

Actuarial and Risk Challenges in Dynamic Market

International conference
Faculty of Science
Saint Joseph University of Beirut
October 26 & 27, 2022

Allianz 

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ACTUSCOPE
consulting actuaries

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50
YEARS
BANKERS

WELCOME NOTE

Since the first edition of our International Conference "Meeting of Actuaries in Beirut: the Era of Actuarial Science" in 2017, the world has experienced several crises including the Covid-19 crisis in late 2019. Lebanon in particular is also experiencing an unprecedented economic and financial crisis. As a result, insurance companies should face several new challenges: how to maintain profitability, which currency for premium payment, how to ensure sustainability and pay reinsurers?

This symposium aims to answer all these challenges by proposing solutions adapted to the country's situation. The presentations given by professionals of the field from Lebanon and abroad as well as actuarial researchers from Saint Joseph University of Beirut and ISFA Graduate School of Actuarial Studies of Claude Bernard University - Lyon 1, will focus on IFRS17, the various health, economic and financial crisis, the Enterprise Risk Management, crisis and risks due to wars...

THE FACULTY OF SCIENCE OF SAINT JOSEPH UNIVERSITY OF BEIRUT

Founded in 1997, the Faculty of Sciences (FS) aims to train researchers in fundamental and applied sciences as well as multidisciplinary scientific professionals. Throughout its programs, it allows a perfect integration into the labor market by fulfilling all the requirements and needs of an evolving professional environment. The Faculty looks forward to becoming a scientific platform for industrial and commercial enterprises in Lebanon and in the region, in addition to its role in training French-speaking school teachers for the secondary level in the basic sciences: mathematics, physics, chemistry and life and earth sciences- biochemistry. In unity with the University's policy to expand its academic programs in all Lebanese regions, FS has been, since 2010, providing part of its undergraduate programs in North Lebanon (CLN), South Lebanon (CLS), and Zahleh and Bekaa campuses (CZB).

Our academic programs are supported by an Analysis and Research Center that includes three research units. Within these latter, our professors, staff, and young students conduct research activities that cover the production sector in Lebanon and meet the international research interests in different disciplines. The research axes are defined and developed after consultation with the members of the FS Strategic Council and our social partners. These axes involve a variety of national and international collaborators from the public and private sectors.

We spread on a daily basis the culture of excellence that is present in the work and activities of the FS professors, researchers, staff, and students. Within our institution, academic excellence is a must and technological innovation is a practice. FS is a privileged place for the production of knowledge and know-how for higher education and technological innovation and development. Over the past few years, our Faculty has managed to rise to the level of international educational and research institutions. It is reflected in the number of partnerships and collaborations, the national and international research projects, the double diplomas in collaboration with International and Lebanese universities, as well as the large number of scientific publications and invention patents. Our achievements include as well a strong and fruitful participation in international conferences, the implementation of spin-offs and NGOs, the signature of a multitude of industrial contracts and MOUs, and above all the academic level of our professors who are continuously being recognized and celebrated with awards and distinctions on the national and international levels.

In a constantly changing world, facing economic and social challenges, excellence is becoming a crucial pillar for the survival of organizations and individuals. Searching for innovative solutions, developing creative responses, bringing out new ideas and having an attitude open to transformation are the essence of the academic programs and research activities at the Faculty of Sciences of Saint Joseph University of Beirut.

COLLABORATORS

ISFA GRADUATE SCHOOL OF ACTUARIAL STUDIES OF CLAUDE BERNARD UNIVERSITY - LYON 1

ISFA Actuarial School was founded in 1930 by decree of the president of the French Republic. It was the first French academic structure to deliver the actuary diploma (ISFA actuaries are members of the French “Institut des Actuaire”).

Now full part of Lyon 1 University, ISFA has strong links with companies (insurance, reinsurance, and finance).

With more than 600 students, 20 professors, and a research lab (laboratory of actuarial and financial sciences – LSAF), ISFA Actuarial school focuses on multidisciplinary in trainings and research (actuarial and financial sciences, economy of risk, risk management – ERM, laws, etc.).

THE LEBANESE ASSOCIATION OF ACTUARIES

The Lebanese Association of Actuaries (LAA) was founded in 2001 by a group of qualified actuaries and it is a full member association of the International Actuarial Association (IAA) since 2002.

In July 2022, a new board had been elected and it is headed by the President Rita El-Sokhon, the Vice President Guy Saad, and composed of the following other members: Wassim Tabbah (Secretary), Marc Tarazi (Treasurer), Dr. Rabih Badran, and Dr. Rudy Daccache.

The LAA new board members share a common purpose and stand for creating a continuous spirit of cooperation among Lebanese actuaries and other actuarial associations throughout the world.

The LAA exists in fact to encourage the development of the profession and it aims at supporting the continuous development of Lebanese actuaries and at maintaining high professional standards.

SPONSORS

ACTUSCOPE

Actuscope is an independent actuarial consulting firm based in Beirut and Riyadh. It provides services to the Insurance and Pensions industries across the region.

The Company was founded in 2010 and established itself as a leader in the actuarial services industry in different jurisdictions. It succeeded in building a strong client base in addition to an actuarial team, which we believe is among the largest in the country. Actuscope developed its capabilities and processes using the latest technologies and succeeded in delivering consistent and efficient best quality services.

We offer a unique risk management and actuarial advisory expertise, stemming from our experience in the region, and the depth of our exposure to insurance needs.

In the Insurance world, we use our analytical skills to solve practical business problems applying the latest techniques and software solutions to help insurers quantify and manage risk and capital, grow revenue, and create competitive advantage.

