative for pension planning purposes. However, we analyze modern tontines in our papers and provide policy-relevant implications as to what a modern tontine design could look like to become a cost-efficient solution to mitigate the prevailing old-age underfunding problem. ♦

Comparative Study of European and African Insurance Industry: Implications of Insurance Regulation on Insurance Demand



I am a Ghanaian and my name is Nana Adwoa Dekyem Amo-Mensah. I was born and grew up in Ghana by a family that gives priority to education; therefore, quality education was our standard. Having completed my primary and secondary education, I was privileged to attend the premiere University of Ghana in Accra, where I obtained my bachelor's degree in business administration, majoring in insurance. With keen interest in insurance, I joined the Metropolitan Life Insurance Company in Ghana, where I successfully undertook my national service. There, my desire to study insurance further increased due to the challenges Ghana as country faced about our insurance sector, which is underdeveloped. Hence, I enrolled at the University of Ghana again for my Master of philosophy (MPhil) in risk management and insurance with the intention of obtaining adequate knowledge about these subject area.

With greater interest and the motive of becoming an expert in this area, I realized the need for international recognition. Therefore, I decided to look for institutions where I could pursue my PhD studies by getting the highest standard of education. I thought about the Land of Ideas - Germany! As a remarkable place of study, I chose

the Goethe University, a prestigious and highly ranked university in Germany. I could not be more excited about enrolling at Goethe University without becoming a member of the International Center for Insurance Regulation (ICIR). Through the generous support of the ICIR and its team members I believe that, subjects pertaining to insurance across Europe and the globe will be very much understood and appreciated.

Having started my PhD studies and working at the ICIR, my research focus is on insurance markets, insurance demand and insurance regulation. I will focus my research on a "Comparative study between the EU and some African states" with the aim to compare the insurance regulation frameworks and to analyze whether there could be a single African insurance regulation like Solvency II for the EU. The second research study "Impact of insurance regulation on insurance demand in African states and the EU" seeks to identify the possibilities of quantifying the benefits of insurance regulation through the demand for insurance policies and products for Africa. In this context, the research would analyze whether the insurance regulatory framework has an effect on the insurance demand in African countries. The distinguishing factor from other insurance demand studies in this study, is the use of regulatory variables instead of economic, social and demographic factors. ♦

Research

Academic Exchange

The Influence of Market Risks on the Stock Return of Life Insurance Companies



Helmut Gründl, Mark Browne, Sebastian Schlütter in New York at St. John's University for a Joint Research Project

In the low-interest rate environment that has manifested after the 2008 – 2010 financial crisis life insurance companies are seemingly searching for yield to fulfill their formerly given out investment guarantees. For the United States, the ratio of on average achieved yields and the FED rate in 2004 and ten years later has grown by factor 10. The NAIC reports that there has been a shift from government bonds towards corporate bonds which should also go along with an increase in risk taking.

In our contribution we want to assess in how far different sources of market risk influence publicly held life insurers' stock returns, and how this influence has changed within the last years. We want to do this on an aggregate level of all U.S. life insurance activities because this enables ▶

us to (implicitly) cover both life insurers' hedging activities and also diversification effects between risk categories, effects that cannot be elicited by observing changes in the asset and liability structure.

The question to which extent risk categories influence the stock return is important for several "parties": Firstly, for shareholders and analysts who want to assess the sources of risk for their investments or recommendations respectively; secondly, for the management of life insurers that wants to get a clearer picture of the riskiness of its business, and thirdly, for insurance regulators and supervisors. The latter parties are interested to assess the riskiness of those life insurer activities that endanger policyholders' interests, especially through the insolvency risk. Our analysis therefore wants to help prescribing risk adequate capital requirements and other effective risk management measures.

Our paper also contributes to the scientific discussion on the influence of market risks on life insurers. In their empirical studies Brewer et al. (2007) and Carson et al. (2008) investigate the influence of interest rates (and the stock market index as control variable) on life insurers' stock returns. For the time period 1975–1990 they find that increasing interest rates reduce the insurers' stock returns (and vice versa). The interest rate sensitivity varies over time and insurers. For a more recent time period, Hartley et al. (2017) and Berends et al. (2017)

find that interest rates have not significantly impacted insurers' stock returns between 2002–2007, had a negative influence during the financial crisis between 2007–2010, and a positive influence during the subsequent low interest rate period. Also in empirical works, Browne/Carson/Hoyt (1999) and Düll et al. (2017) examine the influence of interest rate risk (Browne/Carson/Hoyt) and CDS-risk (Düll et al.) on life insurers' insolvency risk. It is interesting to see that the literature only takes an isolated view on the influence of interest rates or CDS-spreads on life insurers' performance (with stock market indices as the only control variables), while further observable market risks are not taken into account.

To overcome these problems and to answer the question on the influence of market risks on life insurers' return more comprehensively, we empirically investigate the simultaneous impact of interest rate risk, spread risk, stock price risk, and foreign exchange risk on US life insurers' stock returns in the time period between 2003 and 2016. In a second step, we intend to extend our analysis also to the European environment.

The project is supported by the Berkley Scholarship at St. John's University which has co-financed research stays of ICIR Fellow Sebastian Schlütter (Professor at the Hochschule Mainz) and Helmut Gründl in New York in August and September 2017. ♦

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Research

Academic Exchange

Christian Kubitza in the United States and Canada



“I had the pleasure to be invited to the Isenberg School of Management (ISM) at the University of Massachusetts Amherst. Together with Prof. Mila Sherman Getmansky, Ph.D., I started to work on a joint project on central clearing.”

During the ICIR-SAFE Workshop on Systemic Risk in November 2016, the opportunity of a research stay in the United States came up. Therefore, from February to April 2017 I spent two months in the United States and Canada. My greatest motivation was getting new insights and feedback on a current working paper on the duration of shock spillovers in global equity markets. Contributing to the “hot” topic systemic risk, together with Prof. Helmut Gründl we study how fast market participants are able to react to extreme events. During my stay, I presented this article several times and received rich feedback from my colleagues that enormously supported us in improving the article.

I spent most of my time in Amherst at the ISM. Together with Prof. Mila Getmansky, I discussed my paper and developed an idea for a joint project: as regulators took action after the financial crisis 2007/08 to make securities (and particularly over-the-counter (OTC)) markets more transparent and less risky, they introduced

mandatory central clearing for certain asset classes. Since the effect of central clearing on counterparty credit risk is not unambiguous, in our joint project we study under what conditions it actually helps to reduce it. Since insurers rely on derivatives to hedge their asset and liability portfolio, central clearing also has an important impact on their business risk as well as on capital regulation.

Prior to relocating to the US East coast, I traveled to New York City (USA), Guelph (Canada), and Boston (USA) to present current research and collaborate with other researchers. In New York City, I visited the School of Risk Management (SRM) of St. John’s University on invitation by Prof. Mark Browne, Ph.D., who has been a friend of the ICIR for a long time. In addition to receiving valuable feedback about my article on systemic risk, I started a new collaboration with Prof. Annette Hofmann and Prof. Petra Steinorth of SRM about consumer protection in markets with intransparent insurance contracts. ▶

This research is gaining importance as insurance contracts are becoming more sophisticated and, thus, also more complicated to understand for consumers.

From New York I flew to Guelph in Canada, where I visited Prof. Michael Hoy at Guelph University, who also visited the ICIR in April and is co-editor of the Geneva Risk and Insurance Review. Due to his strong background in insurance economics, he was able to provide me with valuable insights for another article of mine that is concerned with the welfare implications of estimation errors (see other annual report article).

Finally, I had the opportunity to present my paper on systemic risk at the Sloan School of Management at the Massachusetts Institute for Technology (MIT) in Boston, before returning to Amherst.

During my research stay, I experienced a very open-minded and constructive working environment that supported me a lot to further develop my research projects. For the future, I see great opportunities to work on different research projects in an international environment, covering the topics of financial stability, counterparty credit risk, consumer protection, and the

role of information for insurers.

I am very grateful to Prof. Mila Sherman Getmansky, Prof. Mark Browne and Prof. Mike Hoy for inviting me to present my research and benefit from their knowledge, and the German Insurance Science Association (DVfVW), that generously provided me with a travel grant.

Special thanks go to my supervisor, Prof. Dr. Helmut Gründl, for enabling my travels and making my stays in Amherst, Guelph, and New York very valuable and enriching – both academically and personally. ♦



ICIR
ANNUAL REPORT 2016•17

RESEARCH
INSURANCE, RISK,
REGULATION.



ACADEMIC EXCHANGE
CHRISTIAN KUBITZA IN THE
UNITED STATES AND CANADA



Research Academic Conferences

January 6–8, 2017
Chicago, USA
American Finance Association (AFA)
 Ph.D. Poster Session at the 2017 Annual Meeting
Spillover Duration of Stock Returns and Systemic Risk
 Christian Kubitzka, Helmut Gründl

March 10, 2017
New York, US
 Travelers Research Symposia
 School of Risk Management, Insurance and Actuarial Science at St. John's University, New York
Spillover Duration of Stock Returns and Systemic Risk
 Christian Kubitzka, Helmut Gründl

May 5–7, 2017
Madison, USA
University of Wisconsin
 Risk Theory Society Annual Seminar 2017
Transparency Aversion and Insurance Market Equilibria
 Irina Gemmo, Mark J. Browne, Helmut Gründl

September 18–20, 2017
London, UK
 44th Seminar of European Group of Risk and Insurance Economists (EGRIE)
Transparency Aversion and Insurance Market Equilibria
 Irina Gemmo, Mark J. Browne, Helmut Gründl
Persistence of Insurance Activities and Financial Stability
 Christian Kubitzka, Fabian Regele

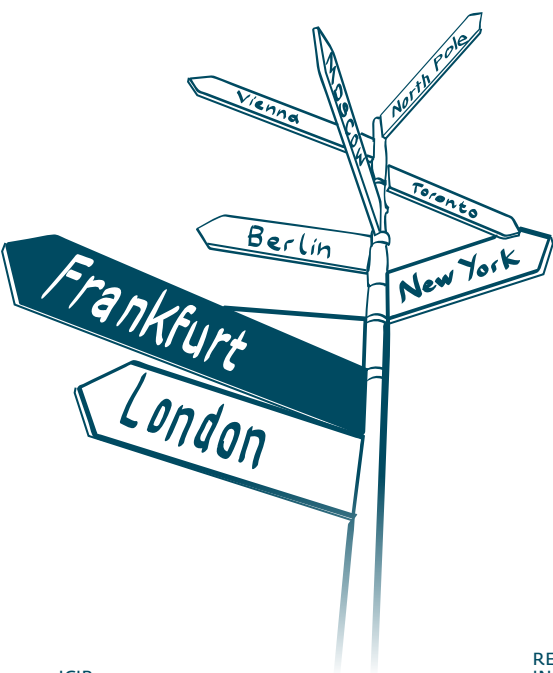
March 15–16, 2017
Berlin, Germany
 Annual Congress of the German Insurance Science Association 2017
 DVfVW Internationale Jahrestagung 2017
Transparency Aversion and Insurance Market Equilibria
 Irina Gemmo, Mark J. Browne, Helmut Gründl
Spillover Duration of Stock Returns and Systemic Risk
 Christian Kubitzka, Helmut Gründl
The Fair Surrender Value of a Tontine
 Jan-Hendrik Weinert

