ASTIN is a well-established, leading worldwide forum for risk and actuarial professionals in the non-life insurance industry. Created as the first Section of the International Actuarial Association (IAA) in 1957, ASTIN stands for ‘ACTUARIAL STUDIES IN NON-LIFE INSURANCE’.

Whilst adhering to the highest standards of the actuarial profession maintained by the IAA, ASTIN’s mission is to generate value for its members. This is achieved by helping them develop their professional skills. We also engage with academia and industry to drive innovation and promote meaningful, quality research in the field of economics and mathematics of non-life insurance, and their applications to quantitative risk management.

As a well-established global professional forum, we draw upon the values of the ASTIN brand. Our intellectual base and wealth of knowledge have been developed across decades and have resulted in ground-breaking research. In our quest for excellence, we consistently demonstrate an uncompromising pursuit of knowledge and understanding.

Our vision is for ASTIN to serve the non-life insurance industry globally by ensuring that our members are trusted to provide insight and find solutions to quantitative risk management issues, and hence in high demand for their valued professional skills and expertise.
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Dear fellow ASTIN members,

These are exceptional times. Many of you will be striving to keep families safe and well, while working from quarantined homes. It is in times like these that the fellowship of an organisation like ASTIN can be so valuable, bringing us together wherever we are in the world, and providing a forum to develop and share valuable experiences and expertise.

Like so many others, the emergency has affected our activities, but also given them added impetus. In this report, we look back to the successful colloquium we held in Cape Town in April 2019. The 2020 colloquium would have been staged in Paris in May. While we have naturally had to cancel such face-to-face gatherings, technology has enabled us to begin running a series of insightful virtual meetings and events in place of the physical colloquium. This virtual engagement builds on the past two years’ experience of recording all our colloquium sessions so members around the world can access the content via actuview and other dedicated online platforms.

Our response to this fast-evolving environment has also included the launch of our new ‘Expert Helpline’. We are using this online platform to run virtual forums designed to address members’ queries about various actuarial practical issues, including the growing impact of COVID-19 on the financial, insurance and industrial sectors.

Like so many of you, I greatly miss the face-to-face interaction with fellow members and look forward to its return. However, it is good to report that through developments such as our virtual events and the Expert Helpline, we can continue to offer high quality professional support and value for our members. I am also pleased to report that ASTIN’s research, innovation and initiatives to enhance service and value for members continue to gather pace. We have been stepping up investment in this far-reaching programme of improvements as a key part of our five-year budget plan.

Looking across all the developments, achievements and plans set out in the 2019/20 Annual Report, I believe that we are in a great position to enhance our status as a leading global forum for non-life actuaries and risk professionals. Most of all, I believe that we are well-equipped to deliver for you, our members.

On a personal level, I would like to thank all our members and volunteers for your engagement, contributions and recommendations over the past year. It is due to your collective effort that ASTIN continues to grow from strength to strength. I look forward to greeting many of you soon at the 2020 IAA Sections Virtual Colloquium. And of course, please feel free to get in touch with me if you have any queries or ideas over the course of the coming year.

With kind regards,

Frank CUYPERS,
ASTIN Chairman
Dear members and friends of ASTIN,

I am delighted to present our 2019/2020 Annual Report.

The COVID-19 emergency is putting all of us under immense strain personally and professionally. Yet, by bringing our unique risk expertise to bear, we as actuaries and risk professionals can play a key role in helping our businesses and the societies they serve to get through the crisis.

We at ASTIN are proud to be able to support these efforts through our newly launched Expert Helpline and other opportunities we offer for updating and sharing insights and experience. Our mission to provide value for members through professional development, applied research and knowledge-sharing has never been more important. This has been a busy year for ASTIN as we seek to enhance both our research programmes and services for members worldwide. Highlights include the establishment of two new working parties and the running of five well-received webinars. As part of our commitment to extending ASTIN’s international presence, we have also set up two new ASTIN Chapters and co-organised four regional non-life insurance events.

Looking ahead, we are launching a series of online Masterclasses. The first will focus on the insurance risk landscape, followed by a Masterclass on model risk management. Following an initial delay caused by the COVID-19 emergency, the first two Masterclasses are due to go ahead later in the year. Further Masterclasses are being scheduled for the future.

We continue to strengthen engagement and communication with ASTIN members, our stakeholders within the IAA and also the wider community of risk and non-life insurance professionals. You can see the positive results of that work as you browse our new website and read our annual reports and bimonthly newsletters.

Over the coming year, we will continue to roll out the five-year strategic plan we agreed by our Board in the end of 2018. From a research and knowledge sharing perspective, the main areas of focus are Financial Stability and Regulatory Changes, Data Science in Insurance, Extreme Weather Events and Catastrophe Risk, Cyber Risk and InsurTech. More broadly, the strategic plan will help to enhance value for ASTIN members and raise the profile of our organisation worldwide.

I would like to thank all my fellow ASTIN members and colleagues on the Board for their contributions to making all these initiatives and improvements possible. I hope that this Annual Report provides some useful insights into how we generate value for members, and a snapshot of our exciting plans for the future.

Until we speak again, stay safe and keep well. Together we will get through this.

With kind regards,

Yuriy KRVAVYCH,  
ASTIN Secretary
ASTIN is a well-established, leading worldwide forum of risk and actuarial professionals of non-life insurance industry. ASTIN is the first and oldest section of the IAA. It was founded on October 16, 1957 in New York City.

Whilst adhering to the highest standards of the actuarial profession maintained by the IAA, ASTIN’s mission is to generate value for its members. This is achieved by helping them develop their professional skills. We also engage with academia and industry to drive innovation and promote meaningful, quality research in the field of economics and mathematics of non-life insurance, and their applications to quantitative risk management.

Today, ASTIN has over 1,280 members in over 60 countries. ASTIN Colloquia are held each year and every four years in conjunction with International Congresses of Actuaries. Jointly with other IAA Sections, ASTIN publishes the ASTIN Bulletin – the internationally renowned, refereed scientific journal of the actuarial profession. ASTIN also organises working parties and webinars and provides training and bursaries to young researchers in developing economies. The newly introduced ASTIN research and educational platforms: Masterclasses and Expert Helpline, will play an important role in providing continuing professional development services to our members.

Our vision is for ASTIN to serve the non-life insurance industry globally by ensuring that our members are trusted to provide insight and find solutions to quantitative risk management issues, and hence in high demand for their valued professional skills and expertise.
RESEARCH AND DEVELOPMENT

ASTIN has identified and is currently focused on the five strategic areas of research and development outlined below. The research is conducted via ASTIN Working Parties (AWPs) and the results are published on the ASTIN website, and also presented at ASTIN webinars.

Each AWP is a self-organized group of risk and actuarial experts with a focused and applied research goal. The ASTIN Board provides support to AWPs by ensuring appropriate governance, adequate funding and access to the IAA infrastructure.

ASTIN also regularly organizes various topical webinars which are used to share knowledge and expertise among ASTIN members and the wider non-actuarial community. Over the last six years, ASTIN has produced 18 webinars.

For more details on ASTIN research and development, please refer to Working Parties sub-section in this report or visit the ASTIN website.

1 - FINANCIAL STABILITY AND REGULATORY CHANGES

ASTIN focuses on the changing regulatory landscape and studies how new changes may impact the insurance industry. The upcoming IFRS 17 Accounting Standard for insurance contracts is of particular interest. The Standard introduces significant changes to insurance reporting, impacting all insurers reporting under IFRS. The Standard applies separately to all insurance and reinsurance contracts and takes effect from January 1, 2023.

Over the past two years, ASTIN has completed two working parties on IFRS 17 with the objective of studying the impact of this new Standard on non-life insurers, products and markets.

2 - DATA SCIENCE IN INSURANCE

Developments in data science and technological advances in computing power have introduced a quantum leap in the quality of insurance analytics. They promote innovation in how risk is differentiated, products are designed and priced, and claims reserved and settled.

Over the past two years, ASTIN has successfully completed three working parties on Big Data and Insurance Analytics and also Machine Learning and Applications to Non-Life Reserving.

3 - CATASTROPHE RISK: NATURAL PERILS/CLIMATE CHANGE AND MAN-MADE DISASTERS

Over the past two decades, the trends in climate change have shown growing evidence of increasing frequency and intensity of extreme weather events. The damage caused by heatwaves, fires, floods, storms, earthquakes and other natural catastrophes has affected millions of lives and the economies of entire regions. Natural catastrophe modelling technologies have been used by insurers, reinsurers and capital markets for some time, to support strategic decision-making in risk taking, risk management and capital setting. It is important for the actuarial profession and, in particular, for non-life actuaries to understand how the existing natural catastrophe modelling technologies and methodologies should be adapted to allow for emerging trends in climate change and to be able to perform more forward-looking projections, rather than relying solely on historical data.

In addition to natural perils and climate change, man-made disasters are also of special interests. Specific hazards such as terrorism, nuclear/biological disasters and pandemics could present large systemic shocks. Therefore, new robust models are required to be developed to be able to adequately model the effects of these phenomena.

ASTIN plans to carry out research in this area and organise relevant working parties in the near future.

4 - CYBER RISK

Cyber risk is an emerging, expanding and fast-changing risk. It has evolved rapidly with technological advances and growing digitisation. Whilst cyber risk is yet to be fully studied and understood, it is already evident that the insurance industry is getting ready to deal with the complex systemic risk of cyberattack, given its highly pervasive nature, compounded by today’s complex technological interconnectivity.

Last year, ASTIN launched its first working party on cyber risk and plans to carry out more research in this area in the future to study the phenomenon of cyber risk and develop efficient methodologies for quantifying it.

5 - INSURTECH

Rapid digitisation and technological advances are ushering in considerable changes to the insurance industry by allowing the use of big data and advanced analytics. The traditional insurance value chain is destined to be transformed as the result of increased use of more granular big data and predictive modelling, artificial intelligence and cognitive computing as well as the use of wearable devices and telematics, and smart utilities as well as the internet of things (IoT). As the new digitally oriented iGeneration enters the insurance market, insurers will have to offer products and services that suit their lifestyle and needs. They will also have to revolutionise the ways the risk is taken and managed to increase operational flexibility and enable more efficient use of capital.

ASTIN wants to play a key role in studying the potential impact of InsurTech on the insurance industry and deepen its understanding of how non-life actuaries should adapt to embrace these new changes. Over the past year, ASTIN has completed an AWP on Automated Cars and Insurance. This work was carried out in cooperation with lawyers from AIDA (International Insurance Law Association). ASTIN plans to conduct more research in this area in the future.
ASTIN COLLOQUIA AND EVENTS

ASTIN colloquia are held annually. These are truly international events that are well-attended, attracting risk and actuarial professionals from all over the world. Bringing together academics and practitioners, the colloquia provide an ideal environment for continuing professional development through the exchange of knowledge and expertise among participants from different countries across a wide range of professional disciplines.

ASTIN colloquia encompass keynote speakers and invited lecturers, plenary sessions, parallel sessions, ‘practitioner corner’ panel discussions and specialised actuarial workshops. All papers submitted are carefully pre-selected by the ASTIN Scientific Committee and distributed to all participants, in advance for prior reading, to enable more time to debate proposed ideas.

ASTIN colloquia are organised in attractive and iconic locations which offer a friendly and collaborative atmosphere, conducive to creative stimulation in working sessions, as well as through both social and cultural activities.

To help promote the actuarial profession in actuarially-emerging regions, ASTIN also organises regional events, a mix of seminars and workshops, in conjunction with local actuarial associations and other Sections of the IAA.

In addition, ASTIN Chapters have been playing a significant role in promoting the actuarial profession locally. We will continue to expand and strengthen ASTIN’s presence at a regional level by reinforcing our ties with existing ASTIN Chapters in Scandinavia, Germany and Switzerland. We are also establishing and developing links in those regions where ASTIN is not currently well represented.

ASTIN BULLETIN

The ASTIN Bulletin was established in 1958. Over the last six decades, the ASTIN Bulletin has been evolving and it is now widely regarded as the leading international refereed journal of the actuarial profession, covering the full breadth of practical and theoretical work in actuarial science.

EDUCATION AND CONTINUING PROFESSIONAL DEVELOPMENT

The newly introduced ASTIN research and educational platforms: Masterclasses and Expert Helpline, will play an important role in providing continuing professional development services to our members.

MASTERCLASSES

A series of online Masterclasses on a wide range of non-life insurance topics, given by pre-eminent figures in 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. They will be fully interactive, providing ASTIN members with free access and covering key topics including 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.

