Welcome to the Jan-Feb 2020 edition of ASTIN Newsletter. It provides a general update to members regarding the ASTIN activities over the last two months as well as its future planned activities.

Hans Bühlmann – 90th Birthday Celebration

Reportage by Hans Gerber and Mario Wüthrich

On 3rd February 2020, we celebrated Hans Bühlmann’s 90th Birthday with a Fest-Colloquium at ETH Zurich. The keynote speaker Hans Föllmer (Emeritus Professor, Humboldt University, Berlin) surveyed more than 50 years of Hans Bühlmann’s path-breaking research with some of the key concepts in actuarial science which were introduced and/or developed by Hans, such as Credibility Theory, Optimal Risk Exchange, Actuary of the Third Kind, Stochastic Discounting and the Market-Consistent Valuation Portfolio. Hans Föllmer’s presentation was followed by congratulation addresses by representatives and friends from many areas, including Sarah Springman (Rector, ETH Zurich), Paul Embrechts (Emeritus Professor, Department of Mathematics, ETH Zurich), Klemens Binswanger (President of
the Swiss Association of Actuaries), Hans Gerber (Emeritus Professor, University of Lausanne, and one of the first PhD students of Hans Bühlmann), Peter Bühlmann (Professor, ETH Zurich, and son of Hans), Walter Kielholz (Chairman of the Board of Directors of Swiss Re), Martin Balleer (Past President of the German Actuarial Association) and Jim MacGinnitie (Past President of the American Academy of Actuaries, Casualty Actuarial Society, International Actuarial Association, and Society of Actuaries).

Besides the above-mentioned academic achievements, we should highlight Hans Bühlmann’s seminal book on Mathematical Methods in Risk Theory (Springer, 1970) which has opened the door for scores of students and professionals in the field of actuarial mathematics.

Hans Bühlmann has played a key role in the actuarial profession. He has been on the committee that has reformed the International Actuarial Association (IAA) to a modern and active community. He has been Chairman of the ASTIN Section of the IAA, Editor-in-Chief of the IAA’s scientific journal ASTIN Bulletin and President of the Swiss Association of Actuaries.

Hans Bühlmann is Honorary Chairman of the ASTIN Section of the IAA and of the Swiss Association of Actuaries.

He has been President of ETH Zurich, Head of the Department of Mathematics of ETH Zurich, he has supervised more than 30 PhD students. He was awarded honorary doctorate degrees from University of Amsterdam, University of London, University of Waterloo, University La Sapienza in Rome, and Heriot-Watt University of Edinburgh. Before his professorship position at ETH Zurich he had been working at Swiss Re, and subsequently he served on the Board of Directors of Swiss Re for more than 20 years.

Moreover, in the context of the legislation of the Swiss occupational pension system BVG, we would like to mention his crucial role as an expert for the Swiss parliament and the Swiss government.

Happy Birthday 90, Hans!

Hans Gerber (UNIL, Lausanne),
Mario Wüthrich (ETH, Zurich).
ASTIN Working Parties

**Implications of IFRS 17 on Non-Life Insurers, Products and Markets**

**Project leader:** Walther Neuhaus (Norway)

**Project period:** October 2018 - October 2019

**Project status:** Completed

This Working Party had three goals. Firstly, to develop an inventory of significant changes in financial reporting that non-life insurers are likely to experience. Secondly, to consider behavioural changes of rating agencies, analysts and other parties impacted by insurance. And finally, to assess these impacts from an actuarial point of view. The working party conducted a survey containing questions on accounts as a source of information, national regulators and local GAAP, risk adjustment, contractual service margin, and behavioural change. Response rates from most jurisdictions were low, with less than 40 responses received in total. The initial results were presented at the IAA Colloquium in Cape Town in April 2019. A report will follow.

**Statistical Methods for the Derivation of Exposure Curves from First Principles**

**Project leader:** Pietro Parodi (SCOR, UK)

**Project period:** February 2020 - April 2021

**Project status:** New

This is a new working party that was recently approved and launched by the ASTIN Board. Its objectives are to explore a) the connection between the property graph approach to exposure rating and percolation theory as well as epidemic theory; b) the relationship between existing exposure curves and the curves arising from graph theory; c) the relationship between the graph parameters and the shape of the exposure curves; d) whether fire propagation models developed by engineers can be used to derive exposure curves that are more realistic; and e) if the graph approach can be extended to other risks where contagion is possible. For a background reading see Parodi, P. and Watson, P. (2019), Property Graphs – A Statistical Model for Fire and Explosion Losses Based on Graph Theory, ASTIN Bulletin, Vol 49 (2), pp. 263-297.