August 6–9, 2017
Toronto, Canada
 2017 Annual Meeting of the American Risk and Insurance Association (ARIA)
Transparency Aversion and Insurance Market Equilibria
 Irina Gemmo, Mark J. Browne, Helmut Gründl
Life Insurance Surrender Risk and Insurance Companies' Asset Allocation
 Irina Gemmo, Martin Götz, Helmut Gründl
Comparing the Cost of a Tontine with a Tontine Replicating Annuity
 Jan-Hendrik Weinert

October 6–7, 2017
University of Ulm, Germany
 24th Annual Meeting of the German Finance Association (DGF)
The Fair Surrender Value of a Tontine
 Jan-Hendrik Weiner
Transparency Aversion and Insurance Market Equilibria
 Irina Gemmo, Mark J. Browne, Helmut Gründl

August 22–26, 2017
Mannheim, Germany
 44th Annual Meeting of the European Finance Association
Christian Kubitzka will attend the Doctoral Workshop "New Frontiers in Finance – Insurance Markets"

October 23–24, 2017
Barcelona, Spain
 IAALS Life Colloquium 2017
Rising Interest Rates, Lapse Risk, and the Solvency of Life Insurers
 Christian Kubitzka, Elia Berdin, Helmut Gründl



Research Insurance Economics Working Papers

Working Paper (forthcoming)

Life Insurance Surrender and Insurance Companies' Asset Allocation

Gemmo I., Götz M., Gründl H.

Working Paper (forthcoming)

Are There Enough Counterparties for Central Clearing to be Beneficial?

Getmansky, M., Kubitzka, C., Pellizzon, L.

Working Paper No. 32/17

Do Consumers Benefit from Better-Informed Firms?

Kubitzka, C.

Working Paper No. 31/17

Comparing the Cost of a Tontine with a Tontine Replicating Annuity

Weinert, J.-H.

Working Paper No. 30/17

Persistence of Insurance Activities and Financial Stability

Kubitzka, C., Regele, F.

Working Paper No. 29/17

Rising Interest Rates, Lapse Risk, and the Stability of Life Insurers

Berdin E., Gründl H., Kubitzka C.

Working Paper No. 28/17

Scenario-Based Capital Requirements for the Interest Rate Risk of Insurance Companies

Schlütter S.

Working Paper No. 26/17

The Fair Surrender Value of a Tontine

Weinert J.-H.

Working Paper No. 25/17

Transparency Aversion and Insurance Market Equilibria

Gemmo I., Browne M., Gründl H.

Working Paper No. 24/16

Life Insurance and Demographic Change: An Empirical Analysis of Surrender Decisions Based on Panel Data

Gemmo I., Goetz M.

Working Paper No. 20/16

How persistent is Financial Contagion?

Kubitzka, C., Gründl, H. ♦

.....
➤ ICIR Working Paper Series

Call For Papers

The Geneva Association is pleased to announce a special October 2018 issue of **The Geneva Papers on Risk and Insurance – Issues and Practice on Insurance and Regulation**

Guest editor: Helmut Gründl

We encourage you to submit contributions related to the following areas:

- ♦ Impact of Solvency II on capital and asset allocation
- ♦ Impact of different accounting regimes on insurers' capital and asset allocation
- ♦ Single insurance market in the EU and Europeanisation of the regulatory and supervisory system
- ♦ Cross border regulatory and supervisory toolkit
- ♦ Regulators in the insurance market safety net
- ♦ The role of supervisors as regulators
- ♦ The role of regulators and supervisors in crisis resolution and winding down and winding up procedures
- ♦ Macro-prudential and micro-prudential regulation and supervision in theory and practice
- ♦ Cost-efficiency of regulation
- ♦ Digitalisation and insurance regulation

Suggestions for further topics in the area of insurance regulation and supervision will be considered by the editor.

All contributions will go through a peer review process. The guest editor for this special issue is Prof. Helmut Gründl (Goethe University Frankfurt). Papers should be submitted electronically via the website of The Geneva Papers (<http://gpp.msubmit.net/cgi-bin/main.plex>) by 25 September 2017 at the latest.

For further information on The Geneva Papers, visit <http://www.palgrave-journals.com/gpp/>

For further information on this special issue, please contact Frederick Schlägenhaft at frederick_schlagenhaft@genevaassociation.org

Research Insurance Law Publications and Presentations Prof. Dr. Manfred Wandt

Prof. Dr. Manfred Wandt

Books

Gesetzliche Schuldverhältnisse
8. neu bearbeitete Aufl. 2017

Commentations

Komentierungen des § 108 und der §§ 163, 164 VVG in: Langheid/Wandt, Münchener Kommentar zum Versicherungsvertragsrecht
Bd. 2, 2. Aufl. 2017, S. 241–284 (§ 108) und S. 768–828 (§§ 163, 164)

Contributions in Collected Editions

Transparency of insurance contract terms, in: Liber Amicorum in honor of Ioannis K. Rokas
2017 (in print)

Wandt/Bork, Pre-contractual information duties under German insurance law, in Han/Pynt (eds), Pre-Contractual Duties in Insurance Law: Carter v Boehm 250 Years on
Hart Publishing, Oxford (in print)

Zum Verhältnismäßigkeitsgrundsatz im Versicherungsaufsichtsrecht unter Solvency II, in: Festschrift für Theodor Baums
2017, S. 1359–1376

Haben sich die Neuregelungen zum Allgemeinen Teil des VVG 2008 bewährt? Gedanken aus der Perspektive der Rechtswissenschaft, in: Koch, Werber, Winter (Hrsg), Der Forschung - der Lehre - der Bildung, 100 Jahre Hamburger Seminar für Versicherungswissenschaft und Versicherungswissenschaftlicher Verein in Hamburg e.V.
2016, S. 229–257

Essays

Nachbarrechtlicher Ausgleichsanspruch bei Einwirkungen infolge Grundstücks- oder Gebäudearbeiten
VersR 2017, Heft 18

Versicherungsvertragsrecht – System und Besonderheiten des türkischen Rechts im Vergleich zum deutschen Recht, Zeitschrift für die gesamte Versicherungswissenschaft
2017 (Bd. 106), 159–184 (mit Kemal Senocak)

Anlasslose Auskunftsverlangen des Versicherers zur Überprüfung der Erfüllung der vorvertraglichen Anzeigepflicht im Versicherungsfall
VersR 2017, 458–462

Decision Recessions

Tagungsbericht zum Karlsruher Forum 2017 zum Kartellschadenersatzrecht
VersR 2017, S. 601–602

Editorship

VersR (Zeitschrift für Versicherungsrecht, Haftungs- und Schadensrecht)

ZVersWiss (Zeitschrift für die gesamte Versicherungswissenschaft) – Bereichsschriftleiter

Münchener Kommentar zum VVG (zusammen mit Theo Langheid)
Bd. 1 2. Auflage 2016 Seiten 1698
Bd. 2 2. Auflage 2017 Seiten 1922
Bd. 3 2. Auflage 2017 Seiten 1932

Editorship

Frankfurter Reihe, Verlag Versicherungswirtschaft
Christoph Ballmaier, Das Outsourcing von Risikomanagement, Compliance und interner Revision nach Solvency II, 2017

Jeannette Maul-Odenwald, Die Neuregelung der laufenden Versicherung im VVG 2008, 2017 ▶

Prof. Dr. Meinrad Dreher/Prof. Dr. Manfred Wandt, Solvency II in der Rechtsanwendung 2016, Vergütungsfragen nach VAG und Solvency II, Aufsicht über Versicherungsunternehmen in besonderen Finanzsituationen 2017

Jörg Wiederholt, Die kartellrechtliche Beurteilung der Zusammenarbeit von Versicherungsunternehmen bei gemeinsamen Erhebungen, Tabellen und Studien unter Geltung der VO (EU) 267/2010 nach europäischem Kartellrecht 2016

Prof. Dr. Meinrad Dreher/Prof. Dr. Manfred Wandt, Solvency II in der Rechtsanwendung 2015
VAG 2016: Säule 2 von Solvency II - Outsourcing VAG
2016: Verhältnis zum Versicherungsvertragsrecht in der Lebensversicherung

Editorship
Schriftenreihe der Zeitschrift Versicherungsrecht (VersR)
Haftung und Versicherung bei Personenkraftwagen mit Fahrerassistenzsystemen von Tobias Hammel 2016, 610 Seiten

Der Gruppenlebensversicherungsvertrag im Gefüge des VVG -Die Untersuchung einer praxisgeschaffenen Versicherungsvertragsform - von Katharina Barrot, 2016, 285 Seiten

Die Aufrechnung im System der privaten Krankenversicherung von Tobias Mandler, 2016, 630 Seite

Haftungsmaßstab bei Gefälligkeit - Eine Studie unter ausführlicher Betrachtung gesetzlicher und richterrechtlicher Haftungsmilderungen, der Praxis "stillschweigender" Haftungsausschlüsse und des Einflusses der Haftpflichtversicherung auf die Haftung - von Dennis Spallino 538 Seiten

Selected Presentations 2017
Grundlagen der Versicherungsaufsicht, Winterkonferenz zum Versicherungsrecht von elsa (The European Law Student Association) 25. Februar 2017

Grundlagen des Versicherungsvertragsrechts, Winterkonferenz zum Versicherungsrecht von elsa (The European Law Student Association) 25. Februar 2017

Jahrestagung des Deutschen Vereins für Versicherungswissenschaft, Moderation, Berlin, März 2017

Solvency II in der Rechtsanwendung 2017: Kapitalanlage und Versicherungsaufsichtsrecht, Frankfurt, 19.6.2017 (Mitveranstaltung und Moderation)

Selected Presentations 2016
National University of Singapore: Carter v. Boehm (1766) after 250 years: Insured's and insurer's pre-contractual duties
30 November/1 December, 2016, Topics presented:

- The insurer's duties to inform according to German law
- The policyholder's duty of disclosure according to German law

Hanoi Law University, Principles of European Insurance Contract Law (PEICL) - a successful comparative law approach
5 – 8 December 2016 ◆

Research Insurance Law Publications Prof. Dr. Jens Gal

➤ Prof. Dr. Jens Gal

Artt. 1–82 EIOPA-Regulation, in: Prölss/Dreher (eds.), *Versicherungsaufsichtsgesetz* approx. 500 pages (nearing delivery)

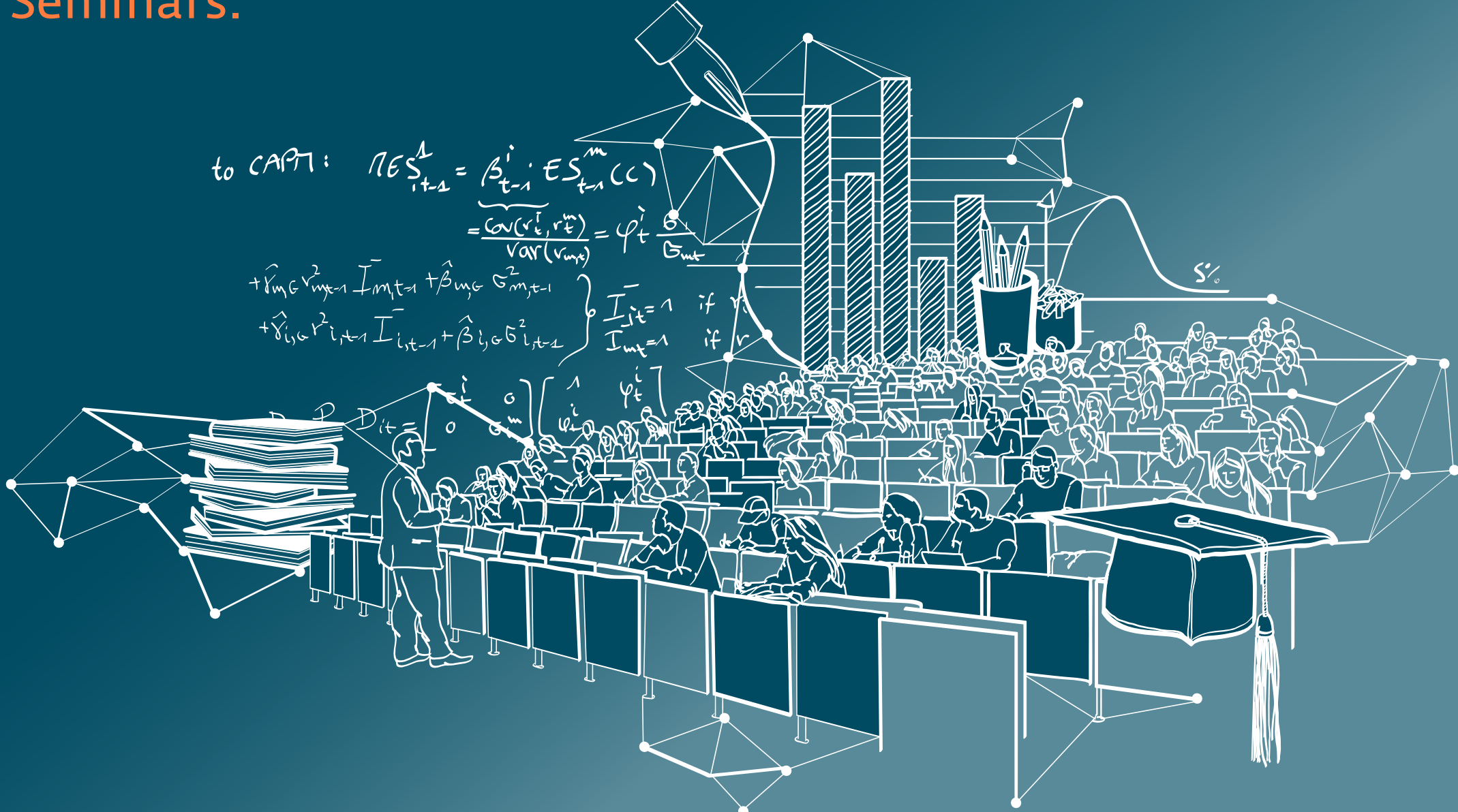
Artt. 315–317, 345–358 Del. Reg. Solvency II, in: Bürkle (ed.), *Delegated Regulation Solvency II* (printing)

Industrierversicherung in der Türkei im Vergleich zu Deutschland, in: *ZVersWiss 2017* pp. 193–208 (together with Samim Unan)

Aufsichtsrechtliche Rahmenbedingungen für die Tätigkeit von EU-Versicherern in der Türkei, in: *ZVersWiss 2017* pp. 185–192 (together with Samim Unan)

„Schiedsgerichtsbarkeit und Versicherung“, in: Langheid/Wandt (eds.), *Münchener Kommentar VVG, 2nd ed.*, Munich 2017 pp. 464–552 ♦

Education Studies. Lectures. Seminars.



to CAPM: $E S_{i,t+1}^A = \beta_{t-1}^i E S_{t-1}^m(C)$

$$= \frac{Cov(r_{i,t}^A, r_{m,t}^A)}{Var(r_{m,t}^A)} = \varphi_t^i \frac{\sigma_{i,t}}{\sigma_{m,t}}$$

$$+ \hat{\gamma}_{i,t}^A \sigma_{i,t-1}^2 I_{i,t-1}^A + \hat{\beta}_{i,t}^A \sigma_{m,t-1}^2$$

$$+ \hat{\gamma}_{i,t}^B \sigma_{i,t-1}^2 I_{i,t-1}^B + \hat{\beta}_{i,t}^B \sigma_{m,t-1}^2$$

$I_{i,t}^A = 1$ if $r_{i,t}^A > r_{m,t}^A$
 $I_{i,t}^B = 1$ if $r_{i,t}^B > r_{m,t}^B$



Curriculum

Insurance Economics and Regulation

International Center for Insurance Regulation (ICIR)
Chair of Insurance and Regulation,
Prof. Dr. Helmut Gründl

Winter Term

Bachelor Program

Fundamentals: Basic Concepts, Methods and Models in the Field of Finance and Insurance

Lecture

Corporate Finance

Finanzen III

Prof. Dr. Helmut Gründl

Lecture

Insurance Economics

Versicherungsökonomie

Prof. Dr. Helmut Gründl, Christian Kubitzka

Seminar

Risk Management in Insurance Companies

Risikomanagement in Versicherungsunternehmen

Thomas C. Wilson, Ph.D.

Summer Term

Lecture

Insurance Products and Their Distribution

Versicherungsprodukte und deren Absatz

Prof. Dr. Hartmut Nickel-Waninger

Seminar

European Insurance Regulation

Europäische Versicherungsregulierung

Prof. Karel Van Hulle

Master Program

Specialization in the Field of Insurance and Regulation

Seminar

Insurance Technology and Its Limits

Versicherungstechnologie und ihre Grenzen

Prof. Dr. Hartmut Nickel-Waninger

Seminar

Selected Topics in Insurance Regulation

Prof. Karel Van Hulle

Lecture

Asset and Liability Management in Insurance Companies

Prof. Dr. Helmut Gründl

Lecture (start 2018)

The Micro- and Macroeconomic Role of Insurance Companies

Prof. Dr. Helmut Gründl, Christian Kubitzka

Curriculum Insurance Law

➤ Institut für Versicherungsrecht (IVersR)
Chair of Insurance Law,
Prof. Dr. Manfred Wandt

Winter Term

Event

2–4.11.2017

7th Autumn Academy

Insurance and Law 2017

7. Herbstakademie

Versicherung und Recht 2017

In cooperation with
Aachener Münchener

Academic Directors:

Prof. Dr. M. Dreher,

LL.M.Prof. Dr. M. Wandt

Summer Term

Lecture

Insurance Law Seminar on “Liability Insurance”

Versicherungsrechtliches Seminar „Haftpflichtversicherung“

Prof. Dr. Manfred Wandt

Lecture

European Insurance Contract Law

Europäisches Versicherungsvertragsrecht

Prof. Dr. Jens Gal

Lecture

Law of German Torts

Deliktsrecht

[with a focus on the Interdependence with Insurance Cover]

Prof. Dr. Jens Gal

Lectures by Prof. Dr. Manfred Wandt:

German and European Insurance Contract Law

Deutsches- und Europäisches Versicherungsvertragsrecht

Insurance and Information (Seminar)

Versicherung und Information (Seminar)

General Insurance Terms and Conditions

Allgemeine Versicherungsbedingungen

Civil Law III a (Law of Tort)

Zivilrecht III a (Deliktsrecht)

Colloquium

European Insurance Law: Substantive Foundations, Conflict of Laws and Legal Harmonisation

Europäisches Versicherungsrecht: Materielle Grundlagen, Kollisionsrecht und Rechtsvereinheitlichung

PD Dr. iur. Leander D. Loacker, Universität Zürich

Colloquium

Liability and General Liability Insurance: European and German Law

Haftpflicht und Haftpflichtversicherung: Europäisches und deutsches Recht

PD Dr. iur. Leander D. Loacker, Universität Zürich

Seminar

The Reform of German and European Insurance Supervisory Law

Die Reform des deutschen und- europäischen Versicherungsaufsichtsgesetzes

Prof. Dr. Jens Gal

Colloquium

In-Depth Analysis of Particular Problems of the German Insurance Contract Act (VVG), General Section

Vertiefung besonderer Probleme des VVG, Allgemeiner Teil
Dr. Peter Reusch

Lecture

Corporate Finance Finanzen III

Prof. Dr. Helmut Gründl

The bachelor degree lecture "Finance III" covers corporate finance, insurance and risk management topics. The main goal is to equip students with the fundamental concepts of valuation, capital structure and risk management of financial institutions. They learn about the reasons why risk financing matters and how to use derivatives for hedging risks and what the difference is. ◆

Lecture

Insurance Economics Versicherungsökonomie

Prof. Dr. Helmut Gründl
Christian Kubitzka

The objective of the lecture on "Risk Management and Insurance" is to understand the relevance and principles of risk management in the context of insurance. To this end, the life and non-life insurance segments are analyzed, including current developments unfolding from time to time. This approach is based inter alia on the expected utility theory [Bernoulli principle], the (cumulative) prospect theory as well as theoretical risk approaches. In the course of the exercises, an introduction is given to statistical programming, and the content of the lecture is applied to various problem cases to be solved. The students are enabled to understand, reflect on and apply modern theory. ◆

Lecture

Insurance Products and Their Distribution Versicherungsprodukte und deren Absatz

Prof. Dr. Hartmut Nickel-Waninger

The objective of the lecture is to understand the fundamental concept of insurance as well as the delineation between individual and social insurance. Moreover, selected insurance products are to be introduced from the non-life (motor vehicle insurance, building insurance), life insurance and health insurance segments. The calculations used for the various insurance products are dealt with in detail. The sales policy of an insurance company represents a further focal point of the module. In the process, the sales strategies and sales policy instruments of insurance companies are presented, followed by a discussion of their respective benefits and drawbacks. Students are enabled to understand the fundamental

concept of insurance along with the clear delineation between individual and social insurance systems. They acquire an overview of the large variety of insurance products available and receive an in-depth insight into selected insurance products from the non-life, life and health insurance segments. They develop a firm command of quantitative methods of insurance calculation and receive an insight into distribution policy of the insurance industry and are to understand the benefits and drawbacks of various distribution channels. ◆

Seminar

Risk Management in Insurance Companies Risikomanagement in Versicherungsunternehmen

Thomas C. Wilson, Ph.D.

