ASTIN is the 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,

Since last year, the Covid lockdowns seem to be mostly behind us. Face-to-face meetings are finally back and this is welcome as onsite exchanges with fellow actuaries are the core essence of ASTIN, as they very often lead to new research and discoveries and have helped many actuaries upgrade skills while benefiting from the networking.

In this context, I am very happy to invite you all to meet at the International Congress of Actuaries in Sydney, Australia, which will happen between 28th May and 1st June 2023. It will be a great opportunity to see the latest academic and practical developments in the non-life actuarial field in the last years.

In 2024, we will also have a colloquium in Brussels, Belgium from 23rd September to 26th September: You can already book the dates in your calendar! This colloquium will also gather all the sections of the International Actuarial Association. It will therefore be a fantastic occasion to exchange ideas in all actuarial fields. Finally, the ASTIN with the AFIR-ERM is working on a colloquium in Sao Paulo, Brazil in 2025. The dates for this colloquium remain to be set. And, in 2026, the International Congress of Actuaries will take place in Tokyo, Japan from November 8th to November 13th. As you can see, we seem to now be back to “normal” and, hopefully, many of us will be able to enjoy the opportunity to attend these meetings.

As you know, I was elected Chair in July 2022. I succeed Frank Cuypers who has done a terrific job providing new ideas and services to you besides the above-mentioned colloquia, despite the hard covid situation in the last year. I will do my best efforts to try and continue on this line. The ASTIN already provides quite some activities:

- **Webinars:** The list of webinars has increased a lot and it is always a pleasure to have great professionals presenting their work. I hope that they also help you in your daily tasks. If you would like to have a topic discussed during a webinar, please contact any Board member and we will try and accommodate your request as soon as possible,

- **Masterclasses:** There is a sequence of masterclasses which will be developed in the coming months and years. I hope they will attract your interest and be useful for your daily work,

- **Working parties:** The ASTIN is actually an international network of individuals. This network is best used when a working party is set up! The Working Parties connect non-life actuaries around the world interested in one common topic. The diversity of views can really help finding the best solution to this common topic. I would really like to encourage you to use & benefit from this network whenever you have a research topic in mind.

This list is non-exhaustive and we will be trying to extend it. In general, the ASTIN Board members are here to serve you to advance any research topic that is of interest to you. Please do not hesitate to contact any Board member in such a case.

On a personal level, I would like to thank all our members and volunteers for your engagement, contributions, and recommendations over the past years. It is due to your collective effort that ASTIN continues to grow. In this context, during 2023, we will have Board Member elections. If you want to further contribute to our profession at the international level, I would definitely be happy to receive your candidacy. Thanks in advance.

With kind regards,

Eric DAL MORO,
ASTIN Chairman, April 2, 2023
Dear members and friends of ASTIN,

It’s again a pleasure to present our 2022/2023 Annual Report as ASTIN secretary, a role I’m continuously happy to serve in.

Fortunately, we more or less got rid of COVID-19 restrictions but the Ukraine crisis puts us again in a severe situation as this generates some fundamental changes to the conditions we were living in for the last few decades. I would like to express my hope that this will be solved in the best conceivable way as soon as possible.

The actuarial science and profession are international by nature. In particular, actuarial meetings being virtual or face to face are the ideal place for practicing cross country exchanges and understanding. Therefore, let’s continue and even intensify these meetings demonstrating a peaceful environment. With respect to the current situation, it’s even more important to provide value and service for our members. Therefore more than ten webinars were offered/hosted regarding a broad range of different topics like ratemaking, reserving, IFRS 17 and others. Five working parties were active in 2022 and they all made progress: one on COVID-19 is finalized, two of them were continued, and two others started. New working parties on Cyber and risk aggregation have begun in this past year.

The ASTIN academy was established. It is bringing together the perspective of practitioners and universities more intensively. We are very proud that we could get Jed Frees to contribute. To generate even more service for our Spanish speaking members a Spanish version of the Academy is provided as well.

Furthermore, the ASTIN reading club was active and delivered several sessions.

The expert helpline needed to be closed as there was a very low demand and therefore not being a service, which is requested by the ASTIN members.

The first masterclass was released and all sessions are now available, the first of which for free. It’s our pleasure that we could get Andrew Smith to participate. The second masterclass is under preparation and will probably be released this year. This will be held by Michael R. Powers whom we are again proud to get on board.

All of that clearly demonstrates the ongoing broadening of our offer and delivers more support to our members in developing research and knowledge including its sharing.

After the successful online colloquium 2021, we had another online colloquium in June 2022. This decision for online had to be made before the end of 2021 as the circumstances at that time regarding travelling were completely uncertain.

Again, we can look back to a successful colloquium with a lot of contributions and participants. We also stepped forward in strengthening our communication with our members, stakeholders and towards the IAA. You can easily see that while checking our website and reading our annual reports and bimonthly newsletters.

Summing up, we will continue to further develop our activities in this manner which will generate more value for the ASTIN members and improve our visibility as an organization at an international level.

I would like to thank all ASTIN members and.colleagues on the Board for their contributions which enable all these initiatives and all progress on our way forward. I am referring to this Annual Report for the details of what we’ve done and we will do in the near future and wish you a lot of fun reading it.

Definitely not forgetting the above-mentioned downsides, I would like to remind you to look also on the bright side of life, looking forward in joining our upcoming colloquia especially the IGA and in so far giving peace a chance.

Axel WOLFSTEIN,
Secretary, April 2, 2023
OVERVIEW
ASTIN

OUR MISSION AND VISION

ASTIN is the 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 16 October 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 1,190 members in over 60 countries. ASTIN Colloquia are held each year and every three 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: ASTIN Masterclasses, ASTIN Reading Club and ASTIN Academy 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 are 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-organised 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 organises 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 over 25 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 newly introduced IFRS 17 Accounting Standard for insurance contracts is of particular interest. It came into effect on January 1, 2023. The Standard introduces significant changes to insurance reporting, impacting all insurers reporting under IFRS. The Standard applies separately to all insurance and reinsurance contracts.

Over the past five years, ASTIN has completed a number of working parties and organised a series of webinars on IFRS 17 with the objective of studying the impact of this new Standard on non-life insurers, products, and capital markets, as well as disclosure of key performance indicators.

ASTIN has also been focusing on a range of risk and capital management issues covering risk identification, quantification, and aggregation, as well as risk and capital optimisation. The newly launched joint AFIR-ASTIN Working Party on Risk Aggregation with correlation matrices is the recent example of research and development in the risk and capital management space. Its aim is developing a standardised unifying approach for aggregating tail quantities of individual risk components within an insurance portfolio using simple dependence characteristics.

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 five years, ASTIN has successfully completed a number of working parties and organised a series of webinars on Big Data and Insurance Analytics and also Machine Learning and Applications to Non-Life Reserving.

Our newly launched ASTIN Reading Club platform is currently being used to promote and share new advances and research ideas in data science and its applications to insurance pricing, reserving and shareholder value management.

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, human-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 continues to evolve rapidly as a result of the increased use of Artificial Intelligence and other technological advances, the introduction of quantum computers and growing digitisation. Whilst cyber risk is yet to be fully studied and understood, it is evident that the insurance industry is already facing the complex systemic risk of cyberattacks, given its highly pervasive nature, compounded by today's complex technological interconnectivity.

