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- Product launch related activities.
- Co-ordination with other teams for Product Management.
- Measuring the success of the product by proper feedback mechanism.

Experience & Qualifications:

- Nearly Qualified / Qualified Actuary.
- Candidate should have prior experience in the field of Actuarial, preferably in a life insurance company.
- Product Management experience.
- Work Experience of minimum 4 years.

Other Skills:

- Good Understanding of Product Regulations.
- Good Communication and Interpersonal Skills.
- Excel Proficiency, Knowledge of VBA will be an advantage.

Job Location:
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Interested candidates can please send their resume to
Bharti.Kashyap@futuregenerali.in and MFL00855@futuregenerali.in

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Inviting Actuarial Applications For The Post Assistant Vice President / Associate Vice President – product pricing At Future Generali Life Insurance Company

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The purpose of the job is to lead the overall pricing function, reporting to a senior actuary in the Actuarial Department, which includes Pricing of Individual and Group Products, System Readiness, Liaisoning with Reinsurers, Group Quotation and Approval of Products from Regional office and IRDAI.

Roles & Responsibilities:

- Managing the right balance between all stakeholders while pricing the products.
- Tighter Underwriting versus Losing Competitive Edge.
- Negotiation with Reinsurer vis-à-vis containing own Risk Appetite.
- Group Business Profitability versus Business Acquisition and Relationships with Clients.
- IRDA query handling and Regional office query management.

Experience & Qualifications:

- Nearly Qualified / Qualified Actuary.
- Candidate having prior experience in Actuarial Pricing, preferably in a life insurance company.
- Work Experience of minimum 7 years.

Other Skills:

- Technical Competency for the role.
- Eye for details for Regulatory Filing.
- Team management.
- Relationship Management skills, as role requires managing various Stakeholders.
- Internal stakeholder management and liaisoning with sales, IT and operations teams
- Innovation and Solution Oriented.
- Excel Proficiency, Knowledge of VBA will be an advantage.

Job Location:
Mumbai

Interested candidates can please send their resume to
Bharti.Kashyap@futuregenerali.in and MFL00855@futuregenerali.in

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From Chief Editor's Desk

Ms. Bhavna Verma

We are nearing the end of another year; 2021 – universally known as the year of adapting to the new normal. After many ups and downs, just as economic activity was on the path of recovery, it looks like the year is ending with some uncertainty with the advent of the new Omicron variant of the Covid virus. The year saw several steps by insurers to manage the increased risk due to Covid including repricing of protection products and underwriting tightening which will likely continue into the next year as well. Digital is an indispensable part of our personal and professional lives now and all everyone seems to want is a click on their phones to get them anything they need at their doorstep. Given the rapid emergence of insurance ecosystems and deepening digitization in insurance, the industry will slowly but surely need to shift to a customer mindset from a product mindset.

December saw the launch of another insurance IPO; that of Star Health which is a standalone health insurer. One also continues to hear of developments on the Life Insurance Corporation of India (LIC) Initial Public Offering (IPO) periodically which market participants are keen to demystify. After the acquisition announcement of Exide Life by HDFC Life, it is reported that MetLife is looking to increase its stake in PNB MetLife to become the largest shareholder in the Company. Despite the short term operational disturbances, the medium and long term insurance outlook in India remains strong given the fundamentals and increased awareness of insurance in the pandemic.

I realize as I write this piece that I completed 15 years of working in the actuarial profession in 2021. Looking back, I can say that I chose the path less travelled, and that has made all the difference! I entered the profession wanting to study and learn

specialized skills and gain a global and well regarded qualification. After all this time, I can say that being in this profession has influenced me in more ways than one. For example, I use Excel spreadsheets for everything and believe that a model can be built for anything! On a serious note, I review with a probing mindset but communicate with conviction. This truly is a principle based limitless science which can find application in any real life business problem and we are seeing that happening around us.

Here's what I expect in 2022 – wider and deeper discussions on emerging risks and even more convergence of actuarial and data science, in academics, conversations as well as application. I look forward to some of these discussions and interacting with many of you at the upcoming Virtual Actuarial Conference!

Best wishes for 2022 – make it count! And do write into us with your thoughts and suggestions at library@actuariesindia.org.

Thank You

From President's Desk

Mr. Subhendu Bal

The grand success of VAC 2021 brought lots of cheers and great inspiration to all of us last year. The question about the recovery from COVID 19 remains unanswered when the clouds are spreading in the new delta form named omicron. Our strength is now our experience on conducting VAC 2022 and we have moved a long way to repeat our grand yearly celebrations.

The VAC 2022, centred around the theme "Preparing for a New Era- Decoding Disruption" would be held from 10th to 12th February 2022. The sessions would discuss various challenges like Technology, AI, Climate change, COVID 19, etc. that have disrupted business models and ways in which actuaries can decode the disruption, interpret, analyse, and respond effectively in a constructive manner to build a win-win ecosystem not only for our clients and stakeholders but also for the society at large. It is a great opportunity to meet with and learn from industry veterans, get one-on-one time with seasoned experts, and participate in various technical and professional sessions covering IFRS 17, BFSI, Climate Change and Risk Management as well. Please mark your calendar to be part of this spectacular event which brings in many celebrations together, viz., number of sessions with eminent speakers beyond geographies, gala award ceremonies, networking and presence of number of partners with their menu cards. The event will also include student oriented events with themes around capacity building and communication skills. The VAC 2022 task force constituted under the Chairmanship of Ms. Priti Chandrasekhar; thanks to members of all committees, sub-committees and other volunteers who started their hard work and effort to make the event better, brighter and smarter than last year.

The September 2021 examination results are declared. Congratulations to all candidates who have cleared and all the best to those who missed this time. There are number of support mechanisms in place in the form of online classes and recorded videos of all technical subjects focussing on overall improvement in the pass rate of all subjects. We are arranging LIVE sessions for students appearing for March 2022 examinations which will be commenced during second week of December. In addition, CS2B live sessions also planned, starting in January 2022; candidates those who wish to enrol for this program to complete their CS2 theory part before they attend live sessions for R-modelling. Guidance and support programs conducted for CP1 & CP2 subjects for September 2021 examinations yielded good results. There is a significant increase noticed in the pass rate in both the subjects. Thanks to all faculty members who have sincerely worked to achieve this.

Following the success of Python program webinar series 2021, the Machine Learning webinar series has been rolled out which also been widely accepted by all members cutting across the membership categories. The profession understands various emerging requirements of actuaries, hence taken concrete steps to offer value added training programs in time to time. All those who want to update their profile as required by the market to essentially utilise the opportunity of all such high end learning in time to time. Those who missed the live programs may also subscribe to recorded videos and do self-learning.

The IAI Actuarial Education and Research Organisation has been incorporated under the Section 8 of Companies Act, under which the development of IAI new course materials will be taken up on priority. While the curriculum is framed in a most forward looking manner, the company is also looking for expert authors/writers and reviewers for many subjects in order to complete the work in a time bound manner. Those who are interested to be part of this preparation may please contact with swetha@actuariesindia.org.

In the professional front, 9 webinars conducted under different advisory groups during last two months, October-November which meets CPD requirements of members under various practice areas. The 4th Tech talk in Retirement benefits is scheduled on 9th December 21 and 2 out of 4 modules under CILA also to be held in Dec. The 36th Indian Fellowship Seminar (IFS) is another event to happen in January 2022.

One of the most awaited actions in the educational front, the MRA with IFoA is in place after a gap of 2 years. Under this agreement, a Fellow member of IAI will be admitted as a Fellow of IFoA if:

- The member has attained fellowship of IAI by passing at least one or more examinations conducted by IAI and who is entitled to practice as a member of IAI
- At least 3 years of post-qualification work experience, in case no work experience on attainment of fellowship of IAI
- Have taken professionalism course conducted by IAI
- No professional misconduct and disciplinary action pending for the member

For all details, please refer the complete agreement published on the IAI website

The new version of professional Conduct standards has been put in place which is effective from 4th September 2021.

I'm concluding with a quote by Thomas Edison- "Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time". Let's not stop by one try and failure, let's repeat it for achieving success.

Remembering Shri Piyush Majmudar

On 4th November 2021, K.A. Pandit lost one of its Mentors and Patriarch, Shri Piyush Majmudar. He was a passionate human being, a simpleton with a funny bone and an accomplished and well-travelled actuary. His anecdotes to deal with both professional and personal difficulties were so refreshing that he inspired us all to keeping on moving forward and be better versions of ourselves.

As an actuary he was a beacon of progress for us and the profession. His passion to propagate the profession among aspiring actuaries was so powerful that anyone who would talk to him just wanted to take up the actuarial profession and excel in it. He used to always say that on the path to being an actuary you may take and fail exams several times but never give up and keep on chanting the mantra "lage raho" and you will succeed. People who have been fortunate enough to come into his orbit and have interactions with him will always remember and treasure his pearls of wisdom.

As a human being he was the most humble, approachable, and easy-going person to be with. Despite his seniority and experience he was always a friend to us. We remember his deep love towards cricket, music, playing cards, coffee, sweets, and potato chips. He used to light up the office with his presence via anecdotes, jokes and his literally to wering personality. We have imbibed so much from him and will continue to progress in the path laid out by him. He will always be present in us, and it is with his experience and guidance that we will carry forward his legacy. May his beautiful soul rest in eternal peace. We will miss you dearly!