Our services include product development and pricing, reserving, reinsurance analysis and optimization, experience assumptions studies, budgeting and business planning, asset liability modelling, valuation of insurance portfolios, and IFRS 17 actuarial implementation.

We support companies in building and maintaining their risk management capabilities through the design and implementation of internal capital models for the quantification and allocation of risk-based-capital needed to back their business exposure to events such as catastrophe earthquake risk, market risk, credit risk, mortality risk, casualty risk and operational risk.

We support some of our clients in their annual credit rating assessment by international rating agencies.

Outside the insurance sector, we help our corporate clients identify the right set of solutions from among the growing array of options, including the redesign of pension plans, the optimization of the plan's value, the assessment and improvement of the plan's financial condition, and the improvement of asset investment policies. We specialize in building financial models for our clients to help them design investment strategies built on balanced Risk – Return objectives.

Our services include retirement strategy and plan design, actuarial services and valuation of pension obligations (IAS 19, FAS 87), and risk management.

Actuscope is headed by its founder, Samih Geha, who was previously an actuarial partner at PwC, and worked before that as an actuarial expert in the central risk management department for the AXA Group in Paris. He also performed the role of regional actuary for MetLife ALICO in the MENA region. Samih is a Fellow of the Society of Actuaries and a Fellow of the Conference of Consulting Actuaries.

He recently co-founded Further Edge, a UK-based cloud-based big-data platform for predictive analytics. Further Edge carries presently several applications that have become largely popular in the Middle East, namely an IFRS 17 solution, a portfolio management application, an actuarial reporting solution. The IFRS 17 solution was built in cooperation with Sinalys, a French-based software company, with an advanced technology allowing the smooth building of complex compliance reporting calculations, with full traceability and optimised processing. Apart from IFRS 17, Further Edge and Sinalys will introduce Solvency 2 and pricing solutions in 2023.

ALLIANZ GROUP

Allianz Group is one of the world's leading insurers and asset managers with 126 million customers, private and corporate customers (Including non-consolidated entities with Allianz) in more than 70 countries.

Allianz customers benefit from a broad range of personal and corporate insurance services, ranging from property, life and health insurance to assistance services to credit insurance and global business insurance.

Allianz is one of the world's largest investors, managing around 809 billion euros on behalf of its insurance customers. Furthermore, our asset managers PIMCO and Allianz Global Investors (AllianzGI) manage more than 1.9 trillion euros of third-party assets.

Thanks to our systematic integration of ecological and social criteria in our business processes and investment decisions, we are amongst the leaders in the insurance industry in the Dow Jones Sustainability Index.

In 2021, over 155,000 employees achieved total revenues of 149 billion euros and an operating profit of 13.4 billion euros for the group.

Allianz Lebanon, founded in Beirut in 1963, is a fully owned Allianz Operating Entity with over 100 thousand customers in over 18 offices and through more than 200 employees and 350 exclusive consultants.

Allianz Lebanon is active in all lines of business with a balanced portfolio between Life, Property & Casualty and Health. Allianz Lebanon is a leader in the Lebanese insurance market with 135.6 million USD of revenues in 2020.

Our Mission is to be the preferred insurer, building sustainable & profitable growth, providing a wide range of comprehensive & high-quality products, through multi-distribution channels and a wide geographic presence, with highly qualified and ethical employees showing strong values.

LIA ASSUREX

LIA Assurex is the product of a merger between LIA insurance s.a.l. and Assurex s.a.l., approved by the Insurance Control Commission (ICC), within the Ministry of Economy and Trade on July 27th, 2021. LIA Assurex is set to be a dynamic and professional institution, with a leadership role in the Lebanese insurance market with solid financial grounds, professionalism, and expertise, combined with the know-how and presence of Sanlam Group, Saradar Group and Fattal Group, its shareholders.

Sanlam, one of the 50 largest active insurance groups in the world owns 70% of the shares, while Saradar Insurance Holding, formed by Fattal Group and Saradar Group owns 30% of the shares.

The positioning of the new entity is reinforced by the historical presence and strong performance on the Lebanese territory of both companies. With a history dating back to 1975, LIA Assurex offers today an improved set of solutions with diversified Life and Non-life insurance products and a comprehensive portfolio of services to individuals and businesses with an emphasis on customer centricity.

The complementarity of the two companies, both in life and non-life services, will provide opportunities to spearhead the expansion of LIA Assurex in the insurance sector. The new merged entity will be managed through an effective and transparent governance system. This merger makes even more sense with the emerging challenges that the country and the industry are facing today.

The aim is to continue to be a constant, supportive, and dependable partner to all our stakeholders. We are strongly committed to providing an excellent service to our clients, with an enhanced user experience. Our ambition is to implement a progressive approach to digital transformation, in order to develop innovative product and service offerings. We are strategically positioned for future growth and will have a great opportunity to further strengthen and expand our presence in the insurance sector, locally and regionally.

Following its merger announcement LIA Assurex has ranked second in the Lebanese insurance market in 2022. Some of its clients include and are not limited to: Université Saint Joseph, OLX, Liban Post, Saradar Bank, and Cash United. The company has selected its Down Town Beirut location as head office, where it counts over 120 team members and counts over 8 branches in Lebanon serving its clientele throughout the national territory. Since its incorporation, LIA Assurex has demonstrated its interest in youth, sports and Lebanese culture through involvement in sportsmanship activities and sponsorship of cultural events such as the international festival of Baalbek, Let'S run annual marathon of 2022, Rugby Federation in Lebanon, and supporting Kanz, Beit El Barakah's line of artisanal treasures celebrating the unique recipes of Lebanese artisans & great chefs. LIA Assurex is a modern insurance company which takes into consideration rising global issues such as mental health and preserving our environment through recycling.