If you are interested in joining this working party please send an email to ASTIN Working Parties Coordinator, Walther Neuhaus.
SOA GIRC – Research Opportunities

ASTIN and the SOA GI Research Committee (GIRC) envisage to work together on a number of research projects. The SOA GIRC Project Oversight Group (POG) works to ensure the quality of the final work by being involved in the process of reviewing the work of the researchers.

The following two research projects present ASTIN members with the opportunity to join POG and contribute to this research.

A Hydro-EVT Approach to Flood Insurance Pricing

This project generally intends to develop a workflow to integrate hydrologic model outputs and hydraulic simulations to estimate flood inundation elevation for different flood frequencies, develop a flood map that is finer than current maps, estimate base flood elevations to feed into a pricing model, integrate risk and pricing models, and showcase studies to demonstrate how models can be used in practice. The research hopes to facilitate accurate assessment of individual flood risk and its pricing. This could allow insurers to charge actuarially fair premiums for flood insurance policies.

Please [click here](#) to apply.

Actuarial Professional in the New Era of IoT: Cybersecurity Risks in Fog Computing

This project generally intends to look at the technology of FOG computing (as opposed to cloud computing) and the cybersecurity risks involved with this.

Cybersecurity insurance then is explored as a mitigation tool against these risks. This is an understudied area and the project plans to develop a way to model the cybersecurity risks and consider cyber risk management and cyber insurance pricing.

Please [click here](#) to apply.

29th Annual CAA Conference, Curaçao

From 4 to 6 December 2019 the 29th Annual Caribbean Actuarial Association Conference was organised for the first time on Curaçao. On behalf of ASTIN, Michiel van der Wardt (ASTIN Vice-Chair) contributed by presenting on Cyber Risk Management. Below, he shares some of his experience.
The vision of the Caribbean Actuarial Association is to provide Vibrant Actuarial Thought Leadership for the Caribbean. This vision, coupled with the theme of this Regional Conference “Dare 2 Share”, has resulted in a world-class conference. The quality of speakers and content, as well as diversity of topics that were addressed, can easily withstand comparison with the international actuarial conferences that I have attended in the past 15 years.

The topics ranged from Whistleblowing, Behavioural Pitfalls and Expanding the Actuarial Skillset to Diversity. With backgrounds on the ongoing collapse of Venezuela, Balance Sheet Management for countries and lessons to learn from Africa. Of course, there was also sufficient time reserved for such new developments and their application in the actuarial domain as Artificial Intelligence, Block Chain, Cyber Risk and Data Science.

Speakers were also very diverse in age, background, gender and way of addressing topics, having background in all corners of the actuarial work-field and beyond. All items were connected in a very dynamic and interactive way by Sentini Grunberg, the host of the Conference.

Some take aways that stood out for me in all the new content and dynamic interaction include:

- Compromises can be dangerous;
- Diversity is hard to judge on the outside;
- Selling insurance is like ‘convincing your children to eat sprouts’.

For sure this was a successful event and I am already looking forward to the 30th Annual Caribbean Actuarial Association Conference in December 2020. Of course, I am hoping to see more ASTIN members attending this Conference.
Actuarial Colloquium (ASTIN), Paris 2020

ASTIN Colloquium 2020 will be held in Paris on 10-14 May 2020 jointly with other IAA sections as part of the IAA Actuarial Colloquium.

The main theme of the Colloquium is “Individual choices facing societal changes: can actuarial science bridge the gap between individual and collective choices?”.

It will be addressed through a series of plenary sessions, parallel workshops, insightful keynotes and group discussions designed to identify and leverage key trends of actuarial, social and economic research and new technologies to create a strategic advantage for the actuarial profession.

Registration

The deadline for early-bird registration is 13 March 2020.