Webinar on Mortality Protection Gap: Key trends and actions

Date: 1st October 2021; Friday Time: 14:00 - 17:00 IST

Welcome Address: Prithesh Chaubey, Chairperson, Advisory Group on Life Insurance

Session 1: Presentation on Mortality Protection Gap study 2020

Session Moderator: Sunayana Mahansaria, Secretary, Advisory Group on Life Insurance

Rajeev Sharan, Senior Economist, Swiss Re

Mahesh Puttaiah, Senior Economist, Swiss Re

Session 2: Panel discussion on how to address India's Mortality Protection Gap

Session Moderator: Souvik Jash, Appointed Actuary, Tata AIA Life Insurance Co.

Panelists: Abhay Tewari, Managing Director & CEO, Star Union Dai-ichi Life Insurance

Mahaveer Chandiwala, Chief Underwriting Officer & Head of Claims, Munich Re

Manu Lavanya, Director & Chief Operations Officer, Max Life Insurance

Vote of Thanks: Keyur Parekh, Member, Advisory Group on Life Insurance

Session 1: Presentation on Mortality Protection Gap study 2020

The COVID-19 pandemic highlights the crucial role played by insurance in supporting resilience. As estimated by Swiss Re Institute, the mortality protection gap in Asia stands at USD 83 trillion, climbing at 4% every year. Rajeev Sharan and Mahesh Puttaiah, presented the scope, methodology, key results and recommendations from the most comprehensive Asia-Pacific-wide study on consumer attitude and preferences toward mortality, covering 14000 consumers across 10 markets, with a focus on India.

The period covered in the study was 2019 and was published in 2020. Rajeev started the session by giving a global macro-economic outlook. During 2020 the real GDP of the world contracted by 3.7%. The recovery was V- shaped. Indian economy was the worst hit as compared with global. Full year decline in GDP was 7.3%. He said that the consumer survey was based around the questions about financial situation, concerns about mortality and perceptions of life insurance. The data was scaled with national averages of macroeconomic components. He then presented the consumer survey findings as below:

- 1 out of 3 Indians were overwhelmed and anxious about their financial future.
- Around 68% of the respondents felt insurance helped easing their financial stress. 78% responded that the claims experience matched their expectations.
- The Mortality Protection Gap (MPG) is derived from GAP between the Protection needs (which is function of income replacement and household debts) and the financial resources available (which is a function of total savings + non primary property + other assets) at the time of premature death of an individual.
- The MPG is driven by
  - Young household with unprotected future income
  - Aging population with insufficient social benefits
  - Increase in household debts
  - Ongoing shortfall in insurance coverage

- Size of MPG stood at USD 83 trillion in Asia in 2019.
- China has the largest gap in absolute terms but India is most vulnerable as 83% of its total protection is unmet.
- Closing the protection gap presents a market opportunity of USD 78.2 billion in additional actual premium between 2020 and 2030.
- Lack of concern for mortality risk and misunderstanding of insurance are among the major factors driving the high MPG in India
- Perceived costs of life insurance, confusing products, poor impression of insurance and lack of agents approaching are other deterrents

Mahesh then presented the possible approach towards closing the MPG. He said that the starting point is to understand the consumer mind-set and the factors in deciding buying life insurance. The following aspects were revealed in the survey,

- Nearly 71 % of the respondents who were open to discuss death have higher life insurance ownership rate.

- Engaging consumers at the right time and with the right channel of influence is necessary to drive purchase behaviour.
- Challenging consumer behaviours with behavioural economics can reduce lapses and frauds.
- Products should be customised around financial value and flexibility.
- Consumers have clear preferences for product bundling
- Only 7% respondents opted for pure life cover. Accident benefit was most preferred followed by health covers.
- In addition to bundling covers value added services can help differentiate products. These services may include financial planning, estate management, health management services etc.
- Distribution must be targeted and channel specific. Agent or broker is most preferred by consumers.
- There is considerable interest in sourcing information and buying insurance online.
- The preferences change across age groups and income groups.
- There is a high potential to grow digital sales, but power of personal persuasion need to be kept in mind.

He then ended his session by summarising the above points. This was followed by a very interactive Q&A session moderated by Sunayana.

Session 2: Panel discussion on how to address India's Mortality Protection Gap

Keyur introduced the panelists and then handed over the session to Souvik who played the role of a panelist as well as the moderator.

Souvik's first question to the panelist was how does on identify the untapped segment having maximum MPG.

Abhay responded that for the lower income segment, the supply of cover is good and hence good penetration due to different schemes. But the amount of cover is inadequate. The higher income segment too has adequate supply and gap is also minimal. The maximum gap is in middle income segment. Especially for the younger population. Even the working women segment is not adequately tapped.

Manu commented that the housewives segment is not disposed to pure term.

Mahaveer felt that the SME segment in the Group space has high potential.

Souvik commented that the distribution focuses on savings products which leads to low covers and hence creates protection gap. Non-salaried segment further adds to this gap. Hence how can the gap be addressed through product solutions. He further added that bundled products with service propositions can be a probable solution, this may have a challenge with fair pricing.

Abhay said that pricing is not necessarily a challenge. India has low pricing as compared with the globe for the HNI segment which also has a protection gap. This is because the need for cover is understated. Ease of buying is also a critical factor single KYC like mutual funds can help in such scenarios. Awareness in employees, lower taxation of products can also improve penetration in protection segment. He further added that bundling of product and services are still unexplored, which should be leveraged. In India income segment and age segment are favorably increasing and hence high propensity for digital sale.

Souvik the asked that how can underwriting aspects be reviewed to increase the ease of boarding with right measurement of risk using technology platforms.

Mahaveer responded by saying that utilization of the fintech companies can enhance distribution due to seamless integration of data. Medical process can be made easy with use of block chain technology for availability of medical reports. To make pricing affordable at entry stage, stepping up sum assured with increasing premium products can be explored instead of level premium products.

Souvik questioned that whether pricing is a barrier to increase insurance penetration.

Abhay responded that pricing is not as critical than ease of buying. Further awareness of insurance, innovative medical process will help penetration. Fairness in pricing is more of a concern than actual pricing.

Souvik said that pricing a long term product is always challenging. He asked whether a reviewable term product help to address the pricing challenge.

Abhay responded by stating that such products may allow a lower pricing initially but guaranteed price crates confidence in customers mind.

Souvik then asked Manu what is the biggest challenge in small ticket size and how does he effectively manage frauds.

Manu said that the tradeoff between volume and risk can be effectively balanced with use of technology, integration databases like CIIB, common medical

records etc. Use of artificial intelligence, vision analytics, machine learning can be of great help during the onboarding customer journey.

Souvik asked Mahaveer about the effectiveness of technology.

As per Mahaveer's view one extra challenge in India is Section 45 where the companies have to honour claims after 3 years without questioning, even when if fraud is suspected .This creates behavioral change in customers. For the use of technology in efficient manner more data sharing should take place. Companies will have to invest in churning their data, do hind side underwriting for the first three policy years.

Abhay commented that companies should review their appetite to invest in technologies in order to save time and manual efforts.

At the end of the discussion all panelist shared a common view that use of technology with seamless integration of data will help the industry in future to bridge the protection gap.

The session ended with interactive Q & As.

The webinar ended with vote of thanks by Keyur.

Written by

Deepa Pandit

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Deepa Pandit is a Founder Secretary and EX-President of Association of Insurance Underwriters (AIU).

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7th Webinar on Health care Insurance - Impact of COVID19 on Pricing and Reserving

Date: 12th October 2021; Tuesday **Time:** 16:00 – 17:30 IST

Chair: Subhendu Bal, President, IAI

Moderator: Vishwanath Mahendra, Chair, Health Insurance Advisory Group, IAI

Speakers: Anuradha Sriram, Member, Health Insurance Advisory Group, IAI

Anshul Mittal, Vice President, HDFC ERGO General Insurance Co.

Vote of Thanks: Sumit Ramani, Secretary, Advisory Group on Health Insurance

Introduction

Our Institute has been organizing webinars at regular intervals to help members enhance their understanding of issues related to the insurance industry and thus contribute towards the development of the actuarial profession. COVID19 pandemic has been affecting the various sectors in the insurance industry and Health insurance in particular. The institute organized a webinar on 12th October 2021 on the topic "Impact of COVID19 on Pricing and Reserving". The objective of this webinar was to discuss in-depth the effect of the pandemic on the principles and methods used for pricing and reserving health insurance products.

Vishwanath Mahendra started the session by introducing the speakers and sharing his observations on Covid19. Anuradha Sriram set the context for the topic and explained how COVID19 has challenged the traditional ways of pricing and reserving in Health Insurance. COVID19 affected the way assumptions are derived and the incident and severity rates are now driven by new factors like digital claims processing, improvements to hospital infrastructure, morbidity rates and propensity to abuse systems, etc. The pricing and reserving methodologies shall take into consideration the impact of new factors appropriately so that the management is confident of the approaches taken and the solvency of the company is ensured.