For more details on Masterclasses, please see the ASTIN Masterclasses sub-section in this report.

EXPERT HELPLINE

ASTIN operates an open access online question and answer (Q&A) exchange platform for the global actuarial community. It is used to facilitate rapid worldwide dissemination of actuarial best practice by connecting actuarial practitioners and academics.

GRANTS AND ASSISTANCE

A proportion of ASTIN’s income has always been reserved for the development of actuarial science in actuarially emerging countries. ASTIN has donated 18 important actuarial textbooks to 120 universities and actuarial associations across emerging markets. The beneficiaries were also granted free access to the ASTIN Bulletin. ASTIN has also sponsored seminars in India, Croatia, Latvia, Poland, Zimbabwe, Chile, and Hong Kong.

ASTIN members have taught the principles of loss reserving, experience rating in motor insurance, financial economics in insurance, applications of stochastic processes, and stochastic models for life contingencies to actuarial students and practitioners.

Today, ASTIN continues to support actuarially emerging countries. One example of this is our ongoing project to support the development of actuarial education in Benin. Through this project, ASTIN is committed to providing financial resources required to run the newly created actuarial study programme.
Dr. Frank CUYPERS
Chairman
Country: Switzerland
Qualification: PhD in Theoretical Physics; Fellow of DAV and the Swiss Association of Actuaries
Experience: Chief Actuary, Prime Re Solutions
Main areas of expertise: actuarial engineering

Michiel VAN DER WARDT
Vice-Chairman
Country: The Netherlands
Qualification: MSc in Actuarial Science; Fellow of the Actuarial Society of the Netherlands
Experience: Freelance Senior Non-Life Actuary and Risk Manager
Main areas of expertise: enterprise risk management, Solvency II

Dr. Yuriy KRVAVYCH
Secretary
Country: UK
Qualification: PhD in Mathematics (Kiev), PhD in Actuarial Studies (UNSW, Sydney)
Experience: Managing Director, Guy Carpenter
Main areas of expertise: enterprise risk management, risk intelligence and capital optimisation, Solvency II

Eberhard MÜLLER
Treasurer
Country: Portugal
Qualification: Dipl. Math., Aktuar DAV, CERA
Experience: Managing Director, Riskmueller Consulting GmbH
Main areas of expertise: enterprise risk management, Solvency II, reinsurance

Dr. Agnieszka BERGEL
Member
Country: Portugal
Qualification: PhD in Actuarial Science; Fellow of the Portuguese and the Polish Institutes of Actuaries
Experience: Assistant Professor at ISEG, University of Lisbon
Main areas of expertise: risk theory, actuarial education

Prof. Bernard WONG
Member
Country: Australia
Qualification: PhD in Mathematical Sciences; Fellow of the Actuaries Institute (Australia)
Experience: Professor and Head of School, Risk and Actuarial Studies, UNSW Sydney
Main areas of expertise: actuarial risk modelling and optimal decision making

Dr. Dimitri SEMENOVICH
Member
Country: Australia
Qualification: PhD in Computer Science; Fellow of the Actuaries Institute (Australia)
Experience: Director of Analytics, Insurance Australia Group
Main areas of expertise: business analytics, mathematical optimisation, machine learning

Dr. Roger M. HAYNE
Member
Country: USA
Qualification: PhD in Mathematics; Fellow of the Casualty Actuarial Society; Member of the American Academy of Actuaries
Experience: Associate Adjunct Professor in the Department of Statistics and Applied Probability at the University of California, Santa Barbara
Main areas of expertise: reserving, risk management
ASTIN OVERVIEW

Pierre MIEHE
Member
Country: France
Qualification: Certified Actuary (IA and CERA); Fellow of the French Institute of Actuaries
Experience: Director, Milliman
Main areas of expertise: non-life insurance pricing, reserving and risk modelling

Kirsten SASADY
Member
Country: Denmark
Qualification: MSc in Actuarial Mathematics; Fellow of the Danish Actuarial Association
Experience: Senior Actuarial Manager, PwC
Main areas of expertise: risk management, IFRS 17, Solvency II

Kenji SHIRAI
Member
Country: Japan
Qualification: Fellow of the Institute of Actuaries of Japan
Experience: Deputy General Manager, Tokyo Marine Group & Nichido Life Insurance Co
Main areas of expertise: reserving, risk management

Bor HAREJ
Member
Country: Slovenia
Qualification: BSc in Applied Mathematics; Fellow of Slovenian Actuarial Association
Experience: Senior Actuary and Risk Manager
Main areas of expertise: actuarial engineering, Solvency II

Salma JAMAL
Member
Country: France
Qualification: MSc in Actuarial Science; Fellow of the French Institute of Actuaries
Experience: Manager, Milliman
Main areas of expertise: Solvency II, Capital Modelling, Non-Life reserving

Bob CONGER
IAA Delegate
Country: USA
Qualification: BA in Economics and Mathematics; Fellow of the Casualty Actuarial Society; Member of the American Academy of Actuaries
Experience: (retired) Principal, Towers Perrin
Main areas of expertise: Workers Compensation; Pricing, Loss Reserving, Capital Management; Mergers, Acquisitions, Demutualisations, and other complex transactions; Litigation Support and Expert Witness

Dr. Dieter KÖHNLEIN
IAA Delegate
Country: Germany
Qualification: PhD in Mathematics; Chartered Enterprise Risk Actuary (CERA); Fellow of the German Actuarial Association (DAV)
Experience: Senior Actuarial Manager, Mazars
Main areas of expertise: actuarial audit, Solvency II

Prof. Hans BÜHLMANN
Honorary Chairman
Country: Switzerland
Qualification: PhD in Mathematics; Fellow of the Swiss Association of Actuaries
Experience: Professor Emeritus, Swiss Federal Institute of Technology (ETH)
Main areas of expertise: risk theory, credibility theory, insurance mathematics

Prof. Jean LEMAIRE
Honorary Chairman
Country: USA
Qualification: PhD in Mathematics; Associate of the Society of Actuaries
Experience: Harry J. Loman Professor of Insurance and Risk Management and Director of the Actuarial Science Program at the Wharton School of the University of Pennsylvania
Main areas of expertise: mathematical statistics and probability, bonus-malus systems in automobile insurance
ASTIN SECTION COORDINATORS

The IAA Secretariat coordinates the work of the ASTIN Section providing administrative support to the ASTIN Board and members of the ASTIN Section.

Christian LEVAC
the IAA Secretariat
ASTIN Section Coordinator
Director, Communications and Membership
Email: christian.levac@actuaries.org

Juan LAYERDE
the IAA Secretariat
ASTIN Section Coordinator
Administrative support
Email: juan.laverde@actuaries.org

ASTIN SECTION VOLUNTEERS 2019 / 2020

We currently have four ASTIN Section volunteers:

Irina SIKHARULIDZE
Country: Switzerland/Georgia

Dr. Walther NEUHAUS
Country: Norway

Guido MONTEVERDE
Country: Peru

Roland VOGGENAUER
Country: Switzerland

Over the last year, our volunteers were instrumental in helping the ASTIN Board to run working parties, organise events and lead new initiatives.
ASTIN KEY EVENTS

HIGHLIGHTS 2019-2020

April 2019

IAA Section Colloquium in Cape Town, South Africa
The 2019 IAA Section Colloquium took place in Cape Town, South Africa, from 2 to 5 April 2019. This event was a collaboration between five Sections of the IAA and the Actuarial Society of South Africa.

The Colloquium attracted 741 attendees from 39 countries. Of these, 609 were from South Africa, 16 from other African nations and 116 others were from other countries. More than 150 speakers and moderators across all five IAA Sections contributed to 52 scientific sessions and 111 presentations. Under the ASTIN track, 26 papers were presented by 31 speakers, including four workshops covering Reserving, Pricing, Solvency and Reinsurance.

May 2019

Italian Chapter of ASTIN – Inaugural Meeting, Milan
The inaugural meeting of ‘ASTIN Italy’ took place on 27 May 2019 in Milan. It was organised by the Italian Association of Actuaries (ISAQ) and attracted around 100 participants. It was a historical event for non-life actuaries in Italy. The meeting was attended by Frank Cuypers (ASTIN Chairman) and Eric Dal Moro (Past Chairman of ASTIN). The newly founded Chapter of ASTIN will serve as the main forum for the non-life actuarial community in Italy, promoting research and continuing professional development through regular meetings, conferences, workshops and trainings.

April 2019

ASTIN Board changes
The ASTIN Board serves as the policymaking body and the senior management team for the ASTIN Section.

Last year, four Board members stepped down or were ineligible for re-election:
• Éric Dal Moro, Past Chair (Switzerland)
• Adrian Folke Ericsson (UK)
• Enrique de Alba (Mexico)
• Emil Valdez (USA)

Subsequently, four new members were elected to the Board at the Annual General Meeting of ASTIN in Cape Town in April 2019:
• Bor Harej (Slovenia)
• Salma Jamal (France)
• Dimitri Semenovich (Australia)
• Bernard Wong (Australia)

In addition to the Board election, the IAA has recently appointed Bob Conger (USA) as IAA Delegate on the ASTIN Board to replace outgoing Enrique de Alba (Mexico).

We welcome new members onto the Board and wish them every success in their new role. We say goodbye to outgoing members and thank them for their hard work.

July 2019

ASTIN Cyber Risk Workshop, London, UK
The second SCOR sponsored ASTIN Cyber Risk workshop was held in London at the iconic venue of Lloyd’s Old Library on 12 July 2019. The event was very well received with over 100 registrations and 70 delegates. The highlights of the day included the stress test update by the Bank of England, updates from the Geneva Association, LMA/Lloyds, and ASTIN, along with a wide range of discussions on existing exclusions used in the market being not fit for purpose, exposure management, development of ILS and its methodology, and modelling issues.
Joint AFIR-ERM/ASTIN Symposium, Warsaw

A joint AFIR-ERM/ASTIN Symposium was held in Warsaw on 24-25 October 2019. It was hosted by the Polish Society of Actuaries (Polskie Stowarzyszenie Aktywiarzy) and attracted around 100 participants – local actuaries and risk managers. This event was attended by officials from AFIR-ERM and ASTIN. Many interesting topics were covered at the Symposium and generated fruitful discussions among participants.

Caucasus Chapter of ASTIN – Inaugural Meeting, Tbilisi, Georgia

The inaugural meeting of ‘ASTIN Caucasus’, a new Chapter of three countries of the region: Georgia, Armenia and Azerbaijan, took place in Tbilisi, Georgia on 17-18 October 2019. This event attracted around 40 participants from the region. The meeting was attended by ASTIN Board representatives, Frank Cuypers (ASTIN Chairman) and Roland Voggenauer (ASTIN Board volunteer). The newly founded Chapter of ASTIN will serve as the main forum for the non-life actuarial community in the Caucasus region, promoting research and continuing professional development through regular meetings, conferences, workshops and trainings.

ASTIN Webinars

The following three webinars have been organised by ASTIN:

- Autonomous Vehicles Working Party by Sara Landini (Italy) and Kyriaki Noussia (UK) – 10 October 2019;
- Cyber Risk Case Study: A Scenario-Based Approach to Identifying and Mitigating Key Threats by Shahryar Shaghaghi (USA), Sim Segal (USA) and Dave Bartholomew (USA) – 23 October 2019; and
- Programmatic Approach to Apply Machine Learning to P&C Loss Reserving by Alessandro Carrato (Germany) – 24 October 2019.

A recording of each webinar alongside a PDF of the presentation can be found on the ASTIN website and are freely accessible to ASTIN members.

New volunteers of ASTIN Board

ASTIN Board welcomes new volunteers:

- Irina Sikharulidze (Switzerland),
- Guido Monteverde (Peru).

They will assist the ASTIN Board with a number of initiatives including members outreach, communications and branding.

September 2019

October 2019
November 2019

The IAA Meetings in Tokyo and the IAA restructuring

In early 2019, the IAA Renewal Task Force was established to help review top-down governance of the IAA. The focus of the review included the IAA’s strategic objectives, as well as the IAA structure to ensure the IAA efficiently operates to achieve its strategic goals.

The task force suggested the top-down governance with primary focus on three strategic goals of the IAA: I (Impact), A (Assure), and A (Advance), with ASTIN and other IAA Sections continuing playing an important role in achieving the latter strategic goal, Advance, addressing issues of research and continuing education.

Following the IAA consultations with FMAs and Sections, the proposed top-down governance structure was approved by the IAA Council in Tokyo.