The seminar aims at introducing students to the basic concepts of risk management in insurance companies. During the seminar, the students will gain insight on how companies develop and assess their risks, and the role of regulation. The range of topics covers all areas of traditional and non-traditional insurance activities and related regulation. Learn how to interpret, classify and critically discuss results of scientific research and more. Generally improve presentation and communication skills. ♦

Seminar

European Insurance Regulation Europäische Versi- cherungsregulierung

Prof. Karel Van Hulle

The seminar aims at providing students with basic knowledge about insurance regulation and supervision in the EU. During the seminar, students will first receive a general introduction about insurance regulation and supervision in the EU. They will then have to research a topic relating to insurance regulation and/or supervision, to present their research and to discuss the outcome with fellow students. Students will be able to select the relevant topic from a list provided in advance. The topics will relate to areas such as Solvency II, market conduct, insurance distribution, supervisory co-operation. ♦

Lecture

Asset and Liability Management in Insurance Companies

Prof. Dr. Helmut Gründl

The goals of the ALMI lecture are to understand asset and liability management strategies used in insurance companies, and to understand the new Solvency II insurance regulatory rules. The contents of the ALMI lecture are separated into three categories: Liability Management, Asset Management, and Asset Liability Management and Solvency II. The first part – Liability Management – focuses on topics such as risk pooling, insurance pricing, estimation of reserves, risk sharing, reinsurance, alternative risk transfer, and capital management. Students are supposed to understand the sources of risks in insurance companies, and to learn techniques to measure and limit these risks. For the Asset Management

part, the lecture applies classic pricing methods as well as performance measurements to the insurance context. Specifically, in this part students are expected to practice knowledge such as Markowitz Diversification, CAPM, Performance Measurements, and Dynamic Financial Analysis. In addition, the second part offers insights into the regulatory framework for insurers' investment policies. The last part – Asset Liability Management – integrates both asset management and liability management strategies to arrive at an integrated risk management of insurance companies. It aims to help students understand the motivation and importance of conducting ALM, and to further equip students with methodologies such as simultaneous and classic modeling based on the Markowitz approach. Furthermore, policyholders' reactions on the default risks of insurers are also incorporated as one of the topics. We also discuss the envisaged Solvency II regulatory regime and its implications for ALM. ♦

Lecture

The Micro- and Macroeconomic Role of Insurance Companies

Prof. Dr. Helmut Gründl
Christian Kubitzka

Insurance companies play a vital role: for individuals that seek to decrease uncertainty of wealth, for businesses that want to manage business risk, for the real economy by providing funds and pooling risks, and for the financial market by being important counterparties in numerous financial transactions. In this course we will shed light on these different roles of insurance companies. We will compare the implications for different stakeholders and (insurance) markets in general. In the first part of the course, we will provide the basics for understanding the different roles of insurance companies, that include the microeconomics of insurance demand and information asymmetries in insurance

markets, the specifics of life insurance and its regulation, the relation between economic growth and insurance penetration, the behavior of insurers as asset investors, and the relation between financial crises and insurance companies. In the second part of the course, participants will present research papers that examine specific details about these different roles of insurance companies. Based on their presentation, participants are required to hand in a written homework about the policy implications of the presented research. ♦

Seminar

Insurance Technology and Its Limits Versicherungstechnologie und ihre Grenzen

Prof. Dr Hartmut Nickel-Waninger

During this seminar, students establish how enterprises can identify and evaluate their risks so that they can develop concepts for bearing such risks on that basis. The central topic of the seminar varies each year and includes current developments unfolding e.g. in the fields of liability insurance and aviation risks or current topics in the fields of life insurance and health insurance. Apart from the discussion of current theoretical and practical problems posed, a central element of the seminar is the processing of complex insurance theory models by students. In addition, an external expert attends the courses each year and delivers a topic-related presentation on current practical developments of the subject selected. ♦

Seminar

Selected Topics in Insurance Regulation

Prof. Karel Van Hulle

The objective of the seminar is to build on the knowledge acquired in the bachelor seminar on European Insurance Regulation. Students are required to research a specific topic, to report about their research and to discuss the results of the research with their fellow students. As opposed to the bachelor seminar, the topics in the master seminar will have to be researched on a comparative basis. The topics will be provided in advance and will relate to issues such as the ORSA, key governance functions, assessment of fit and proper requirement for key function holders, internal model approval, market conduct issues, insurance distribution, etc. ♦

The Student Experience



Your Way to Goethe University and the ICIR

Arina

I come from Moscow but since 2011 I have been living in Germany. I acquired my Bachelor's degree in Economics at the University of Freiburg. Long before my graduation, I started searching and applying for different Master programs, mainly in the field of International Economics and Finance. However, my main objective was to get accepted to a Master Program in Money and Finance at the Goethe University. What could be more attractive than studying finance in the financial capital of Europe? After I received the letter of acceptance, I forgot about all other programs and universities. It felt like a whole new world of opportunities opened up to me, so I started searching for a job that I always wanted: a position as student assistant at the university. Throughout my Bachelor studies, I always wanted to be more than just a student; I wanted to make my own contribution and be a part of the academic life of the university. My job interview at the ICIR was also my first visit to the Goethe University. I never really had doubts about my choice of Master program, but after the interview it was crystal clear: it was the place to be. House of Finance is a perfect platform for research and teaching institutes, where academia, students, practitioners and policy



regulators have an opportunity to exchange their ideas and cooperate. And I wanted to be a part of it, to be in the very heart of this academic world and research in the field of my interest, and a student assistant position at the ICIR was a perfect chance to experience this world.

Laurin

I come from a small town near Dortmund, in North-Rhine Westphalia. I have been living in Frankfurt for three years now, and I quite deliberately opted for the Bachelor course in Economics at the Goethe University. What is fantastic about this course of study is that you can spend your first two semesters to acquire a general overview, after which you can select your particular focus in a targeted fashion. I decided to major in Economics because I find it exciting to deal with economic processes and decisions as well as their impacts on the general welfare of the economy and society at large.

For five months now, I have been engaged as a scientific assistant at the ICIR. I had already wanted to be working as part of an academic chair for some time and to understand how the content of lectures applies to situations somewhat on the sidelines of a general perspective. And there probably can't be a better place to work than on the Westend Campus.

What is it that makes the ICIR special in your opinion?

Arina

There is something that makes ICIR so special for me and that caught my attention when I came across the website for the first time: its appealing and modern approach to the audience. I think it is very important to find a way to appeal to those people that are not yet familiar with the institution and its concept. As for me, the website of ICIR is a statement in itself: it is a modern institution with a young team of researchers that work at the cutting edge of research in the insurance field and regularly participate at conferences world-wide. Another important feature is the internationality, which refers not only to the research and regulation issues, but also to our team: there are people with different cultural backgrounds and there is a very friendly and welcoming atmosphere.

Laurin

We have a highly motivated young team here and work on many and various research projects, with each of the candidates for a doctorate defining their very own special main focus. This means that we as auxiliary staff

members also have a rich variety of tasks to pursue. In addition, there is a very good, open communication culture between all of us. The ICIR is very well networked on an international scale and regularly attends conferences across the globe.

What is your experience at the ICIR at Goethe University? And about insurance?

Arina

The position as a student assistant at the ICIR was a chance for me to get an insight into academic life and to feel myself a part of it. In general, my main task is to support the ongoing research conducted by our doctoral students and to assist them in preparing teaching materials. The best part of it is that every time you learn something new, e.g. by reading the articles on current insurance regulation or preparing slides for Bachelor students. It is extremely helpful not only for my Master studies, but also for my future career in research. Whereas before, I had rather scarce knowledge about insurance that I mainly acquired during some Bachelor

lectures, this job has aroused my genuine interest in the field of insurance regulation. Besides, as a member of the ICIR team I had a chance to attend the Annual Congress of the German Insurance Science Association in Berlin and number of lectures on insurance, which gave me a broader view of the latest research topics.

Laurin

I think you can separate whatever is learnt into two categories: first of all, scientific work as such, i.e. how to tackle an assignment like this, the thoughts behind its origins, perusing literature, the structure of the paper, not to mention the right tools to achieve the most convincing argumentation. Secondly, of course, looking at the content: it's exciting to see in what fields of insurance research is being conducted and how wide the field actually is; for instance, I did a fair amount of research on the subject of financial stability and regulation, but also on insurance and behavioural economics, and I've certainly learnt a great deal in the process.

How about your future and career path? What's next?