Anshul provided an overview of the topic to be covered in the webinar and covered key areas like the impact of COVID19 on the Health Insurance industry, claims, reserving and, pricing of short and long-term contracts.

Impact on Health Insurance Industry

Covid19 has increased the awareness of the public on health insurance products with many wanting to choose the right product that would meet their needs. The share of health insurance in the insurance sector increased from 27% during pre-pandemic times to 35% now. The claims settled towards COVID19 amount to ₹20,500 Crores till the end of September 2021. Such a surge in COVID claims resulted in the Loss ratio increase from a pre-pandemic level of 64% to 94%. The claim settlement pattern changed due to reporting and settlement delays, change in the mix of cashless and reimbursement claims. The non-covid claims were reduced due to deferring of planned surgeries, hospital capacity issues and, lesser mobility. All these meant that past patterns in claims cannot be used to forecast the future. Also, the claim handling and underwriting costs increased during COVID19.

Reserving under the changed circumstances

The above changes meant that the traditional methods like the Chain Ladder method used for reserving are no longer valid. Instead, the frequency-severity method can be used for reserving. Under this method, the frequency for a month will be calculated as follows using the data for the entire India.

COVID claims reported during the month / No of COVID cases reported during the month.

The ultimate frequency for each accident month can be calculated by doing triangulation and calculating cumulative frequency till the claim is fully developed. The frequency needs to be adjusted for many factors like the company's exposure, vaccination rates, etc. The severity also should be analyzed accident month wise. The analysis could be done product-wise. Other factors like changes in government regulations also need consideration in estimating severity.

Pricing of Group and Retail Insurance products

The group health insurance contracts are normally priced by taking the claims experience of the previous year as a base and marking it up for expenses and profit

margin. This method cannot be used in the current situation as the claims for say FY 20-21 will have a mix of covid and non-covid claims. Also, the inflation rate needs to be estimated. One way of estimating the level of future claims is analyzing the monthly covid/non-covid claims data and adjusting the claim rates to represent future experience.

Pricing of long-term health insurance contracts is more complex as estimation of several factors like the future mix of business, medical costs, vaccination impact, future outbreak of pandemic are difficult. Pricing is likely to be influenced by the company's position, competitor actions and, customer willingness to pay more.

Key Learnings and way forward

The pandemic has significantly impacted the Health Insurance Industry and the Loss Ratio has increased sharply. The usual approaches for reserving and pricing tasks may not be effective due to the mix of covid/non-covid claims, high medical inflation and, uncertainties in forecasting future scenarios.

A careful analysis of claims experience, separating claims into COVID and Non-COVID and thorough analysis of various factors influencing both claims severity and frequency is required for reserving and pricing.

The webinar had active participation from the audience with several relevant questions being raised and discussed.

Sumit Ramani concluded the Webinar with his Vote of Thanks on behalf of the Advisory Group on Health Care Insurance, IAI.

Written by

Ramachandran Muralidharan

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Muralidharan is an Associate Member of IAI and currently working at HCL Technologies Ltd as General Manager-Actuarial leading the actuarial and finance functions.

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Appointment of Mentor to Appointed Actuary

Applications are invited for the role of Mentor Actuary to the Appointed Actuary of the Company in compliance of Insurance Regulatory and Development Authority of India (Appointed Actuary) Regulations, 2017, and IRDAI guidelines on Transitory Provisions under IRDAI (Appointed Actuary) Regulations, 2017 (IRDA/ACT/GDL/MISC/194/08/2017 dated 17th August 2017).

Interested candidates may submit application on or before **15.11.2021**.

Please log on to our website https://orientalinsurance.org.in/web/guest/tenders for further details.

Deputy General Manager (Actuarial)
sudip.dutta@orientalinsurance.co.in

6th Webinar on General Insurance Analytics in General Insurance - Day 1

Date: 28th October 2021; Thursday **Time:** 14:00 – 17:00 IST

Speakers:
Member address: J V Prasad, Member, Advisory group of General Insurance, IAI

Presentation: Mr. Timothy Brown, Mr. Neil Chapman, Ms. Sipika Tandon Mathur and Ms. Kylie Chen

Question and Answers: Sana Konnur, Member, AGGI, IAI

Introduction

J V Prasad opened the webinar by welcoming the participants and speakers. He started with talking about the advances in technology and use of on-board devices and wearables (fitness bands and apps) in Motor and Health insurance. Insurance companies have started to utilize the extensive data from these devices to offer more curated insurance product and pricing to their customers. The advancements in computing technology from earlier days being available at lesser cost has helped to boost the area of data analytics and machine learning, thus helping in analyzing structured and un-unstructured data available from different sources of the internet. These days, focus of businesses is to go digital in every aspect of business function and with the Covid-19 situation, the pace of going digital and use of technology has only accelerated.

He highlighted the role of an Actuary in this digital age and how we can use our judgement to make sense of the data in today's world.

Sana Konnur then gave an introduction of the speakers Mr. Timothy Brown from EY Australia and the panel from Willis Towers Watson (Mr. Neil Chapman, Ms. Kylie Chen and Ms. Sipika Tandon Mathur).

Global Perspective on Data Analytics in General Insurance: Focus on Australian Insurers

The speaker, Timothy Brown is a senior manager at EY Australia and has 17 years of experience in Actuarial consulting with specialization in data and analytics advice to public and private sectors. He started with the history of analytics from the Australian market perspective, technical sophistication in terms of products, use and misuse of complex models and how does the future looks.

He touched upon the evolvement of the Australian market from government/state-government/mutual model to a collection of privatized insurance companies. The market share in Australia is concentrated between 'Big Four' companies namely: IAG, SunCorp, QBE and Allianz. These companies have invested highly in their technical capabilities with an in house actuarial and analytics team.

With the regulatory scrutiny in Australia being of the highest order along with stringent capital standards, the focus is on customer and social fairness. The geographical location of Australia and New-Zealand makes it prone to a wide range of high impact and frequently occurring natural perils and catastrophic events.

In this backdrop, he discussed about the major lines of business in Australian market with "Domestic Motor Insurance" having a 20% share and how different analytical techniques can be used to build the frequency, severity models. He also discussed how companies are exploring and experimenting with different types of modelling techniques like GBM, random forest etc. In his views, with the increase in data volumes, one should always keep in mind the objective of the model, and does adding analytical complexity improve the results of the model or not?

Types of tools and techniques:

Common software packages used for analytical application used in the Australian market:

Long Standing	Freeware	Proprietary Modelling	Visualisation
SAS	R	Emblem	Tableau
Excel/Visual Basic	Python	Radar	Power BI
SQL		Cart/Mars	R/R Shiny
Access			

Common techniques (Traditional and Modern/Emerging)

Traditional Methods	Modern & Emerging Methods
Regression	Ensemble learning
Generalised Linear Models (GLMs)	Clustering
Decision Trees	Neural networks

The speaker then discussed the approach on how a model selection should be done basis the below points:

1. The purpose of the model
2. Time constraints
3. Most Interpretable option available
4. The kind of data present
5. Level of predictive power-The technique being used is familiar or not?

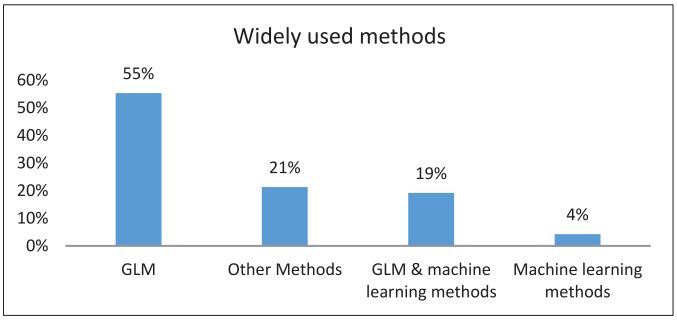
Lastly, he discussed the future advances in analytical capabilities that could be used in the natural perils/geospatial categories, as this is the area of greatest uncertainty/change. He also discussed the future for Actuaries in data analytics when other industries like Data science are coming up, the regulatory/public scrutiny that will shape the data availability and application of analytics.

Predictive Modelling in General Insurance, way forward: GLM with Actuarial judgement or ML models

The panel consisted of:
1. Mr. Neil Chapman, Senior Director- Global Proposition Leadership from Willis Towers Watson
2. Ms. Kylie Chen, Director- APAC Proposition Leader from Willis Towers Watson
3. Ms. Sipika Tandon Mathur, Associate Director- India, from Willis Towers Watson

The theme of the presentation was to understand the advantages and disadvantages of machine learning, and how these could be used to enhance predictive modelling alongside actuarial judgement.

The speaker, Mr. Neil Chapman started with setting the context of machine learning in pricing and who is interested in it. He asked the audience regarding the methods that were used at their workplace and the below results were found:



Machine learning being present everywhere from "Driver less car", "Predicting behaviors" etc., the speaker discussed how can machine learning be used in the field of Actuarial Science to get insights from data, do underwriting and risk management, help in fraud detection.