For more details, please visit the colloquium website:

https://www.actuarialcolloquium2020.com

ASTIN Workshops

Roger Hayne – Reserving Mixology 201: Concocting a Reserve Distribution
11 May, 14:00 – 16:00 CET

Imrich Lozsi – Non-Life Insurance and Reinsurance Under IFRS 17
12 May, 8:00 – 12:00 CET

Axel Wolfstein – Pricing Workshop
13 May, 14:00 – 18:00 CET

Frank Cuypers – Theory and Practice of Reinsurance
14 May, 10:00 – 16:00 CET
**ASTIN Masterclasses**

**Executive Summary**

As part of its recent initiatives, ASTIN plans to produce a series of online masterclasses on a wide range of non-life insurance topics taught by the greatest minds of the actuarial profession and renowned authorities on risk and insurance. The online masterclasses are designed for risk and actuarial professionals, ranging from analysts to C-suite executives, and will be fully interactive providing ASTIN members with free access and covering topics from such key areas of interest as financial stability and enterprise risk management, regulatory changes, data science and artificial intelligence in insurance, climate change and catastrophe risk, cyber risk, and insurtech and disruptive technologies.

**Forthcoming Masterclasses in 2020**

We plan to produce two yearly online masterclasses during 2020-2022: 6-8 lessons (episodes) per class, each lesson of 15-20 minutes.

The production of the following two masterclasses has been confirmed for this year. We will be providing further updates on how this progresses in our future newsletters.

**Masterclass 1**

**Masterclass title:** THE INSURANCE-RISK LANDSCAPE: AN ECLECTIC SURVEY

**Lecturer:** Michael R. Powers (China / USA)

**Production period:** March-April 2020

**Abstract**

“The Insurance-Risk Landscape: An Eclectic Survey” is a Masterclass video series written and narrated by Professor Michael R. Powers of Tsinghua University. Through a collection of eight engaging episodes, Professor Powers navigates the metaphorical landscape formed by the many manifestations of insurance risk — from natural and man-made perils to insurance company insolvency. Along the way, he stops to explore some of the most intriguing wrinkles and twists in the landscape, with an enthusiasm for making the complex simple, and the simple profound. The eclectic choice of topics includes:

- the origins of insurance, with relevant insights for today’s markets;
- the roles of randomness, complexity, and uncertainty in generating losses;
- rationales for the most commonly used frequency and severity distributions;
- the interplay between hedging and diversification in risk finance;
- explanations (and common misconceptions) of insurability and underwriting criteria;
- the meaning and implications of heavy-tailed losses;
- the nature of the property-liability underwriting “cycle”; and
- the opposing effects of advancing technologies on insurance markets.

In discussing technical matters, Professor Powers prefers intuitive storytelling to excessive mathematical notation, without sacrificing intellectual substance. His thoughtful, yet fast-paced approach makes this online masterclass accessible and entertaining viewing for actuaries and experienced insurance professionals of all types.
Episodes
1. The Many Meanings of Risk
2. Insurance and Human Society
3. The Nature and Origin of Insurance Losses
4. Modelling Insurance Losses
5. Financing Insurance Losses
6. Insurability and Underwriting
7. Catastrophes, Heavy Tails, and Insolvency
8. What the Future Holds

About the Lecturer

Michael R. Powers is the Zurich Insurance Group Professor of Finance at Tsinghua University’s School of Economics and Management. He also holds a joint appointment as Professor of Economics and Business at Tsinghua’s Schwarzman College. From 2012 to 2015, he served as chair of Tsinghua’s finance department – a unique assignment for a foreign academic in China.

Powers was a 2011 recipient of the Qian Ren Ji Hua award, and in 2013 won the Kulp-Wright Book Award for Acts of God and Man: Ruminations on Risk and Insurance (2012, Columbia University Press), in which he proposes a new “science of risk”. He is co-editor of The Political Economy of Chinese Finance (2016), and provides regular business and economics commentary for China Radio International’s Today and BizToday programs.

Powers’ research covers a variety of areas, including: government regulation and public policy; applications of game theory in risk and insurance; mathematical models in enterprise risk management; and cultural attitudes and risk finance. He has edited two scholarly books – The Economics and Politics of Choice No-Fault Insurance and Global Risk Management: Financial, Operational, and Insurance Strategies. He also has published over eighty articles and book chapters, and received awards for outstanding research from the Journal of Risk and Insurance, the Risk and Insurance Management Society, and the International Insurance Society.