ASTIN launched a 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 - NEW DEVELOPMENTS

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 transforming, as the result of increased use of
more granular big data and predictive modelling, artificial intelligence, and cognitive computing. Also, the way in which insured items are owned and used changes, which requires more tailor made products with, among others, different rating structures that suit the changing lifestyle and needs.

ASTIN wants to play a key role in studying the potential impact of the changes that the Non-Life insurance industry is facing and deepen its understanding of how non-life actuaries should adapt to embrace these new changes. ASTIN plans to conduct more research on these and other new developments 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 Contin-uing 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 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.

With the exception of the extraordinary years 2021 and 2022, 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 Europe and Asia. We are also establishing and developing links in those regions where ASTIN is currently not 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: ASTIN Masterclasses, ASTIN Reading Club and ASTIN Academy will play an important role in providing continuing professional development services to our members.

**ASTIN 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, as well as insurtech and disruptive technologies.

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

**ASTIN READING CLUB**

The ASTIN Reading Club is a forum bringing together practitioners, academics, and students to discuss the latest advances in non-life insurance topics. The discussions are based on a review of emerging topics of importance and are driven by examining new research papers and book chapters in an informal setting. The goal of the reading club is to allow ASTIN members and other interested participants to get up to speed on specific research areas of importance in a structured manner.

The reading club aims to complement the other activities of ASTIN by providing a look at research more often than possible through the ASTIN colloquium and focuses on a theme that is carried over several sessions.

**ASTIN ACADEMY**

The mission of the ASTIN Academy is to provide high quality free educational materials in non-life insurance to actuarial students across the world. The Academy is committed to open course development under Creative Commons license and seeks innovation in teaching methodologies and application of technology.

**GRANTS AND ASSISTANCE**

A proportion of ASTIN’s income has always been reserved for the development of actuarial science in actuarially emerging countries. Recently, 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.
ASTIN BOARD

Eric DAL MORO
Chairman
Country: Switzerland
Qualification: Member of the French and Swiss Institute of Actuaries
Experience: Group non-life Chief Actuary, Baloise Group
Main areas of expertise: reinsurance, reserving, pricing, IFRS17

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

Axel WOLFSTEIN
Secretary
Country: Germany
Qualification: Dipl. Math., Aktuar DAV
Experience: Director of Pricing & Actuarial at Verti Versicherung AG
Main areas of expertise: pricing, reserving, claims statistics

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

Miyuki EBISAKI
Member
Country: Japan
Qualification: MBA, Fellow of the Institute of Actuaries of Japan, and Fellowship of the Chartered Institute of Insurance (UK)
Experience: Senior Research Officer - Sompo Research Institute Inc.
Main areas of expertise: product development, risk management, M&A

Brian FANNIN
Member
Country: USA
Qualification: Associate of the Casualty Actuarial Society, Certified Specialist in Predictive Analytics
Experience: Research actuary for the Casualty Actuarial Society
Main areas of expertise: Commercial liability pricing and reserving, capital modelling, predictive modelling

Bor HAREJ
Member
Country: Slovenia
Qualification: BSc in Applied Mathematics; Fellow of the Slovenian and Swiss Actuarial Associations
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

Sarah KÆSTEL-BJERG
Member
Country: Denmark
Qualification: Cand. Act. And CFA
Experience: 15 years experience
Main areas of expertise: Non-life insurance, risk management, model validation

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Prof. Bernard WONG
Chair Scientific Committee
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

Ronald RICHMAN
Member
Country: South Africa
Qualification: Fellow of the Institute of Actuaries, Fellow of the Actuarial Society of South Africa, Chartered Property Casualty Underwriter, Chartered Enterprise Risk Actuary
Experience: Chief Actuary, Chief Risk Officer, and Head of Actuarial Function for several insurers over the years
Main areas of expertise: non-life insurance, machine learning, Life Insurance, Risk Management

Dr. Dimitri SEMENOVICH
Chair Scientific Committee
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. Yuriy KRVAVYCH
Chair ASTIN Masterclasses
Country: UK
Qualification: PhD in Mathematics (Kiev), PhD in Actuarial Studies (Sydney)
Experience: Managing Director, Guy Carpenter
Main areas of expertise: enterprise risk management, risk and capital modelling, Solvency II

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

William WEILAND
IAA Delegate, Chair Members Committee
Country: Canada
Qualification: BSc; Fellow of the Canadian Institute of Actuaries; Fellow of the Casualty Actuarial Society
Experience: Principal, Eckler Ltd
Main areas of expertise: Reserving, Financial Condition Testing, Pricing, Expert Witness

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 of the Wharton School of the University of Pennsylvania
Main areas of expertise: mathematical statistics and probability, bonus-malus systems in automobile insurance

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

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 of 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  
Section Staff Lead  
Director, Communications and Membership  
Email: christian.levac@actuaries.org

Teboho MABEBA  
the IAA Secretariat  
Section Coordinator  
Email: teboho.mabeba@actuaries.org

ASTIN SECTION VOLUNTEERS 2022/2023

We currently have four ASTIN Section volunteers:

Warda HADAOUI  
Chair Social Media Committee  
Country: Norway

Dr. Alma QAMO  
Chair ASTIN Working Parties  
Country: Albania

Norbert HAIBLE  
Chair Events and Bursaries  
Country: Germany / Luxembourg

José María AGURCIA AGÜERO  
Chair Chapters  
Country: Panama

Over the last year, our volunteers were instrumental in helping the ASTIN Board to run working parties, organise events and lead new initiatives.
HIGHLIGHTS 2022-2023

Online Colloquium
Summary: As took place in 2021, the 2022 ASTIN colloquium was held online. Nearly two hundred attendees had the opportunity to attend 63 presentations and two keynotes.

Annual General Meeting and ASTIN Board changes
Summary: The Annual General Meeting (AGM) took place immediately after the online colloquium. Two candidates - Eric Dal Moro and Peng Shi - stood for election to the one open board position. A majority of ASTIN members selected Mr. Dal Moro to fill the vacancy. We thank Mr. Shi and Mr. Dal Moro for having volunteered for the open position.

New ASTIN Board Chair
Summary: At the June meeting of the ASTIN board, Eric Dal Moro was elected as our new chair. Eric succeeded Frank Cuypers in this role. Frank has been a tremendous presence on the ASTIN board for quite a few years. We have valued his leadership, his experience and - above all - his easy manner and good humour. We are assured that Frank will soon hand over the gavel used to begin and end ASTIN colloquia.

September 2022

Convention A
Summary: The ASTIN section hosted an exciting session at Convention A, covering many facets of non-life insurance. The session opened with presentations on the ASTIN Masterclasses on Model Risk, and a discussion of the open-source actuarial resources currently being prepared. A mini symposium on the topics of discrimination in insurance pricing followed, with four shorter talks introducing recent works on this subject. The session concluded with a keynote talk on “Pricing Insurance Risk: Practice and Theory” by acclaimed speaker and author, Stephen Mildenhall.