BANKERS ASSURANCE

Founded in 1972 to cater to a comprehensive spectrum of personal and business insurance needs, Bankers Assurance is a recognized household name and a leader in the Lebanese market, consistently ranking 1st in terms of premiums.

We are committed to deliver quality customer service, as well as effective and efficient claims management along with first class assistance services.

Our highly privileged relationship with the heavyweights of the reinsurance world provides our clients with additional security and peace of mind.

We are a member of the Nasco Insurance Group, with established offices in Lebanon, France, UAE, KSA, Qatar, Türkiye, Egypt, S. Korea, Nigeria, Kenya.

We take pride in the loyalty that we have earned from thousands of satisfied clients over half a century.

Insurance is more than our business; it is our vocation.

THE MUHANNA GROUP OF COMPANIES

i.e. Muhanna & co. (Actuaries and Consultants) was the first independent actuarial consulting firm in the Middle East, established in Cyprus in 1986. Today, it is among the largest actuarial consulting firms in the region and is recognized as the leader of actuarial and management consulting throughout the MENA and the GCC region as well as East & Central Africa countries, assisting governments, organizations and companies to meet their goals.

With more than 35 years of worldwide services, our team of professionals has the capacity to handle sophisticated and specialized tasks with technical expertise and knowledge of local and regional needs.

Our keen understanding of the region's languages and cultures, as well as savoir-faire in technical and strategic issues, allows our firm to provide a wide spectrum of services to private and governmental entities in social insurance, pension and provident funds, employees benefits, health care, life, medical and general insurance from our three different branches in Cyprus, Lebanon & Tanzania.

Moreover, our group of companies has two additional organizations. In 1994, the Muhanna Foundation was established in Switzerland. It is dedicated for continuous education as well as research. In year 2000, the Muhanna Rating was founded in Lebanon. It is specialized in Financial Strength of insurance companies in the Arab World and credit rating of municipalities both in Lebanon and Jordan.

AGENDA

Wednesday, October 26, 2022

- 8:45 am – 9:10 am Registration
- 9:10 am – 9:50 am Opening Ceremony
- **Gihane Mansour**, Head of the Department of Mathematics, Faculty of Science, Saint Joseph University of Beirut, Lebanon
 - **Richard Maroun**, Dean of the Faculty of Science, Saint Joseph University of Beirut, Lebanon
 - **Toufic Rizk**, Vice Rector for Academic Affairs, Saint Joseph University of Beirut, Lebanon
- Acknowledgment
- 9:50 am – 10:10 am Actuarial training: the French perspective
- **Nicolas Leboisne**, ISFA Graduate School of Actuarial Studies, Claude Bernard University - Lyon 1, France
- 10:10 am – 10:30 am Be a Qualified Actuary
- **Rita Sokhon**, Lebanese Association of Actuaries
- 10:30 am – 11:00 am Coffee Break

Session 1 ENTERPRISE RISK MANAGEMENT

Chaired by **Gihane Mansour**, Faculty of Sciences, Saint Joseph University of Beirut, Lebanon

- 11:00 am – 11:30 am Natural Catastrophe
- **Chakib Abouzaid**, General Arab Insurance Federation, Egypt
- 11:30 am – 12:00 pm Enterprise Risk Management and Monitoring of Actuarial Assumptions
- **Stéphane Loisel**, ISFA Graduate School of Actuarial Studies, Claude Bernard University - Lyon 1, France
- 12:00 pm – 12:30 pm Stress-testing Effectiveness in Rapidly Changing Markets
- **Rudy Daccache**, Chedid Capital, Lebanon
- 12:30 pm – 2:00 pm Lunch Break

Session 2 REGULATION

Chaired by **Stéphane Loisel**, ISFA Graduate School of Actuarial Studies, Claude Bernard University - Lyon 1, France

- 2:00 pm – 2:30 pm First Feedback on IFRS 17
- **Hervé Morand**, Sinalys Paris, France
- 2:30 pm – 3:00 pm Risk Adjustment under IFRS 17: From Theory to Practice
- **Rabih Badran**, i.e. Muhanna & co, Lebanon
- 3:00 pm – 3:30 pm IFRS 17 and Solvency II: when Regulation meets Accounting
- **Racha Mezher**, Independent Actuary, Paris, France
- 3:30 pm – 4:00 pm Coffee Break
- 4:00 pm – 4:30 pm Graduation Ceremony: Actuarial students Class of 2022

Thursday, October 27, 2022

- 9:15 am – 9:30 am Registration

Session 1 LIFE & HEALTH

Chaired by **Rita Sokhon**, Lebanese Association of Actuaries & Bancassurance sal, Lebanon

- 9:30 am – 10:00 am Experience-based Mortality Tables: Insights from an ongoing project for the Lebanese population
- **Yahia Salhi**, ISFA Graduate School of Actuarial Studies, Claude Bernard University - Lyon 1, France
 - **Gihane Mansour**, Faculty of Science, Saint Joseph University of Beirut, Lebanon
- 10:00 am – 10:30 am The Role of Actuaries in Health Sector
- **Ibrahim Muhanna**, i.e. Muhanna & co, Lebanon
- 10:30 am – 11:00 am Coffee Break

Chaired by **Rami El Haddad**, *Faculty of Science, Saint Joseph University of Beirut, Lebanon*