Arina

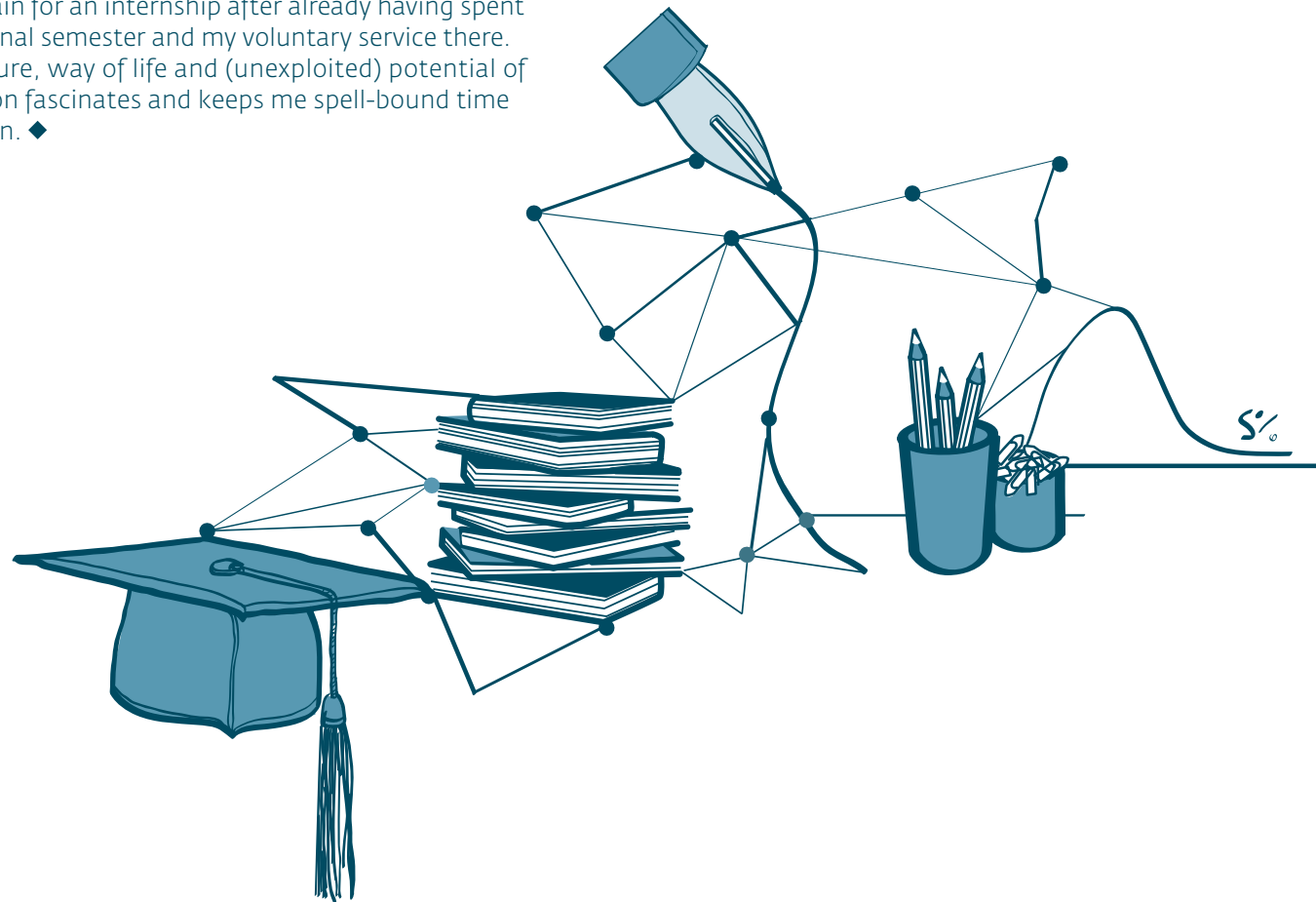
I would like to pursue an academic career after I finish my Master program. However, am not sure yet whether my next step would be a PhD degree or traditional doctorate path. But before starting with postgraduate studies, I would like to organise an internship at one of the leading financial institutions based in Frankfurt, in order to gain some practical experience and to learn more about the implementation of current regulatory requirements.

Laurin

During my semester breaks I will be doing an internship in Public Sector Consulting at KPMG, which will have something to do with performing consultancy services for social security funds. Topics like digitalization, efficiency and an ageing population, which I already encountered doing research work on the chair, will most certainly also be on the agenda.

After graduating with a Bachelor's degree in March 2018, I can well imagine travelling to South America

once again for an internship after already having spent my external semester and my voluntary service there. The culture, way of life and (unexploited) potential of the region fascinates and keeps me spell-bound time and again. ♦



Executive Education Preparing for Solvency II



The ICIR supports the Deutsche Versicherungsakademie (DVA) and the Gesamtverband der Deutschen Versicherungswirtschaft (GDV) in developing an executive education training program for professionals from the insurance industry. The objective of the training is to equip insurance experts and managers for the future requirements of Solvency II. Prof. Dr. Helmut Gründl teaches a course within the curriculum of the following certification programs:

- ◆ Certified Insurance Risk Manager Solvency II
- ◆ Certified Compliance Officer Solvency II
- ◆ Certified Internal Auditor Solvency II

➤ Deutsche Versicherungsakademie (DVA)

➤ Gesamtverband der Deutschen Versicherungswirtschaft (GDV)

Policy Platform People. Positions. Presentations.



The Micro and Macro Approaches: A Happy Marriage?



Supervisors, regulators and policymakers all over the world have experienced difficult times during the financial crisis. With the benefit of hindsight, it seems clear that they were fighting the great financial war **without having an adequate arsenal**. Indeed, one of the main lessons learned during these challenging times is that the focus on micro-prudential supervision alone is not enough to ensure financial stability.

This needs to be supplemented with a macro-prudential approach. To cite Crocket's (2000) words, financial stability can be most productively achieved if a better "marriage between the micro-prudential and the macro-prudential dimensions" is achieved. This principle is ▶

actually valid for all sectors across the financial system, despite the fact that the intensity and the way in which each sector may jeopardize the stability of the financial system differs substantially.

This article seeks to take the issue one step forward and consider the question of whether the micro and macro approaches can even have a happy marriage or not. My view is that it can indeed be happy, but there are several considerations to be made.

First, there is the need to have a **sound framework** in place, laying down a strategy that considers, among other things, the possible interactions between the micro and macro spheres in terms of the objectives of the different policies, the tools to be used and the side effects of using a particular tool on the other area(s).

Secondly, endless debates on whether a certain policy is **micro or macro** should be avoided. Furthermore, I agree with the IMF (2013) that, although conceptually it is useful to split the two approaches, this separation is not easy to draw in practice. The same happens in a marriage. What matters is that both members contribute to the overall objectives of the household to the extent they can.

Thirdly, with regard to the **objectives**, although they differ in theory, in practice they will coincide quite often.

It is widely acknowledged that the microprudential approach should focus on risks of individual institutions (being the protection of consumer the ultimate objective), whereas the macroprudential approach should focus on system-wide distress to avoid output costs (Borio, 2003). In many instances, however, micro and macro-prudential policies will use similar or even the same instruments and will supplement each other. Furthermore, in the case of insurance, because of the way it exerts systemic risk compared to banking, this potential conflict is probably different in practice. This issue, however, points to an area where further research is needed, with the aim of better understanding the sources of systemic risk in insurance as well as the transmission channels.

In any case - as a fourth factor- in those situations in which the coexistence between the micro and the macro approach is not sufficiently smooth, there is a clear need for **coordination and cooperation**. As explained by Osiński et al. (2013), tensions between micro and macroprudential policies are more likely to take place in the downturn of the business cycle. In case of potential conflict between macroprudential and microprudential policies, a certain hierarchy between the policies should be considered. For example, it might be that during a severe crisis, financial stability considerations may temporarily have to take precedence

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to avoid the materialization of systemic risk and the impact on the real economy.

Fifth, in addition to ensuring coordination and cooperation to solve potential tensions, it is also important to ensure **consistency and complementarity** between the micro and macro spheres. Several microprudential instruments can be readily adapted and work as macroprudential instruments. At the same time, it is important to consider the combined effects of both policies to avoid over-reactions or unintended counterbalances. The regulatory framework plays a key role in this regard. For example, in the case of the EU, one way to ensure consistency and complementarity between the micro and macro spheres is to discuss all relevant micro and macro issues in the context of the Solvency II review in 2021 (EIOPA, 2016).

The coexistence of the micro and macro approaches, like any marriage, is not easy. It is almost certain that tension will arise at some point. But a clear framework, well defined objectives, adequate coordination and cooperation, as well as a proper regulatory framework should help overcome these difficulties. ♦

Solvency II's Unexpected Indirect Regulation of the Reinsurance Contract

The Creation of Principles of Reinsurance Contract Law (PRICL) as a Means to Safeguard a Centuries-Old Tradition of Self-Regulation

Whilst it has become a hackney phrase that Solvency II is the reform of the century of insurance regulation and supervision, little attention has hitherto been paid to the extent to which this reform threatens the way in which reinsurance agreements have been concluded unabated for centuries. The reinsurance contract was one of the last domains of contractual freedom *katexochen*, meaning that the parties were free from any restrictions and thus chose to establish practices and customs – the content of which remained almost exclusively industry knowledge. Solvency II now puts indirect pressure on the industry to render clear what has been obscure.

A Business Relatively Free from Supervision

Despite being anteceded by insurance only by a few decades – the German nestor of reinsurance law, Gerathewohl, identifies an agreement of 1370 from Italy as the earliest contract having all the properties of a reinsurance agreement – reinsurance and reinsurers historically never received the same fervent regulatory and supervisory attention as did insurance. On the contrary: Since the advent of modern professional reinsurance companies in Germany – with the Cologne Re being the first of its kind on the globe in 1846 – these providers of reinsurance cover remained for over 150 years almost fully outside the scope of supervision. Neither contract nor company received any considerable amount of regulatory attention. Reinsurance was and fundamentally remained a self-regulated business, and, after some initial hiccups, thrived. Aside from minor regulation attempts, it was only in 2004 that the German legislator in an anticipated implementation of the European reinsurance directive included reinsurance undertakings into the Insurance Supervisory Act (VAG) ▶



➤ Prof. Dr. Manfred Wandt

➤ Prof. Dr. Jens Gal

as supervised entities. The situation was quite the same in the legislation of other notable reinsurance markets. Even at this point, the ongoing supervision over reinsurers, however, remained simplified and adapted to the fact that the supervised entities were partaking in a global business.

Solvency II as an Interruptive Factor

This being said, Solvency II did not bring about a revolution in the field of reinsurance supervision in the sense

Solvency II did not bring about a revolution in the field of reinsurance supervision

that reinsurers would be supervised for the first time. The rules of Solvency II rather only evolved, i.e. increased, the (qualitative) degree of sophistication of regulation and supervision.