October 2022

Cyber working party
Summary: The 5th ASTIN Cyber Workshop meeting was held at Lloyd’s in London on October 31st, 2022. Over 80 participants were gathered from cyber (re)insurers, policymakers, intermediaries, cyber security as well as academic researchers. The agenda touched on many important cyber topics as well as summarizing what has happened in the cyber world since the last edition in 2020.
Ukraine Relief Fund
Summary: We are all aware of the current state of war in Ukraine and the incredible toll it has taken on the population. ASTIN has chosen to create a relief fund to support actuaries and actuarial and maths educators in Ukraine. We anticipate this assistance to last as long as 5 years to encompass the post-war recovery period. The contribution will be up to 20,000 CAD per year. These funds will be directed to Ukrainian National Maths Olympiad Team and the Department of Probability, Statistics and Actuarial Mathematics at Kyiv National University.

COVID-19 Working Party
Summary: At the July Board meeting, the ASTIN board endorsed the final report of the ASTIN Working Party (AWP) on COVID-19. Under the direction of member Ryutaro Yamada, ASTIN established the AWP to survey ASTIN members about the observed impact COVID has had on the frequency and severity of claims for different lines of non-life insurance, in various geographies around the world. The purpose of the survey was to collect information about the impact of COVID, both observed to date and the expected outlook going forward, the adjustments actuaries have made to modelling methods and assumptions employed in reserving and pricing and also the regulatory requirements that have flowed from the COVID pandemic. The report, “COVID-19 Survey Results”, is a slide deck consisting of 66 pages of commentary and charts that describe the impact of COVID on premiums, claim frequency and claim severity and also looks at the impact it has had on underwriting practices, claims practices and other matters.

January 2023

Best paper award
Summary: The winner of the 2022 ASTIN Colloquium Best Paper Award will go to Fei Huang and Xi Xin for their paper “Anti-discrimination Insurance Pricing: Regulations, Fairness Criteria, and Models”. ASTIN members can access Colloquium papers, presentations, and recordings on the ASTIN website.
Today, ASTIN has over 1,190 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 webpage on the IAA website:
www.actuaries.org
Alma started to work as a non-life actuary in 1996 after completing her studies in applied mathematics in Albania. Since then, she engaged in product design, pricing, reserving, reinsurance, solvency, and risk management for insurers and reinsurers and contributed to insurance regulations and supervision methodologies around solvency and Nat-cat risk management. As of 13 years, she participates in technical assistance and assessment programs supported by the World Bank in SEE countries.

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 four ASTIN working parties actively in progress. These working parties will produce results to benefit non-life insurers in forecast verification and correction techniques in risk aggregation with correlation matrices.

Copies of the reports of the completed projects are accessible to ASTIN members and can be downloaded from our 'Working Parties' web page on the IAA website (login required).

Both leadership and 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 Coordinators at

almaqamo@gmail.com
In 2022, ASTIN had three active working parties and received a new application for a joint AFIR/ASTIN working party, which kick-off started in January 2023.

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

**Project Leader:** Pietro Parodi, SCOR (UK)  
**Project period:** April 2020 – April 2021 (completed)  
**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 more realistic exposure curves; and  
- e) if the graph approach can extend to other risks where contagion is possible.  

The Working Party consists of eleven members. While the research is foundational in nature, its results may help practitioners by guiding the model selection and elucidating the relationship between the features of risk and the model’s parameters. The project deliverable was postponed due to difficulties posed by COVID-19 pandemic situation. The Working Party submitted its final report to the ASTIN Board in March 2023 and plans to present its results at ICA2023. ASTIN members may access it at this link: working party report.

### FORECAST VERIFICATION IN INSURANCE

**Project Leader:** Dimitri Seminovich, Insurance Australia Group (Australia)  
**Project period:** May 2020 – May 2021 (ongoing)  
**Summary:** A great deal of actuarial work consists of making forecasts. Whereas traditional rate-making and reserving deal with point 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 functionals. Empirical verification then emerges to systematically assess the quality of all such forecasts, including those where the forecaster has applied subjective judgement.  

The Working Party reviewed existing meteorology and statistics literature on empirical forecast verification and suggested methods most appropriate to the established areas of actuarial practice. It will also include suggestions for the economic interpretation of such metrics, where possible.  

At last count, the Working Party had eight members. The working party produced a second conference presentation in 2021. The project deliverable has been postponed due to COVID-19 pandemic situation and is expected to be delivered in 2023. Forecast verification is emerging as an important new perspective in actuarial science. Those interested should have a look at the recently published survey: *Model Comparison and Calibration Assessment: User Guide for Consistent Scoring Functions in Machine Learning and Actuarial Practice* by Tobias Fissler et al.

### PRICING AND RESERVING ISSUES RELATED TO COVID-19

**Project Leader:** Ryutaro Yamada, Guy Carpenter (Japan)  
**Project period:** November 2021 – May 2022 (completed)  
**Summary:** COVID-19 affected the frequency and severity of claims for many lines of insurance, including motor insurance, commercial property, and general liability.  

The objective of this Working Party was to survey the ASTIN members about the observed impact COVID-19 has had on the frequency and severity of claims for different lines of non-life insurance in various geographies around the world. The purpose of the survey was to collect information about the impact of COVID-19, both observed to date and the expected outlook going forward, the adjustments actuaries have made to modelling methods and assumptions employed in reserving, pricing and regulatory requirements that have flowed from the COVID pandemic.  

The Working Party had 18 members who evaluated the survey results and delivered the final report with COVID-19 survey results in mid-2022. The report is a slide deck of 66 pages of commentary and charts that describe the impact of COVID on premiums, claim frequency and claim severity and also look at the impact it had on underwriting practices, claims practices and other matters. ASTIN members may access it at this link: working party report.

### RISK AGGREGATION WITH CORRELATION MATRICES

**Project Leader:** Peter Werner Middelkamp, Swiss Re (Switzerland)  
**Project period:** January 2023 – December 2023  
**Summary:** In many standardized risk quantification frameworks, risks are aggregated using correlation matrices. The formula is valid for aggregating standard deviations but not Value at Risk (VaR) or shortfall (Tail VaR) risk measures where the VaR-to-standard deviation ratio decreases with the aggregation level.  

This joint AFIR/ASTIN Working Party aims to develop correction techniques for the fat tail thinning effect when aggregating insurance risks. The research work will consist of:  
- a) gathering a set of standard approaches where the method is used, including the EIOPA Solvency II standard formula, FINMA SST standard model, ICS model, and S&P new model;  
- b) assuming distributions of underlying risks, aggregating them using different methods and deriving adjustment factors for the standard correlation method; and  
- c) developing the correction method with a reduced set of inputs.  

The results will be disseminated through workshops, webinars, colloquia, or seminars to support ASTIN members with aggregation techniques that they may apply in internal models and ORSA exercises.
**ASTIN WEBINARS**

ASTIN webinars are used to share knowledge and expertise among ASTIN members and the wider non-actuarial community. With the logistical and administrative support of the IAA Secretariat, webinars are offered at a pace of about one per month. ASTIN webinars are accessible to all ASTIN members, free of charge. Recordings are available on the ASTIN YouTube channel, and slides may be found on the ASTIN website.