- 11:00 am – 11:30 am** **Comparison of Multivariate Risk Structures**
- **Denys Pommeret**, *ISFA Graduate School of Actuarial Studies, Claude Bernard University - Lyon 1 & Aix-Marseille University, France*
- 11:30 am – 12:00 pm** **Digital transformation, Big Data, and their impact on the insurance industry: An Actuarial Perspective**
- **Marc Msanne**, *Bankers Assurance, Lebanon*
- 12:00 pm – 12:30 pm** **Clustering algorithm for spatiotemporal data with application on Covid data**
- **Nathalia Bou Sakr**, *Faculty of Sciences, Saint Joseph University of Beirut, Lebanon & ISFA Graduate School of Actuarial Studies, Claude Bernard University - Lyon 1, France*
- 12:30 pm – 2:00 pm** **Lunch Break**
- 2:00 pm – 3:30 pm** **Panel Discussion: Market Challenges**
- Moderator**
- **Oussama Salman**, *Member of the Board of Directors Groupmed Insurance and Reinsurance Company S.A.L. and the Association of Lebanese Insurers (ACAL), Lebanon*
- Panelists**
- **Bassem Assi**, *Chief Executive Officer – Chairman of the Board of Management, Allianz-Lebanon, Lebanon*
 - **Ronald Chidiac**, *Independent Actuary, Lebanon*
 - **Elie Nasnas**, *President, Association of Lebanese Insurers (ACAL) & General Manager, AXA Middle East, Lebanon*
 - **Labib Nasr**, *Chief Executive Officer, LIA Assurex s.a.l., Lebanon*
 - **Pierre Sebaalani**, *Chief Executive Officer, Bancassurance sal, Lebanon*
- 3:30 pm – 3:50 pm** **Coffee Break**
- 3:50 pm** **Concluding Remarks and Recommendations**
Stéphane Loisel & Gihane Mansour

CV'S AND ABSTRACTS

WEDNESDAY, OCTOBER 26, 2022

● Actuarial training: the French perspective

Nicolas Leboisne,

Director, ISFA Graduate School of Actuarial Studies of Claude Bernard University - Lyon 1, France



Since 2012, Nicolas Leboisne has been Head of ISFA Graduate School of Actuarial Studies of Claude Bernard University - Lyon 1, France, where he also has been a senior lecturer (Maître de Conférences) since 1999. He teaches Financial Mathematics, Financial Theory, and Derivatives. Nicolas Leboisne holds an M.Sc. in Financial Engineering as well as a Ph.D. in Finance. In 1997, he received the Exane's award for research on convertible bonds.

○ Abstract

For many years, ISFA Actuarial School has developed a model of actuary training combining face-to-face lectures, multidisciplinary courses and professionalization, in close connection with actuarial research carried out in the LSAF laboratory. With this philosophy and with the help of international partners, ISFA contributes to the training of actuaries in several countries (Lebanon, Vietnam, Ivory Coast, Cameroon).

● Be a Qualified Actuary

Rita El Sokhon

President, Lebanese Association of Actuaries & Chief Operating Officer, Bancassurance sal, Lebanon



Rita El-Sokhon is currently the Chief Operating Officer at Bancassurance sal where she has been working since 2004. In July 2022, she was elected President of the "Lebanese Association of Actuaries" (LAA). She has been a lecturer at Saint Joseph University of Beirut since 2017. Rita is a fellow actuary in the French Institute of Actuaries and a member of the jury. She obtained her BS in Actuarial Sciences from Notre Dame University, and her master's degree as well as the actuarial diploma from ISFA. Rita

worked at i.e. Muhanna & Co. Actuarial Services from 2002 to 2004 as an Actuarial Analyst, and at Al-Ittihad Al-Watani (L'Union Nationale) from 1999 to 2002 as an actuary. She attended many seminars in Europe and Lebanon. Rita also holds many certificates such as the Corporate Directors Certificate - IFC.

○ Abstract

In the challenging worldwide economic climate, it is no secret that an actuary is becoming one of the most needed jobs. The need today is not only in the insurance industry but also across the various financial sectors.

Actuaries have vast career opportunities especially in Lebanon which is going through the worst financial and economic crisis in centuries. It is worth pointing out that the young Lebanese actuaries can easily pursue their studies in their country and gain a very solid academic background with great professional opportunities.

To note that many universities in Lebanon offer high quality actuarial programs with international curricula, they have even set up academic protocols with European and American universities and associations (like ISFA/IAF, SOA/IFoA). So after their graduation, most students present a thesis or a series of actuarial exams to become associates and fellows in such international associations.

And since the actuary is the heart of the insurance, these companies in Lebanon are helping them to grow, to accomplish their exams, and to gain real-world experience.

As per the international standards and rules, the above described path is crucial to obtain the title of a Qualified Actuary.

The LAA will play a major role to motivate its members getting qualified and to be officially recognised by an appropriate Lebanese authority. Its board members have a common purpose of creating a strong network of Lebanese actuaries to exchange ideas, share expertise, and add value to the insurance industry in Lebanon.

● Natural Catastrophe

Chakib Abouzaid

Secretary General, General Arab Insurance Federation, Egypt



Mr. Chakib Abouzaid is the Secretary General of the General Arab Insurance Federation (GAIF) since 2019.

Mr. Abouzaid has served in various positions over the span of his career in the insurance industry. He was the Group Marketing Officer for GMRB (DIFC) from 2013 to 2018, CEO for Takaful Re (Arig Group) from 2005 to 2013, and the GM for Best Re Middle East & Gulf from 2000 to 2005. He was also the Vice Chairman of Global Takaful Group (GTG). He is also an ambassador for the International Insurance Society (IIS), and frequent speaker at various conferences and seminars.

Mr. Abouzaid holds a Bachelor's degree in Economics from Grenoble University, France and a Master's degree from the same university in Emerging Economies and Development models. He also holds a Master's degree in Finance & Insurance from IFID, Tunis.