January 2020

ASTIN Cyber Risk Workshop, London, UK

PCS (Verisk) sponsored the third ASTIN Cyber Workshop, which was held once again at the Lloyd’s Old Library in London following popular demand. The Workshop was attended by more than 120 delegates representing the (re)insurance industry, modeling tool vendors, regulators, industry associations and academia. The main focus of the workshop was on the ILS markets and the relevant experts were invited to share the challenges and conditions required to help spur the risk transfer value chain for cyber risk.

Hans Bühlmann – 90th Birthday Celebration

On 3rd February 2020, a Fest-Colloquium was held at ETH Zurich to celebrate the 90th Birthday of Professor Hans Bühlmann – Honorary Chairman of ASTIN. Hans Bühlmann has played a key role in the actuarial profession. He was on the committee that has helped the International Actuarial Association (IAA) to be the modern and active community it is today. He was Chairman of ASTIN, Editor-in-Chief of the IAA’s scientific journal ASTIN Bulletin and President of the Swiss Association of Actuaries.

ASTIN community wishes Hans Happy 90th Birthday!

A detailed reportage of that event was provided in the Jan-Feb 2020 edition of ASTIN Newsletter and can be accessed on the ASTIN website.
New ASTIN Working Parties
ASTIN launched the following two working parties:

- **Statistical Methods for the Derivation of Exposure Curves from First Principles**
  Project Leader: Pietro Parodi (UK)
- **Forecast Verification in Insurance**
  Project Leader: Dimitri Semenovich (Australia)

ASTIN Webinars
The following two webinars have been organised by ASTIN:

- **Spectral Risk Measures (SRM) and Applications in Insurance ERM** by John A. Major (USA) and Stephen Mildenhall (USA) — 25 March 2020; and
- **Triangle-Free Reserving** by Pietro Parodi (UK) and Alberto Glionna (Italy) — 29 April 2020.

A recording of each webinar, along with a PDF of the presentation, is available on the ASTIN website and are freely accessible to ASTIN members.

Launch of ASTIN Expert Helpline
The Expert Helpline is an open access online question and answer (Q&A) exchange platform for the global actuarial community. Our aim is to facilitate rapid worldwide dissemination of actuarial best practice by connecting actuarial practitioners and academics. The platform is dedicated to actuarial practice in non-life insurance but could be extended in the future to include other areas of actuarial practice.
Today, ASTIN has over 1,280 members in over 60 countries. ASTIN Colloquia are held each year, every four years in conjunction with International Congresses of Actuaries. Jointly with other IAA Sections, three times per year, ASTIN publishes the ASTIN Bulletin – the internationally renowned, refereed scientific journal of the actuarial profession. ASTIN also organises working parties and webinars and provides training and bursaries to young researchers in developing economies.

For more information about our activities, please visit our ASTIN web page on the IAA website www.actuaries.org
The ASTIN Board encourages and supports applied research through its programme called ASTIN Working Parties (AWP). This involves a self-organised group of experts with a clearly defined scope of applied research that is expected to be completed within a reasonable timeframe. The research topics fall within the scope of non-life insurance. They are designed to be timely, practical and provide added value to the ASTIN membership. In addition to stimulating applied research, the AWP also aims to benefit from the intellectual calibre of ASTIN membership.

There are currently two ASTIN working parties actively in progress. These working parties will produce results to benefit non-life insurers in pricing, reserving, and risk management.

Copies of the completed projects are fully accessible to ASTIN members and can be downloaded from our ‘Working Parties’ web page on the IAA website at www.actuaries.org (login required).

Both leadership or participation in an ASTIN Working Party is an excellent way to establish contacts with colleagues/peers, who have similar interests, as well as the opportunity to share and enhance your professional skills.

If you are interested in forming or joining a working party, please contact the AWP Coordinator at:

walther.neuhaus@alambraconsulting.com

Dr. Walther Neuhaus,
Coordinator of ASTIN Working Parties

Walther qualified as an actuary at the University of Oslo in 1982 and obtained his Ph.D. in Actuarial Science in 1988. He has worked in the insurance industry, consulting and university, in Norway, Australia and Portugal. Today he is an independent consultant for non-life insurers and teaches on the Master of Actuarial Science programme at the University of Lisbon. His main areas of actuarial interest are loss reserving and credibility theory.
**ACTIVITIES**

**AUTOMATED CARS AND INSURANCE**

*Project Leaders: Sara Landini (Italy) and Kyriaki Nousia (UK)*

*Project period: October 2018 – September 2019*

*Summary:* A joint Working Party between AIDA (International Insurance Law Association) and ASTIN. The initial results were presented at the IAA Colloquium in Cape Town in April 2019 – available on actuview website at www.actuview.com – and an ASTIN webinar in October 2019. The Working Party has submitted a manuscript for publication. An overview of other presentations on automated cars and insurance done under the auspices of AIDA is available on the AIDA website at www.aidainsurance.com.

**ECOonomic Cyber Loss Index for Parametric Covers**

*Project Leader: Simon Dejung, SCOR (Zurich, Switzerland)*

*Project period: Jan 2019 – Dec 2019*

*Summary:* The primary aim of this Working Party was to assess the economic loss associated with cyber events that would eventually lead to a cyber loss index for possible use in the risk transfer market. The leader of this AWP has organised three workshops to examine this concept, with the first such workshop held in Zurich and the other two held in London. The workshops were attended by experts in IT security metrics and alternative risk transfers. The outcome of this AWP is expected to benefit society and several economies around the world. This Working Party has evolved and now been transformed into a larger research forum stretching before the form of a conventional ASTIN WP. The research work will be continued under this newly formed forum.

**IMPLICATIONS OF IFRS 17 ON NON-LIFE INSURERS, PRODUCTS AND MARKETS**

*Project Leader: Walther Neuhaus (Norway)*

*Project period: October 2018 – October 2019*

*Summary:* A joint Working Party between ASTIN and the GI Committee of the IAA. This Working Party had three complementary goals. First, to develop an inventory of the significant changes in financial reporting that non-life insurers are likely to encounter. Secondly, to consider the behavioural changes of rating agencies, analysts and other parties impacted by insurance. Also finally, to assess these impacts from an actuarial point of view. With 13 volunteer members from 11 countries, this group has identified significant areas that require deeper investigation. Where possible this will also include suggestions for economic implications. Whether fire propagation models developed by engineers can be used to derive exposure curves that are more realistic; and 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.

**THE PAA UNDER IFRS 17**

*Project Leader: Kirsten Sasady, PwC (Denmark)*

*Project period: Nov 2017 – December 2019*

*Summary:* This Working Party explored the Premium Allocation Approach (PAA) in calculating liabilities under the IFRS 17 Accounting Standard for insurance contracts. The group has been working on a description of best practices in the market regarding the implementation of the PAA in companies. The Working Party did not produce a report.

**AGENT-BASED MODELS, NETWORKS AND CELLULAR AUTOMATA IN RISK MANAGEMENT**

*Project Leader: Magda Schiegl, HL Landshut (Germany)*

*Project period: Nov 2017 – May 2019*

*Summary:* The main purpose of this Working Party was to study and describe models and methods in complex systems for measuring and managing risks. The group comprised of six members and presented a preliminary report at the ICA in Berlin in 2018. It has submitted the manuscript summarising the results of this research for publication in a refereed journal. The final report will be posted on the ASTIN website.

**STATISTICAL METHODS FOR THE DERIVATION OF EXPOSURE CURVES FROM FIRST PRINCIPLES**

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

*Project period: April 2020 – April 2021*

*Summary:* The main objectives of this Working Party 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.

**FORECAST VERIFICATION IN INSURANCE**

*Project Leader: Dimitri Semenovich, IAG (Australia)*

*Project period: May 2020 – May 2021*

*Summary:* A great deal of actuarial work can, after some reflection, be described as making forecasts. Whereas traditional rate-making and reserving involve predicting point or deterministic forecasts, capital models, including stochastic reserving and premium principles, are primarily concerned with probabilistic forecasts in the form of distributions over future outcomes or their functions. Empirical verification then emerges to systematically assess quality of such forecasts, including those where the forecaster has applied subjective judgement. The Working Party will review existing meteorology [Jolliffe and Stephenson, 2012] and statistics [Gneiting, 2008] literature on empirical forecast verification and suggest methods that are most appropriate to the established areas of actuarial practice. Where possible this will also include suggestions for economic interpretation of such metrics.


IAA SECTION COLLOQUIUM (ASTIN SECTION) - CAPE TOWN, 2019

The 2019 IAA Section Colloquium took place in Cape Town, South Africa, between 2-5 April 2019. This event was a collaboration between five Sections of the International Actuarial Association (IAA) and the Actuarial Society of South Africa.

The theme of the Colloquium was The Modern Actuary: Challenge, Influence, Lead.

This was an appropriate theme, given the role that actuaries play in modern society. Not only have we demonstrated in the past but also continue to show that we are able to adapt to changing circumstances. But we should also be able to challenge existing ways of thinking and influence the path towards a better society.

The aim of the Colloquium was to be a forum to showcase achievements, problem-solving, sharing experience and generally broadening the base knowledge of actuaries in a wide range of practice areas.

Against the magnificent backdrop of Table Mountain, we explored the Colloquium theme. Presentations and discussions were focused around this central theme, with opportunities to attend various plenary and breakout sessions.

In total, the Colloquium attracted 741 attendees from 39 countries. The breakdown was as follows: ASTIN (106), PBSS (144), IAALS (341), IAAHS (97), IACA (24) and Other/Non-Section Members (29). Of the 741 attendees, 609 were from South Africa, 16 from other African nations and 116 others were from other countries. More than 150 speakers and moderators across all five IAA sections contributed to 52 scientific sessions and 111 presentations. Under the ASTIN track, 26 papers were presented by 31 speakers, including four workshops covering the following topics: Reserving (Roger Hayne); Pricing (Axel Wolfstein); Solvency (Frank Cuypers); and Reinsurance (Eric Dal Moro).

Many Colloquium sessions were recorded as part of agreement with actuview. The recordings of Colloquium sessions are available to all ASTIN members for further viewing on the actuview website at www.actuview.com. This enabled a much wider audience globally to view the high-value content presented at the Colloquium and maintained this valuable knowledge/event in a sustainable manner.

Three bursaries were awarded by ASTIN to: Cristina Mano (Brazil), Joseph Theuri Gitonga (Kenya) and Apollinaire Woundjiague (Kenya).
ACTIVITIES
ASTIN REGIONAL EVENTS

ASTIN sees its core mission as being to provide practical research and education to benefit non-life actuaries around the world. This targets not only ASTIN members but also all other actuaries practicing in non-life insurance globally. In 2017 and 2018, ASTIN held a series of regional events in Central America – ASTIN Colloquium in Panama City in 2017, and also a Joint CAS-ASTIN Workshop in Jamaica and Joint One-Day AFIR-ASTIN Seminar in Mexico in 2018. These regional events offered innovative research presentations as well as introductory workshops aimed at assisting those in Central and South America gain a better understanding of non-life actuarial science.

In order to maintain the momentum evident in 2017-2018, in 2019 ASTIN organised four regional events in Italy, Georgia, Poland and Japan.

Time: May 2019
Event title: ASTIN Italy Chapter – Inaugural Meeting, Milan
Event description: The inaugural meeting of ASTIN Italy took place on 27 May 2019 in Milan at the headquarters of Helvetia. It was organised by the Italian Association of Actuaries (ISOA) and attracted around 100 participants. This one-day event was split into the morning and afternoon sessions dedicated to ‘Machine Learning Techniques and Applications’ and ‘IFRS 17’ respectively. The meeting was attended by the following officials from ASTIN Section (IAA) and ISOA:

- Frank Cuypers, Chairman of ASTIN Board (Switzerland),
- Éric Dal Moro, Past Chairman of ASTIN Board (Switzerland),
- Giampaolo Crenca, ISOA President (Italy).

This was a historic event for non-life actuaries in Italy. The newly founded Chapter of ASTIN will serve as the main forum for the non-life actuarial community in Italy, promoting research and continuing professional development through regular meetings, conferences, workshops and training.

Time: October 2019
Event title: ASTIN Caucasus Chapter – Inaugural Meeting, Tbilisi, Georgia
Event description: The inaugural meeting of ASTIN Caucasus, a new Chapter of three countries in the region: Georgia, Armenia and Azerbaijan, took place in Tbilisi, Georgia on 17-18 October 2019. This event attracted around 40 participants from the region. The meeting was attended by ASTIN Board Representatives, Frank Cuypers (ASTIN Chairman) and Roland Voggenauer (ASTIN Board volunteer). In addition to many interesting topics, the event also included two workshops on:

- Pricing - delivered by Axel Woffstein, Director of Pricing at Verti Insurance (Germany); and
- Reserving - delivered by René Dahms, Actuarial Lecturer at ETH Zurich (Switzerland).