**OUR RECENT WEBINARS**

Over the past year we have hosted ten webinars:

- **2 August 2022** — Improving automobile insurance claims frequency prediction with telematics car driving data by Guangyuan Gao (USA)
- **6 September 2022** — Individual level-loss reserving and environmental changes by Nii-Armah Okine (UK)
- **28 September 2022** — Geographic ratemaking with spatial embedding by Christopher Blier-Wong (USA)
- **30 November 2022** — Multi-State Modelling of Customer Churn by Yumo Dong & Fei Huang (France)
- **23 January 2023** — Selecting Bivariate Copula Models Using Image Recognition by Andreas Tsanakas & Rui Zhu (Mexico)
- **31 January 2023** — IFRS 17 - The Actuary as a storyteller by Vasilka Bangeova & Dave Finnis (USA)
- **21 February 2023** — Welfare Cost of Fair Prediction and Pricing in the Insurance Market by Fei Huang (USA)
- **14 March 2023** — Designing and Implementing an Internal Model - Part I by Michel M. Dacorogna (South Africa)
- **21 March 2023** — Designing and Implementing an Internal Model - Part II by Michel M. Dacorogna (South Africa)
- **28 March 2023** — Designing and Implementing an Internal Model - Part III by Michel M. Dacorogna (South Africa)

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

For more details about ASTIN webinars please refer to ‘Our Activities’ web page on the ASTIN website.
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 the Caucasus (Armenia, Azerbaijan, Georgia), Denmark, Germany, Italy, Japan, and Switzerland. In addition, we are establishing and fostering new relationships in territories where ASTIN is not currently well represented. Last year, due to the pandemic, no new ASTIN Chapters were founded, but both France and the Baltic Region (Eastland, Finland, Latvia, and Lithuania) are planning to create in 2021 their own respective ASTIN Chapters.

ASTIN member Kirsten Sasady (Chair of ASTIN Denmark and ASTIN Board member) drives the coordination between ASTIN and its Chapters.

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

ARBEITSGRUPPE ASTIN, Swiss Association of Actuaries

Chair: Rene Dahms

The Swiss ASTIN Chapter (called ‘Arbeitsgruppe ASTIN’) was founded on 15 October 1967, by the General Assembly of the Swiss Association of Actuaries in Bern. Originally, Professor Dr. Hans Ammeter wanted to make the annual meeting of the Swiss Association of Actuaries more attractive to its members. At that time, the Swiss Association of Actuaries already had two working parties, one on Personal Insurance and one on Data Processing. The foundation of the Swiss ASTIN Chapter then formed the third working party of the association. Its first chair was Professor Dr. Hans Bühlmann. Since its foundation in 1967, the Swiss ASTIN Chapter has been organising scientific sessions annually during the annual meeting of the association.

The Swiss ASTIN Chapter has become a highly active working party on the scientific side, on the educational side and also on the professional side. It has been (co-)organising and hosting several international conferences:

- ASTIN Colloquium 1965 in Lucerne (slightly before its foundation)
- International Congress of Actuaries 1980 in Zurich and Lausanne
- ASTIN Colloquium 1990 in Montreux
- ASTIN and AFIR Colloquia 2005 in Zurich
- Insurance Data Science Conference 2019 in Zurich

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 Dube, 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, which consisted of experts in claims reserving, insurance data science or telematics car driving, 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 Benktander, Jean Lemaire, Karl Borch, Bruno De Finetti, Christian Hipp, William Jewell, Ragnar Norberg, Phelim Boyle, Marc Guivarc’h, 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 (2016-2020)
- Ljudmila Bertschi (2020-2022)
- Rene Dahms (since 2022)

DAV ASTIN, The German ASTIN Group

Chair: Matthias Scherer and Roland Voggenauer

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 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, Thomas Mack and Christian Hipp handed over to Roland Voggenauer and Professor Dietmar Pfeifer, thus continuing the tradition of dual leadership. It 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 Dietmar Pfeifer retired in 2014, he was replaced by Professor Viktor Sandor who has since then been the co-lead...
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 Actuarial Society to accounting for more than half of the Danish qualified actuaries as members.

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 society both

Current activity is preparing the next annual spring meeting to be held in Dresden on April 27.

Topics to be discussed and presented will include:

- Cloud based BI and analytics for commercial insurance
- Behavioural science in retail insurance
- Rate making in commercial motor
- Impact of covid on motor insurance
- Machine learning in claims management and modelling of claims frequencies
- Situation in aviation insurance
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.
Sarah Kæstel-Bjerg is the current chairperson, having been appointed in 2021.

ISOA, ITALIAN ASTIN Chapter

Chair: Giampaolo Crenca and Giovanni Sammartini

The Italy ASTIN Chapter was founded in 2019 coinciding with the seminar held together (ASTIN/ISOA) in Milan in the Spring of 2019. The association ISOA was established in Via delle Milizie 1, Rome, and represents Italy in the ASTIN Chapter. In fact, ISOA is the vehicle through which all international activities and relationships pass, and includes all the Italian Fully Qualified Actuaries (FQA) enrolled in the public official register (Albo), recognized and protected by the law, according to the rules of 1942 and under the supervision of the “Ordine degli Attuari” (Ordine), as provided by the Italian legislation, managed by the Actuarial National Board. The Chairman of ISOA is Giampaolo Crenca appointed by the Actuarial National Board; he is also Vice Chairpersons of the Actuarial Association of Europe (AAE) and represents Italy in the AAE’s General Assembly and in the Council of the International Actuarial Association (IAA).

Giampaolo Crenca and Giovanni Sammartini are the leaders of the Italian ASTIN Chapter. Giovanni Sammartini is the coordinator of the non-life insurance committee within the Ordine since many years. The members of this committee are FQA enrolled in the official register and have great experience in the different fields of non-life insurance, a sector that in the last 15-20 years has developed very much, thanks in part to Solvency II and its continual development.

ISOA is a Full Member Association of the International Actuarial Association and is supported by the National Actuarial Board and by the Ordine’s structure which includes many Committees and Working Groups. Moreover, within the Ordine, there is an active Scientific Committee, and it is another important support. The Italian non-life insurance market increased very much in the last 20 years, from an actuarial point of view, particularly in terms of pricing, reserving and Solvency II. Actuarial technique in general insurance is a very important matter in the Universities, and is included in the state exam in order to be enrolled in the “Albo” and to be named “Attuario”, that is, to become “Fully Qualified Actuary.” The Italy ASTIN Chapter was very involved in the organization of a session during the last international event organized by ASTIN in Spring of 2021, and many Italian FQA attended the event, as in the Actuarial Italian Congress in Rome, November 2021, in one of the three international sessions in English, with a good success.

The Japan ASTIN Chapter

Co-Chairs: Miyuki Ebisaki and Shigeo Watanabe

The Japanese ASTIN Chapter was formed by volunteers of the ASTIN-related study group of the Institute of Actuaries of Japan (IAJ) on 31 October 2020, in order to strengthen the ties within the ASTIN community. It hosted one of the chapter events, the ASTIN Online Colloquium 2021. Its members also contributed to the IAJ session in Convention A held in September 2022.

In 2019, the IAJ celebrated its 120th anniversary. During the annual meeting, there was a Joint ASTIN / Casualty Actuarial Society Seminar with the participation of ASTIN board members. There had been few occasions to have such rich lectures of current topics such as data science, cyber risks, and insurance ERM and solvency, delivered by selected international lecturers. This memorial event led to the formation of the Japanese ASTIN Chapter. Its formation will enhance communication and exchange of knowledge with the international ASTIN community and motivate members of the Chapter to present their ideas globally.

