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the Actuary INDIA

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INDIAN ACTUARIAL PROFESSION
Serving the Cause of Public Interest

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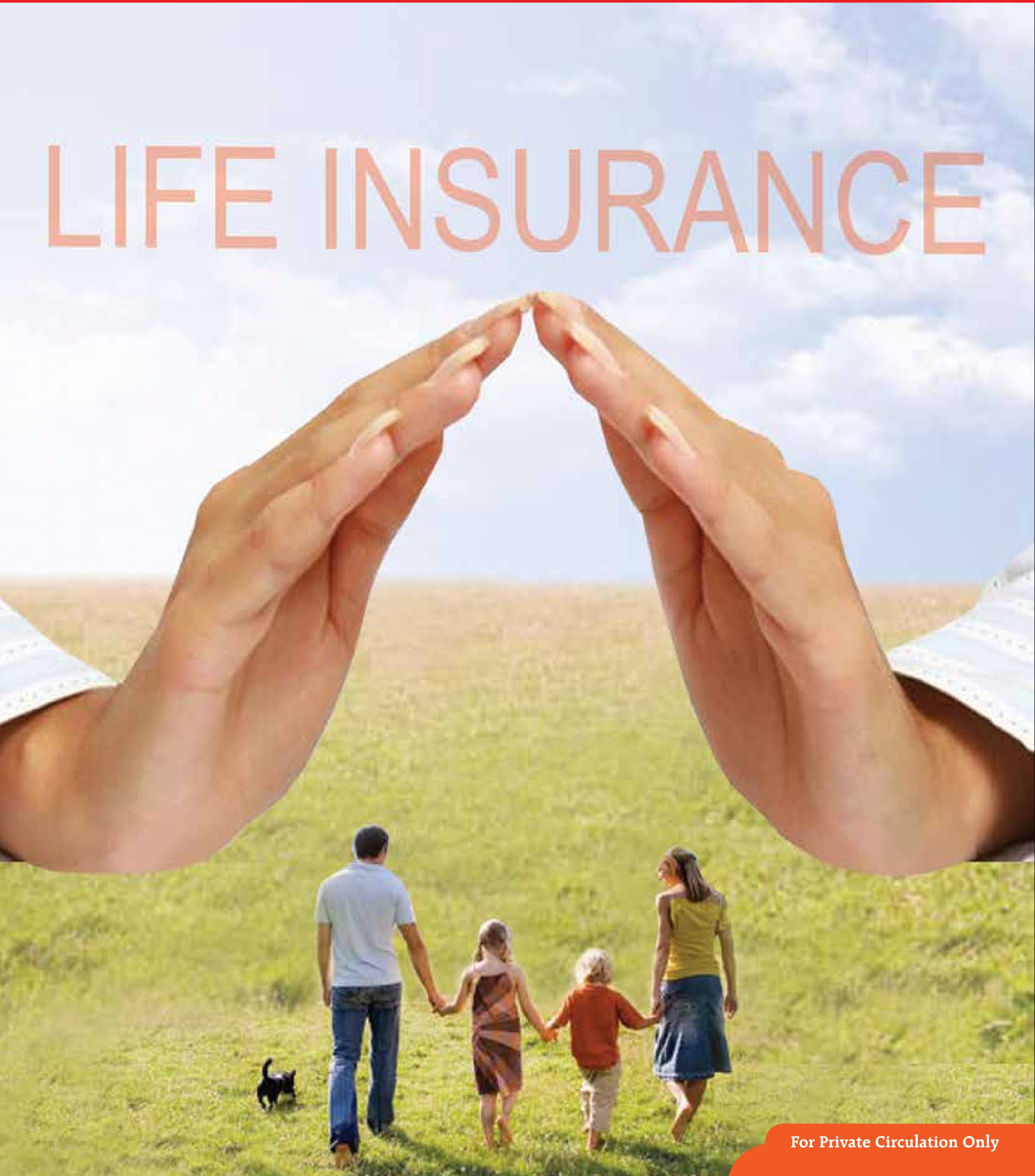
LIFE INSURANCE



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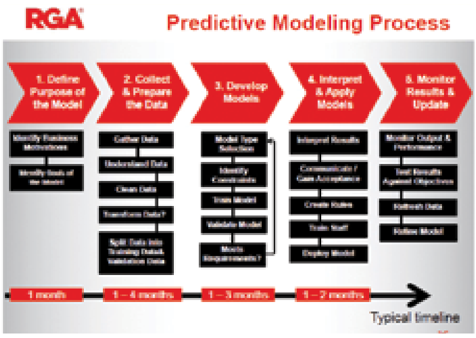

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FROM THE PRESIDENT'S DESK

MR. RAJESH DALMIA

Dear Members,

I am thankful to you for writing to the profession. We are taking necessary steps to ensure that your thoughts are implemented. The profession is totally dependent on volunteers to carry out its activities. Unlike other professional bodies who have managed to employ a few actuaries, we do not have any actuary as an employee and hence it is amazing that we have come so far. I would like to take this opportunity to thank all the members who have contributed in this journey voluntarily. I would request the younger generation of actuaries to continue to contribute to the profession so that the next generation of actuaries is smarter than us for the growth of the profession.