The full programme of the event is available on the IAA website at www.actuaries.org.

It was a historic event for non-life actuaries in the Caucasus region. The event was also featured on the local TV news station. The newly founded Chapter of ASTIN will serve as the main forum for non-life actuarial community in the region, promoting research and continuing professional development through regular meetings, conferences, workshops and training.
**ACTIVITIES**

**Time: October 2019**

**Event title:** Joint AFIR-ERM / ASTIN Symposium, Warsaw

**Event description:** A joint AFIR-ERM / ASTIN Symposium was held in Warsaw on 24-25 October 2019. It was hosted by the Polish Society of Actuaries (Polskie Stowarzyszenie Aktuarzy) and attracted around 100 participants — including local actuaries and risk managers.

This event was attended by the following officials from AFIR-ERM and ASTIN:

- Fernanda Salas, Chair of AFIR-ERM Board (Mexico),
- Łukasz Delong, Member of AFIR-ERM Board (Poland),
- Frank Cuypers, Chairman of ASTIN Board (Switzerland),
- Yuriy Krvavych, Secretary of ASTIN Board (UK).

Many interesting topics were covered at the Symposium and it stimulated a number of insightful discussions among the delegates. The full programme of the event is available on the IAA website at [www.actuaries.org](http://www.actuaries.org).

All presentations are accessible to ASTIN members and can be downloaded from ‘Our Activities’ web page on the IAA website at [www.actuaries.org](http://www.actuaries.org) (login required).

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**Time: November 2019**

**Event title:** Joint ASTIN/CAS Seminar, Tokyo

**Event description:** A Joint ASTIN/CAS Seminar was held in Tokyo on 23 November 2019, following the IAA Meetings. This event was hosted by the Institute of Actuaries of Japan (IAJ), as part of the IAJ Special Meeting dedicated to the celebration of its 120th anniversary. The IAJ Special Meeting was held at Keidanren Kaikan (Japan Business Federation) located in the centre of Tokyo and close to the Imperial Palace.

The seminar comprised three sessions of 90 minutes each:

- Session 1: Data Science;
- Session 2: Cyber Risk; and
- Session 3: Insurance ERM and Solvency.

Many interesting topics were covered during the seminar which generated insightful discussions among the delegates. Three members of the ASTIN Board, Michiel van der Wardt, Bernard Wong and Yuriy Krvavych, gave presentations at the seminar. The full programme of the event is available on the IAA website at [www.actuaries.org](http://www.actuaries.org).

All presentations are accessible to ASTIN members and can be downloaded from ‘Our Activities’ web page on the IAA website at [www.actuaries.org](http://www.actuaries.org) (login required).
ASTIN WEBINARS

ASTIN regularly organises its topical webinars jointly with the IAA Secretariat. They are used to share knowledge and expertise among ASTIN members and the wider non-actuarial community.

ASTIN webinars are accessible to all ASTIN members, free of charge.

OUR RECENT WEBINARS

Last year was a fairly active year for webinars, with five webinars held.

- 10 October 2019 – Autonomous Vehicles Working Party by Sara Landini (Italy) and Kyriaki Noussia (UK)
- 23 October 2019 – Cyber Risk Case Study: A Scenario-Based Approach to Identifying and Mitigating Key Threats, Shahryar Shaghaghi (USA), Sim Segal (USA) and Dave Bartholomew (USA)
- 24 October 2019 – Programmatic Approach to Apply Machine Learning to P&C Loss Reserving by Alessandro Carrato (Germany)
- 25 March 2020 – Spectral Risk Measures (SRM) and Applications in Insurance ERM by Stephen Mildenhall (USA) and John A. Major (USA)
- 29 April 2020 – Triangle-Free Reserving by Pietro Parodi (UK) and Alberto Giornia (Italy)

A recording of each webinar, along with a PDF copy of the presentation, can be found on the ASTIN website and are freely accessible to ASTIN members.

OUR UPCOMING WEBINARS

2020 continues this trend with the following scheduled webinars to date:

- 27 May 2020 – Bayesian Claims Reserving Methods in Non-Life Insurance (Session I) by Glenn Meyers (USA)
- 10 June 2020 – Bayesian Claims Reserving Methods in Non-Life Insurance (Session II) by Glenn Meyers (USA)
- 24 June 2020 – Frequency Modelling of Cyber Risk by Alexandre Bournezoued (France)

Although, it is early in 2020, we are also hoping to expand the list of events to include presentations on practical implementation of IFRS 17, operational risk, Pareto smoothing, and actuarial standards. As the saying goes, “Watch this space!”.

In addition to these ASTIN webinars, we continue to explore opportunities to co-host webinars with the Casualty Actuarial Society (CAS). Although the CAS typically charges a separate fee for its webinars, it will offer six in 2020, free for all members. These are at times and on subjects of particular interest to members outside of the United States. There are also opportunities for co-branding one or more of these webinars with ASTIN. In 2019, previous examples of collaboration included a webinar titled “Silicon Valley – Actuarial Style” (August) and one on IFRS 17 (April). We continue to look for further opportunities for such co-branding in 2020.

For more details about ASTIN webinars, please refer to ‘Our Activities’ web page on the ASTIN website.
ACTIVITIES

As part of our strategy to expand and strengthen ASTIN's presence locally at the regional level, we continue to build up our links with existing ASTIN Chapters in Scandinavia, Germany and Switzerland. In addition, we are establishing and fostering new relationships in territories where ASTIN is not currently well represented. Last year, we founded two new ASTIN Chapters in Italy and in the Caucasus region as well as formalised the work of the existing ASTIN Chapters.

ASTIN members Kirsten Sasady (Chair of ASTIN Denmark and ASTIN Board member) and Roland Voggenauer (Chair of ASTIN Germany and also ASTIN Board volunteer) are the key principals behind the coordination between ASTIN and its Chapters.

This section presents profiles of existing five ASTIN Chapters. For more details about ASTIN Chapters, please refer to ‘Our Activities’ web page on the ASTIN website.

ASTIN CHAPTERS

Many prominent members have been responsible for promoting the activities of the Swiss ASTIN Chapter, among them are Professor Dr. Hans Bühlmann, Professor Dr. Josef Kupper, Professor Dr. Hans Ammeter, Professor Dr. Erwin Straub, Dr. Fritz Bichsel, Professor Dr. Marc-Henri Amsler, Professor Dr. Hans-Ulrich Gerber, Professor Dr. Paul Embrechts, Professor Dr. Alois Gisler, Professor Dr. André Dubey, Dr. Hans Schmitter, Peter Diethelm and Dr. Benedetto Conti.

There have also been many influential contributions by members of the Swiss ASTIN Chapter in many fields of actuarial science. The Swiss ASTIN Chapter has formed the foundation of experience rating and credibility theory (Bühlmann, Straub, Bichsel and Gisler), it has played a fundamental role in the development of collective risk theory (Bühlmann, Gerber), and their members have written fundamental essays in the fields of reinsurance, claims reserving, solvency, quantitative risk management and market-consistent valuation. Many of these developments have been published in the Swiss actuarial journal “Mitteilungen der Vereinigung Schweizerischer Versicherungsmathematiker” and in the international actuarial journal “ASTIN Bulletin”.

One small anecdote has been the development of the new tariff in 1970 for fire insurance in Switzerland. The working party aimed at developing a risk-based tariff accounting for differences between the different policies. Since data had been scarce, the working party derived a new tariff based on the methodology of credibility theory. At that time, the tariffs had to be approved by the Swiss national regulator. This regulator came, after a careful consideration, to the conclusion that the newly structured tariff was very ‘sophisticated’, however, it preferred a simpler method which required less mathematical skills.

Another example of the success of the Swiss ASTIN Chapter is that it has been a regular host of ASTIN Bulletin – The Journal of the IAA, which appeared for its first time in December 1958. We have chaired ASTIN Bulletin as Editor-in-Chief as follows:

• Professor Dr. Hans Ammeter (1960-1965)
• Professor Dr. Hans Bühlmann (1985-1995)
• Professor Dr. Paul Embrechts (1995-2005)
• Professor Dr. Mario Wüthrich (since 2018)

Going forward, our aim is to support the actuarial profession in all new (and present) developments. Currently, we have a strong focus on insurance data science and on the integration of computational and algorithmic methods into our profession. We therefore strongly engage in data science projects such as the newly founded Actuarial Data Science working party of the Swiss Association of Actuaries, for more information we refer to www.actuarialdatascience.org. Moreover, we are closely involved in the development of the international actuarial syllabus, and we also take part in international conferences.

Consistent with the spirit of Professor Dr. Hans Ammeter, we continue to organise the scientific part of the annual meeting of
the Swiss Association of Actuaries. The list of prominent speakers includes Jan Jung, Gunnar Denkständer, Jean Lemaire, Karl Borch, Bruno De Finetti, Christian Hipp, William Jewell, Ragnar Norberg, P弛lim Boyle, Marc Goovaerts, and it continues to grow every year. Currently, the scientific part of our annual meeting attracts more than 200 people. The presentations are given by both local and international academics and practitioners and cover topics a range of topics including non-life insurance pricing, claims reserving, insurance data science or telematics car driving data.

Chairs of the Swiss ASTIN Chapter:
- Professor Dr. Hans Bühlmann (1967-1970)
- Professor Dr. Josef Kupper (1971-1979)
- Dr. Fritz Bichsel (1979-1985)
- Professor Dr. Hans-Ulrich Gerber (1985-1989)
- Professor Dr. André Dubey (1989-2004)
- Dr. Hans Peter Boller (2004-2009)
- Dr. Benedetto Conti (2010-2015)
- Professor Dr. Mario Wüthrich (since 2016)

DAV ASTIN, The German ASTIN Group

Chair: Professor Viktor Sandor and Roland Voggenauer

Celebrating our 40th anniversary in 2019 we take pride in saying: "Non-life is our life".

The German ASTIN group was founded in 1979 by Professor Elmar Helten and Jürgen Strauss, who later also became Chairman of the International ASTIN Section. The group was a "spin-off" of the German Society of Insurance Mathematics (now DGVFM), hence the initial vision was clearly aimed at "scientificating" the non-life industry, or - to put in the words of the founders: "to formulate quantitative problems in non-life insurance in a mathematical fashion by using and testing theoretical models, and to support the collaboration of mathematicians in Germany as well as in international circles". Consequently, the group has always had two co-leads to cover both the academic and practical perspectives. Bringing these dimensions together remains our vision still today. By 1991, the group had grown to around 80 regular participants when Dr. Thomas Mack and Professor Christian Hipp took over the leadership. They were also instrumental in establishing a professional educational system for actuarial practitioners in the 90s, and it was under their patronage that the German ASTIN group became home for most mathematicians working in the non-life industry. After close to 20 years, in 2009, Dr. Thomas Mack and Professor Christian Hipp handed over to Roland Voggenauer and Professor Dietmar Pfeifer, thus continuing the tradition of dual leadership.

We also introduced a formal German ASTIN committee consisting of esteemed colleagues from the industry covering all areas of actuarial expertise. This was designed to ensure the practical relevance of identified topics and to connect with other actuarial bodies and groups, such as the official non-life committee within the German Association of Actuaries (DAV) and other ASTIN groups, specifically with our Swiss sister group.

When Professor Dietmar Pfeifer retired in 2014, he was replaced by Professor Viktor Sandor who has since then been the co-lead together with Roland Voggenauer.

Over the last few years, the group has expanded considerably to well over 200 regular participants. Our main activities include holding two full day meetings a year, one in the spring, embedded in the annual general meeting of the DAV around Gauss’ birthday, the other one in early November in parallel to all other section meetings. In 2020, we are hosting the 78th meeting of German ASTIN.

In addition, we are deeply involved in all ASTIN-related domestic and international activities of the DAV. For example, back in 1983, we organised the ASTIN colloquium in Lindau, and in 2003 the same conference in Berlin; and of course, we helped organise the ICA in Berlin in 2018. As we generally work alongside the DAV, news about us can be found on their website (www.aktuar.de).

Finally, last but not least, we are very proud that two representatives of our group have been awarded the Hachemeister prize for an ASTIN paper covering the impact to US actuaries, namely Dr. Thomas Mack in 1994 and 2009, and Dr. Michael Fackler in 2014.