All the committee members of the Japanese ASTIN Chapter, including the two chairs, are also members of the ASTIN-related study group of the IAJ. In addition, the leader of the study group takes the role of the chair of the Japanese ASTIN Chapter. The Chapter collaborates with the study group in most of its activities.
EXECUTIVE SUMMARY

Among its recent initiatives, ASTIN introduced 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 insuretech as well as the impact of disruptive technologies.

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

RECENT RELEASES

ASTIN has recently produced and released its first two online masterclasses:
- Masterclass 1 (8-part video series) by Andrew Smith in March 2022; and

You can access our online Masterclasses, including trailer videos, by visiting the ASTIN website. We hope you will enjoy watching them and would very much appreciate your feedback.

Masterclass 1

Masterclass title: MODEL RISK MANAGEMENT — THE QUEST FOR A UNIFYING APPROACH
Lecturer: Andrew D. Smith (Ireland / UK)

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 pressed 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 Fintason 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.

Masterclass 2

Masterclass title: THE INSURANCE-RISK LANDSCAPE: AN ECLECTIC SURVEY
Lecturer: Michael R. Powers (China / USA)

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 human-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. Bayesian Methods in Insurance
5. Modelling Insurance Losses — Distributions and Parameters
6. Modelling Insurance Losses — Distributions Versatility
7. Financing Insurance Losses
8. Heavy Tails – Underwriting and Solvency
9. Heavy Tails – Expected Utility and Risk Measures
10. Winds and Waves of the Future

About the Lecturer
Michael R. Powers is 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.

FORTHCOMING MASTERCLASSES

We plan to produce further online masterclasses during 2023-2024. We will be providing further updates regarding this throughout the year.
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 increasing 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 Academy

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:

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 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 Tebo Mabeba, from the IAA Secretariat continue to provide an excellent support structure to ensure efficient communication with ASTIN membership.

AWARDS

Each year, ASTIN provides the ‘ASTIN Best Paper Award’ to the best papers written and presented by actuarial researchers. This award is conducted in conjunction with the annual ASTIN colloquium.

In 2022, 9 papers were submitted for this award. Fei Huang and Xi Xin’s paper “Anti-discrimination Insurance Pricing: Regulations, Fairness Criteria, and Models” was recognized as the best paper among all of those submitted. This work explores the use of contemporary modelling methods like XGBoost and their impact on measured impact of fairness criteria.
In support of actuarial aspects of the Open Education Resources (OER) movement, the ASTIN Board has recently created the ASTIN Academy. Its purpose is best described by its mission statement (provided by ASTIN Board member Dimitri Semenovich):

“The mission of the ASTIN Academy is to provide high quality free educational materials in non-life insurance to actuarial students across the world. The Academy is committed to open course development under Creative Commons licence and seeks innovation in teaching methodologies and application of technology. Let’s build the future of actuarial education together.”

How does this fit into the International Actuarial Association (IAA)? This question has been well answered by the ASTIN Board, reflected in presentations given by its former chair, Frank Cuypers, at various ASTIN events. From my perspective, I think of this as consistent with the principle of subsidiarity that Hans Bühlmann discussed in his interview article. He said “The principle of subsidiarity states that in any social organisation decisions should be taken at the most immediate (lowest) level competent to take this decision. More directly: upper levels should only decide, where the competence of the lower level is lacking.” Applying this general principle to the educational content dilemma, my view is that it is consistent with the purpose of the IAA to provide educational content when none is available from local associations. And this is precisely where the ASTIN Academy fits in. 

**Pilot Project.** The first project of the ASTIN Academy is to develop a short course based on the beginning chapters of Loss Data Analytics. This project is under the leadership of myself, ASTIN board member Miyuki Ebisaki (Deloitte Touche Tohmatsu LLC), Paul Johnson (University of Wisconsin) and Yvonne Chueh (Central Washington University). We have the support of an additional twelve contributors from around the globe (including Australia, South Korea, Canada, and the U.S.). You can learn more about this project at our Short Course Development Strategy site.

**The Role of R.** The approach of our open textbooks and related short courses is to use R as an authoring environment. The statistical package R is widely used by the actuarial academic community and is finding greater acceptance in industry. By using this well-known tool, we can attract many potential creators of educational content from a wide spectrum. For this open educational content, we seek broad and diverse groups of both authors and learners.

The ASTIN Reading Club is a forum bringing together practitioners, academics, and students to discuss the latest advances in non-life insurance topics. The discussions are based on a review of emerging topics of importance and are driven by examining new research papers and book chapters in an informal setting.

The goal of the reading club is to allow ASTIN members and other interested participants to get up to speed on specific research areas of importance in a structured manner. Since its inception, the reading club has hosted two main themes. The first of these was the application of machine and deep learning to actuarial tasks as discussed in the book Statistical Foundations of Actuarial Learning and its Applications by Mario Wüthrich and Michael Merz. The second of these was the topic of autocalibration of non-life insurance pricing models, through series of papers by Arthur Charpentier, Mathias Lindholm and Mario Wüthrich.

Future topics for the reading club will cover similar emerging themes in actuarial research, with the next planned session covering the theme of representation learning for non-life insurance tasks. The reading club aims to complement the other activities of ASTIN by providing a look at research more often than possible through the ASTIN colloquium and focuses on a theme that is carried over several sessions.

Past sessions from the reading club can be found at this link.

Mario Wüthrich presenting at the ASTIN Reading Club on the paper "Isotonic Recalibration under a Low Signal to Noise Ratio"
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 (CUP). 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 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 in mathematical sciences including actuarial mathematics, statistics, probability, financial mathematics, and econometrics.

The journal welcomes papers that present significant and original theoretical developments and 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 issues that arise in actuarial modelling and data science.

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

Editors:
Benjamin Avanzi, An Chen, Łukasz Delong, Catherine Donnelly, Michael Merzn, Annamaria Olivieri (new), Ruodu Wang, Steven Vanduffel (new)

Journal Manager:
Christian Levac

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MESSAGE FROM THE EDITOR-IN-CHIEF

Overview
In 2022 we have published 30 high quality research papers in three issues in January, May, and September. We are very pleased to see that our impact factor has significantly improved. This shows that our publications are highly accessed and cited, and it also confirms our 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.

Montserrat Guillen has been appointed as the new Editor-in-Chief of the North American Actuarial Journal. Congratulations! I regret that she has stepped down as Editor of ASTIN Bulletin by the end of 2022 (for this reason). Montserrat has been Editor of ASTIN Bulletin since 2009, and she has done an excellent job over all these years. I would like to sincerely thank Montserrat for her great support and dedication to the success of ASTIN Bulletin. I wish her all the best for her new position at the North American Actuarial Journal! To strengthen our editorial team and to compensate for the demission of Montserrat, we have appointed two new Editors: Annamaria Olivieri and Steven Vanduffel. Moreover, the new appointments of Jennifer Alonso Garcia and Tim Boonen strengthen our Editorial Board; members of the Editorial Board mainly support us in reviewing the submissions.

I would like to kindly thank all the editors for their invaluable contribution to the success of ASTIN Bulletin. I wish to sincerely thank all the many anonymous referees, without whom the journal could not function. A great thank you goes to our journal manager Christian Levac who is instrumental in running this journal so smoothly and successfully. Many thanks!

ASTIN Bulletin, Volume 52, 2022
In 2022 we published 30 research articles, amounting to 952 pages. Volume 52 contains a good mix of applied and theoretical papers over the actuarial research areas: ASTIN type – 12; AFIRERM type – 8; Life & Pension type – 9; Health type – 1.