He then spoke about the machine learning methods currently in use like:
1. Decision trees
2. Random forests
3. GBM and many others

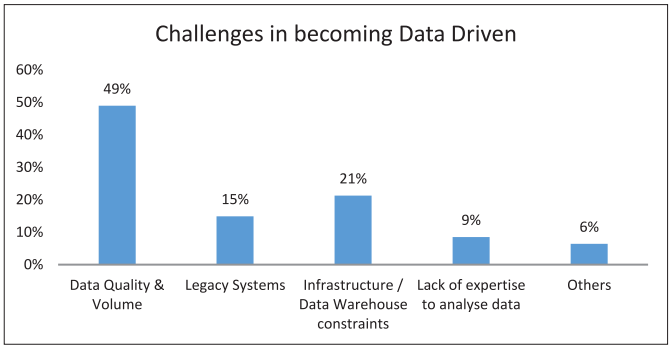
Describing the importance of selecting models based on merits, he asked an important question that "Does the method being used gives a better predictive response or a better predictive model can be achieved by just having access to better data sources?" In his observation, often it was found that having better access to the data can boost the performance of traditional GLM too.

The speaker then highlighted the similarities and differences between the use of old methods (GLM) and new methods (Decision tress, random forest, GBM's) and are new models adding extra value in the predictive power of the model. With the increase in the adaption of new models, he highlighted how they can in integrated in the existing set of data available, the time and efforts/resources to be considered while implementation. With the adaption of new models, the users should be aware of the shortcomings of the new methods in terms of interaction effects, at turning points, for categorical variables.

The speaker discussed each of the methods in detail highlighting its advantages and shortcomings and ways to overcome these shortcomings with the use of another model. He emphasized on the fact that the objective of the exercise should always be kept in mind before choosing the method for analysis and its disadvantages should be communicated. Interpreting the model can be challenging and it is where the expertise of the user is required.

Lastly, Mr. Neil discussed the real-world pricing applications of the methods above and where are these used (From identification of relevant pricing factors, to improving the results of GLM model by integrating ML methods with it, improving the pricing accuracy).

The speaker ended the session with the poll asking the users the "Biggest challenges preventing their company from becoming more data driven?". The results of the polls are as below:



Adoption and use of machine learning in APAC and India

Next speaker from the panelist, Ms. Sipika Tandon, Associate Director- India, from Willis Towers Watson presented her views on the Indian region. She started the discussion by categorizing the Indian market insurers into 3 segments on their presence in using machine learning in different aspects of their functions:

1. Companies behind the market
2. Companies at par with the market
3. Companies at advance stage

She then touched upon the topic of the challenges company's face in achieving the pricing sophistication through AI/ML techniques. She highlighted few issues ranging from the lack of data, lack of understanding in the management to less control over pricing because of nature of distribution channels in India. Owing to these challenges, India seems far away from reaching high levels of pricing sophistication and seamless implementation of advance analytics.

Next speaker from the panelist, Ms. Kylie Chen, APAC Proposition Leader from Willis Towers Watson presented her views on the APAC region. She highlighted the use of GLM in APAC market from a long time for pricing related exercises because of easier interpretations and implementation. Another reason for GLM being widely popular was its integration in the education system that has helped people understand and develop the skillset required for its use. With the growing data availability, education will play a very important role in becoming an enabler for adoption of Machine learning methodology. Education and training help people to have confidence, to have the skillset, to make sense of the data and its interpretation. In the current market, Pricing roles haven't been specifically reserved for Actuaries, many insurers have started hiring Data scientist to accelerate the data analytics transitions.

She mentioned that machine learning methods can be used in cyber spaces, healthcare industries, engineering

The session ended with Mr. Neil concluding how machine learning can be used in pricing and different forms of ML models being used in today's market. With the new data and features adding more value to these methods, exploring, and experimenting which method works the best for the given problem. At the end, he mentioned that it will not only be about the predictive power of the method, but other criterions should also be looked upon.

Key learnings and the way forward

In present situation where data driven decision making has become the norm, utilizing the capability of data science tools has become the need of the hour. This makes the job of Actuaries even more important to bring the rigor and understand the assumptions and limitations of the new data science models.

The session ended with vote of thanks by Ms. Sana Konnur, Member, AGGI acknowledging the efforts and time given by the speakers, IAI team, and the advisory group members.

Written by

Gaurav Shah

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Gaurav Shah is a student member of IAI.

CALL FOR ARTICLES

Institute of Actuaries of India

We invite articles from the members and non members with subject area being issues related to actuarial field, developments in the field and other related topics which are beneficial for the students of the institute.

The font size of the article ought to be 9.5. Also request you **to mark one or two sentences that represents gist of the article.** We will place it as **'break-out' box** as it will improve readability. Also it will be great help if you can suggest some **pictures that can be used with the article, just to make it attractive.** Articles should be original and not previously published. All the articles published in the magazine are guided by **EDITORIAL POLICY of the Institute.** The guidelines and cut-off date for submitting the articles are available at http://actuariesindia.org.in/subMenu.aspx?id=106&val=submit_article

6th Webinar on General Insurance Analytics in General Insurance - Day 2

Date: 29th October 2021; Friday **Time:** 14:00 – 17:00 IST

Group: Advisory Group on General Insurance (AGGI)

Welcome Address: Hiten Kothari, Chair, AGGI

Moderator: Sourav Roy, Secretary, AGGI

Session 1: Advanced Analytics Use Case in General Insurance: AI in Motor Claims

Speakers: Varun Jain, VP, Lead Actuarial) and AI/ML Lab, HDFC ERGO

Devina Nikam, Manager AI/ML Lab, HDFC ERGO

Session 2: Advanced Analytics Use Case in General Insurance - Optimization & IFRS17 consequences

Speakers: Sharad Bajla, Senior Business Solutions Architect, SAS

Stefan De Lombaert, Senior Director Risk Research and Quantitative Solutions, SAS Institute

Vote of Thanks: Sourav Roy, Secretary, AGGI

Introduction

The webinar started with the aim to create awareness amongst the actuarial members and anybody interested about the use of analytics and machine learning in general insurance areas. Use of AI/ML has increased with technological advancement and there are number of techniques employed by actuaries and data analysts in order to improve efficiency in the value chain in general insurance field.

The session was started with introductory address by Hiten who underlined the importance of data and analytics in general insurance and how we as actuaries, having diverse skillset, can make value addition to the organization by making ourselves familiar with data science techniques. Sourav then introduced the speakers and handed over the session to Varun and Devina.

Session 1: Advanced Analytics Use Case in General Insurance: AI in Motor Claims

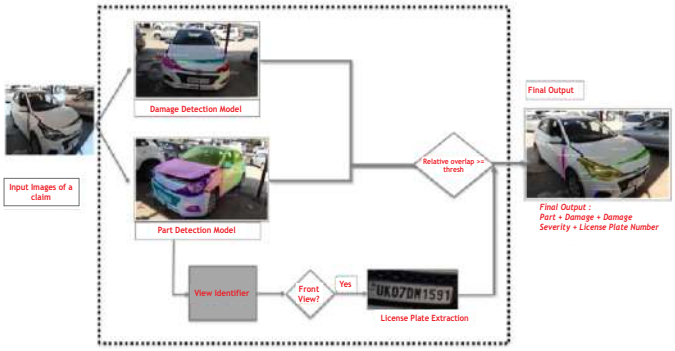
Varun started by emphasizing what Hiten said - how we actuaries have been involved in data analysis for decades and how we lend ourselves very much suitable to the use of **new AI/ML techniques and resulting opportunities** that are now becoming available. He particularly underlined **the importance of use of unstructured data and generating useful information to be used in day to day business decisions and strategy formation.**

Varun presented the case study of **using AI in motor insurance damage claims.** AI/ML techniques can improve efficiency in claims settlement process e.g. by assisting in faster claims settlement, fraud identification etc. He, particularly, underscored **leveraging car damage images available (unstructured data) together with structured data** that we have. The model he described woks as follows:

- Model looks at the images of the damaged car (front left view, front right view etc.)
- Mark areas of damages on the car (bumper damage, door damage, dents/scratches etc.)
- Compute Intensity of damages and
- Generate useful information from these that can be used for multi-purposes.

Model basically has two parts – Part detection model identifies and highlights individual parts of the car (e.g. front window, rear window, rear windshield, dicky etc.) and **damage detection model** identifies and highlights damages on the car (broken parts, scratches/dents etc.) and also tells about intensity of the damage and confidence level placed by the model.

Model uses multiple pictures from different angles e.g. front left, front right etc. and the results from different



Damage Detection Model

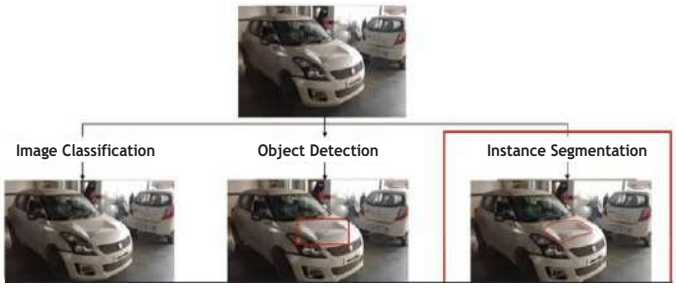
pictures are then combined to generate simplified output for damage. There are certain rules built in to the model that suggest overlap between part detection model and damage detection model which simply means identifying which part of the car, damage identified, belongs to. Final output is then – the part identified plus damage identified plus damage severity plus license plate number.