Powers received his B.S. in applied mathematics from Yale University, and his Ph.D. in statistics from Harvard University.

Masterclass 2

Masterclass title: MODEL RISK MANAGEMENT – THE QUEST FOR A UNIFYING APPROACH

Lecturer: Andrew D. Smith (Ireland / UK)

Production period: May-June 2020

Abstract

Modern financial businesses rely on thousands of models to support decisions from pricing and reserving through risk and capital to management bonuses and shareholder decisions.
These models sometimes fail. Forecasts prove to be inaccurate, or decisions supported by models may turn out to be unwise?

What can we do about this? We cannot eliminate the possibility that the future turns out differently to a model prediction. However, we can ensure that assurance we give on models is both truthful and statistically meaningful. We can reverse stress-test models by feeding them awkward simulated data until they break down. We can choose between harsh validation tests that reveal model weaknesses, or we can apply powerless validation methods where a green light is a foregone conclusion. We can foster a culture where people who become aware of model shortcomings are heard rather than silenced.

This masterclass uses a series of examples to highlight quantitative approaches to model risk management, using examples related to underwriting risk, stochastic reserving and the modelling of asset price changes. Andrew offers tips for actuaries pressured into expressing undeserved confidence in risky models, together with tips better to support decision making in the context of uncertainty.

Episodes
1. Introduction – uses of models and where models go wrong
2. The nature of model risk
3. Application: underwriting risk models
4. Application: reserving risk
5. Ersatz model tests
6. Application: stock market returns
7. Professionalism
8. Conclusion

About the Lecturer

Andrew D. Smith is an assistant professor in the School of Mathematics and Statistics at University College Dublin (Ireland) and an Honorary Fellow of the Institute of Actuaries (UK). Before he moved to Ireland in 2017, he gained 30 years of insurance experience, specialising in stochastic modelling, including fifteen years as a partner in a major global consulting firm.

Andrew is well known internationally for his portfolio of ground-breaking client assignments and extensive published research in the actuarial field. In 1996 he won the UK Institute of Actuaries’ prize for his paper “How Actuaries can use Financial Economics”, another prize in 2002 for his joint paper “Corporate Bond Models”, and a further prize for his joint 2004 paper “The Cost of Capital for Financial Firms”. His 2001 methodology for constructing risk-free yield curves has been adopted for the published yield curves under Solvency II. His joint paper “Why financial firms can charge for diversifiable risk” won a Casualty Actuarial Society prize in 2003 and underpins much of current thinking on risk margins. In 2008, the UK Institute of Actuaries awarded Andrew a Finlaison Medal, in recognition of Andrew’s contribution to actuarial science, also awarding a prize for his joint paper “The Modelling of Extreme Market Events”.

Having represented the UK twice in the International Mathematical Olympiad, he graduated from Cambridge University in 1990, with a first-class degree in mathematics and a Master of Mathematics postgraduate degree.
ASTIN Webinars

Spectral Risk Measures (SRM) and Applications in Insurance ERM

Join us on 25th March 2020, 9:00 – 10:00 EDT. To register, please click here.

Abstract:
This session presents new research: a complete solution for allocating capital and for determining the cost of capital by line - in a spectral risk measure world. The session will discuss:

- The reasons we are tempted to allocate capital
- How we typically (incorrectly) apply capital allocation: Industry Standard Approach
- The “tranche” or layer perspective on capital
- Spectral risk measures as layer prices
- How cost of capital varies by layer
- Allocating costs and premiums to lines of business
- How cost of capital varies by line of business
- Fixing the Industry Standard Approach
- Regulatory implications

Speakers:

Stephen Mildenhall is Assistant Professor of Risk Management and Insurance and Director of Insurance Data Analytics at the School of Risk Management in the Tobin College of Business at St. John’s University, which he joined in 2016. Steve has worked in the insurance industry since 1992. Prior to St. John’s he was Global CEO of Analytics for Aon plc, based in Singapore, and head of Aon Benfield Analytics. Steve is a Fellow of the Casualty Actuarial Society, an Associate of the Society of Actuaries, a Chartered Enterprise Risk Analyst, and a CAS Institute Certified Specialist in Predictive Analytics and Certified Catastrophe Risk Management Professional.