What, however, has remained unaltered is that there is no particular regulation of the reinsurance agreement itself. In Germany – as in most other jurisdictions – the reinsurance contract is not subject to the Insurance Contract Act (and in particular its [semi-]mandatory

provisions) but only to the (non-mandatory) general rules of the law. Alack and alas, other than under the Solvency I-System this will pose a serious problem under the Solvency II-System. This stems from the fact that the direct insurer's reinsurance strategy and cover is now subject to quantitative and qualitative regulation, which implies that the parties concerned and the supervisor must have full knowledge of the content of the reinsurance agreement. This, in turn, requires for there to be certainty about the functioning (and legality) of all contractual provisions and the underlying legal rules. For centuries, however, these agreements were regulated – at least de facto – exclusively by special trade practices and customs unbeknownst to anyone outside a rather small circle within the industry. Such obscurity of the contractual content of the reinsurance agreement poses a severe risk under the Solvency II-System as the uncertainty (of the scope) of cover might be translated by the supervisor into the necessity of surcharges, capital add-ons and the like.

The Creation of a Reinstatement of Reinsurance Practices and of an Optional Legal Regime as a Remedy

In order to remedy this situation before it truly comes to the fore, academics from Zurich, Vienna and Frankfurt (the latter being the authors of the present) set out to establish Principles of Reinsurance Contract Law (PRICL).

This project – jointly funded by the Swiss SNF, the Austrian FWF and the German DFG – aims to bring to light and clarify practices and customs as established globally between parties to regulate their reinsurance agreements. The goal is, however, not only to restate these usus but rather to transform them into an opt-in legal regime to be chosen freely by the parties to govern their contract. In order to do so, and to garner acceptance for the final product, membership and participation was offered not only to other renowned academics hailing

Supervisor must have full knowledge of the content of the reinsurance agreement

from important reinsurance jurisdictions but also, and foremost, to eminent practitioners representing in an equal measure reinsurers, insurers and reinsurance brokers. This composition of the group serves as a guarantee that customs are not given a reading that would nefariously favour one party's particular interests.

The difficulty of the work resides in the fact that several customs may have different iterations geographically – e.g. the principle of utmost good faith, while in principle ▶

accepted in all jurisdictions as a founding principle, can be very differently understood pertaining to its content – or depending on the fact if one is dealing with facultative or treaty reinsurance. It is hence the goal providing for principles that aim to establish a global standard, even where such may hitherto not have (fully) existed, and provide for solutions adequate for all types of reinsurance agreements or, where such is not possible, supply specific provisions for particular agreements. At the same time, all provisions of the PRICL will be non-mandatory, allowing parties to deviate from any rule and thus affording them the necessary flexibility.

In its final iteration, the PRICL would not be state law but rather a self-regulatory instrument in the sense of non-state law. This raises the question if parties will be able to freely choose the PRICL to govern their contract. In order to answer this question, one firstly has to point out that art. 3 in connection with art. 7 para. 1 s. 2 of the Rom I Regulation affords parties to a reinsurance agreement absolute party autonomy. The choice of law is, however, pursuant to the prevailing opinion limited to national laws. This would mean that a choice of the PRICL would not be a choice of law in the strict sense but would rather work only in the way that all such provisions of the applicable state law that pertain to a question covered by the PRICL would be materially altered. Since most countries regard their reinsurance

contract law – if the content of such is really known or developed, is another question – to be non-mandatory, the result would still be quite satisfactory. In practice, however, almost all reinsurance agreements contain an arbitration clause. It is here, where the PRICL can reach its full potential. Pursuing to common wisdom the Rom I Regulation is not applicable to arbitration proceedings. Arbitrators rather have to apply the arbitration-specific conflict of law rules enacted at the seat of the tribunal. At least German arbitration law, and that of

The PRICL would be a self-regulatory instrument in the sense of non-state law

several other countries, allows for parties to also choose non-state law thus contracting-out of any state law. In doing so, parties would of course not only exclude any reinsurance-specific national rule but also general principles, e.g. regarding contract conclusion, remedies, calculation of damages and interest or statutes of limitation. Since on the one hand it seems unfeasible for the PRICL to establish such general rules and on the other hand one should not risk the application of an unforesee national general rule that might unduly alter

Principles of Reinsurance Contract Law (PRICL)

Prof. Wandt is a founding member of a joint research project on the draft of Principles of Reinsurance Contract Law (PRICL). This project is headed and coordinated by the applicants, Prof. Heiss and Prof. Schnyder (both University of Zurich), Prof. Schauer (University of Vienna) and Prof. Wandt (University of Frankfurt am Main). The Principles Drafting Committee (PDC) consisting of academics from countries with leading insurance sectors and representing as many jurisdictions in the world is advised by the Advisory Group Reinsurers and the Advisory Group Direct Insurers.

In providing a uniform frame of reference and uniform legal terminology the PRICL aim to encourage international academic discourse regarding the law of reinsurance.

See for further information: <http://www.rwi.uzh.ch/oe/PRICL/home.html>

the content of a rule of the PRICL, another solution has to be found. The solution currently favoured by the project group consists in including into the PRICL a clause providing that all questions not covered by the PRICL will be subject to the Principles of International Commercial Contracts (PICC) as developed by UNIDROIT. Applying the non-mandatory rules of this non-state legal instrument – which themselves are a restatement of internationally recognized standard or best practice rules for the application to commercial contracts – seems most appropriate for reinsurance contracts. By using these rules to fill any remaining non-reinsurance-specific legal gaps, the PRICL are turned into a fully autonomous reinsurance contract code that can solve all contractual conflicts without any recourse to etatic law. In this way, a truly global law would apply to this truly international business without infringing on any supervisory duty. ♦

The Benefits of Consolidating Financial Supervision in Europe



Brexit and the subsequent need to find a new location for the London-based European Banking Authority (EBA) provide the opportunity to move towards a consistent system of financial supervision in the European Union and to consolidate regulatory and supervisory structures that have emerged over time – mainly as a reaction to urgent needs in crisis times.

The current system of EU supervisory bodies, especially in the banking area (Single Supervisory Mechanism, Single Resolution Mechanism, Single Resolution Board, European Systemic Risk Board, EBA) is so complex that it raises concerns about being a forceful tool for ensuring financial stability. ▶

With this in mind, current plans to maximize synergies between EBA and the European Insurance and Occupational Pensions Authority (EIOPA) by consolidating them “under one roof”, i.e. as a single European Supervisory Authority (ESA), are very reasonable. However, this step should be part of a consistent restructuring of the whole system of financial regulation and supervision in the EU.

An integrated ESA could, on the one hand, foster supervisory convergence in the EU by monitoring – across all financial sectors – the application of supervisory standards in the member states. On the other hand, it should be endowed with supervisory power on supranational topics, especially concerning group supervision, the supervision of financial conglomerates and ensuring financial stability.

Similar to the procedures in several national supervisory authorities, prudential regulation can, in principle, be separated from consumer protection. In this sense, the European Securities and Markets Authority (ESMA) could be the nucleus for a European-wide integrated consumer protection authority for the financial services area, whereas the integrated ESA could be endowed with supervisory power on prudential regulation and supervision.

A consolidated and integrated financial supervision in the EU would substantially reduce the opacity of the

supervisory system and avoid regulatory arbitrage. It would create the possibility to monitor the interconnectedness between financial institutions and the supervision of groups and financial conglomerates – an important tool to curb systemic risk. Moreover, an improved exchange and transfer of data between banking, insurance and securities supervision would foster supervisory effectiveness and efficiency. Harmonization of recovery and resolution activities across financial sectors could also provide for more

A consolidated financial supervision in the EU would reduce the opacity of the supervisory system

transparency and a level playing field for financial institutions as well as consumers.

A further positive side-effect of an integrated supervision would be the transfer of know-how both about best-practices between different supervisory sectors and about new developments in FinTech, Cyber Risk and Big Data that affect the financial services sectors. And, last but not least, an integrated ESA could serve as a strong partner in international negotiations, e.g. at the Basel

Committee on Banking Supervision or the International Association of Insurance Supervisors.

A successful reorganization of the European system of financial supervision would raise confidence in the stability of the financial system and, therefore, be an important milestone on the way to a strengthened EU as whole. ♦

InsurTech Paving the Way to Change the Insurance Regulatory Landscape?



InsurTech as part of FinTech is developing rapidly. Numerous new technology-enabled processes are designed to enhance interaction with policyholders; others are aiming at promoting broad Big Data-based underwriting and efficiency within insurance undertakings.

Regulators at global, European and national levels are watching these developments attentively, while offering regulatory advice and sandboxes for testing new ventures. However, to date little insurance regulatory action has been taken although there is a growing need for considered regulatory responses while maintaining sound risk management.

Changing Landscape

Through technology the landscape of providing insurance services is changing rapidly, as is the case in many other ►

industries.¹ InsurTech affects the entire value chain from product design to distribution², direct customer contact, underwriting³ and all the way through to claims management. This may happen through artificial intelligence, datafication, automation, robotics and the Internet of Things⁴ as well as to Blockchain initiatives such as B3i.⁵

At the same time the business configurations to provide insurance services involved are changing. **Separate InsurTechs** are mainly active as distributors, often in models similar to brokerage. Aggregators provide comparative information. Adjacent players assume an increasing role as sellers of non-insurance products combined with insurance features.

InsurTechs also **assist incumbent carriers and intermediaries** to enhance their processes: In cooperation with InsurTech firms, traditional insurance carriers are enhancing their digital and direct approach to customers. At the same time, with the aid of InsurTechs, incumbents are redesigning their internal processes relating to underwriting, claims and other activities in order to become more efficient. To date, however, there are not (yet?) many new digital insurance companies. Noteworthy are several big joint ventures in China between insurance companies, providers of other goods and services and technology companies; a prominent example is the recently IPOed Zhong An.⁶ Furthermore, there are

some new digital insurance companies in the US such as Lemonade⁷ and now also in Europe such as One Insurance.⁸

On the one hand, these developments represent a strongly intensified focus on customer needs based on an analysis of customer behaviour and data. On the other hand, they also reflect an intensified cost and efficiency orientation of insurance carriers and intermediaries, in which technology has already played a role in enhancing production for decades.

Regulatory Developments to Date

To date **regulatory activities** have been of a stock-taking nature while highlighting the general principles for further evolution. The global standard setters and select national regulators and supervisors have expressed themselves on FinTech or, more specifically, on InsurTech. At the forefront are the pronouncements of the G-20 Finance Ministers⁹ with a view to enabling technological progress while maintaining financial stability. The FSB has developed a framework to assess the benefits and risks of FinTech in its report on Financial Stability Implications of FinTech dating back to June 2017.¹⁰ Based on the FSB invitation, functional standard setters have assessed the situation in their area. The International Association of Insurance Supervisors IAIS released its report on "FinTech Developments in the Insurance Industry" in February 2017¹¹ which

represents a comprehensive stock-taking of recent developments and an assessment of benefits and risks against several scenarios.