Devina took over from here and showed how model is built on images by defining variables and other basic model building steps (e.g. data cleaning, fixing errors etc.). She explained that model understands the image by extracting number of pixels and converts the image into pixel metrix.

She then explained how Data Augmentation is used in the whole process. Augmentation helps in increasing the volume of data by using edited versions of the image e.g. rotated, contrasted etc. so that it becomes easier for the model to identify the damage.

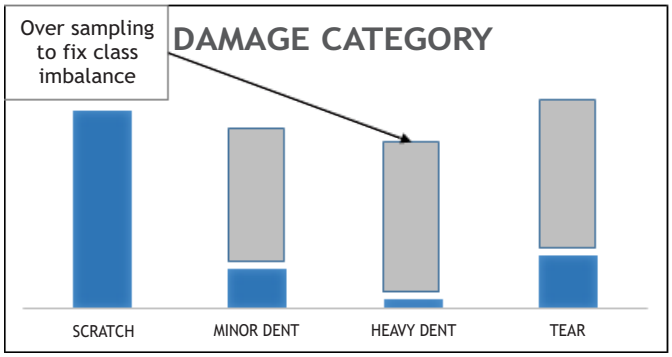
Data Augmentation

She went on to give a detailed explaination of use of Neural Network (NN) , in particular, the Convolution NN which is used in capturing the damage in a damage detection model. She explained three output types of Convolution NN and it is the instance segmentation which draws the precise boundaries around the damage area and helps in estimation of damages.



Output types of convolution NN

From here on, Varun took over again and presented usual damage profile in the data. He explained the disproportionate structure of damage classifications in the data where minor scratches and dents have disproportionately higher volume and model tends to overfit there. This is where augmentation is used for oversampling e.g. from minor scratches to fix the data imbalance. This way Augmentation helps in achieving consistent and reasonable accuracy across all classifications by giving importance to all classes and avoids overfitting.



Damage Profile & Oversampling

Finally he explained that different iterations on the model is required in order to achieve higher accuracy and it may take some time to have final model ready which provides significant level of accuracy (more than 90%) in the damage detection/estimation. This could involve localizing the damages, using different colour scales, MASK RCNN model on cropped images and defined rule statements in the model. He then presented the ways of handling high bias (e.g. train bigger model) and high variance (e.g. use more data) in the model.

The presentation was followed by an interactive Q&A session, moderated by Sourav.

Session 2: Advanced Analytics Use Case in General Insurance - Optimisation

Sourav introduced the speakers and handed over the session to Sharad.

Sharad started his presentation by introducing the concept of optimization (i.e. maximising the expected profit or net customer value). He explained the concept

with the help of efficient frontier which shows how retention will reduce with increase in prices which would result in increase in expected profit up to a certain point i.e. maximum (see graph from right to left). After that point, profit will start falling as most customers start dropping off with further increase in prices. This would lead to significant loss of business resulting in decrease in expected profit.

There are many ways of achieving the optimization – two possible approaches for the insurer are premium optimization and profit optimization.

- Premium optimization – It could be new business (tariff) or renewal business. Optimization looks at new business from market point of view. It considers not only the best estimate premium from the base model (e.g. GLM) but also limitations that arise from regulatory point of view, competitors' prices as well as customer's behavior e.g. how customer reacts to a price change. This way, by using optimization process in premium, organization tries to maximize their revenue. For renewal business, insurer has information related to customer – they can use this information to provide very targeted quote to increase the retention and achieve maximum revenue.

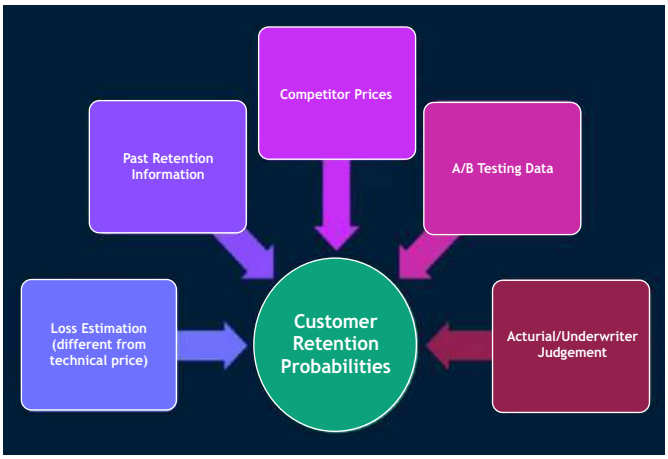
- Portfolio optimization - It could be within a particular line of business or across multiple lines. It works by optimizing certain characteristics of portfolio rather than optimizing premiums. For example, businesses/segments that insurer should target in order to achieve lowest loss ratio, say targeting a certain make/model in motor business. Algorithms then could be designed accordingly that maximize/optimize these features. Across lines of business, insurer can achieve optimum mix of portfolio and this can maximize premium volumes across multiple lines.

Sharad then provided more insights on how optimization process works in real life particularly focusing on capability gaps in achieving the optimization in the organization.

1. Predicting customer's behavior needs large datasets with complex transformations as well as data from multiple sources. It is therefore critical for optimization process to be successful, to have a data management system in place. He said most analysts spend significant amount of time on collecting, cleaning and organizing data. Automating the data preparation and model creation tasks together with streamlined model deployment can significantly reduce the time spent on these activities. The result is that insurer can spend more time on optimization part itself, the results that optimization generates for the insurer which ultimately increases efficiency and creates value addition that is sustainable.

2. He then emphasized the **use of advanced algorithms i.e. AI/ML techniques in the optimization process**. He said that **customer behavior is not linear and AI/ML techniques are exponentially better predictors of customer behavior** thereby overcoming the shortcomings of GLMs. He also said that optimization is an iterative process and therefore advanced algorithms are needed so that system is highly responsive to the changes in information/parameters.

Another most important part of the optimization process is Lapse Model. An accurate price sensitivity model is key to obtaining useful optimization results. There are many different ways in which a lapse model (estimating customer retention probabilities) can be prepared depending on data available and complexity built into the process. Some considerations in building a lapse model have been summarized as follows:



A/B testing includes charging different rates to few customers (e.g. 1% of portfolio) and observing how they react and how retention rates are changing from that segment.

3. After the data and advanced algorithms, he went on to discuss the deployment part of the process. He underlined the importance of realtime deployment given **that optimization scenarios are time sensitive and need instant deployment of price changes to distribution channels**. He also underlined the need to do collaborative analysis with relevant departments be it underwriting, marketing, management so that they are also comfortable with the results.

4. He then emphasized the importance of Visualization. He said that **optimization results need to be paired with powerful visualization to understand the impact**. Actuaries/underwriters need to have access to the metrics such as retention rates, loss ratios etc. on real time basis so that they can monitor the impact of optimization on the portfolio. This again requires working closely with other departments.

He finished his presentation by explaining the governance framework around the whole process and importance of managing all analytical models centrally. It has direct impact on the profitability of the portfolio. This includes system to track all the different models and who is making the changes and when the changes are made as well as governance structure around who is allowed to make changes to a particular model.

Advanced Analytics Use Case in General Insurance - IFRS17 Consequences

From here on, Stefan took over to talk about his use case on IFRS17 consequences. He briefly underlined the consequences of moving from old regime to IFRS17, from his experience from other markets, be it business changes or fundamental changes in the way financial reporting is done. He particularly emphasized the fact that financial statements will clearly show the split of different contributors to result between underwriting and financial factors and that **lot more details and disclosures will become part of reporting going forward**. Analysis of change (AOC) from one period to another will become important part of reporting as insurers will be interested in different contributors to profit (change in expected losses, change in market risk etc.). Actual vs planned situation will be the key component of this AOC so that there is immediate focus on where significant deviation has occurred in actual experience compared to what was expected.

New KPIs - **Key performance indicators (KPIs) will change.** Loss ratio, combined ratio, A/E etc. will be required for different segments of portfolio e.g. sub-classes/contracts that are managed together, onerous contracts, long-term contracts etc.

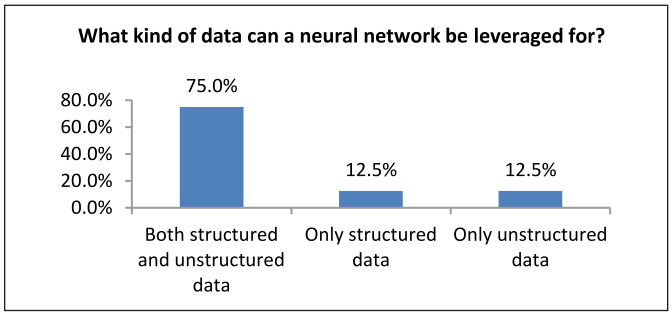
Different way of budgeting/planning the future - Business planning and budgeting has changed since the acceptance of risk based capital in many countries and this is consistent with the arrival of IFRS17 regime. **Forecast of business and financial position now require projections under several scenarios.** Changed approaches to measurement, new KPIs lead to adjustment of existing planning activities to new measures, scenarios. Recent situation of declining profits, climbing cost of capital and volatility resulting from introducing IFRS17 enforces the need of scenario based projections and managing the capital even more efficiently. Events such as pandemic and climate change also require different ways of planning and budgeting.