1 - A slightly amended quote by Dr. Thomas Mack

Den Danske ASTIN Forening, The Danish ASTIN Society

Chair: Kirsten Sasady

The Danish ASTIN Society was established in 1995 as a sub-division of the Danish Society of Actuaries. The association’s purpose is equivalent to the International ASTIN Association, helping to share knowledge about the use of actuarial methods in non-life insurance. In Denmark, we feel a very specific connection to the International ASTIN Association and its establishment, since the Dane Paul Johansen was one of the original founders and the first chairperson. Denmark still has a tradition of having an actuary on the ASTIN board and a considerable number of members. In reality, despite being a relatively small country, Danish actuaries currently form the largest group of members within ASTIN. The Danish ASTIN Chapter has also been successful. It has evolved from being a small sub-division of the Danish Society of Actuaries to accounting for more than half of the Danish qualified actuaries as members.
The local association’s activities typically consist of two all-day events each year, where various interesting topics related to the non-life insurance business are discussed. The aim is to present agendas which include a mixture of current topical matters in the industry as well as more theoretical talks. We also endeavour to stimulate participants with presentations about new areas, they do not encounter within their day-to-day dealings but which nevertheless have an impact on their assignments. At our events, we also place great emphasis on the opportunities of networking which encourages participants to attend regularly.

The events, which are called “ASTIN-days” are frequently attended by more than 100 actuaries, which represents a significant proportion of the Danish actuaries working in general insurance. In addition to the biannual events, the association organises study groups on relevant topics in non-life insurance and contributes to the planning of further training of non-life insurance actuaries through co-operation with the education committee within the Danish Society of Actuaries.

The Board of the Danish ASTIN Society is elected to office for one year, coinciding with the annual meeting, which is held in conjunction with the Spring ASTIN-day. In constituting the Board, an emphasis is placed on achieving a balance between both practitioners and members with a more theoretical background, and on members who are active within the actuarial profession both locally and internationally. The latter is important to keep the Danish ASTIN at the forefront of the latest developments within the actuarial field and also to be able to attract interesting speakers from abroad through personal contacts.

Kirsten Sasady is the current chairperson, having been appointed in 2015.

**ISOA, ITALIAN ASTIN Chapter**

**Chair:** Giampaolo Crenca (ISOA) and Giovanni Sammartini (Ordine degli Attuari)

The Italian ASTIN Chapter was founded in 2019, with its inaugural - a Seminar (ASTIN/ISOA) held in Milan in May 2019. ISOA is an Association established in Via delle Milizie 1, Rome. The founders were Istituto Italiano degli Attuari (scientific actuarial body) and the Actuarial National Board, public body that holds the official register (Albo) and chairs all the “Ordine degli Attuari” (Ordine) recognised by the law since 1942, and is responsible for the actuarial profession in Italy.

ISOA is the Italian representative of the Italian ASTIN Chapter. It is the focal point for all the international links and activities and incorporates all the Italian Fully Qualified Actuaries enrolled in the register (Albo), according to the law of 1942. Under the supervision of the Ordine, as provided by the law, managed by the Actuarial National Board which is chaired by Giampaolo Crenca who is also the Chairman of ISOA.

Giampaolo Crenca and Giovanni Sammartini are the joint leaders of the group. Giovanni Sammartini is the co-ordinator of the non-life insurance committee inside the Ordine, a position he has held for many years. The members of this committee are Fully Qualified Actuaries enrolled in the official register who have considerable experience in many different fields of non-life insurance sector. In the last 15-20 years, this sector has expanded significantly as a consequence of Solvency II and continues to develop in all its aspects.

In particular, ISOA is supported by the National Actuarial Board and the organisation of the Ordine which includes a number of Committees and Working Groups.

In addition, a Scientific inside the Ordine Committee has been very active, as well as supporting the work of the ISOA. The Italian non-life insurance market has expanded significantly in the last 15-20 years especially from an actuarial viewpoint, particularly in such areas as pricing, reserving and Solvency II. The Actuarial Technique in non-life insurance is a key subject in universities and it is included in the state examination in order to be enrolled in the Albo and to be named “Attuario”, that is to become a “Fully Qualified Actuary”.

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**The Caucasus ASTIN Chapter**

**Chair:** Giorgi Abashidze (President, Association of Actuaries and Financial Analysts of Georgia), Gayane Arsenyan (The President, Actuarial Society of Armenia) and Dilara Asadova (Executive Director and Member of Board of the Actuarial Association of Azerbaijan)

The Caucasus ASTIN Chapter was founded on October 17-18, 2019 at the inaugural meeting of “ASTIN Caucasus” followed by the first regional ASTIN conference in Tbilisi (Georgia), with around 40 delegates attending from across the region. It was a historic event for non-life actuaries in the Caucasus region. The foundations of the Chapter are the recently formed constituent actuarial associations: Actuarial Association of Azerbaijan, Association of Actuaries and Financial Analysts of Georgia (AAFA) and Actuarial Society of Armenia.

The new Chapter of ASTIN will serve as the main forum for the non-life actuarial community in the region which, although a relatively recent development, has seen a rapid development of its insurance markets. Going forward, the Caucasus ASTIN Chapter aims to ensure regular actuarial professional exchange, to promote research and continuing professional development through regular meetings, conferences, workshops and training. Currently, we have a strong focus on the areas of claims reserving, risk-based pricing, reinsurance, solvency and quantitative risk management.
EXECUTIVE SUMMARY

Among its recent initiatives, ASTIN plans to produce a series of online Masterclasses on a wide range of non-life insurance topics given by the eminent figures in 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 key topics of interest including financial stability and enterprise risk management, regulatory changes, data science and artificial intelligence in insurance, climate change and catastrophe risk, cyber risk, and InsurTech as well as the impact of disruptive technologies.

This initiative is being co-ordinated by Yuriy Krvavych (ASTIN Secretary).

FORTHCOMING MASTERCLASSES

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

The production of the first two Masterclasses has been confirmed for the current year. It was originally scheduled for the first half of 2020, however, due to the COVID-19 outbreak, it has been deferred to the end of the year. We will be providing further updates regarding this throughout the year.

Masterclass 1

Masterclass title: THE INSURANCE-RISK LANDSCAPE: AN ECLECTIC SURVEY
Lecturer: Professor Michael R. Powers (China / USA)
Production period: end of 2020 (TBC)

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 twists and turns in the landscape, with an ability to make 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”;
- 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 both actuaries and experienced insurance professionals across the sector.

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.
Professor 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 programmes.

His 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.

Professor 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:** end of 2020 (TBC)

**Abstract**

Modern financial businesses rely on thousands of models to support decision-making 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 fail. 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/must 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 pressurised into expressing undeserved confidence in risky models, together with tips to better 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.
OTHER ONGOING INITIATIVES

ASTIN continues to focus on research, innovations and initiatives that improve our services and add value to our members. This remains integral to our five-year budget plan, to which ASTIN has committed to increase its spending to support these activities.

In addition to ASTIN Masterclasses and ASTIN Chapters covered in the preceding sections of this report, other ongoing interesting initiatives include the following projects:

- Members’ outreach
- ASTIN Expert Helpline
- Global Actuarial Research Network (GARN)

It is worth noting that some good progress has been achieved with this plan in the last year.

MEMBERS’ OUTREACH

ASTIN continues to look to improve its policies and practices of engaging and communicating with its members, stakeholders within the IAA and also the wider community of risk and non-life insurance professionals outside the IAA. These are now much more transparent and effective. This is evident from the following results:

New ASTIN website. In 2018, we upgraded and redesigned our website to ensure it is up to date, relevant and appealing to ASTIN membership. We continue to maintain the website and increase its functionality in order to allow seamless integration of web pages dedicated to newly arriving content covering ASTIN Chapters, the Expert Helpline and Masterclasses.

Annual report - 2017 / 2018

ASTIN Annual Report and ASTIN Newsletter. A formal Annual Report and a bimonthly newsletter were launched in June 2018. We continue to use these as an efficient communication media for sharing the information with ASTIN members and keeping them up to date with the latest developments including news and current affairs.

Enhanced membership support. Our membership support team, led by ASTIN Section Coordinators, Christian Levac and Juan Laverde, from the IAA Secretariat continue to provide an excellent support structure to ensure efficient communication with ASTIN membership.
In April 2020, ASTIN launched Expert Helpline — an open access online question and answer (Q&A) exchange platform for the global actuarial community. The objective is to facilitate rapid worldwide dissemination of actuarial best practice by connecting actuarial practitioners and academics. Initially, the platform will be dedicated to actuarial practice in non-life insurance but could potentially be extended later to include other areas of actuarial practice.

The Q&A section will be available to all users, but only ASTIN members will be permitted to ask questions. The newly assigned “Pool of Experts” is designed to respond to online queries.

Global Actuarial Research Network (GARN) is an open access online research exchange platform for the global actuarial community. It is designed to facilitate rapid worldwide dissemination of research ideas through posting working papers by actuarial practitioners and academics.

Unlike a number of existing popular online research networks such as Social Science Research Network (SSRN) and Research Gate (RG), which cover a very wide range of science branches and disciplines, GARN will be dedicated solely to research and its applications to actuarial practice, and therefore will be an ideal platform for connecting both actuarial practitioners and academics.

GARN will be separated into areas of actuarial practice including but not limited to Non-Life Insurance, Life Insurance, Pension, Health, Investment and Enterprise Risk Management. Each of the areas of actuarial practice will be further split into sub-sections of research interest.

Given, other conflicting priorities in the last year, it has not been possible to make significant progress with GARN. However, this initiative remains important to us and we will continue planning our activities and explore further various implementation options. We will be providing further updates on how it progresses throughout the year.
The ASTIN Bulletin was founded in 1958. Over the last six decades, it has evolved and is now widely regarded as the leading international refereed journal of the actuarial profession, covering the full breadth of practical and theoretical work in actuarial science.

ASTIN Bulletin was awarded the Thompson Reuters Impact Factor. It publishes three issues per year comprising about 30 articles in total. The journal is published by Cambridge University Press. It welcomes online submission of articles.

ASTIN Bulletin is published in both print and online editions in January, May and September. An electronic copy of the ASTIN Bulletin is distributed to members of the ASTIN, AFIR-ERM, LIFE and PBSS Sections of the IAA, as part of their section membership benefits. Members wishing to receive a printed edition must contact the IAA Secretariat.

ASTIN Bulletin publishes papers that are relevant to any branch of actuarial science and insurance mathematics. Papers should be quantitative and scientific in nature and might draw on theory and methods developed in any branch of the mathematical sciences including actuarial mathematics, statistics, probability, financial mathematics and econometrics.

The journal welcomes papers that present significant and original theoretical developments and papers that present significant and original applications of mathematical, statistical or econometric theory to problems arising in insurance, pensions and finance. The journal especially welcomes papers exploring new areas of interest to the international actuarial profession as well as papers that describe practical, ongoing issues that have arisen in practice.

For more information about the bulletin, please visit our ‘ASTIN Bulletin’ web page on the IAA website www.actuaries.org

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Steven Vanduffel
Gary Venter
MESSAGE FROM THE EDITOR-IN-CHIEF

Overview
ASTIN Bulletin has maintained its position as the leading international actuarial journal with a bias towards more practically motivated and more statistically oriented research papers compared to some other actuarial journals. In May 2019, I attended the AFIR-ERM Colloquium in Florence and had an excellent opportunity to interact with both authors and readers of the ASTIN Bulletin. The overall feedback regarding the journal was extremely positive. The feedback described the journal as outstanding with its contents becoming increasingly more topical with the enthusiasm and considerable efforts of its contributors showcased throughout the production.

Key Action Points
The initiative of making articles shorter, more concise and more attractive to readers has been highly appreciated, and we continue to work on this point.

Our strategy in the ASTIN Bulletin to cover the more recent trends in data science is showing first successful results. We have a couple of accepted papers in this area that are going to appear in 2020. In line with the previous action point on data driven research: we are implementing the possibility for authors to make computer code and data available to readers (as online supplementary material). The goal is to make this available to our readers, so that they can replicate published results more easily. In the near future, we will encourage authors to provide us with code and data as supplementary material. The goal is to make this available to our readers, so that they can replicate published results more easily.

In line with the previous action point on data driven research: we are implementing the possibility for authors to make computer code and data available to readers (as online supplementary material). The goal is to make this available to our readers, so that they can replicate published results more easily.

ASTIN Bulletin, Volume 49, 2019
In total, during 2019 we published 31 research articles, amounting to 914 pages. Volume 49 contains a good mixture of applied and theoretical papers over all IAA research areas: ASTIN type – 12; AFIR-ERM type – 9; Life & Pension type – 9; Health type – 1.