The number of published articles is constant over time with a peak in 2018. This peak is due to a change of typesetter at our publisher Cambridge University Press (CUP), this required to work off a backlog of open papers by the end of 2018. For 2023 we expect a positive development, and the number of articles should slightly increase because of higher submission rates in 2022 compared to the Covid-19 years 2020 and 2021.

The updated impact factor for 2022 is not available, yet. Last year we had a rather big increase in impact factor. This higher impact factor can be traced back to five papers that have appeared in 2019 and that have received high citations (the impact factor 2021 is determined from citations in 2021 referring to papers in 2020 and 2019). Going forward, we expect bigger changes in this impact factor, as the rules of the impact factor are currently changing. A major change concerns that every (reasonable) scientific journal will receive an impact factor in the future (so far there has been a very restrictive admission process to receive this impact factor). We expect that this will make the publication landscape more competitive, and it will be important to have a very clear profile to successfully position a scientific journal in the academic community. I believe that ASTIN Bulletin is well positioned in these regards, and it will continue to play the leading role in publishing cutting-edge research in actuarial science.

Administration
The current administrative structure continues to work very well. Submissions are handled effectively on an online submission system. At the point of acceptance our administrative officer, Christian Levac takes over and acts as a liaison between the authors and the publisher, CUP. The relationship with CUP is working well and we are pleased with the quality of their work. We have signed a renewal for a 5-year extension to our contract with CUP in October 2022, beginning in 2023.

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

Mario Wüthrich
Editor-in-Chief of ASTIN Bulletin
March 24, 2023

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of articles</td>
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<td>42</td>
<td>31</td>
<td>35</td>
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<tr>
<td>Number of pages</td>
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<td>914</td>
<td>1,122</td>
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<tr>
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<td>29</td>
<td>32</td>
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<td>1,236</td>
<td>1,479</td>
<td>2,545</td>
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</tr>
</tbody>
</table>
TALKING WITH

PROMINENT FIGURES

REFLECTING ON ASTIN’S PAST, PRESENT AND FUTURE

ASTIN has a long history. From simple beginnings in ratemaking, to the task of loss reserving, the group has evolved over many years to handle the problem of risk theory and risk management. ASTIN practitioners continue to tackle current and emerging issues like machine learning and artificial intelligence in actuarial applications.

These achievements are often driven by prominent figures, who break new ground in practice areas and move the profession forward. These advancements rest on the foundations of classical risk theory, those who founded ASTIN, and those who further developed its intellectual base.

This Annual Report includes an interview with Bob Conger. In conversation with Brian Fannin, he looks back on his actuarial career.
Brian: Good morning, Bob. Thanks for agreeing to share with us some reflections arising out of your actuarial career, which now spans nearly fifty years.

Bob: It’s a pleasure to chat with you Brian!

Brian: I thought we might begin at the beginning: What drew you to the actuarial field? Were there other professions that you considered?

Bob: My back story, which predates most of the university actuarial programs in the US, seems to be pretty typical of many actuaries of my vintage. From an early age, I was drawn to math and science, an aptitude that was amplified by some excellent and passionate teachers along the way, and by my family’s enthusiasm regarding education and learning. In high school, I discovered, and was very drawn to computer programming; at Amherst College, I encountered and was interested in economics, and majored in that subject as well as math. However, I didn’t have much of an idea about what to do after completing undergraduate studies — other than I knew I didn’t want to continue on to grad school. Happily, I followed up on a college classmate’s suggestion that I check out the actuarial profession – a field of which I had no prior awareness. As I explored the actuarial world, it seemed like a perfect blend of applying mathematical skills, problem-solving and logic; drawing on concepts from economics; and using computers with lots of real-world data, in an interesting and challenging business context. In my entry-level employment interviews across the spectrum of actuarial jobs, I was most intrigued by the challenges, opportunities, and variety that were suggested by the pace, scope, and impact of change in the general insurance field – including environmental, regulatory, business, product, methodological and technical changes. Here I am!

Brian: Are there particular professional challenges/difficulties that you faced? How did you manage to get through them?

Bob: Yes, certainly — some of them in connection with client work, others in navigating workplace dynamics, and more than a few related to striving for a reasonable balance between my work life and personal life. One significant challenge for me was my struggle, at the beginning of my consulting career, with expectations that I would be able to go out and sell new consulting engagements to both existing and prospective clients. My struggles worsened when I was expected to sell specific types of projects that I felt were unlikely to generate interest or value for most of my clients. Over time (and with help from mentors), I found my own business development style — which is focused on listening actively to the client, as well as using our existing work for that client as a diagnostic tool, and probing to learn more about business issues that were (or should be!) keeping the client awake at night. I could align what I heard from the client with our firm’s areas of particular strength and expertise, and come back to the client with a range of practical and constructive ideas for collaborative projects responsive to their issues. Equally useful, I became comfortable at noting areas where we were not the right partner, and sometimes helping the client find a different type of expert for those areas. I don’t know if I would have thrived as a
TALKING WITH PROMINENT FIGURES

Bob: Well, sure, there are a number of fields that look interesting to me. But I have never regretted pursuing the actuarial field. As an actuary, I have found tremendous personal growth and learning opportunities; worked on many interesting projects, enjoyed good employment opportunities; integrated with my whole self. This melding was highlighted in an amusing fashion recently, as I emerged from the fog of general anesthesia following a minor surgical procedure. The nurses in the post-op recovery room reported (with great laughter) that my first words (and paragraph) as I started to awaken, were all extolling the virtues of the actuarial profession!

Brian: So, no second thoughts about whether the actuarial path was the right one for you?

Bob: Strange, even though I am no longer doing consulting work, there still are not enough hours in the day. Maggie and I together are really enjoying time and adventures with our two young granddaughters (ages 4 and 7; they live near us in DC), and away from DC we love traveling (next up: Australia and ICA 2023 — my sixth ICA). Recently, we joined a new (to us) church, and together we delight in becoming part of that community. Maggie is a fabulous cook, and I love to eat, so we match up quite well in that part of our life as well. In my quiet times, I enjoy reading and solving puzzles of various sorts; and my favorite strenuous activity is running — a current goal is to run my first marathon before the end of this year. I am blessed with good health and an active mind, and always look forward to the adventures ahead!

Brian: Outside of work, how do you like to spend your time?

Bob: One of my recent interesting and challenging volunteer projects has been launching a risk management function for the Board of Trustees of The Actuarial Foundation in the US. I have long been aware that my brain has been rewired by my education and work as an actuary — for example, I vividly recall — back in my first year as an actuarial trainee — the sense that new brain synapses were cracking with growth, energy and excitement as I initially encountered the mathematics of compound interest and life contingencies. My actuarial persona has been integrated with my whole self. This melding was highlighted in an amusing fashion recently, as I emerged from the fog of general anesthesia following a minor surgical procedure. The nurses in the post-op recovery room reported (with great laughter) that my first words (and paragraph) as I started to awaken, were all extolling the virtues of the actuarial profession!

Brian: What do you think other financial/analytical fields could learn from actuarial practice? What have you learned from them?