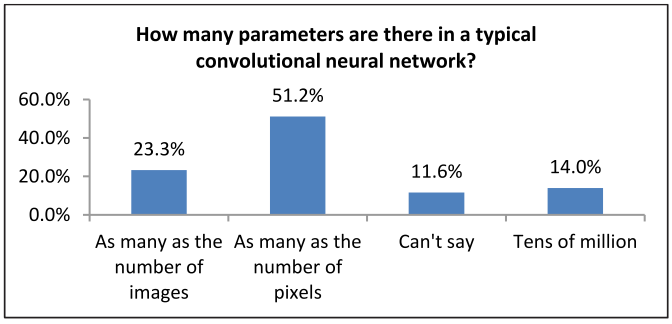
He then went on to discuss possible approaches for business planning and making projections e.g. detailed calculations using same inputs as at last reporting period or projecting inputs first for next reporting periods or projecting the BS and IS directly from last reporting period. Under each of the approaches, projections need to be run under multiple scenarios and this requires lot of calculations, input data and output data. This is where the role of sophisticated business model comes in which can handle these calculations and make projections under different set of assumptions and scenarios. He threw some light on the process of multi-dimensional model projections i.e. defining the business model, preparing data, making projections under different scenarios and optimization/analyzing business decisions under different scenarios.

He finished his presentation by underling the importance of proper data storage and management system and effective reporting of results

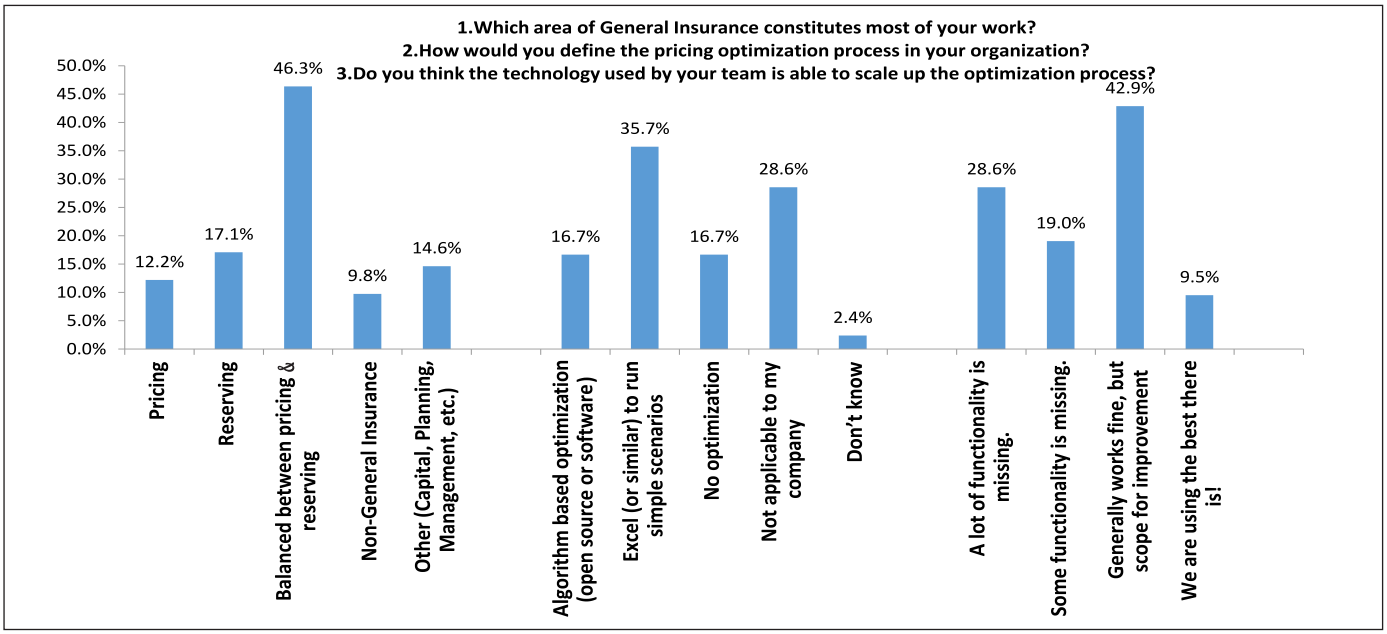
The comprehensive webinar ended with vote of thanks from Sourav Roy.

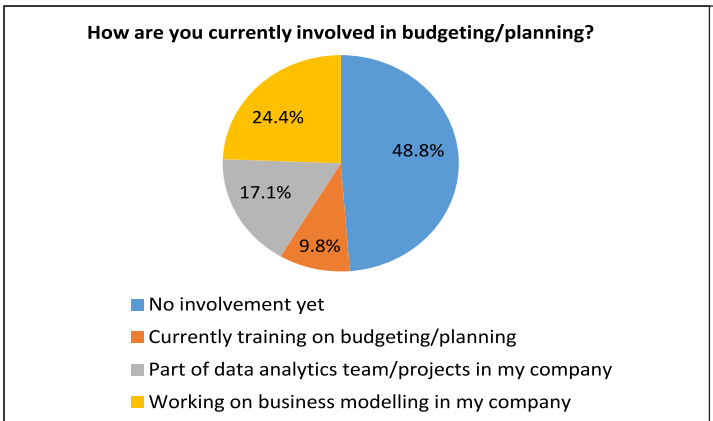
Session 1 - Poll Questions

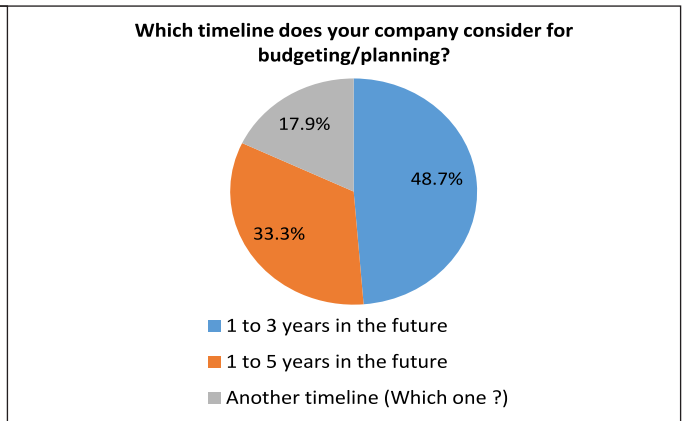


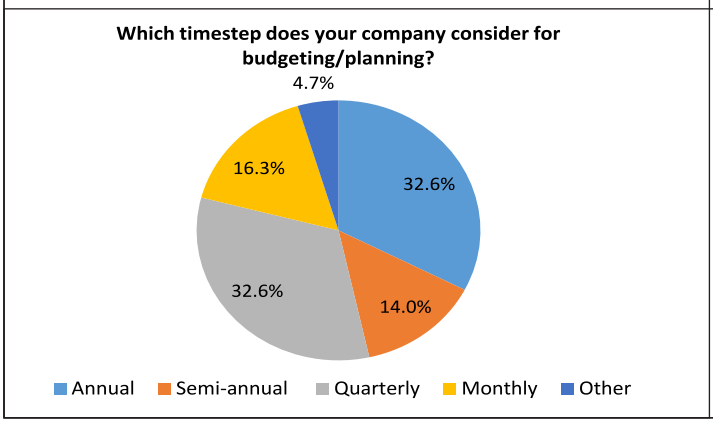


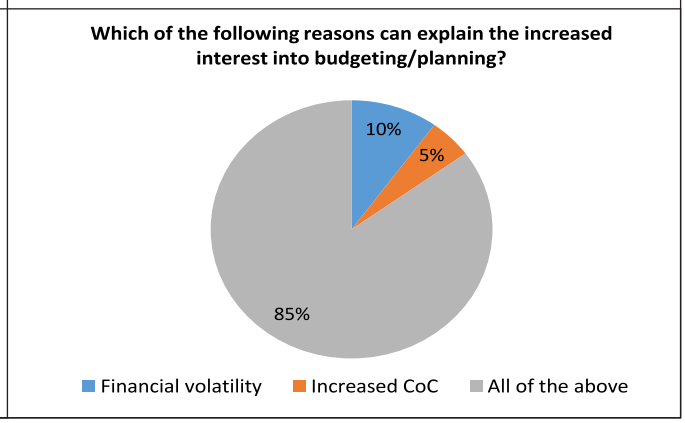
Session 2 - Poll Questions











Written by

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Mohit Arora is an associate member of IAI and currently working as Assistant Manager in actuarial department of New India Assurance.

IFRS 17 Implementation and some design considerations

Date: 16th November 2021; Tuesday Time: 15:00 – 17:00 IST

Subhendu Kumar Bal, President IAI, made the keynote address.