In addition, we have published an editorial. The updated impact factor for 2019 is not available, yet. This impact factor is determined from citations in 2019 referring to papers in 2018 and 2017. In 2018, we observed a slight increase in this impact factor. This increase should not be overstated because, as can be seen from the table, this time series is rather volatile. Our impact factor is in line with, although slightly below, our peers Scandinavian Actuarial Journal, Insurance: Mathematics and Economics and Journal of Risk and Insurance.

The final acceptance rates are stable at between 20%-25% which is consistent with the other high-quality international journals in insurance.

Administration
The current administrative structure continues to work well. Submissions are handled effectively via an online submissions system. At the point of acceptance our administrative officer, Christian Levac, takes over and acts as a liaison between the authors and the publisher, Cambridge University Press.

Cambridge University Press gives us a strong electronic presence and all Section members can log on through www.actuaries.org to access the most recent papers including those submissions that have been accepted but not yet published via their FirstView system.

Running Costs
The costs are shared equally between ASTIN, AFIR-ERM, IAALS and PBSS based on membership. These costs are offset by the royalties generated from the Bulletin sales, licensing and subscription income (individual or through consortia agreements).

Outlook
We continue to seek to make the publications shorter, more concise and more attractive to readers.

We emphasise that ASTIN Bulletin is the preferred journal of choice for actuarial research. Our publications have a clear actuarial focus presenting interesting statistical work with practical relevance. ASTIN Bulletin looks to be a market leader in the area of data analytics and machine learning. As one of our key action points in the near future, we will encourage authors to provide us with code and data as supplementary material. The goal is to make this available to our readers, so that they can replicate published results more easily.

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Annual Report - 2019 / 2020
PRIZES

Each year the Hachemeister Prize is awarded to the best paper presented at the ASTIN colloquium. The prize was established in 1993 in recognition of Charles A. Hachemeister’s many contributions to Actuarial Studies in Non-Life Insurance (ASTIN) and his efforts to establish a closer relationship between the Casualty Actuarial Society (CAS) and ASTIN.

The 2019 Hachemeister Prize was awarded to the joint IFoA/CAS International Pricing Working Party of which John Buchanan is chair, and the paper is entitled ‘Analyzing the Disconnect Between the Reinsurance Submission and Global Underwriters’ Needs’, a paper that also received the 2018 Brian Hey Prize awarded by the Institute and Faculty of Actuaries in the UK.

This research paper is intended to fill the gap in the available actuarial literature related to information required by the reinsurer, but often lacking when pricing property per risk coverages worldwide. It specifically covers what information is important to the reinsurer. When primary insurance carriers know what is important to the reinsurer, they can gather that information from the agent or broker. This paper results in a top down approach to improved property underwriting and pricing.

In awarding the prize, the CAS Hachemeister Committee believed this research was impactful and valuable for Actuaries because:
- the paper fills the gap in the currently available literature related to information required by reinsurers in submissions,
- the working party contributes additional commentary on how the competitive marketplace affects the information supplied and how this in turn affects the competitive marketplace,
- the paper provides a complete and thorough reference document, and
- while the paper is focused on property per risk excess of loss reinsurance, the concepts presented may extend to other property/casualty lines for primary companies and reinsurers alike.

Overall, the committee believed this paper would be interesting to all actuaries, includes practical uses and original thought, and is well written.

AWARDS

ASTIN also provides ‘ASTIN Best Paper Award’ to the best papers written and presented by young actuarial researchers. There were no best paper awards at the 2019 IAA Section Colloquium in Cape Town.

GRANTS AND ASSISTANCE

ASTIN provides financial assistance to support actuarially "emerging countries". One example of this activity is our ongoing Benin Project, which serves to support the development of actuarial education in Benin. Through this project, ASTIN is committed to provide financial resources required to run the newly created actuarial study programme.

Each year, ASTIN also provides two types of financial assistance:
1. ASTIN Working Party (AWP) Travel Grants for valuable contribution to AWP research work; and
2. ASTIN Bursaries for researchers from developing economies.

Below provides the list of recipients of financial assistance from ASTIN for the 2019 IAA Section Colloquium in Cape Town, South Africa.

**2019 ASTIN BURSARIES (IAA SECTION COLLOQUIUM, CAPE TOWN, SOUTH AFRICA)**
1. Cristina Mano (Brazil – consultant)
2. Joseph Theuri Gitonga (Kenya – academic)
3. Appolinaire Woundjaque (Kenya – PhD student)

**BENIN PROJECT**

Since 2010, ASTIN has funded the actuarial study programme at the Department of Actuarial Sciences and Financial Mathematics from Ecole Supérieure d’Actuariat ISM-Adonaï of Cotonou, Benin. This initiative is a joint effort between ASTIN together with the Seminar for Finance and Econometrics of the Ludwig Maxi-
milian University (LMU) Munich Germany, the State University of Benin (UAC) and also the private Business School ISM-Adonaï in Benin. Between July 2013 and December 2016, this initiative was also financed by the German government.

The programme attracts actuarial students from all over the region including Ivory Coast, Togo, Cameroon, Congo, Central African Republic, Senegal and, of course Benin. A two-fold actuarial programme was launched in 2016:
- the Bachelors programme at ISM Adonal Benin (a private Business School), and
- the Masters programme at Abomey-Calavi University (State owned university).

Many of the students have graduated and some continue to attend courses.

ASTIN funding will continue to be used in 2020 to cover the cost of travel and accommodation for teachers from Europe. It is expected that the need for teachers from abroad will reduce over time as a result of more graduates able to undertake lectures.
TALKING WITH PROMINENT FIGURES
Throughout its history ASTIN has evolved and broadened its boundaries to areas ranging from the well-established Ratemaking and Reserving to more contemporary topics such as Risk and Capital Management, and newly emerging areas like Data Science and Machine Learning.

All these achievements would not have been possible without a number of ASTIN’s prominent figures. Those who laid the foundations of the classical risk theory, those who founded ASTIN, and those who further developed its intellectual base.

This Annual Report includes guest editorials by two ASTIN prominent figures, Chris Daykin (UK) and Professor Paul Embrechts (Switzerland), reflecting on ASTIN’s past, present and future.
ASTIN AND THE GLOBAL ACTUARIAL PROFESSION BY CHRIS DAYKIN, CB, HON DSC, MA, FIA, FFA, FSA

ASTIN was formed in 1957 as the very first "section" of the International Actuarial Association (IAA). ASTIN broke entirely new ground as the IAA had since its foundation in 1895 done nothing other than organise an International Congress of Actuaries more or less every three or four years. In fact, it was then not even officially known as the IAA but as the Permanent Committee for International Actuarial Congresses. At the time it was a controversial development, both because the idea of a section was radical for an organisation not used to change, and because there was far from universal acceptance at the time of the place of non-life insurance work within the profession. Admittedly the Casualty Actuarial Society (CAS) had been flourishing as a professional body in North America since 1914. The CAS was from early days a professional body admitting members by examination and, by 1957, had 180 Fellows and 150 Associates and organised two two-day meetings a year for its members.

Non-life (general insurance in the UK – property-casualty insurance in North America) actuarial work had made some headway in Europe from a more theoretical perspective, with seminal papers on risk theory published by Filip Lundberg 1,2, and Harald Cramer 3 in Sweden in the first half of the 20th century 4 and Teivo Pentikäinen in the 1950s 5.

The question of whether to create a separate organisation for the study of non-life insurance was debated at the 14th International Congress of Actuaries in Madrid, Spain in 1954. The idea had been in gestation since the previous year and Professor Edouard Franckx submitted a summary of the aims to the Council of the Permanent Committee at its meeting on 26 September 1953. The Council promised all support and a letter was sent to a limited number of those who had been present at a Special Meeting on Excess of Loss Reinsurance in Holland a year earlier, inviting them to become members of a proposed Association for Actuarial Studies in Non-Life Insurance. However, the profession was not ready in 1954 to give the go-ahead to the formation of ASTIN.

A provisional committee was established with Beard, Franckx, Johansen and Monic as members. Sir George Maddex, at that time the Government Actuary of the United Kingdom and a representative of the Institute of Actuaries on the IAA Council, was asked to be the official delegate of the IAA Council to the committee. The objective was to consider how the IAA might offer a platform for the development of non-life actuarial thought leadership. Sir George’s espousal of the idea of creating the ASTIN Section (the letters standing for Actuarial Studies in Non-Life Insurance) and his diplomatic skills were widely credited with success in persuading the IAA Council to agree and ASTIN held its inaugural meeting at 14:30 on 16 October 1957 in the Hotel Commodore, New York, during the 15th International Congress of Actuaries, with 46 actuaries in attendance.

ASTIN formed a committee, with Paul Johansen (Denmark) as Chairman, Frank Perryman (USA) as Vice-Chairman, Edouard Franckx (Belgium) as Editor of the ASTIN Bulletin, Boleslaw Monic (Netherlands) as Treasurer, Bobbie Beard (UK) as Secretary and Sir George Maddex (UK) and Carl Philipson (Sweden) as ordinary members. They immediately set about organising regular “colloquia” or study conferences, with the first taking place in La Baule, France on 11-12 June 1959. Subsequent colloquia were held in Raatvik, Sweden in June 1961, St Juan-les-Pins, France in May 1962, Trieste, Italy in September 1963 and most
years thereafter, with the exception of the years when there was an International Congress of Actuaries, when there would not usually be a separate colloquium.

They also moved very quickly to establish a peer-reviewed journal and the first edition of the ASTIN Bulletin was published in December 1958 as the scientific journal of the ASTIN Section of the IAA. Subsequently it became the journal of both the ASTIN and AFIR Sections and it has now become the journal of the IAA, incorporating all Sections, identified as ASTIN Bulletin — *The Journal of the IAA*. The first issue of the ASTIN Bulletin records the proceedings of the inaugural meeting in New York, including a speech by Edouard Franckx explaining the decision of the Council to establish the ASTIN Section and reports by Longley-Cook and Wilhelmsen on the development of non-life actuarial work and education in North America and Scandinavia respectively.

I first participated in an ASTIN Colloquium in September 1982 in Liège, Belgium and was privileged to meet some of the early pioneers of ASTIN, such as Hans Ammeter, Teivo Pentikäinen, Erkki Pesonen, Gunnar Benktander, Hans Bühlmann, Hans Gerber, Frank Guaschi and Karl Borch, as well as some who were more of my generation such as Jukka Rantala, Martti Pesonen, Bob Alting von Geusau, Jean Lemaire, Paul Embrechts, Thomas Mack, Ragnar Norberg, Bjørn Sundt, Greg Taylor, Ben Zehnwirth, Giovanna Ferrara, Björn Ane, Marc Goovaerts, Harry Reid, Peter Johnson and Bill Jewell.

In the UK, the General Insurance Study Group (commonly known as GIRO) had been established in 1974 under the leadership of Hugh Scurfield and was running annual general insurance seminars with a strong focus on research. Each year, new working parties were established, each to research a particular aspect, and the intention was that they would report back with presentations at the following year’s event. In November 1982 I became Chairman of the Solvency Working Party, and we started work, in part stimulated by the presentation at ASTIN a few months earlier of the work of a Finnish Working Party on Solvency 6. At subsequent ASTIN meetings and International Congresses of Actuaries, as well as at GIRO seminars in the UK and at a series of International Conferences on Solvency 7, which partly sprang out of the international cooperation which was developing, involving also researchers from the US and other parts of the world, our working party presented papers and increasingly cooperated with the Finnish actuaries.

This led in due course to my work with Professor Teivo Pentikäinen and Martti Pesonen in writing Practical Risk Theory for Actuaries 1. This was a sequel to an earlier volume which had also emerged from ASTIN inspired cooperation, in which Bobbie Beard from the UK teamed up with Teivo Pentikäinen and Martti’s father Erkki Pesonen 2. The new book arising from Finnish/British cooperation contained much of the classical risk theory development along similar lines to the earlier book but also extensive development of the use of simulation methods to explore the solvency of insurance companies and pension funds.

Bobbie Beard, one of the main pioneers of non-life insurance actuarial work in the United Kingdom, died in 1983, having been Secretary of the ASTIN Committee for the first ten years and having also served as Editor of the ASTIN Bulletin and as Chairman of ASTIN from 1962 to 1964. He was a great example of international cooperation in this field. Although I never worked directly with Bobbie, I felt in some ways to be following in his footsteps. Simulation approaches were proposed in the reports of both the Finnish and UK Solvency Working Parties 10, in order to provide much greater flexibility for modelling insurance company behaviour than classical methods involving closed form solutions, which inevitably required significant simplifying assumptions in order to make the solution tractable. The UK working party introduced modelling of the assets as well as the liabilities, using a suite of autoregressive time series models which had been developed by UK actuary David Wilkie, initially in the context of valuing maturity guarantees on life insurance products. We received considerable push-back at the time for resorting to computer simulation approaches and also criticism that our thesis that the entirety of a non-life insurance company could be modelled fell at the first hurdle of practicality in terms of the complexities of modelling multiple lines of business with all the associated complications.