Bob: When I started out, I was impressed by the insight and certainty that actuaries brought to preparing their best estimates. Over the years, however, I have become more focused on the incredibly important value that we can deliver in helping people think about uncertainty: why and how the outcomes might differ from the central estimates, what are some really adverse things that might emerge, what are the potential consequences for the enterprise, and what can be done to manage and mitigate the risks? Of course, much work remains to be done in producing and delivering this type of information effectively as part of our work-products and seeing that it gets taken on board and acted on by the decision-makers. Actuaries have some great perspectives to offer, and I’d like to see more “uncertainty” work and communication embraced by other analytical and financial fields, as well. ASTIN really got my attention when it began highlighting the role that it can play in creating bridges between theory and practice. I am distressed wherever I see analyses and decisions being based almost entirely on “the data,” without adequate attention or inquiry into the environmental and business context that gave rise to the data, and that form the space in which the decisions will be implemented. I was delighted when the actuarial profession began to emphasize that the special superpower (and competitive differentiation) of actuaries in predictive analytics is in understanding and reflecting these contextual elements as key components on the front end and back end of any modelling project. Likewise, with or without fancy predictive models, it is great to see more actuaries now working in diverse functional areas of insurance companies and non-traditional employers, specifically focused on the contexts of those different functional areas. I see that we actuaries — individually and collectively — need to continue pushing our minds and our roles outward from our silos, and into the environment from which our work arises, and in which our work needs to be implemented.

Brian: So, no second thoughts about whether the actuarial path was the right one for you?

Bob: Strangely, even though I am no longer doing consulting work, there still are not enough hours in the day. Maggie and I together are really enjoying time and adventures with our two young granddaughters (ages 4 and 7; they live near us in DC), and away from DC we love traveling (next up: Australia and ICA 2023 — my sixth ICA). Recently, we joined a new (to us) church, and together we delight in becoming part of that community. Maggie is a fabulous cook, and I love to eat, so we match up quite well in that part of our life as well. In my quiet times, I enjoy reading and solving puzzles of various sorts; and my favorite strenuous activity is running — a current goal is to run my first marathon before the end of this year. I am blessed with good health and an active mind, and always look forward to the adventures ahead!

Annual Report - 2022 / 2023
The full year 2022 unaudited reports for ASTIN were received from the IAA Secretariat on March 29th, 2023. The audited accounts usually will not differ substantially.

"Unwanted help ..."

In my final year as ASTIN treasurer we nearly met our budget – for the first time since I took over as treasurer in 2017. The budgeted deficit for 2022 was CAD -73,361. The realized deficit was CAD -60,970 - pretty close. The "unwanted help", however, was contributed from unrealized losses from investments in the amount of CAD -43,576.

Looking at our budgeted expenses we fully spent the CAD 50,000 for initiatives, namely masterclasses, Actuview and our digital annual report. On the other hand, the budgeted CAD 20,000 for meetings and travel remained nearly unused – still under the influence of the COVID19 situation. A big hand goes to our friends from CAS who managed to avoid any follow up expenses after our decision to switch from the Orlando colloquium to an online colloquium like we had it in 2021. Finally, it should be mentioned that we spent CAD 4,514 for the Ukraine relief fund, leaving CAD 15,486 for future assistance from our agreed amount of CAD 20,000 (originally budgeted for bursaries).

On the income side we already see the impact of the increased membership fee with CAD 69,820 coming from 1,191 members. The regular investment income was slightly exceeding the targeted CAD 10,000 when balancing CAD 15,048 gross income with the now separately shown CAD 3,031 for the investment service fee. The "unwanted help" for meeting the budget
comes from the above mentioned unrealized losses from investments – three times the amount of the regular gross investment income!

The membership development was again below expectation. The overall number dropped from 1,307 to 1,191. The largest impacts came from Japan (nearly halved, presumably because of a change in the invoice system), from the Netherlands and from France. Encouraging is the development in Australia (ahead of ICA 2023). It nearly tripled again to now 53 members. Also, the US associations show signs of recovery: SOA from 29 to 45 and CAS from 67 to 73 members. The “lead” goes back to Denmark with 166 members followed by UK with 147 members.

**BUDGET 2024**

When setting up the 2024 budget, we will continue with our “optimistic” plans for gradually decreasing the ASTIN fund, especially as respects our masterclass project. This means that we again are planning a reduction in ASTIN net assets. The budget, as usual, will include a zero estimate for unrealised gains/losses in 2024 and will be based on a conservative membership figure of 1150.
Denmark 166
United Kingdom 147
Netherlands 94
Germany 90
France 74
United States 73
Norway 71
Switzerland 66
Japan 61
Australia 53
South Africa 45
Italy 38
Sweden 29
Finland 24
Ireland 18
Israel 16
Canada 15
Belgium 10
Austria 8
Mexico 6
Portugal 6
Greece 5
Singapore 5
Bermuda 4
Hong Kong 4
New Zealand 4
Czech Republic 3
India 3
Indonesia 3
Luxembourg 3
Pakistan 3
Trinidad and Tobago 3
Benin 2
Brazíl 2
Chinese Taipei 2
Estonia 2
Jamaica 2
Kenya 2
Nigeria 2
South Korea 2
Spain 2
Turkey 2
Albania 1
Bahrain 1
Cayman Islands 1
China 1
Côte D’Ivoire 1
Cyprus 1
Gibraltar 1
Hungary 1
Iceland 1
Lebanon 1
Malta 1
North Macedonia 1
Panama 1
Philippines 1
Poland 1
Slovakia 1
Slovenia 1
Suriname 1
United Arab Emirates 1
Zambia 1
Other 1
# ASTIN STATEMENT OF FINANCIAL POSITION

As at December 31, 2022

## ASSETS

### Current Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>31-DEC-22</th>
<th>31-DEC-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chequing/Savings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash in bank accounts</td>
<td>$3,933</td>
<td>$18,290</td>
</tr>
<tr>
<td>Cash in investment accounts</td>
<td>72</td>
<td>130,305</td>
</tr>
<tr>
<td>Short-term Investments</td>
<td>76,282</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Chequing/Savings</strong></td>
<td><strong>80,287</strong></td>
<td><strong>148,595</strong></td>
</tr>
<tr>
<td>Other Current Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membership Receivables</td>
<td>(2,165)</td>
<td>-</td>
</tr>
<tr>
<td>Other receivables</td>
<td>13,153</td>
<td>15,562</td>
</tr>
<tr>
<td>Prepaid Expenses</td>
<td>-</td>
<td>664</td>
</tr>
<tr>
<td><strong>Total Other Current Assets</strong></td>
<td><strong>10,988</strong></td>
<td><strong>16,226</strong></td>
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<tr>
<td><strong>Total Current Assets</strong></td>
<td><strong>91,275</strong></td>
<td><strong>164,821</strong></td>
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</table>

### Fixed Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>31-DEC-22</th>
<th>31-DEC-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Software - Cost</td>
<td>20,478</td>
<td>20,478</td>
</tr>
<tr>
<td>Computer Software - Amortization</td>
<td>(18,804)</td>
<td>(14,692)</td>
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<tr>
<td><strong>Total Fixed Assets</strong></td>
<td><strong>1,674</strong></td>
<td><strong>5,786</strong></td>
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</tbody>
</table>