The webinar was focused on IFRS17 Implementation and some design considerations and presented by Sai Srinivas.

Implementation of IFRS 17 brings significant changes to entity's systems, processes, and data management. It may impact business operations and financial systems of the entities unless it is carefully planned in structured way in designing phase itself. A lack of understanding and coherent approach in design stage may further derail the implementation plan and may consume more money, time, and resources.

The fundamental concept introduced by IFRS17 is Contractual Service Margin (CSM). Basic unit of account for CSM accounting is **Group of Contracts (GOC)** and the levels involved in the same can be classified under four groups namely as **Portfolio, Cohort, Profitability and Measurement Model.**

Portfolio is a component of entity at which the statement of financial position is expected to be provided. It should consist of contracts with similar risks that are managed together. For instance, these contracts can be Line of business, Office codes, distribution channels etc., at which an insurance company can track its business performance. Regulatory requirements and taxation are important to consider while deciding on these parameters.

Annual or quarterly **Cohorts** can be prepared to track performance considering the number of groups and the associated complexity.

Testing of Onerousness is important for **Profitability**. It can be done with the help of Actuarial software, IFRS17 solution system, ETL testing using coding or excel or by other possible means. Prior tagging of profitability is required as the cash flow and Risk adjustment tagged at GOC is used for CSM. It should be tagged at contract level. Few choices can be followed like VNB or VNB at risk, if the same is negative then onerous testing is required, or we can proceed with the selected parameters. CSM at risk for a range of policies under a portfolio can also be considered or one can create a rule engine for tagging every contract.

Default **Measurement Model** is GMM, General Measurement Model. This model sets out the measurement principles for IFRS17. It defines how the initial measurement of the asset and liability of the insurance contract should initially be recognised and remeasured over time. It defines how the revenue and profit are realised over the life of the contract. The other possible measurement models are Variable Fee Approach (VFA) and Premium Allocation Approach (PAA). For VFA, eligibility testing is required to be done at contract level. A set of KPIs needs to be defined at inception, it should be substantial. Contract within a product ideally eligibility is expected to be consistent year-on-year. If VFA is not passed, indirect participation can be done through Modified GMM. Annual treaties including reinsurance are expected to be eligible for PAA. PAA eligibility test is useful for non-life contracts with more than 1 year term.

Once Group of Contracts is established, other cash flows need to be aligned to arrive at desired financial results, either at group level or further down to subgroups, Risk Adjustment, Reinsurance or Allocation of expenses. GOC may contain more than one product sharing similar risk and hence subgroups are required with each product as group having all actuarial cashflows and assumptions, other business transactions related to premium, incurred claims and expenses to compare the actual vs expected. Clear mapping with these actuarial groupings to GOC is important to account the changes to CSM at GOC level. Risk adjustment shall be calculated at GOC to account for CSM. A process needs to set up to allocate the risk adjustment to the actuarial group/sub-group and to aggregate at GOC level. New system will be required to establish the relationship for loss recovery with corresponding underlying GOC. Allocation of expense at GOC level can be done through identification of directly attributable expenses by nature or heads of expenses.

Sai Srinivas concluded the presentation by highlighting the importance of design. It is very critical and requires a lot of clarity and understanding as these are

irreversible decisions. Hence it is important to be as perfect as possible with your design.

A panel discussion was hosted by Kunj Maheshwari. Stefan De Lombaert, Global lead Insurance Risk & Finance Solutions at SAS and Asha Murali, Chief Actuary at PNB MetLife, were invited as the guest. Discussion highlighted the adoption of the standard in India. Some of the interesting questions that were raised are the components of IFRS 17 from system perspective. According to Stefan, thinking beyond Pure Compliance is the key to utilize the advantages of IFRS17. Sources of profit should be identified and categorized into subgroups at which all possible expected and actual cashflows at both accounting and actuarial level should be stored. Top 3 challenges of IFRS17 in India addressed by Asha Murali were ultimate timeline of implementation, how does it all tie together from current methods used by companies and the capital requirements in IFRS17.

Written by

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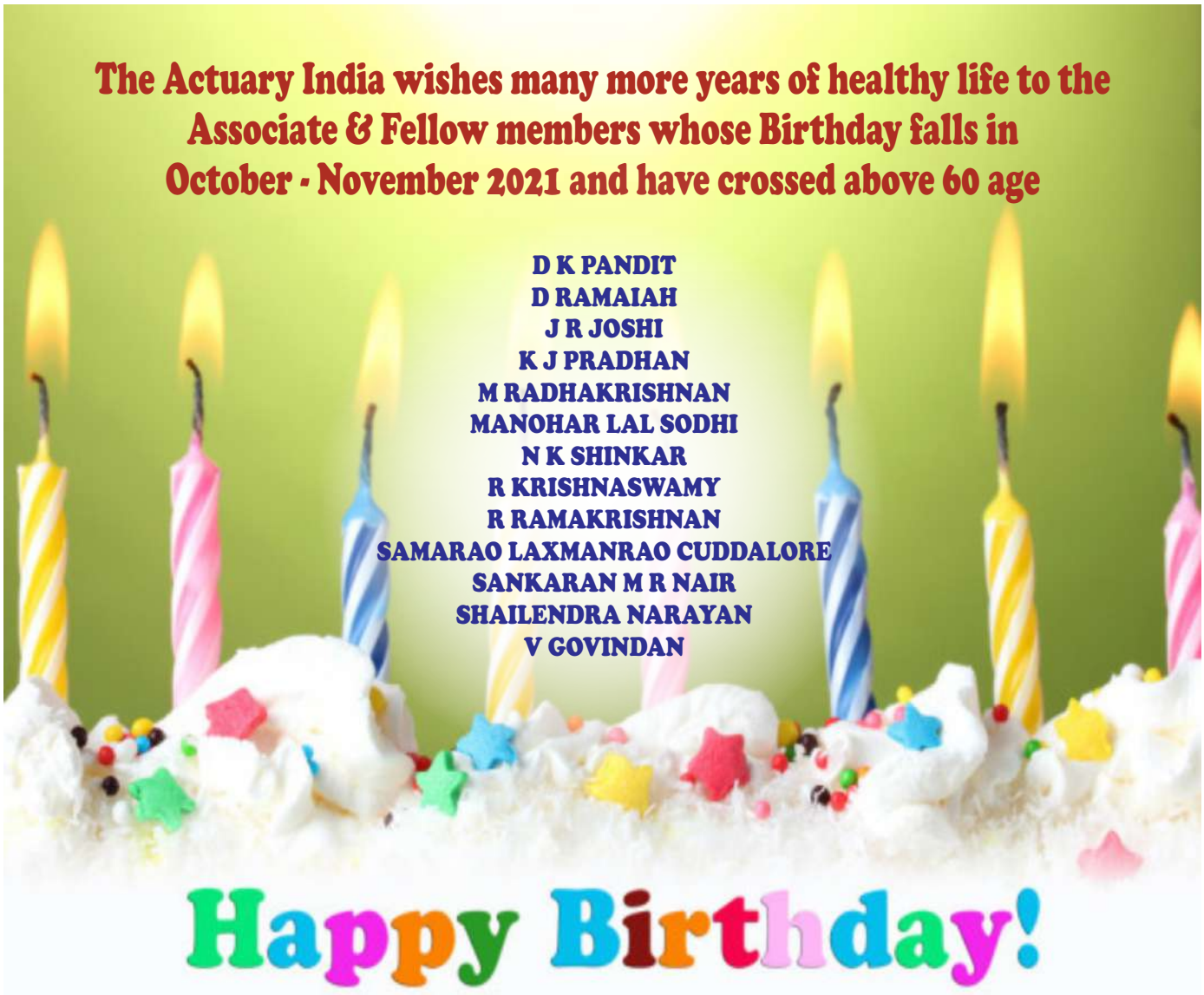


Risk Management for a Non-Life Reinsurer (Underwriting Risk)

Introduction

Over the last two decades, Indian insurance industry has witnessed significant momentum in terms of private as well as global participation both in the direct and reinsurance space needless to mention the extent of competition brought about in the market. With the growing emphasis on non-Life business and the need to maintain market order in this highly competitive environment, Reinsurers play a pivotal role maintaining its competitive position at the same time ensuring sufficient capital for supporting market penetration. Along with the above feat, it is also pertinent that reinsurance company meet the investor's expectation in terms of reasonable stable returns over the period of time. Thus, to reduce the volatility of performance and generate better result, risk management plays a pivotal role.

Risk management has gained prominence in the 1990's, with companies wanting to operate their business in an environment in control rather than a controlled environment. The key aim of risk management is to protect an organization against any adverse experience that could result in it being unable to meet its stated objectives or projections. Risk management is the process of analyzing, quantifying, mitigating, and monitoring risks which might affect the performance of an organization as well as its capital and earnings. These risks, or threats, could stem from a wide variety of sources including financial uncertainty, legal liabilities, management strategies, accidents, and natural disasters.