Teivo Pentikäinen published an article in The Actuary magazine in May 1996 11, arguing the virtues of adopting a simulation approach compared to classical risk theory, a position he had reached over many years, following his earlier espousal of a more classical risk theory approach as a central tenet of insurance supervision in Finland in the 1950s, and the basis for establishing the Finnish equalisation reserve concept.

In practice, there were considerable obstacles at the time to a full implementation of what we were proposing as a mechanism for solvency control. However, our ideas eventually came to fruition in Solvency II, in which a significant role is envisaged for the use of internal models and for actuarial involvement. This is the 21st century reincarnation of our early experiments with stochastic simulation models and now forms the backbone of much insurance company management, structured around the internal model.

Professor Pentikäinen died in 2006 and sadly did not see our ideas come into their own as part of Solvency II, the final Directive for which was agreed by EU Member States in October 2009. Interestingly, the previous EU solvency margin regime (Solvency I), which was the target for the various attempts by actuarial working parties in the 1980s to develop an improved methodology, was based on a simplified risk theory approach set out by Professor Cornelis Campagne in papers for the OEEC 12, the predecessor of the OECD, in 1957, 1961 and 1975. Campagne worked at the Dutch Verzekeringkamer from 1939 to 1963 and was its Chairman from 1954 onwards. He was one of the founding members of ASTIN and was a member of the ASTIN Committee from 1960 until his untimely death in 1963.

ASTIN is now only one of seven Sections of the IAA, although it is still the largest and, in some ways, the most active. Apart from organising regular colloquia (coming up to 50 of them over the last 62½ years) and playing a leading role in the continued publication of the ASTIN Bulletin, ASTIN took an active part in the development of the profession in new countries and sponsored educational seminars in many places, as well as organising book donations, sending 18 top actuarial books to 120 universities and associations in actuarially emerging countries in 1997–98.

ASTIN has also generously financed bursaries to facilitate attendance at colloquia and congresses for researchers from actuarially developing countries.

Non-life insurance is now unequivocally a top area of employment for actuaries in many countries and in some it has been the fastest growing sector for the actuarial profession for a number of years. Although there are aspects of the business which are particular to individual countries, non-life insurance and reinsurance have global reach and the actuarial and statistical methodologies which can be applied are highly relevant for research and seminars which facilitate international participation. The precise role of the Sections within the IAA is up for discussion at present as changes are implemented to the IAA committee structure in order to ensure that the ‘members’ of the IAA, the full member associations in countries around the world, are able to direct and influence the way in which the IAA uses resources. One of the main strategic objectives of the IAA concerns the Advance function, which should include promoting and coordinating research and the activities of Committees and Sections and supporting Member Associations in the promotion and development of advancing areas of actuarial practice.

Sections such as ASTIN are ideally placed to play a leading role in the development of the Advance function, by encouraging research and facilitating the exchange of scientific ideas and continuing professional development through colloquia, webinars and other activities. ASTIN can also play a key role in the globalisation of the profession through enabling international contacts and networking, promoting collaborative research projects and studies across national borders and stimulating the advancement of actuarial science and its application in the field of non-life insurance, which is ripe for continued development as one of the major fields of actuarial involvement in the future around the world.

The Future of the Actuarial Profession by Professor Paul Embrechts

Preamble

No matter the country or source, being an actuary is consistently rated as one of the best jobs around. There is widespread agreement that few other occupations offer the combination of benefits that an actuarial career can offer. In almost every category, such as work environment, employment outlook, job security, growth opportunity, and salary, a career as an actuary is hard to beat (see [9]). However, recently this overall prime ranking is slipping, and more and more taken over by “Data Scientist, Statistician”. This fact on its own is perhaps not that alarming, however when voices from the top echelon of the insurance industry start downplaying the important role of actuarial knowledge in favour of data science, then I do find that alarming.

An article from 2017 (see [4]) said: “Mr Wilson (Red. Mark Wilson was at the time Aviva Group Chief Executive) is focused on buying start-up firms to plug skills gaps within the business and said his need for technology specialists was now outstripping demand for traditional insurance workers.” He added “The skills set we need has changed (...) I certainly don’t need as many actuaries anymore and I can’t hire enough data scientists.” Further, “We do want to change Aviva into being a FinTech”. Indeed, the actuarial profession has to get used to industry increasingly using acronyms like FinTech, InsurTech, RegTech. As part of InsurTech, modern technology like the blockchain is coming up with alternative industry models for (re)insurance products. As actuarial professionals, we cannot simply shrug off this encroachment upon our actuarial ambient environment. We have to be fully acquainted with the facts underlying the changes the actuarial profession faces going forward, and this perhaps most of all for the benefit of our main stakeholders, the policyholders that for centuries have benefited from our technical expertise and societal sense of duty.

On May 30, 2018, I gave my Farewell Lecture (see [3]) as Professor of (Insurance) Mathematics within the Department of Mathematics of the ETH Zurich, with the title “January 31, 1953, and September 11, 2001: Living with Risk”. I took up that position, as successor of Professor Hans Bühlmann, on November 1, 1989. At the time, I received an e-mail from Jean Lemare from the Wharton School stating: “Dear Paul, many congratulations, these are some very big shoes to step into!” Needless to say, that I was fully aware of this fact and very much reminded of it as we recently celebrated the unique career of Hans Bühlmann,
who turned 90 on January 30, 2020; see [5] and photos of Hans Bühlmann addressing the audience on that day.

More than any other actuary, Hans Bühlmann has deeply influenced our profession and this over the very long period of time of his distinguished career; we all recall his famous ASTIN Bulletin editorial [2] “Actuaries of the Third Kind?” urging the actuarial profession to increasingly use its techniques also on the asset side of the balance sheet.

However, as Bob Dylan used to sing, “The times they are a-changin’.” I take the opportunity of this ASTIN editorial as well as my retirement from my ETH professorship to reflect on our profession in these changing times.

Unde venis actuarius?

Indeed, where does our profession come from? An interesting topic for an actuarial essay, a party quiz question at an actuarial society dinner, or a student examination question would be: “Who in your opinion deserves the title as first actuary and why?” Of course, as stated, in particular the “first” can never be; nor should it be fully answered; nevertheless, for an editorial on the future of actuarial science, it helps to take a brief moment of time to reflect on our profession’s past. An excellent text on the history of insurance is [6] written as part of the commemoration of Swiss Re’s 150-years celebration in 2013; see also [11]. The comments below just give a rather personal, impressionistic picture of the very rich history of the actuarial profession. I do apologise that, because of space constraints, it is somewhat Anglo-Saxon centred. I hope that the quoted literature compensates for this.

An obvious name to be included no doubt is John Graunt (1620 - 1674), author of the masterly “Natural and Political Observations made upon the Bills of Mortality” from 1662. James Dodson (1705 – 1757) and Edward Rowe Mores (1731 – 1778) were instrumental in the founding of The Society for Equitable Assurances on Lives and Survivorships (now commonly known as Equitable Life). The latter is credited with being the first person to use the professional title actuary in relation to insurance. Perhaps less obvious, but nevertheless sufficiently interesting for me to be included is Jane Austen (1775 – 1817). I quote from the abstract of the excellent article [8]: “… It presents a close study of Sense and Sensibility, a novel in which a number of actuarial issues are central to the plot and are presented in great detail. Finally, it suggests that Austen’s own background and family life meant that actuarial issues were important in her life and therefore reflected in her novels. This paper offers a new argument for the relevance of great literature, and it offers actuaries a new perspective from which to explore and understand the history of their profession.”

On several occasions, while being professor at ETH Zurich, companies and governmental agencies would ask me for names of upcoming female actuaries. This arose in me the urge to learn more about early female actuaries and the issues that these pioneering actuaries were confronted with. According to [10], the honour of being the first female actuary should go to Lucy Jane Wright who was appointed actuary of Union Mutual Life in Boston in 1866. On the other hand, in the UK, Sarah Alice Hussey, who applied for membership in 1894, was rejected because the Institute’s solicitors advised that, “in their opinion the Council had no power to admit ladies as members”. The first woman to qualify as an actuary in the UK was Dorothy Davis, who qualified in 1923. For me a true actuary “avant la lettre” is Ada Lovelace (1815 - 1852), who became famous as first programmer for Charles Babbage’s Analytical Engine. As such, she stood at the cradle of the digital age. A more recent story is told in the 2016 movie “Hidden Figures” about black female mathematicians working as computer programmers at NASA in the early 1960s at the time of the Space Race. Today I especially urge my female students to take up an actuarial profession.

Quo vadis actuarius?

I already mentioned Hans Bühlmann’s famous ASTIN editorial on the Actuary of the Third Kind. This actuary stands between the First Kind (the more deterministic life actuary), the Second Kind (the more stochastic non-life actuary) and the Fourth Kind (theERM actuary). These “Different Kinds” should not be interpreted as a reinvention of our profession ever so often; as actuaries, we do not run after every fad, but more reflect on the evolving societal conditions (demographic, technological, environmental and political) within which the actuarial profession fulfils its task. On several occasions, I have defined the Actuary of the Fifth (final) Kind as “A data driven and model guided, critical and socially responsible financial decision maker in an ever-changing world governed by uncertainty.” The first reference to “The Fifth Kind” was made by the Singapore Actuarial Society Data Analytics Committee in 2016, stressing the need for actuaries to embrace data science. As such, the Fifth Kind is not all that distant from the etymology of the word Actuarius originating in the mid-sixteenth century as meaning “copyist, account keeper . . .”, so surely someone strongly linked with and helpful in reaching business decisions based on data.

In [7] the author discusses the major challenges facing our profession going forward. They include (a) The world has become a much more uncertain place; (b) We have numerous vigorous competitors; (c) The corporate governance and transparency push is placing increasing responsibility on boards and senior management; (d) Communication is becoming a key success factor, and (e) The actuarial vocation is growing and spreading. Though written in 2014, we surely agree that today, all of (a) - (e) remain true. Certainly, (a) has not diminished, whereas concerning (b) the situation has since become much more pronounced. The deluge of data as “The New Gold” through, e.g., social networks, crowd sourcing, cloud computing, real-time monitoring
TALKING WITH PROMINENT FIGURES

and detection, medical (on-line or app-based) screening, and environmental monitoring is overwhelming. A web-based search of "the future of the insurance industry" will give varied crystal ball views with at the centre of each DATA. Of course, we should not equate "data size" to "data information". On the other hand, one of the great achievements of our modern era, where enormous data gathering of all types across our planet together with in depth methodological modelling and simulation has achieved one of the highlights of modern science, is in weather prediction. In less than 100 years, we have moved from 1-day ahead "looking out of the window" local forecasts to almost 7-day ahead global weather predictions that are surprisingly reliable. Examples which are highly relevant for (re)insurance are in storm, e.g. hurricane and typhoon prediction. The very readable [1] gives an excellent overview of this historical development.

Modern society offers many challenges for actuaries, like supply chain insurance, crop insurance, longevity bonds, the evolving world of catastrophe insurance, pandemic bonds, innovative pension systems in a historically very low interest rate environment, as well as the always-present ILS market. Areas like personalised medicine and telematics for auto insurance are just born, drones take to the sky and robots replace humans at an increasing rate. Several (but surely not all) are driven by so-called Big Data. The only viable way forward is for actuaries to embrace data science techniques or indeed work closely together with data scientists. In its societal relevance, any insurance product offers a policyholder the relief of losses due to risks encountered. These products have to be well defined, clearly understood, marketed, regulated and communicated. This will always call for the need of actuarial understanding. Educational institutions across the world have recognised this. An example where this symbiosis between actuarial understanding, communication and data analytic expertise plays very well is in the course [12] for actuaries at ETH Zurich. Actuaries as well as actuarial societies worldwide have taken up the Data Science gauntlet. Typical examples are the Data Science Initiative of the Swiss Association of Actuaries and the Certificate in Data Science of the IFoA.