○ Abstract

The Covid-19 crisis has clearly demonstrated that most countries are not prepared for the risk of a pandemic. This crisis has also seen the explosion of cyber-attacks, which pose a threat to the safety of citizens as well as to the security of properties, thus becoming a challenge for insurers. Similarly, climate change is forcing insurers to find adequate protections to guard against natural disasters. The mandatory financial inclusion has become in recent years not only an objective for governments, but also an obligation for insurers to contribute to it. In addition, the aging of the population and the saturation of pay-as-you-go pension schemes make it necessary to offer alternative retirement savings schemes.

Insurers must help governments and citizens to:

- Have better medical coverage
- Contribute to the development of micro-insurance and agricultural insurance
- Work to provide coverage against natural disasters
- Offer retirement savings plans

These challenges are opportunities for insurers; beyond their role in the valuation of provisions, actuaries will be the linchpin of all these projects for modelling, pricing, underwriting, and supporting investment decision making. The role of the actuary is asserting itself and becoming central.

● Enterprise Risk Management and Monitoring of Actuarial Assumptions

Stéphane Loisel

Professor & Director of the Actuarial and Financial Science Laboratory, ISFA Graduate School of Actuarial Studies of Claude Bernard University - Lyon 1, France



Stéphane Loisel holds a Ph.D. in applied mathematics from the University of Lyon, France, an M.Sc. in actuarial science and finance, and is a fellow and former member of the board of the Institut des Actuaire. He is a full professor and the head of LSAF research lab at ISFA, Université Lyon 1, France. He was visiting professor at ORIE, Cornell University, U.S.A. in 2014 and has been lecturing for several years in Université Paris 6 and ENSAE. Associate Editor of IME, MCAP, Risks, and co-editor of EAJ, Stéphane's main research interests include ruin theory with dependent risks, Solvency II, regulation

and ERM, as well as longevity risk and customer behaviour in insurance. Stéphane was the coordinator of the ANR research project LoLitA (Longevity with Lifestyle Adjustments). He is the PI of an AXA Joint Research Initiative on longevity risk and of the research chair Actuariat Durable sponsored by Milliman Paris. He received the SCOR Ph.D. award in 2005, the Lloyd's Science of Risk runner-up prize in 2011, the Hachemeister prize in 2013, and the Bob Alting von Gesau award in 2022. He is also the scientific director of the French CERA program. He is a member of the Validation Advisory Committee of SCOR.

○ Abstract

In this talk, we present some ERM research results concerning attitudes with respect to risk, models and analytics, as well as optimal prevention strategies.

We conclude with optimality results on monitoring of actuarial assumptions, with insurance and pension risk management applications.

● Stress-testing Effectiveness in Rapidly Changing Markets

Rudy Daccache

Group Risk Manager, Chedid Capital, Lebanon



Rudy is Group Risk Manager at Chedid Capital in charge of managing and overseeing the Group Risk Function with over 11 years of experience in the field of Risk Management within the Middle East and Europe regions in the banking and financial sector. He is a board member at the Lebanese Association of Actuaries.

Rudy is also an instructor and speaker at Saint Joseph University of Beirut and at the Corporate Risk Management Institute, where he participates in the actuarial science and risk management programs, and teaches Risk Management and Actuarial Science related courses.

Rudy Daccache holds a Ph.D. in Risk Management from Claude Bernard University - Lyon, France, and a Master's in Actuarial and Financial Science from Saint Joseph University of Beirut.

○ Abstract

Financial institutions submit Internal Capital Adequacy Assessment Process (ICAAP), and Own Risk and Solvency Assessment (ORSA) as part of their regulatory requirements. These reports target mainly the integration between Risk and Capital Management Frameworks through comprehensive stress testing and recovery resolution plans. The presentation focuses on the role of risk functions in ensuring stress-testing effectiveness taking into account newly emerged risks post recent global events.

● First Feedback on IFRS 17

Hervé Morand

Associate Actuary, Sinalys Paris, France



After 11 years of experience within a software company SAS Institute and a Consulting Firm Valoris, Hervé created SINALYS in 2001. He designed and patented the Actuarial Engine: Calfitec. He worked on several standards: French GAAP, Solvency 2, PRIIPS, IAS 19, IFRS 4, and IFRS 17. He worked on the conception of various models implemented in Calfitec: ALM, reserving, IFRS 17, and IAS 19.

He is a member of the IFRS17 Working Group of the French Actuarial Association. He is also a lecturer at ISFA and Gustave Eiffel University, France.

○ Abstract

This presentation will give a first feedback on the implementation of the new insurance accounting standard: IFRS 17. I will highlight three main aspects:

- The market situation
- The impact of IFRS 17 on financial statements
- The main technical issues

● Risk Adjustment under IFRS 17: From Theory to Practice

Rabih Badran

Actuary and Manager, i.e. Muhanna & co, Lebanon



Dr. Rabih Badran is an Actuary and Manager at i.e. Muhanna & co. He has a Ph.D., a master's degree in actuarial sciences, and a master's degree in statistics from Université Libre de Bruxelles, Belgium, and an MBA from Paris-Dauphine University, France.

Dr. Badran is also a professor at the Lebanese University, Lebanon (Master's in Actuarial Sciences, Master's in Finance and Financial Institutions), and at the American University of Beirut, Lebanon (Master's in Business Analytics). Dr. Badran has a large experience in the field

of non-life and life insurance where he has supervised many pricing and reserving projects. Currently, Dr. Badran is leading the implementation of IFRS 17 projects for many Lebanese and regional non-life insurance companies.