While the actual scope of risk management is much wider, covering the complete gamut of insurance activities, an attempt is made to break it down into relevant components. This article primarily discusses the various risks as well as market concerns faced by a reinsurer especially a strategically important one, while underwriting new business

Underwriting Risk

Underwriting is the process of accessing the risk and accepting the risk against a renumeration. Underwriting risk may arise due to an inaccurate assessment of the risks associated with writing an insurance policy or from other uncontrollable factors. While underwriting reinsurance business, there are several additional factors that must be considered along with the usual underwriting aspects viz. Accumulations, Retrocessions (both CAT and Large risk), Blind Spiral, Premium / Liability ratio, Years to recoup, Rates vs attachment points and cover limits, Difference in limits / conditions (DIL / DIC), Portfolio transfers, Umbrella covers etc.

Types of Underwriting Risk:

1. **Accumulation or Clash Risk:** In a reinsurance portfolio, accumulation of risk can happen geographically or by event.
   - Geographical Accumulation: While underwriting business, reinsurers may accumulate risk for the same geographical area from the different insurers especially if they are writing business in a particular area.
   - Event basis: A single event can lead to claims from various line of business. For example, A building collapse can lead to various claims which can affect different business such as property, motor, liability, and business interruption etc.

2. **Blind Spiral:** Blind Spiral happens when reinsurer unknowingly reinsure their own business or in turn same risk. This happens mainly due to unavailability of proper data or lack of detailed visibility of insured risk when a reinsurer participates in retrocession programs of other reinsurers who might have underwritten a part of the original risk. Thus, while looking to cede the risk eventually, the reinsurer takes on more of the same risk leading to risk concentration. For example: In the 1990s, Lloyd's market faced a loss (totaling GBP 7.9 billion) the effect of these losses was accentuated by **LMX Spiral**. The concentration of risk happened because the reinsurers ended up reinsuring themselves!

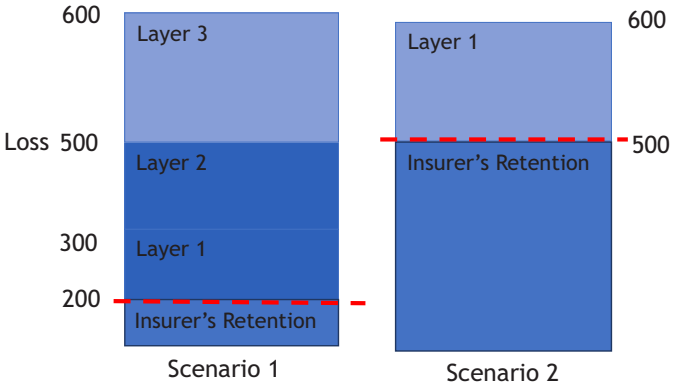
3. **CAT/Risk Protection per event/per risk:** The CAT/Risk protection are non-proportional contracts purchased by insurer/re-insurer to protects their books in the event of a large risk loss or a catastrophe loss. The covers are priced depending upon type of risk, sum insured and the level of deductibles. A trade-off exists between whether to keep the low deductible and part with a higher reinsurance premium or opt for a higher deductible leading to the risk of greater losses.
   Reinsurance shares of insured loss mainly depends on: Magnitude/Severity of event, location of insured risk and insurer retention etc.

4. **Years to Recoup:** Years to recoup means that how many years it takes to recover the losses based on

premium paid to retrocessionaire. For example: - If a reinsurer bought a stop loss program for a risk which said to be the 1 in 10 years event, how many years it will take to recover the amount of risk premium. If the reinsurer is taking longer time to recoup the risk premium, then their competitors, it means they are giving higher shares of profit to the other companies.

5. **Premium to Surplus Ratio:** Premium to surplus ratio is calculated as Net Written Premium of a company divided by the policyholder surplus. Policyholder surplus is the difference between the reinsurance company's assets and liabilities which belong to the policyholders which is used to measure the capacity of an insurance company to underwrite new policies. If this ratio is close to one, it means they are over utilizing their capacity to write new business. Possible reason for the ratio to decline could be considerable growth in business or significant losses coming from already written business. This could affect the credit ratings, invite regulatory action such as restrictions to write new business or decline in share price. If this ratio is higher, it means that reinsurer is not utilizing its capacity and their capital is not utilized properly and loose many business opportunities.

6. **Attachment points and cover limits**: Attachment point is the amount that if the loss exceeds that amount, the reinsurer will pay above that amount. Limits in the reinsurance contracts are those that specify the maximum amount the reinsurance will pay either per occurrence/per event basis. There are various types of limits such as Annual Aggregate Limit, Risk Limit etc.
   Annual Aggregate Limit is the limit that applies to the treaty which stated that the maximum amount the reinsurer will pay to the insurer.



As shown in the above chart, in Scenario 1 insurer will retain losses of 200 Crores and rest will be ceded to the reinsurer through different layers. The attachment point for reinsurer is ₹200 Crores. Limit for the loss will be ₹600 Crores. The reinsurer is exposed to the loss amounted ₹400 Crores. Also, the probability of occurrence of higher losses are lower. As a result, premium paid by insurer are higher in scenario 1 compared to the scenario 2. There is a tradeoff between reinsurer premium and risk exposed. While underwriting, there is risk involved in choosing attachment point and limit so that reinsurer can maximize returns.

7. **Difference in limits / conditions (DIL / DIC):** While underwriting a reinsurance treaty, the limits & conditions for the future business written by insurance is already decided at the onset of the starting period. But there are chances while writing the business, the insurers have insured policyholders in such a way that even the loss occurred, it may affect the reinsurers more than the insurer.

8. **Portfolio transfers:** Portfolio Transfer is a reinsurance contract or agreement in which insurer ceded policies, often the one already incurred losses, to a reinsurer. Reinsurers accept the insurer's current risk or future risk based on the insurer current claim reserves. In some contracts, reinsure transfer the treaties to the underwriting years to succeeding underwriting year which also include the current policy of insurers. These types of treaties are known as Clean Cut Treaties. There are risks involve for the reinsurers that the current reserve of the reinsurer is not the best expected value of the Future Claims Liabilities.

9. **Umbrella covers:** An umbrella policy provides the coverage when the limits of the insurance of the underwriting policies have been exhausted. It provides the overall coverage to the insurers. In these types of products, it will be very difficult to assess the business which the company is planning to write in the near future. There is a risk that the insurer will write less profitable business to achieve the higher market share.

10. **Data Constraints**
    - Aggregated data received by the reinsurer due to which reinsurer does not have the whole information about the risk.
    - Delay in data availability: In the reinsurance business, there are general intimations of sum insured, premium and claims on the quarterly basis which leads to delay in receiving data.
    - Relevance: Change in market conditions, external environment changes or delay in reporting or setting of claims makes historical data irrelevant.
    - Credible: Due to aggregation of data, the data may not be credible enough for analysis.
    - Quality: Data received from cedants is incomplete and not of the expected quality.

Identification & Mitigation of Underwriting Risk

To identify the underwriting risk the starting point will be the review of treaty which will be written in near future.

Evaluate the risk occurrence both on the basis of qualitative & quantitative knowledge. There are several techniques which underwriters can use to control of the risk such as

- Introducing retention limits based on the company policies.
- Use of retrocession and use alternative risk transfer methods.
- Reinsurance Brokers: They can help to arrange proper data in line with current market conditions.
- Control Underwriting: While underwriting the risk, underwriters can control measures such as terms & conditions (included the terms of data availability or penalize insurers for the non-availability of data)
- Monitoring: Constant monitoring of the risk underwritten can help to reduce the risk.
- Market Updates: By attending seminars or updating with market conditions which help underwriters to keep updates about the market situation.
- Continue focus on the proper data availability and use of statistical methods can help reduce risk.
- Denial of Risk: After evaluation of risk, if the risk is not within the risk appetite, the reinsurer can deny the acceptance of risk.

Conclusion

Apart from the above, reinsurers face many other types of risk. Reinsurers also need to be mindful of other practical considerations while applying the above risk mitigation techniques as they may result in loss of market share, loss of insurer trust, or lose out in competition etc. As the reinsurance contracts are large in terms of the exposure and premiums involved, reinsurer face lot more risks. Hence the need of the hour is to have sound Risk Management practices engrained in all levels of the organization.

Sound reinsurance management is evidently the necessity especially in the highly competitive environment. It is more significant for a Reinsurer who while being a market participant plays the role of a quasi-regulator supporting the market with necessary know-how and capital.

While the article mainly touches upon the underwriting aspects of risk management, the actual scope is much wider covering the complete gamut of insurance activities and will be discussed as a follow up to this article.

(The views expressed here are personal and do not represent the views of my employer)

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I acknowledge the series of discussions I had with the Appointed actuary, members of the actuarial team and members of underwriting teams in GIC as a part of my job function. I have drawn inputs from the same and referred the materials available on the internet and Wikipedia. Some of links are given below:

- James Lan Enterprise Risk Management from invectives to control: - 2003 Edition
- Paul Sweeting Financial Enterprise Risk Management International Series on Actuarial Science 2011

DISCLAIMER

I hereby certify that the content of the Article titled Risk Management for a Non-Life Reinsurer (Underwriting Risk) which I have offered for publication in the Actuary India magazine is my own work and I agree to be responsible for anything adversarial that may arise from its publication.

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