### Other Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>31-DEC-22</th>
<th>31-DEC-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiera Integrated Fixed Income</td>
<td>405,729</td>
<td>401,876</td>
</tr>
<tr>
<td>Fiera Canadian and Global Equity Fund</td>
<td>300,087</td>
<td>304,137</td>
</tr>
<tr>
<td><strong>Total Other Assets</strong></td>
<td><strong>705,815</strong></td>
<td><strong>706,013</strong></td>
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</tbody>
</table>

**TOTAL ASSETS**

<table>
<thead>
<tr>
<th>Description</th>
<th>31-DEC-22</th>
<th>31-DEC-21</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>$798,765</strong></td>
<td><strong>$876,620</strong></td>
</tr>
</tbody>
</table>

## LIABILITIES & NET ASSETS

### Liabilities

<table>
<thead>
<tr>
<th>Description</th>
<th>31-DEC-22</th>
<th>31-DEC-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Liabilities</td>
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</tr>
<tr>
<td>Other Current Liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deferred revenue</td>
<td>$3,280</td>
<td>$3,260</td>
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<tr>
<td>Other payables &amp; accruals</td>
<td>9,056</td>
<td>25,960</td>
</tr>
<tr>
<td><strong>Total Other Current Liabilities</strong></td>
<td><strong>12,336</strong></td>
<td><strong>29,220</strong></td>
</tr>
<tr>
<td><strong>Total Current Liabilities</strong></td>
<td><strong>12,336</strong></td>
<td><strong>29,220</strong></td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>12,336</strong></td>
<td><strong>29,220</strong></td>
</tr>
</tbody>
</table>

### Net Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>31-DEC-22</th>
<th>31-DEC-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted surplus</td>
<td>847,399</td>
<td>824,764</td>
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<tr>
<td>Excess (Deficiency) of Revenue over Expenses</td>
<td>(60,970)</td>
<td>22,635</td>
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<td><strong>Total Net Assets</strong></td>
<td><strong>783,430</strong></td>
<td><strong>847,399</strong></td>
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**TOTAL LIABILITIES & NET ASSETS**

<table>
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<tr>
<th>Description</th>
<th>31-DEC-22</th>
<th>31-DEC-21</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>$798,765</strong></td>
<td><strong>$876,620</strong></td>
</tr>
</tbody>
</table>
### ASTIN STATEMENT OF REVENUE & EXPENSES - ACTUALS VS BUDGET

For the 12 months ended December 31, 2022

<table>
<thead>
<tr>
<th></th>
<th>31-Dec-22</th>
<th>Budget to Date</th>
<th>$ Variance</th>
<th>% Variance</th>
<th>31-Dec-21</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other revenue</td>
<td>$14,983</td>
<td>$1,000</td>
<td>$13,983</td>
<td>(0%)</td>
<td>$25,014</td>
</tr>
<tr>
<td>Unrealized Gain/ (Loss) investment</td>
<td>(43,576)</td>
<td>(43,576)</td>
<td>53,087</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Loss)/Gain on foreign exchange</td>
<td>285</td>
<td>285</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>Interest &amp; investment revenue</td>
<td>15,048</td>
<td>10,000</td>
<td>5,048</td>
<td>50%</td>
<td>15,793</td>
</tr>
<tr>
<td>Membership fees - Full</td>
<td>69,820</td>
<td>66,800</td>
<td>3,020</td>
<td>5%</td>
<td>68,000</td>
</tr>
<tr>
<td>IAA Section Fund</td>
<td>614</td>
<td>10,000</td>
<td>(9,386)</td>
<td>(94%)</td>
<td>9,080</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>57,173</td>
<td>87,800</td>
<td>(30,627)</td>
<td>(35%)</td>
<td>170,974</td>
</tr>
<tr>
<td><strong>Expense</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office &amp; overhead</td>
<td>153</td>
<td>1,000</td>
<td>847</td>
<td>85%</td>
<td>617</td>
</tr>
<tr>
<td>Investment service fees</td>
<td>3,031</td>
<td>(3,031)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank charges &amp; service fees</td>
<td>54</td>
<td>250</td>
<td>196</td>
<td>78%</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td>3,238</td>
<td>1,250</td>
<td>(1,988)</td>
<td>(159%)</td>
<td>634</td>
</tr>
<tr>
<td>Governance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gifts and Awards</td>
<td>1,506</td>
<td>5,000</td>
<td>3,494</td>
<td>70%</td>
<td>4,500</td>
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<td>Professional services</td>
<td>2,798</td>
<td>5,000</td>
<td>2,202</td>
<td>44%</td>
<td>2,232</td>
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<td>Bursaries</td>
<td>4,514</td>
<td>20,000</td>
<td>15,486</td>
<td>77%</td>
<td>-</td>
</tr>
<tr>
<td>Initiatives</td>
<td>20,553</td>
<td>20,000</td>
<td>(553)</td>
<td>(3%)</td>
<td>48,112</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td>29,372</td>
<td>50,000</td>
<td>20,628</td>
<td>41%</td>
<td>54,845</td>
</tr>
<tr>
<td>Communications and IT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amortization</td>
<td>4,112</td>
<td>3,847</td>
<td>(265)</td>
<td>(7%)</td>
<td>4,112</td>
</tr>
<tr>
<td>Bulletins</td>
<td>13,169</td>
<td>16,000</td>
<td>2,831</td>
<td>18%</td>
<td>23,712</td>
</tr>
<tr>
<td>Committee, Representation Exp</td>
<td>-</td>
<td>1,000</td>
<td>1,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23,507</td>
</tr>
<tr>
<td>Professional services</td>
<td>29,306</td>
<td>30,000</td>
<td>694</td>
<td>2%</td>
<td>-</td>
</tr>
<tr>
<td>Printing</td>
<td>-</td>
<td>5,000</td>
<td>5,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teleconference</td>
<td>664</td>
<td>1,000</td>
<td>336</td>
<td>34%</td>
<td>385</td>
</tr>
<tr>
<td>Web seminar expense</td>
<td>288</td>
<td>1,000</td>
<td>712</td>
<td>71%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td>47,539</td>
<td>57,847</td>
<td>10,308</td>
<td>18%</td>
<td>51,716</td>
</tr>
<tr>
<td>Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meetings - other</td>
<td>500</td>
<td>5,000</td>
<td>4,500</td>
<td>90%</td>
<td>-</td>
</tr>
<tr>
<td>Travel - general</td>
<td>123</td>
<td>15,000</td>
<td>14,877</td>
<td>99%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Expense</strong></td>
<td>624</td>
<td>20,000</td>
<td>19,376</td>
<td>97%</td>
<td>-</td>
</tr>
<tr>
<td><strong>Net Revenue over Expenses</strong></td>
<td>$(23,599)</td>
<td>$(41,297)</td>
<td>17,698</td>
<td>43%</td>
<td>63,779</td>
</tr>
<tr>
<td><strong>Section Administration</strong></td>
<td>(37,371)</td>
<td>(32,064)</td>
<td>(5,307)</td>
<td>(17%)</td>
<td>(41,144)</td>
</tr>
<tr>
<td><strong>EXCESS (DEFICIENCY) OF REVENUES OVER EXPENSES</strong></td>
<td>$(60,970)</td>
<td>$(73,361)</td>
<td>$12,391</td>
<td>17%</td>
<td>$22,635</td>
</tr>
</tbody>
</table>
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:

- 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 schedule additional masterclasses in the series over the period between 2023 and 2024.

- 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

2023

2024

2025

2026
JOIN ASTIN NOW!