Steve is a frequent speaker at professional meetings and industry events. He is also the author of a number of published papers. His research has appeared in the Proceedings of the Casualty Actuarial Society, the North American Actuarial Journal and the Duke Math Journal. He is a two-time winner of the CAS Woodward-Fondiller Prize for the best paper by a newly qualified Fellow.

John A. Major is Senior Vice President and Director of Actuarial Research at Guy Carpenter & Company where he is responsible for the development of new risk analysis methodologies and leadership of actuarial and statistical research and consulting. Prior to joining Guy Carpenter in 1995, he was Assistant Director of Research at the Travelers and a Teaching Fellow at Harvard University.

**Triangle-Free Reserving**

Join us on 29th April 2020, 9:00 – 10:00 EDT. To register, please [click here](#).

**Abstract:**

The most popular reserving methods among practitioners are based on claims triangulations. No matter how sophisticated the subsequent processing of the information contained in the triangle is, these methods are inherently inadequate to accurately model the distribution of reserves, although they may be good enough to produce a point estimate of such reserves. The reason is that the triangle representation involves the compression (and ultimately the loss) of crucial information about the individual losses, which causes problems when we then try to extract detailed information on the distribution of unpaid losses.

In order to avoid such loss of information it is necessary to adopt an approach which is similar to that used in pricing, where separate frequency-severity and delay models are developed and then combined by Monte Carlo simulation or other numerical techniques to produce the aggregate loss distribution. The added complication is that a separate severity distribution model may be necessary for the calculating the outstanding reserves of each past accident year.

A specific implementation of this approach is described, whose core feature is a method to calculate the incurred but not reported claim count based on the empirical distribution of delays (where the delay is defined as the time between loss date and reporting date), after adjustments to make up for the bias towards smaller delays.

In order to validate the method and compare it with existing methods, a series of experiments with artificial (but realistic) data sets (much in the spirit of the work by Alvarado et al., 2019, on the CAS Loss simulator) was undertaken, which show that the distribution of outstanding reserves is much closer to the “true” one than that based on classical stochastic reserving methods.

**Speakers:**

**Pietro Parodi** has a PhD in Physics and is a UK-qualified actuary. He is the author of the book “Pricing in general insurance” (2014) and of several other publications, including “Property graphs” (2019), and also “Triangle-free reserving”, which was presented at GIRO in 2012 and received the Brian Hey Award. Prior to his career in insurance he worked as a research scientist in the fields of machine vision and computational neuroscience.

**Alberto Glionna** is a qualified actuary (Fellow of the Italian Institute of Actuaries), and currently works as a Risk Actuary at Assicurazioni Generali Holding. He worked in non-life corporate business and then moved to internal model development for Solvency II. As part of his attempt to achieve greater accuracy and consistency in non-life actuarial valuation, he has specialised in computationally intensive methods in stochastic reserving.

**WEBINARS REGISTRATION AND PARTICIPATION**

These webinars are free for ASTIN members! Not a member? You can participate by simply joining ASTIN Section (membership fee is CAD 50.00).
ASTIN Board Notices

ASTIN Annual General Meeting 2020

The 2020 Annual General Meeting ("AGM") of the ASTIN Section will take place in Paris, France on May 14, 2020, at 12:30 CET. The agenda for the Paris meeting and draft minutes from the previous AGM will be distributed prior to the meeting. There will be an election to fill the remaining term (until 2022) of one vacant Board position; if a ballot is required there will be an opportunity for ASTIN Section members to vote electronically prior to the AGM.

Call for Members to Serve on the ASTIN Board

This notice invites you to nominate yourself, or any other ASTIN Section member*, to serve on the Board.

The ASTIN Board is responsible for the ASTIN operations, activities and expenditures. The Board is a very active and engaged body, and every member of the Board is expected to have hands-on leadership and involvement in at least one ASTIN initiative, in addition to participating in monthly teleconferences of the Board.

ASTIN Board members are a diverse group of energetic and dedicated volunteers. Please consider serving! This notice describes the simple process for nominating yourself or any other ASTIN Section member to serve on the Board.