○ Abstract

Under IFRS 17, the Risk Adjustment reflects the compensation that the entity requires for bearing the uncertainty associated with the amount and timing of the insurance contract cash flows that arises from non-financial risk. Being principle based, the standard does not specify the estimation technique to determine the Risk Adjustment, but it outlines its key characteristics. In this presentation, we first introduce the concepts related to the Risk Adjustment and its characteristics. Then, we present two methods to estimate the Risk Adjustment for non-life insurance under the quantile approach. The first one relies on Mack Chain Ladder method where we derive a closed formula for it. The second one uses the Mack Chain Ladder with Bootstrapping. We also present two methods to allocate the Risk Adjustment back to lower levels after taking into consideration the inherent diversification risk in the insurance business.

● IFRS 17 and Solvency II: when Regulation meets Accounting

Racha Mezher

Head of Actuary and Risk Management, Paris, France



Racha Mezher has over 14 years of experience in Actuarial Consulting. She has been a senior actuary at AXA France since October 2020. Previously, she worked at SWISSLIFE, VIASANTE, GROUPAMA GAN VIE, MFPrevoyance, AXA and CNP Assurance. Racha holds a Master's degree of Science in Finance and Actuarial Sciences from ISFA – Université Lyon 1, France and an Executive Master's degree in Wealth Management from ESCP, France.

○ Abstract

S2 and IFRS17: Similarities and differences between the two regimes

Both IFRS 17 and Solvency II imply as broad and profound impact on all aspects of how insurers conduct business, from valuation methodologies and governance, data, processes, and technology impacts.

- The complexity of IFRS 17 being perhaps underestimated, will insurers be able to implement and test their processes on a timely manner (January 1, 2023)?

- How to take advantage of the similarities to ensure an efficient transition to IFRS 17 and what are the key areas of difference where most development is likely required?
- What will be the changes in roles and responsibilities between actuarial and finance departments?
- How to manage the business impact? And how to involve actuaries in the financial reporting process under the IFRS 17?

THURSDAY, OCTOBER 27, 2022

Session 1 LIFE & HEALTH

● **Experience-based Mortality Tables: Insights from an ongoing project for the Lebanese population**

Yahia Salhi, Assistant Professor, ISFA Graduate School of Actuarial Studies of Claude Bernard University - Lyon 1, France



Yahia Salhi holds a Ph.D. in applied mathematics from the University of Lyon, France, an M.Sc. in actuarial science and finance from ISFA, and an engineering diploma from the Ecole des Mines, France. He is an assistant professor at ISFA Graduate School of Actuarial Studies. Yahia’s main research interests include detection of abrupt changes, longevity and mortality modelling, pricing and management as well as surrender risk modelling and mathematical aspects of impairment of financial assets under IFRS regulations. Yahia lectures on actuarial and financial mathematics in various universities and actuarial programs: Saint Joseph University of Beirut, Lebanon, Université Internationale de Rabat, Morocco, Université Cheikh Anta Diop, Sénégal, Université Paris Dauphine, Tunisia, and at ISFA, France among others.

Gihane Mansour

Associate Professor, Head of the Department of Mathematics, Faculty of Sciences of Saint Joseph University of Beirut, Lebanon



Gihane Mansour holds a Ph.D. in Mathematics from Paris North University (Paris 13), France, and from Saint Joseph University of Beirut, Lebanon, an M.Sc. in Mathematics in the field of “Partial Differential Equations” and a Bachelor’s degree in Mathematics both from USJ. She is an associate professor of Mathematics, the head of the Department of Mathematics at the Faculty of Sciences of USJ since 2019, and an executive Committee Member of the “Lebanese Society for the Mathematical Sciences, LSMS”. Until 2019, she was the coordinator of the Master’s program

“Actuarial and Financial Science” at USJ. Gihane’s main research interests include domain decomposition and fluid mechanics (PDE), and more recently mortality modelling. She lectures on Topology, Differential Calculus, and Functional Analysis.

○ Abstract

Mortality tables play a key role in life insurance contracts pricing and reserving. Various tables are available for actuaries based whether on national or insured populations. In this presentation, we shed light on the main challenges faced when building mortality assumptions using experience stemming from insurer’s portfolios and discuss the impact on different actuarial quantities. A special focus will be put on the ongoing project of building a mortality table for the Lebanese population.

● The Role of Actuaries in Health Sector

Ibrahim Muhanna

Managing Director & Actuary, i.e. Muhanna & co, Lebanon



Ibrahim Muhanna founded in 1986 i.e. Muhanna & co. (Actuaries & Consultants) in Cyprus, in 1988 Omnilife insurance company in UK, in 1994 the Muhanna Foundation in Switzerland, and in 2000 Muhanna (Rating Services) in Lebanon.

Mr. Muhanna graduated from the University of Michigan (1976), U.S.A. with an M.Sc. in Actuarial Mathematics. Since 1986, he has advised 52 insurers, 23 governments, clients in 38 countries. He has written several papers and delivered over 700 presentations on actuarial issues in 60 countries.

Mr. Muhanna has been a member of the IAA since 1985 and is actively involved in many IAA Committees and Sections. He was the founding member of the IAA Health Section.

He is the first Chairman of Cyprus Actuarial Association, a member of the Swiss-Association-Actuaries, a past President of the Lebanese Association of Actuaries, a fellow of Actuarial Society of Tanzania, and a fellow of the Institute and Faculty of Actuaries in the UK.

In 2007, Mr. Muhanna was awarded “The National Order of the Cedar” by the Lebanese President. The award is in recognition of his great service and devotion to the Nation. In 2020, he received the International Actuarial Consulting Association (IACA) Max Lander Lifetime Achievement Award, the most prestigious award given to a consulting actuary globally.

○ Abstract

Financing healthcare after retirement

First, expenditures in the healthcare market are characterized by a high level of uncertainty. Unlike a pension-system where benefits can be assessed based on a defined-contribution or defined-benefit approach, a healthcare-system could actually be described more as a service defined system, which will be denoted as undefined-benefit system. In the first section of this paper, we will discuss how different factors affect both systems differently, and how certain features of social protection systems take on different realities in healthcare and pension.