When I look at my daughters and any young kid, I am really amazed to see the level of knowledge and understanding they show. When my generation was kid we were no-where near that level. Of course, the world has advanced a lot and even the children would have to keep pace with it. It was very difficult to get any information on any topic during our college days. We would have to go to libraries and search for relevant books or magazines and search through them to get the relevant information. Sometimes we were lucky to get the relevant information and sometimes we were not so lucky. In today's world, the greatest library on earth world-wide-web is available on mobile. You can access and study any subject that you want to study at various universities just sitting on your laptop/desktop. I would request our young student members to really make use of these resources available to them. The core traditional fields insurance and pensions which used to employ actuaries would not be able to absorb ten thousand plus students. It is important to enhance the skill sets so that you are employable in wider fields like analytics, big-data, data-mining, risk management etc. We do teach some basic techniques which would be quite useful in wide fields. However, we do not capture the nuances of various fields. Therefore, it is important that such gaps are filled by the students themselves by going through some of these free courses available online. We are happy to help student members if they need any support or assistance to develop additional capabilities. Recently, one company has also given an advertisement in the magazine regarding opportunities in the field of analytics. It is a growing area and there is a possibility of large number of students to be absorbed in that field if they do some home-work around the same.

The actuarial course contains all the elements which capture the technical elements required to be an actuary. However, it does not teach how to live your life. It is important that one learns about living. I believe to live a good living one needs to keep a healthy body, mind and brains. For body many of us do exercise to keep it healthy. It is the remaining two for which we do not do regular exercise and it is important that we do keep the remaining two also healthy for a better living. Probably while you are writing exams your brain might have to do some push-ups but in regular working life it does not get enough exercise. It is important that in a week at least one/two hours of proper exercise is carried out to keep the brain healthy too just like the body.

Most often we are able to do the exercises of brain and body. It is the mind which remains fickle and a very few of us know how to do an exercise for the same to keep it healthy. Mind is also the most restless as it has tremendous power and it can go through ten things in a moment. It seems that yoga helps in harnessing the power of mind. I would write in more detail about this in the next month.

FROM EDITOR'S PEN

MR. DINESH KHANSILI

Dear readers,

Bacon's quote- " I hold every person a debtor to his profession, from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to help and ornament thereunto" always inspire professionals to serve their profession in various capacities. I am indebted to actuarial profession which put its confidence in me and included me in the editorial team of the Actuary India, mouthpiece of Actuarial Profession in India.

Actuarial Department of Insurers remained busy in statutory reporting, BAP submission to IRDAI post-closing of organisation's annual accounts and literally burnt the mid-night oil. Perhaps little respite from their busy schedule and time to put 'thinking hat' on to take the actuarial processes to the next level. This be related to improve documentation, improve upon models and any-thing which may directly or indirectly impact the financials and reduce the number and level of IRDAI penalties for non-compliances. For students work-life-studies balance.

IAI had initiated short term research projects. For some of the projects industry support had been sought. There is no doubt that Appointed Actuaries and their team would be supporting the cause.

With much awaited increased foreign direct investment in insurance industry becoming a reality, Government's repeated assurances from various quarters to smoothen the process of entry into Indian market, RBI Governor's ruling out any major impact of the Greek debt crisis on India and his and world economic bodies optimism of Indian economy, prediction of growth in Indian economy surpassing China's are some of the indications to ensure that the wait and watch policy of many Insurers across world may end soon and they jointly start filing R1 application with IRDAI.

The popularity of social media like face-book, linked-in, etc. is catching up in spreading awareness and preparation of actuarial examinations. Various groups have been formed in applications e.g. WhatsApp for sharing actuarial related information. This is good use however there is a caution that some of the students are asking for study materials during transitional period and others freely coming out to extend their help. The copying and sharing of study material in any form by individuals is restricted and hence one should buy study material from IAI.

Generally the representation from General Insurance companies in Actuary India magazine has been lesser in the past. But gradually it shall increase as the actuarial professionals have started making a dent in line of life insurance. I urge upon the actuaries and actuarial professionals working in general insurance industry to write more articles for the Actuary India.

The President, IAI openness in asking views and his clarifications on tricky issues is welcome. The profession would withstand firmly amidst healthy criticism. There may be some limitations at times to accept the views expressed and articles written but this does not mean that readers stop giving suggestions, sending articles. Editorial team of Actuary India team discusses each and every views expressed and articles sent. The decision to publish is taken collectively.

Happy reading!

We invite readers to respond briefly to our articles and to suggest new features with letters to the editor. Kindly mail your responses on library@actuariesindia.org with your name & contact details. Appropriate responses will be published in Actuary India magazine with the approval of competent authority.