The ASTIN Board consists of sixteen (16) members, fourteen (14) of whom are elected by the Section membership, and two (2) of whom are IAA Delegates appointed by the IAA Executive Committee. Bob Conger (USA) and Dieter Köhnlein (Germany) currently serve as the IAA Delegates to the ASTIN Board.

The elected Board members are elected by the Section membership, at an AGM, for a term of four (4) years (and may be re-elected to a second term). Presently, there is one vacant seat – we sincerely thank Emiliano Valdez for his service and for his commitment to ASTIN. Thirteen (13) elected Board members are in their midst of their elected terms and will continue to serve on the Board, until the year indicated below:

1. Frank Cuypers – Chairman (2021), Switzerland
2. Michiel Van Der Wardt – Vice-Chairman (2023), The Netherlands
3. Yuriy Krvavych – Secretary (2023), United Kingdom
4. Eberhard Müller – Treasurer (2023), Germany
5. Agnieszka Bergel (2021), Portugal
6. Bor Harej (2023), Slovenia
7. Salma Jamal (2023), France
8. Pierre Miehe (2023), France
9. Kirsten Sasady (2021), Denmark
10. Dimitri Semenovich (2023), Australia
11. Kenji Shirai (2023), Japan
12. Roger M. Hayne (2021), United States  
13. Bernard Wong (2023), Australia

ASTIN appreciates, and greatly benefits from, the wonderful diversity of our Board members; and we encourage nominations from candidates of all backgrounds and perspectives. Geographically, we strive to have no more than two elected Board members from any one country.

Nomination Process

We invite you to nominate yourself, and/or if you would like to suggest another ASTIN Section Member*, to serve on the Board, please bring this communication to that person’s attention, and/or send a note to 2020ASTINNominations@actuaries.org with the name and contact information for the potential candidate, and we will contact the candidate directly.

If you are interested in serving on the Board, please reply to 2020ASTINNominations@actuaries.org by March 13, 2020, indicating your interest. With your reply (or in a separate follow-up email due), please provide:

1. A maximum ONE PAGE summary of: a) Your background; and b) Why you would be a good choice to serve as an ASTIN Board Member.

2. You also must include a good quality photograph of yourself.

3. You are invited, but not required, to submit a letter of support from your member association; candidates who have submitted such a letter of support will be so noted on the ballot.

Please note there is no limit to the number of ASTIN Section Members that can be added to the ballot for the election to fill the available Board position.

The submissions from the candidates will be posted on the ASTIN Section website, with a direct link from the ballot, so that the voters will have the information available as they vote.

Thank you, we look forward to hearing from you.

Bob Conger (USA) and Dieter Köhnlein (Germany),  
IAA Delegates to the ASTIN Board

* If currently not an ASTIN Section member, you can join online for a nominal fee of CAD 50. Please note that only Ordinary Members are permitted to serve on the Board and to vote in the Board elections; Observer Members and Donor Members cannot serve or vote.
Forthcoming Events

IAA Meetings

• Brussels, Belgium 4 - 8 May 2020
• Ottawa, Canada 18 - 22 Nov 2020
• Sydney, Australia 30 Mar - 3 Apr 2022

ASTIN Colloquia

2020 - May 10-14, Paris, France

ASTIN Colloquium will be held jointly with four other IAA Sections: AFIR-ERM, IAALS, PBSS and IACA.

2021 - May 25-28, Orlando, FL, USA

The ASTIN Colloquium will be held jointly with the AFIR-ERM Section at Disney's Coronado Springs, in collaboration with the CAS.

2022 - April 4-8, Sydney, Australia

ASTIN Colloquium will be held as part of 32nd ICA.

2026 - Tokyo, Japan

ASTIN Colloquium will be held as part of 33rd ICA.

Resources

Don’t forget the following resources which have a lot of information about ASTIN, and its research:

ASTIN Annual Report | ASTIN Bulletin | ASTIN Video | ASTIN Newsletters | ASTIN website

Also, please follow us on social media: LinkedIn, Twitter and Facebook.

Contacts

Key contacts on the ASTIN Board

• Frank Cuypers [Chairman]
• Yuriv Krvavych [Secretary]