Second, the cost of healthcare will most likely continue to escalate due to many economic and demographic factors, and if left unmitigated will add to the strain put on public and household finances. Throughout this paper, we will argue that the problem of healthcare financing should be addressed in all its complexities, with emphasis on healthcare for the elderly. We will shed light on the issue of financial sustainability in the context of the demographic challenges facing today’s healthcare-systems, and the ability of the different financing systems to cope with these challenges. Our analysis will attempt to make the case for setting up a somewhat hybrid healthcare-system that caters for an increasingly ageing population, by building up a reserve that will eventually serve for paying the health benefits of the elderly in the population, while the benefits of the currently under retirement age continue to be paid on a pay-as-you-go basis.

● Comparison of Multivariate Risk Structures

Denys Pommeret

Professor, ISFA Graduate School of Actuarial Studies of Claude Bernard University - Lyon 1 & Aix Marseille University, France



Denys Pommeret is a full Professor at Aix-Marseille University, France, since 2006. He is also member of the laboratory SAF of Lyon 1 University, France, of the Mathematics Institute of Marseille, and of the Statistics team of Aix-Marseille University, France, as well as a member of the committee of the SFds (Société Française de Statistique). Denys holds a Ph.D. in applied mathematics from the Toulouse University of Sciences, France, and got his Habilitation to Direct Research from the Rennes University, France. His research interests focus on the

actuarial field and more specifically on copula fit tests, Bayesian selection, Machine learning, goodness-of-fit tests, and model mixing.

○ Abstract

Copulas are still extensively studied and used to model the dependence of multivariate observations. Various applications can be found in actuarial science by considering multivariate risks. In this talk, we propose a statistical test to compare such structures of dependence between risks.

● Digital transformation, Big Data, and their impact on the insurance industry: An Actuarial Perspective

Marc Msanne

Actuarial Manager, Bankers Assurance, Lebanon



Marc started his career in 2011 as an Actuary in the Corporate Life & Health department at Allianz SNA, examining health group profitability and studying feasibility of different pension fund schemes.

In 2012, he joined Bankers Assurance as an Actuary in the Life department, handling actuarial studies for the Life portfolio, implementing sales monitoring reports and managing the life corporate accounts.

In 2015, Marc was appointed Actuarial Manager. His role involves working mainly in actuarial work across Life, Medical and Motor lines of business with exposure the Lebanon and UAE jurisdictions. He also handles the Financial Planning and Analysis function. Marc is responsible for overseeing the development of Power BI visualization dashboards that focuses on shifting the data analysis from a static reporting function to a more dynamic status.

Between 2012 and 2015, Marc taught various Finance courses at the Arts, Sciences and Technology University in Lebanon (AUL), Lebanon, and since June 2017, he has been teaching various Insurance and Finance courses and supervising final projects at the master's program of Actuarial and Financial Science at Saint Joseph University of Beirut.

Marc holds a bachelor's degree in mathematics from the Saint Joseph University of Beirut. He holds a double master's degree in Actuarial and Financial Science from the Saint Joseph University of Beirut, Lebanon and from Institut de Science Financière et d'Assurances (ISFA), France. He is also a CFA charter holder since 2019.

○ Abstract

With the digital transformation of the global economy, and more businesses becoming reliant on data analytics and artificial intelligence every company is, in many ways, a data and analytics company.

For global insurers, digital transformation has gone from being a vague futuristic concept to immediate-term action items. Digital transformation tools and processes have helped in popularizing what we call today "Big Data".

The last years have seen a massive increase in the volume, velocity, and variety of data sets available to be accessed, linked, shared, and used. This opens opportunities for new business models, partnerships, social expectations, and delivery of data driven decision systems

Actuaries are often referred to as the "original data scientists". Since at least the 18th century, the profession has been critical to insurance companies by using data, statistics, commercial acumen and – in more recent decades – modern computing power and algorithms.

Working on digital innovation and transformation comes natural with the foundation of data analytics and pricing mechanisms. Actuaries working in the insurance industry will play a vital role in the development of various new products tied to IoT, AI, etc.

● Clustering algorithm for spatiotemporal data with application on Covid data

Nathalia Bou Sakr

Actuary and Ph.D. Student, Faculty of Sciences of Saint Joseph University of Beirut, Lebanon & ISFA Graduate School of Actuarial Studies of Claude Bernard University - Lyon 1, France



Natalia Bou Sakr holds a master's degree in actuarial sciences in joint diploma between the Saint Joseph University of Beirut and Claude Bernard Lyon 1. During her internship, she was able to acquire experience in the field of reserving within the actuarial consulting firm "i.e. Muhanna & Co".

Natalia is pursuing a doctorate co-supervised by USJ and ISFA under the supervision of Professor Gihane Mansour from Saint Joseph University of Beirut, Lebanon, and Professor Stéphane Loisel and Professor Yahia Salhi from ISFA, France. She works in the fields of risks and prevention and is currently working on the construction of a mortality table for Lebanon. Natalia also teaches master's students at Saint Joseph University of Beirut.

○ Abstract

Unsupervised clustering is a method in which the characteristics of the final classes are unknown in advance. The application of these methods on spatio-temporal data allowing the observation of consistent results in temporal and spatial dimensions is the challenge that is considered in our work. We therefore first present an unsupervised clustering method adapted to spatio-temporal data. We then apply the built method on the Covid-19 data extracted from the online site "Our World in Data". In this second part, the main objective is to follow and compare the Covid situation in several European countries as well as in the United States over several months. Thus, this project proposes a new clustering algorithm for spatio-temporal data and presents a direct application on Covid-19 data.