On a regional EU level, monitoring has also intensified with the objective of developing a FinTech Agenda¹², with the ECB being attentive to benefits and potential risks building up.¹³ Some jurisdictions have advanced initiatives in terms of advising new ventures, with some supporting testing initiatives in sandboxes (e.g. UK,¹⁴ Singapore¹⁵, Hong Kong¹⁶) or, while being supportive generally, also increasing scrutiny (e.g. China¹⁷). Beyond this, banking-related proposals for regulatory action came through in Switzerland¹⁸ and in the US¹⁹, but to date not for the insurance sector. "Wait and see" seems the prevailing approach for the time being.

Areas Touching on Insurance Regulatory Matters

As in the past, the **balancing** of protection of policyholders, fair markets and financial stability against developments in technology, in behaviours and in the markets will serve as a sound guiding principle to assess the impact of InsurTech on insurance regulations. It is important to note that the resulting evolution is dynamic and may lead from a traditional sell-side market to a buy-side market in which consumers are gaining bargaining power. Concentrations may increase while in parallel value chains are broken off and fragmentation may grow. ▶

The resulting issues can be clustered in three boxes, namely regulatory content, regulatory methodology and impact on existing regulation. As to **regulatory content**, it will be important to review the scope or perimeter of insurance regulations. Some activities may no longer be considered insurance activities and will thus not be subjected to insurance regulations, but possibly to other regulations or to no regulations at all. Such activities should also be open to incumbents, in order not to disadvantage them by prohibitions from doing non-insurance business. Given the many distribution-related initiatives, it becomes evident that the currently existing definitions of roles of intermediaries might need to be opened up. In addition, there might be a need to rethink requirements as to the information of policyholders and products. Requirements as to form should be technology-neutral. Data protection may in the future increasingly be addressed through comprehensive concepts, not a series of individual norms, and it needs to be examined whether the protection levels should be modularized. Data analytics and segmentation could require specific governance arrangements, including random judgment calls to assess the outcomes. If cooperation models with other providers are used, there should be clarity about accountability and controls relating to the various partners. At the same time, it will be important to maintain the role of the insurance carrier as a genuine risk management hub overseeing comprehensively insurance liabilities and capital buffers as

well as asset management in order to be able to honour claims in the future. The assessment of systemic risk considerations, particularly when partnering with large technology providers, is likely to increase. The need to watch the interrelation with rules developing in other sectors of the financial market will be key.

Regarding **methodologies** it is likely not to be sufficient over time to operate with advice and sandbox approaches, but well considered regulatory responses with specific special rules or exemptions, possibly combined with increased transparency and auditing requirements, which will become indispensable.

The **impact on existing regulation** most likely remains negligible in the near term, since the regulatory focus is likely to remain directed at monitoring and allowing testing environments. In the medium term, it is conceivable that clusters of specific technology-related regulatory clarifications will emerge, co-existing with traditional insurance regulations. They may be needed to address the revised regulatory perimeter, for instance, and to foster digital distribution and address the challenges of datafication. Given the rapid evolution, it will be important that such specific rules and exemptions will be developed for the many questions that warrant considered regulatory responses. In the longer run, however, it would not be surprising to see technology-driven new regulatory

approaches impacting existing regulation. This process could result in a re-orientation of current insurance regulations on the essentials. It will always be vital to safeguard the honouring of future claims by each insurance carrier as a genuine risk management hub. Such a focus would, however, simultaneously allow for critical review, and in certain cases abandonment, of regulatory requirements having become obsolete. They could be found, as examples, in overextensions of the regulatory perimeter or in details regarding formalities and product-specific regulation. The synthesis evolving over a longer time horizon could result in a **renewed common approach to the future regulation of insurance**. ♦

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➤ investors paid USD 1.5 bn in the recent IPO <<https://www.ft.com/content/424e7b36-9f5d-11e7-9a86-4d5a475ba4c5>>
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➤ G-20 Finance Ministers Meeting in Baden-Baden, March 2017 <https://www.bundesfinanzministerium.de/Content/EN/Downloads/2017-04-27-meeting-g20-finance-ministers.pdf?__blob=publicationFile&v=1>
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➤ FSB, Financial Stability Implications from FinTech, Supervisory and Regulatory Issues that Merit Authorities' Attention, 27 June 2017 <<http://www.fsb.org/2017/06/financial-stability-implications-from-fintech/>>
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➤ IAIS, FinTech Developments in the Insurance Industry, 21 February 2017 <<https://www.iaisweb.org/page/supervisory-material/other-supervisory-papers-and-reports>>
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➤ <<https://euagenda.eu/publications/fintech-a-more-competitive-and-innovative-european-financial-sector>>
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➤ Sabine Lautenschläger, Digital na(t)ive? Fintechs and the future of banking, 27 March 2017 <https://www.ecb.europa.eu/press/key/date/2017/html/sp170327_1.en.html>
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➤ Christopher Woolard, UK FinTech: Regulating for innovation, 23 February 2016 <<https://www.fca.org.uk/news/speeches/uk-fintech-regulating-innovation>>
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➤ MAS, Fintech Regulatory Sandbox <<http://www.mas.gov.sg/Singapore-Financial-Centre/Smart-Financial-Centre/FinTech-Regulatory-Sandbox.aspx>>
- 16**
➤ Hong Kong Monetary Authority, Fintech Facilitation Office <<http://www.hkma.gov.hk/eng/key-functions/international-financial-centre/fintech-facilitation-office-ffo.shtml>>
- 17**
➤ <<http://www.scmp.com/business/article/2099064/pboc-considers-new-tactics-battle-regulate-fintech>>
- 18**
➤ Swiss Confederation, Federal Council puts new fintech rules into force, 5 July 2017 <Mitteilungen.msg-id-67436.html>
- 19**
➤ Office of the Comptroller of the Currency <<https://www.occ.treas.gov/topics/responsible-innovation/index-innovation.html>>

Policy Platform

Presentations and Moderation

January 2017

Paris, France

ESSEC Business School

Solvency II: A Risky Business?

Prof. Karel Van Hulle

February 2017

Vienna, Austria

XPrimm

Moderation of the European Consumer Protection Conference

Prof. Karel Van Hulle

March 2017

Beijing, China

"International Financial Sector Forum" of China Association for Promoting Development Financing (CAPDF)

Integrated Financial Supervision

Prof. Dr. Helmut Gründl

March 2017

Rome, Italy

Istituto per la Vigilanza Sulle Assicurazioni (IVASS)

Solvency II Conference

Moderation of a panel on

"Proportionality under Solvency II"

Prof. Karel Van Hulle

April 3, 2017

Zagreb, Croatia

4th International Conference on Challenges and Practice of Insurance in South East Europe organised by the Croatian Financial Supervisory Services Agency and Tectus

Insurance Supervision after Solvency II

Prof. Karel Van Hulle

April 2017

Almaty, Kazakhstan

13th International Risk Management Conference organised by Eurasia

Risk and Regulation in a Changing Environment

Prof. Karel Van Hulle

April 2017

Berlin, Germany

Workshop of the Research Center SAFE and the Federal Ministry for Economic Affairs and Energy (BMWi)

Überlegungen zur Weiterentwicklung der Riester-Rente

(Thoughts about the Development of the Riester Retirement Plan)

Prof. Dr. Helmut Gründl

May 2017

Trieste, Italy

MIB Trieste School of Management

Participation in a Round Table at the Seminar on "Solvency II: A Dynamic Challenge for the Insurance Sector"

Prof. Karel Van Hulle

May 2017

Köln, Germany

14th Kölner Rückversicherungs-Symposium organised by the Kölner Forschungsstelle Rückversicherung at the Technische Hochschule in Köln

Participation in a Panel Discussion on **"Reinsurance and Equivalence"**

Prof. Karel Van Hulle

May 2017

München, Germany

Deutscher Verein für Versicherungswissenschaft - Fachkreistagung Versicherungsökonomie

Teilnahme an einer Podiumsdiskussion zum Thema Unternehmenssteuerung vor neuen Herausforderungen - Versicherer im Spannungsfeld zwischen traditioneller und marktwertorientierter Bewertung

Prof. Dr. Helmut Gründl ▶

Press Coverage

The Federal Ministry of Finance mentions the ICIR and the Goethe University in the bid for EBA in the brochure "Welcome to Frankfurt" under plus point 4: "Outstanding access to highly skilled and educated talent".

➤ [Link to brochure "Welcome to Frankfurt"](#)

June 2017
Zurich, Switzerland
Insurance Europe
Moderation of 9th International Insurance Conference
Prof. Karel Van Hulle

August 2017
Panama City
Colloquium on "Actuarial Engineering: Building a Bridge Between Theory and Practice", organised by the Section for Actuarial Studies in Non-Life Insurance (ASTIN) and the Section Actuarial Approach for Financial Risks (AFIR) and Enterprise Risk Management (ERM) of the International Actuarial Association (IAA)
Moderation of the Panel "Are Supervisors Bridgebuilders?"
Prof. Karel Van Hulle

September 2017
Sofia, Bulgaria
Symposium organised by the Financial Supervision Commission of Bulgaria
Principles of Solvency II
Prof. Karel Van Hulle

October 2017
Vienna, Austria
FMA Conference on "Current Challenges for Insurance Markets and Supervision in the Central, Eastern and South Eastern European Region"
Panel Participation
"After Solvency II – What will be the Future of Insurance Business and Supervision in Europe?"
Prof. Dr. Helmut Gründl

Börsen-Zeitung, 23. Juni 2017
„Wir brauchen mehr Sicherheit“
(erschieden in Zusammenhang mit dem ICIR-Event am 22. Juni 2017)

„Wir brauchen Sicherheit“

Standard Life fordert von Regierung klare Vorgaben für den Brexit

Börsen-Zeitung, 23.6.2017
Frankfurt – Raj Singh, Chief Risk Officer des britischen Assetmanagers und Versicherers Standard Life, beklagt eine große Verunsicherung britischer Unternehmen mit Blick auf die Ausgestaltung des Brexit. „Wir brauchen Sicherheit“, forderte er in einem Vortrag zum Thema „Brexit and its Impact on Insurance in Europe“, den er am International Center of Insurance Regulation (ICIR) der Goethe-Universität Frankfurt hielt. Singh betonte, dass er seine persönliche Meinung ausdrücke und nicht für Standard Life spreche.