I like to conclude with a comment concerning education. Historically, actuarial education has broadly evolved into two main, rather different approaches: a more Anglo-Saxon (or indeed former Commonwealth) based training mainly in the hands of the relevant actuarial societies, versus a Continental European one very much university based. Of course, in the latter case, monitoring through the national actuarial societies must be in place, e.g. in the EU through a curriculum worked out under the guidance of the Groupe Consultatif. This guarantees minimum professional standards but at the same time allows for sufficient educational diversity that I personally find extremely important for actuarial functions within industry and regulation. Solutions to emerging societal problems increasingly require an interdisciplinary approach. Most, if not all of such problems involve an insurance component. Consequently, the co-existence of more traditional educational platforms together with educationally diversified, university-based programmes under a broad professional guidance umbrella must be the ultimate goal. A well-functioning actuarial function will increasingly involve a diversified portfolio of available actuarial skills and educational backgrounds.

Final thought: I very much hope that the current Actuary of the Fifth Kind, upon hearing the word "snowflake", will think as much about the beautiful mathematical structure of a real-life snowflake as well as of a cloud data platform. In the end, I do hope that she/he will surely think of a beautiful snow-covered landscape.

[9] Society of Actuaries (SOA) and CAS: www.beanactuary.org
MESSAGE FROM THE TREASURER

The full year 2019 unaudited reports for ASTIN were received from the IAA Secretariat on March 5th, 2020. The audited accounts usually will not differ substantially.

«When it’s raining gold, reach for a bucket, not a thimble.»
Warren Buffett

Sometimes it rains gold and you are not prepared to collect it! Unrealised gains from investments contributed CAD 46,801 to the 2019 year-end result. Losses of CAD 5,000 were budgeted according to the previous years’ experience. Together with the unbudgeted income of CAD 34,454 from ASTIN Bulletin sales, ordinary investment income and IAA Section fund income (for uncovered IAA expenses) this contributed unbudgeted CAD 86,255 to the 2019 result – more than our fee income of CAD 64,550 from ASTIN members.

In addition, we spent far less than budgeted, especially because the masterclass initiative was delayed until 2020. Also, bursaries, meetings and general travel expenses were far lower than the 2018 figures and the 2019 budget. In total, we spent CAD 80,678 less than budgeted, which means that only half of the budget was spent.

Rather than reducing the ASTIN net assets in 2019 as per plan by CAD 118,147 to CAD 652,439, we have increased them by CAD 35,833 to CAD 806,419.
On the other hand, we are reporting a disappointing development in our membership numbers. After attracting many new ASTIN members in the ICA year 2018, it appears that many of them did not renew their membership. This resulted in a drop of 91 members from 1,372 members in 2018 to 1,281 members in 2019. This leaves us back at the level seen in 2017.

**BUDGET 2020**

For the 2020 budget, we have continued with our generous planning for bursaries and initiatives, especially as we are planning two masterclasses in 2020. This means that we again are planning a reduction in ASTIN net assets of CAD 109,500. The budget also includes a zero estimate for unrealised gains/losses in 2020 from investments which might be quite optimistic in the COVID-19 outbreak.
### ASTIN STATEMENT OF FINANCIAL POSITION

**As at December 31, 2019**

**ASSETS**

<table>
<thead>
<tr>
<th></th>
<th>31 DEC 19</th>
<th>31 DEC 18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chequing/Savings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash in bank accounts</td>
<td>C$ 1,530</td>
<td>C$ 140</td>
</tr>
<tr>
<td>Cash in investment accounts</td>
<td>-</td>
<td>42,612</td>
</tr>
<tr>
<td>Short-term Investments</td>
<td>114,201</td>
<td>87,265</td>
</tr>
<tr>
<td>Total Chequing/Savings</td>
<td>115,732</td>
<td>130,017</td>
</tr>
<tr>
<td><strong>Other Current Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membership Receivables</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Other receivables</td>
<td>12,081</td>
<td>10,412</td>
</tr>
<tr>
<td>Prepaid Expenses</td>
<td>263</td>
<td>241</td>
</tr>
<tr>
<td>Total Other Current Assets</td>
<td>12,444</td>
<td>10,653</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td>128,176</td>
<td>140,670</td>
</tr>
<tr>
<td><strong>Fixed Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Software - Cost</td>
<td>19,234</td>
<td>19,234</td>
</tr>
<tr>
<td>Computer Software - Amortization</td>
<td>(6,091)</td>
<td>(2,244)</td>
</tr>
<tr>
<td><strong>Total Fixed Assets</strong></td>
<td>13,144</td>
<td>16,990</td>
</tr>
<tr>
<td><strong>Other Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term investments - Bonds</td>
<td>396,961</td>
<td>407,761</td>
</tr>
<tr>
<td>Long-term investments - Stocks</td>
<td>276,316</td>
<td>218,962</td>
</tr>
<tr>
<td><strong>Total Other Assets</strong></td>
<td>673,277</td>
<td>626,722</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>$814,597</td>
<td>$784,382</td>
</tr>
</tbody>
</table>

**LIABILITIES & NET ASSETS**

<table>
<thead>
<tr>
<th></th>
<th>31 DEC 19</th>
<th>31 DEC 18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deferred revenue</td>
<td>$ 4,000</td>
<td>$ 550</td>
</tr>
<tr>
<td>Other payables &amp; accruals</td>
<td>4,177</td>
<td>13,246</td>
</tr>
<tr>
<td>Total Other Current Liabilities</td>
<td>8,177</td>
<td>13,796</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>8,177</td>
<td>13,796</td>
</tr>
<tr>
<td><strong>Net Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted surplus</td>
<td>770,586</td>
<td>836,300</td>
</tr>
<tr>
<td>Excess (Deficiency) of Revenue over Expenses</td>
<td>(35,833)</td>
<td>(65,714)</td>
</tr>
<tr>
<td><strong>Total Net Assets</strong></td>
<td>806,419</td>
<td>770,586</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES &amp; NET ASSETS</strong></td>
<td>$814,597</td>
<td>$784,382</td>
</tr>
</tbody>
</table>
### ASTIN STATEMENT OF REVENUE & EXPENSES - ACTUALS VS. BUDGET

For the twelve months ended December 31, 2019

<table>
<thead>
<tr>
<th></th>
<th>31-Dec-19</th>
<th>Budget to Date</th>
<th>C$ Variance</th>
<th>% Variance</th>
<th>31-Dec-18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ordinary Income/Expense</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Book sales &amp; other revenue</td>
<td>C$ 17 427</td>
<td>C$ -</td>
<td>C$ 17 427</td>
<td>C$ 11 780</td>
<td></td>
</tr>
<tr>
<td>Interest &amp; investment revenue</td>
<td>19 117</td>
<td>10 000</td>
<td>9 117</td>
<td>91%</td>
<td>19 015</td>
</tr>
<tr>
<td>Membership dues - Full</td>
<td>64 550</td>
<td>70 000</td>
<td>(5 450)</td>
<td>(8%)</td>
<td>69 350</td>
</tr>
<tr>
<td>IAA Section Fund Income</td>
<td>7 910</td>
<td>7 910</td>
<td>2 291</td>
<td></td>
<td>2 291</td>
</tr>
<tr>
<td>Total Income</td>
<td>109 004</td>
<td>80 000</td>
<td>29 004</td>
<td>36%</td>
<td>102 436</td>
</tr>
<tr>
<td>Expense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amortization</td>
<td>(3 847)</td>
<td>(3 847)</td>
<td>0</td>
<td>0%</td>
<td>(2 244)</td>
</tr>
<tr>
<td>Bank charges &amp; service fees</td>
<td>(247)</td>
<td>(50)</td>
<td>(197)</td>
<td>394%</td>
<td>(35)</td>
</tr>
<tr>
<td>Bulletins</td>
<td>(10 138)</td>
<td>(20 000)</td>
<td>9 862</td>
<td>(49%)</td>
<td>(15 084)</td>
</tr>
<tr>
<td>Bursaries</td>
<td>(9 278)</td>
<td>(33 500)</td>
<td>24 222</td>
<td>(72%)</td>
<td>(29 148)</td>
</tr>
<tr>
<td>Committee &amp; Representation Exp</td>
<td>-</td>
<td>(1 000)</td>
<td>1 000</td>
<td>(100%)</td>
<td>-</td>
</tr>
<tr>
<td>Loss(gain) on foreign exchange</td>
<td>(44)</td>
<td>(44)</td>
<td>-</td>
<td></td>
<td>904</td>
</tr>
<tr>
<td>Gifts and Awards</td>
<td>(5 000)</td>
<td>(5 000)</td>
<td>0</td>
<td>100%</td>
<td>(3 259)</td>
</tr>
<tr>
<td>Initiatives</td>
<td>(24 006)</td>
<td>(50 00)</td>
<td>25 994</td>
<td>(52%)</td>
<td>(10 314)</td>
</tr>
<tr>
<td>Meetings - colloquia</td>
<td>(11 090)</td>
<td>(20 000)</td>
<td>8 911</td>
<td>(45%)</td>
<td>(25 266)</td>
</tr>
<tr>
<td>Office &amp; overhead</td>
<td>(3 991)</td>
<td>(150)</td>
<td>3 841</td>
<td>2 561%</td>
<td>(39)</td>
</tr>
<tr>
<td>Printing</td>
<td>(3 617)</td>
<td>(5 000)</td>
<td>1 383</td>
<td>(28%)</td>
<td>(5 760)</td>
</tr>
<tr>
<td>Professional services</td>
<td>(4 489)</td>
<td>(3 000)</td>
<td>(1 489)</td>
<td>50%</td>
<td>(11 452)</td>
</tr>
<tr>
<td>Telephone, fax &amp; teleconference</td>
<td>(2 664)</td>
<td>(2 000)</td>
<td>(664)</td>
<td>33%</td>
<td>(2 558)</td>
</tr>
<tr>
<td>Travel - general</td>
<td>(4 441)</td>
<td>(15 000)</td>
<td>10 559</td>
<td>(70%)</td>
<td>(13 808)</td>
</tr>
<tr>
<td>Web seminars expense</td>
<td>(1 018)</td>
<td>(1 000)</td>
<td>(18)</td>
<td>2%</td>
<td>(833)</td>
</tr>
<tr>
<td>Total Expense</td>
<td>(78 869)</td>
<td>(159 547)</td>
<td>80 678</td>
<td>(51%)</td>
<td>(118 898)</td>
</tr>
</tbody>
</table>

**Net Ordinary Income**

<table>
<thead>
<tr>
<th></th>
<th>31-Dec-19</th>
<th>Budget to Date</th>
<th>C$ Variance</th>
<th>% Variance</th>
<th>31-Dec-18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 135</td>
<td>(79 547)</td>
<td>109 682</td>
<td>(138%)</td>
<td>(16 461)</td>
</tr>
</tbody>
</table>

**Other Income/Expense**

<table>
<thead>
<tr>
<th></th>
<th>31-Dec-19</th>
<th>Budget to Date</th>
<th>C$ Variance</th>
<th>% Variance</th>
<th>31-Dec-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income</td>
<td>46 801</td>
<td>(5 000)</td>
<td>51 801</td>
<td>1 036%</td>
<td>(14 802)</td>
</tr>
<tr>
<td>Section Administration</td>
<td>(41 102)</td>
<td>(33 600)</td>
<td>(7 502)</td>
<td>22%</td>
<td>(34 451)</td>
</tr>
</tbody>
</table>

**Net Other Income**

|                      | 5 698     | (38 600)      | 44 298      | (115%)     | (49 253)  |

**Excess (Deficiency) of Revenues over Expenses**

|                      | C$ 35 833 | C$ (118 147) | C$ 153 980  | (130%)     | C$ (65 714) |
Our vision is for ASTIN to serve the non-life insurance industry globally by ensuring that, when it comes to providing insight and finding solutions to quantitative risk management issues, our members are trusted and in demand for their valued professional skills. To realise this, we envisage continuing our current beneficial activities in the long run, and plan the following in the near future:

- Complete the deployment of 'Expert Helpline', an online facility for addressing members’ queries, and make it fully functional in 2020.

- Work further to complete the development of ‘ASTIN Masterclasses’, a series of online professional education courses on different risk and non-life actuarial topics, with the aim to launch the first two masterclasses by the end of 2020 and schedule other masterclasses in the series over the period between 2021 and 2022.

- Continue developing our GARN initiative with the intention to launch it in 2021.

- Continue strengthening ASTIN’s presence around the globe in local regions by helping establish ASTIN Chapters.

- Continue co-operating with other professional forums of risk and insurance professionals outside the IAA who remain relevant to ASTIN’s mission and vision, and also to the work we do.
FUTURE ASTIN COLLOQUIA

2021

2022

2026