Panel Discussion: Market Challenges

Moderator

Oussama Salman

Member of the board of Directors of Groupmed Insurance and Reinsurance Company S.A.L. and the Association of Lebanese Insurers (ACAL), Lebanon



Oussama Salman, Esq. is member of the Board of Directors of Groupmed Insurance and Reinsurance Company S.A.L., and the Association des Compagnies d'Assurances au Liban (ACAL).

Me. Salman is an experienced General Counsel and Corporate Governance Expert with a progressive experience in legal and regulatory requirements in the Financial Institutions Industry (Banking and NBFI), spanning over 20 years, in Europe, Middle East, and Gulf region.

Me. Salman is admitted to Beirut Bar Association and holds a Master of Laws (LL.M.) in International Legal Studies from Georgetown University Law Center (Washington D.C.), U.S.A., a Law Degree from the Faculty of Law and Political Sciences at Saint Joseph University of Beirut, Lebanon, in addition to completing the Corporate Governance Program at Harvard Business School, Executive Education, (Boston, MA), U.S.A.

Panelists

Bassem Assi

Chief Executive Officer – Chairman of the Board of Management, Allianz-Lebanon, Lebanon



Bassem Assi is the Chief Executive Officer at Allianz Lebanon.

He has an executive master's degree of business administration (EMBA) from "Ecole Supérieure des Affaires" (ESA), Lebanon as well as a master's degree in structures – bridges and tunnels from "Ecole Nationale des Ponts et des Chaussées", France. Bassem also holds a bachelor's degree in civil engineering from "Ecole Supérieure d'Ingénieurs de Beyrouth" (ESIB) of Saint Joseph University of Beirut, Lebanon.

Bassem got the IFC – Corporate Director 2020 certificate.

Ronald Chidiac

Independent Actuary, Lebanon



Mr. Chidiac has more than 25 years of experience in the insurance & reinsurance industry, as an independent actuarial consultant as well as having held various executive positions in different companies. He has established SARIMA, an actuarial & consultancy firm in 1995, which was integrated into i.e. Muhanna & co in October 2021. He is a senior partner at i.e. Muhanna & co. Mr. Chidiac career led him to specialize in Actuarial & Advisory services as well as reinsurance in all classes of business, with a particular focus on Life, Health, Motor,

and Bancassurance. After having worked as an independent consulting actuary, he joined PricewaterhouseCoopers (PwC) as a partner to promote actuarial and insurance advisory services across the Middle East. He then left PwC to join Arab Reinsurance Company – founded in 1972 under a Pan Arab initiative – as General Manager in May 2010.

Mr. Chidiac has wide knowledge of range of new products/solutions which were designed and marketed to insurers, reinsurers, and banks, mostly articulating on capital management/relief, balance sheet and P&L protections, and smart capacity (i.e. integrating capacity with dynamic risk management services).

Mr. Chidiac has also established fully-fledged Motor and Medical Third-Party Administrators (TPA), in addition to having pioneered the setting up of an actuarial program in Lebanon through the Saint Joseph University of Beirut Faculty of Science where he is a visiting professor since 2001. Hence, he is referred to as Professor Chidiac.

Elie Nasnas

President, Association of Lebanese Insurers (ACAL) & General Manager, AXA Middle East, Lebanon



Elie Nasnas has over 40 years of experience in the insurance industry. Since 2000, he has been the General Manager of AXA Middle East. Prior to that, he was the General Manager of UAP in Lebanon. In 2021, he was elected president of the Association of Lebanese Insurers (ACAL). Elie holds a bachelor's degree in business administration from Dauphine University in Paris, France and from Saint Joseph University in Beirut, Lebanon. He is a board member of GlobMed in Lebanon and GlobeMed Limited - a medical claims management company (TPA) where AXA Middle East is a reference partner.

Labib Nasr

Chief Executive Officer, LIA Assurex sal, Lebanon



Labib Nasr is the Chief Executive Officer of LIA Assurex S.A.L., currently board member at ACAL (Lebanese Insurance Companies Association), and is a member of the Rotary club. Mr. Nasr is a result focused strategist with more than 25 years of expertise in leading global insurance and brokerage operations. Prior to joining Assurex, he held positions from regional director of operations and systems to executive roles in reputable insurance related companies in the Gulf. He aims for constant improvements through innovation and insurtech practices. An INSEAD,

France alumni, Labib completed the "Essentials of Leadership" program at the London Business School (LBS), U.K., the "First Leader Development Camp" at the International Institute for Management Development (IMD), Switzerland, and holds a master's degree in business administration from Notre Dame University (NDU), Lebanon as well as a bachelor's degree of sciences in business administration from the American University of Beirut (AUB), Lebanon.

Pierre Sebaalani

Chief Executive Officer, Bancassurance s.a.l., Lebanon






Pierre graduated from Ecole Supérieure des Ingénieurs de Beyrouth of Saint Joseph University of Beirut, Lebanon in 1996. After working for few years in the Engineering field, he got an MBA from ESA business school, Lebanon in 1998. This is when he shifted to the Insurance and Finance sectors and had several executive positions at Allianz Lebanon (also Known as: SNA) where he stayed from 1999 till 2012.

In 2013 he joined Bancassurance, a leading life insurance company and one of the major players in the Lebanese market and became its Chief executive officer since 2016.

It is worth mentioning that Mr. Sebaalani is a CFA certified, and he is also a member of the board of directors at ACAL (Association des Compagnies d'Assurances au Liban). He teaches insurance and finance courses at several faculties of Saint Joseph University of Beirut since 2003.

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