Versicherer wird Weg finden

„Ich bin gegen den Brexit“, machte Singh klar, betonte aber auch, dass man sich nach den Vorgaben der Politik richten werde. „Wir als Versicherungsbranche werden einen Weg finden.“ Dabei setzt er insbesondere auf das „Grandfathering“, also die Bestandsabwicklung für langfristige Versicherungsverträge, und auf Versicherungsbedingungen, die aus einem Mix von (bisherigem) EU-Recht und (neuem) britischen Recht bestehen. „Das Grandfathering löst aber nicht alle Probleme. Denn die meisten Versicherungsverträge sind nicht statisch. Was gilt dann für diese Änderungen? Und wo bekommt man dann sein Recht?

Vor einem europäischen Gericht?“, fragte er.

Entscheidend ist aus Sicht Singhs für die britischen Versicherer der Zugang zu den europäischen Märkten: „Eine gegenseitige Anerkennung reicht nicht aus.“ Großbritannien müsse verstehen, dass dieser Marktzugang etwas kosten werde.

Ende 2016 seien die britischen Versicherer von den einheimischen Regulatoren aufgefordert worden, einen Notfallplan für einen harten Brexit aufzustellen, berichtete er: „Das heißt, es würde keine Übergangsperiode geben. Von einem Tag auf den anderen hätten britische Versicherer keinen Marktzugang in der EU mehr.“ Für die meisten Privatkunden-Versicherer wäre dies kein großes Problem, da sie meist über Töchter in der EU verfügten.

„Anders sieht das hingegen für die wenigen aus, die nur über Niederlassungen verfügen“, sagte er. Sie könnten zwar in Tochtergesellschaften umgewandelt werden. Dies müsse jedoch von den nationalen Aufsichtsbehörden genehmigt werden. „Solche Genehmigungsprozesse für eine neue Lizenz können bis zu zwei Jahre dauern“, warnte Singh. Außerdem verliere der Kunde durch den Rechtsformwechsel den Entschädigungsanspruch durch das britische „Financial Services Protection Scheme“ und werde auf die je-

weiligen nationalen Regelungen verwiesen: „Besonders problematisch ist aber, dass wir in Großbritannien über gar kein (aufsichts-)rechtliches Regelwerk mehr verfügen. Bei uns gelten bis zum Brexit Solvency II und die anderen EU-Richtlinien.“ Singh rechnet aber nicht damit, dass die neuen britischen Aufsichtsregeln lockerer als die bisherigen europäischen sein werden – im Gegenteil.

„Wir fürchten, dass die Regulatoren strenger sein werden und zum Beispiel höhere Kapitalanforderungen stellen werden.“ Besondere Herausforderungen wird der Brexit nach Singhs Meinung für den Londoner Versicherungsmarkt mit Lloyd's of London mit sich bringen. „Der Londoner Markt muss sich ändern“, sagte er mit Blick auf die bisherigen Versicherungsbedingungen. Der Londoner Markt sei aber als Risikoträger nicht zuletzt für exotische Deckungen unverzichtbar. „Die Investoren für solche Deckungen sind in London, nicht auf dem Kontinent.“

Die Zukunft der Branche nach dem Brexit liegt für Singh in ihrer Innovationsfähigkeit. „Wir müssen noch härter an Innovationen arbeiten.“ Ein Exporterfolg auf Wachstumsmärkten könne auch das britische Pensionssystem werden.

Events Calendar





The Future (Re)Insurance Landscape: Different Perspectives, Inspiring Dialogue



“The Global Insurance Supervision Conference: An excellent opportunity to get first-hand information about the developments in the European and international insurance sector and a unique platform to exchange ideas on strategic regulatory and supervisory issues.”

When talking about the impact of the persistent low interest rate environment, digitalization or systemic risk on financial institutions and regulation, people tend to think mostly of the banking sector. However, all of these challenges equally affect the insurance sector.

On 6 and 7 September 2017, the 5th Conference on Global Insurance Supervision (GIS) was organized together with the European Insurance and Occupational Pensions Authority (EIOPA), the Research Center SAFE and the World Bank. ▶

Over the last years, this conference series has established an international reputation for bringing together representatives from academia, supervision, regulation and industry from all over the world to debate current and future key topics of international insurance supervision and the challenges linked to the implementation of global standards. This year, the conference focused on three main topics: The interconnection of micro- and macro-prudential insurance supervision, consumer protection, and climate change & sustainable finance.

With respect to the first topic, the focus was on questions such as: Is a macro-prudential supervisory approach needed for the insurance sector? Can regulation and supervision contribute to mitigate systemic risks? Or could they even be a source of such risk?

The topic consumer protection was approached from different regional perspectives: European, Asian, Latin-American and North-African. The idea was to discuss the growing importance of consumer protection in the insurance industry and the challenges for consumer protection in order to deal with specific customer (protection) needs.

With climate change and sustainable finance, the GIS conference addressed a topic that is of high relevance for both insurers and reinsurers. The focus was on discussing on investment and financing instruments that either aim at specific sustainable objectives such as "green investments" or that are suitable to hedge climate risks, such as certain securitization tools. A further important issue was disaster prevention: How can preparedness and resilience be enhanced? What can the industry contribute? ◆

Program

September 6, 2017

Moderation: Karel Van Hulle

09:15 – 10:00

Registration

10:00 – 10:15

Welcome Address

Helmut Gründl, Managing Director, International Centre for Insurance Regulation (ICIR), Goethe University Frankfurt

10:15 – 11:00

Keynote Speech: Challenges & Opportunities in the Financial Services Industry

John R. Dacey, Group Chief Strategy Officer and Member of the Group Executive Committee, Swiss Re

11:00 – 12:30

Panel I: Micro- and Macroprudential Supervision: Interlinkages and Frontiers

Prof. Rym Ayadi, Professor of International Business and Finance and Director of the International Research Centre on Cooperative Finance at HEC Montreal

Dr. Tobias Bücheler, Head of Regulatory Strategy, Allianz SE

Francesco Mazzaferro, Head of Secretariat, ESRB – European Systemic Risk Board

Dimitris Zafeiris, Head of Risk & Financial Stability Department, EIOPA – European Insurance and Occupational Pensions Authority

Moderator:

Jean Hilgers, Director of the National Bank of Belgium and Chair of EIOPA Risk and Financial Stability Committee

14:00 – 14:30

Scene Setting: Consumer Protection in the 21st Century

Keynote by Ted Nickel, NAIC President and Commissioner of Insurance for the state of Wisconsin

14:30 – 16:00

Panel II: Consumer Protection: Regional Developments and Challenges

Hassan Boubrik, Chairman, ACAPS – Supervisory Authority of Insurance and Social Welfare, Morocco

Carlos Izaguirre, General Intendent of Supervision of Social Security and Insurance, Superintendence of Banks, Insurance and AFP, Peru and Vice-President, ASSAL – Asociación de Supervisores de Seguros de América Latina

Michael Consedine, CEO, NAIC – National Association of Insurance Commissioners

Greg van Elsen, Policy Officer, BEUC – European Consumer Organisation

Moderator:

Prof. Dr. Raimond Maurer, Chair of Investment, Portfolio Management and Pension Finance, Goethe University

16:00 – 16:30

Coffee Break



16:30 – 17:30

Break-Out Sessions: Consumer Protection

Group 1: The informed consumer (product information sheets like KIDs or the IPID)

Group 2: The transparent consumer (digitalisation, data protection risks like breach of data, cyber risk, identity theft)

Group 3: The “exploited” consumer (performance costs, value for money)

Moderators:

Michaela Koller, Director General, Insurance Europe
Makoto Okubo, General Manager, International Affairs
New York Representative Office, Nippon Life Insurance
Company

Katja Würtz, Head of Consumer Protection Department,
EIOPA – European Insurance and Occupational Pensions
Authority

17:30 – 18:15

Outcome of Break-Out Sessions

19:00 – 22:00

Dinner Speech by Gabriel Bernardino,
Chairperson EIOPA – European Insurance and
Occupational Pensions Authority



Program

September 7, 2017

Moderation: Dr. Manuela Zweimueller

09:30 – 10:15

**Keynote Speech:
Regulation & Supervision on an International
Level: What Will the Future Bring?**

Catherine Lezon, Deputy Secretary General, IAIS - International Association of Insurance Supervisors

10:15 – 10:45

**Scene Setting: Sustainable Insurance: Turning
Environmental, Social and Governance
Challenges into Sustainable Opportunities**

Butch Bacani, Programme Leader, UNEP FI Principles for Sustainable Insurance Initiative

10:45 – 11:15
Coffee Break

11:15 – 12:15

**Panel III: Climate Change & Sustainable Finance:
Where are we heading to?**

Dr. Ernst Rauch, Head of Corporate Climate Centre, Munich Re

Dr. Mojca Piškurić, Deputy Director, Head of Regulation, Policy & Analysis, AZN - Slovenian Insurance Supervision Agency

Kenneth Donaldson, Chairman of the Resource and Environment Working Group, IAA - International Actuarial Association

Lydia Sandner, Senior ESG Analyst, oekom research

Moderator:

Christian Thimann, Senior Adviser to the Chairman and Director of the AXA Research Fund, and Chairman of the EU High-level Group on Sustainable Finance

09:30 – 10:15

**Keynote Speech:
The Future of Financial Regulation and
Supervision: The Legislator's Perspective**

Nathalie Berger, Head of Unit, Directorate-General for Financial Stability, Financial Services and Capital Markets Union Insurance and Pensions, European Commission

12:45 – 13:00

Closing Remarks

Dr. Manuela Zweimueller, Head of Policy Department, EIOPA – European Insurance and Occupational Pensions Authority

13:00 – 14:00

Luncheon





June 21, 2017
House Of Finance, Frankfurt
12th Talk on Insurance and Regulation
Brexit and its Impact on Insurance in Europe
Raj Singh, CRO, Standard Life
Aberdeen plc.

September 6 – 7, 2017
Goethe University, Frankfurt
5th Conference on Global Insurance Supervision (GIS)
The Future (Re)Insurance Landscape: Different Perspectives, Inspiring Dialogue
In cooperation with EIOPA, SAFE and the World Bank Group

November 23, 2017
House of Finance, Frankfurt
Frankfurter Vortrag zum Versicherungswesen (in cooperation with the Frankfurt Association for the Promotion of Insurance Studies at Goethe University (Förderkreis für die Versicherungslehre e.V.))
Die Umsetzung der IDD und deren Auswirkung auf den Versicherungsvertrieb (The IDD Implementation and Its Impact on Insurance Distribution)
Prof. Dr. Matthias Beenken,
Fachhochschule Dortmund

December 7 – 8, 2017
Goethe University, Frankfurt
Frankfurt Insurance Research Workshop
A research workshop for doctoral students and post-doctoral researchers in the areas of insurance, risk management, or insurance regulation



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