THE 2ND CAPACITY BUILDING SEMINAR ON LIFE INSURANCE ON ALM AND PREDICTIVE MODELING FOR RISK MANAGEMENT

Organized by : Advisory Group on Life Insurance, IAI
Venue : Hotel Pllazio, Gurgaon,
Date : 3rd June 2015

The seminar was attended in full capacity by experienced, young and budding actuaries representing life insurance industry, consulting firm, back office and individual consultants from different locations of the country. The seminar was divided into two sessions, one in the morning and another in the afternoon. The forenoon session was taken by Mr. Sam Morgan, FAIA, from Milliman who covered various issues involving the management of ALM risk in a life insurance company. This included Hong Kong case studies using ALS modeling in Prophet providing practical side of asset liability management in the life insurance context.

Mr. Sanjeev Pujari

The afternoon session was taken by Dr. Richard Xu, FSA, from RGA covering the various usages of predictive modelling. He covered in detail, the theory and practice of predictive modelling in relevant areas as underwriting, experience analysis, pricing, fraud monitoring etc. The focus was on statistical models, the technical core aspects of such modeling and few case studies to provide the necessary practical grounding on the subject. Dr Richard took the session over Skype at 3.00 am from US as he could not fly down to Gurgaon due to unavoidable extreme weather conditions there. Both the sessions were chaired by Mr. Sanjeev Pujari.

Session 1 : ALM

The agenda of ALM covered four sections comprising **introduction of ALM, introduction of models, ALM Principles**

Mr. Sam Morgan

& Framework and a case study of Hong Kong business. **Mr. Morgan** set the tone of the session by introducing the purpose of ALM to reduce the assets and liability mismatch risk that can be performed by optimizing the assets allocation because liability is fixed and cannot be adjusted easily.

He informed that the ALM requires three key steps:

A. Setting up the ALM models

B. Defining the framework of ALM to set the criteria of selection of assets and

C. Performing the calculation for decision making purpose.

A. Setting up ALM models

On setting part of the model, he informed that there are three types of modeling:

- ❖ **Deterministic modeling without assets model** by projecting assets and liability cash flows with no interaction between assets and liability and no optimizing criteria of assets selection
- ❖ **Deterministic model with assets model** with following features
  - ❍ Deterministic asset model to develop and deploy of strategic asset allocation;
  - ❍ Detailed cash flow matching taking into account interactions between assets and liabilities;
  - ❍ Measurement and management of the duration and
  - ❍ Simple scenario to understand ALM position
- ❖ **Stochastic with assets mode with following features**
  - ❍ Complex ALM model with policyholder behaviour and management actions
- ❖ Stochastic calculations
- ❖ Cost of options correctly integrated
- ❖ Stress tests, reverse stress tests and stochastic analysis

While one can adopt any one of the three methods of modeling defined above depending upon the company's requirement based on need, resources and complexities, however, **the three key elements of modeling are**

- ❖ Creating Liability model based on actuarial technique and best estimate assumption
- ❖ Creating assets model based on asset classes and
- ❖ Performing fund level modeling comprising higher level requirement such as regulatory capital, capital management etc.

B. ALM Principles and Framework

Mr. Morgan explained the three key principles to take decision on optimal assets allocation

- ❖ **Selection of performance indicator** from the point of view of shareholders and policyholder which could be profit to shareholders and return to policyholder as an example.
- ❖ **Selection of risk indicators** such as Solvency capital or capital adequacy ratio as an example and
- ❖ **Defining constraints** such as technical constraints, regulatory constraints or shareholders or policyholder's constraints etc. One is free to choose the constraints according to the requirement.

C. Performing the calculation for decision making purpose.

The third of the key step of ALM process is performing calculation based on the Step A and B above creating efficient frontier and selecting the most optimum assets class that meet criteria defined under ALM principles and framework.

Case Study

The case study considered was of the company possessing a large block of primarily endowment participating policies that do not pay any terminal bonuses. Minimum guaranteed rates are very low for the block. The company has total discretion as to the level of bonuses that are paid.

The aim of the study was to find the optimal portfolio of assets between the four key assets classes:

– Equity

– Property

– Fixed Rate bonds

– Floating rate bonds

The case study covered the application of above concepts described under the ALM process to identify the most optimum assets allocation based on the defined criteria by the Company to reduce the assets and liability mismatch. The case study went into the Prophet modeling details specifying the use of Prophet ALS (Asset Liability Strategy), a separate library for the purpose of projecting both the assets and liabilities simultaneously, while taking into account any potential interactions of

– Dynamic dividends

– Dynamic policyholder behaviour

– Dynamic bonus and participation rates

The ALS module uses primarily stochastic calculations to correctly value the time value of options and guarantees for products with embedded options.

An in-depth detail on the use of ALS library and modeling was explained to enable the use of modeling for the purpose of strategic asset allocation.

Summary

The highlight of the session was the introduction of ALM process defining three key steps of strategic asset allocation to reduce the assets and liability mismatch risk thereby reducing the interest rate risk.

Session 2: Predicting modeling and its application in insurance

This session was taken by **Dr. Richard Xu on Skype** at 3.00 am in the morning from US. He set the tone of the presentation by explaining the three key components of Predictive Modeling as

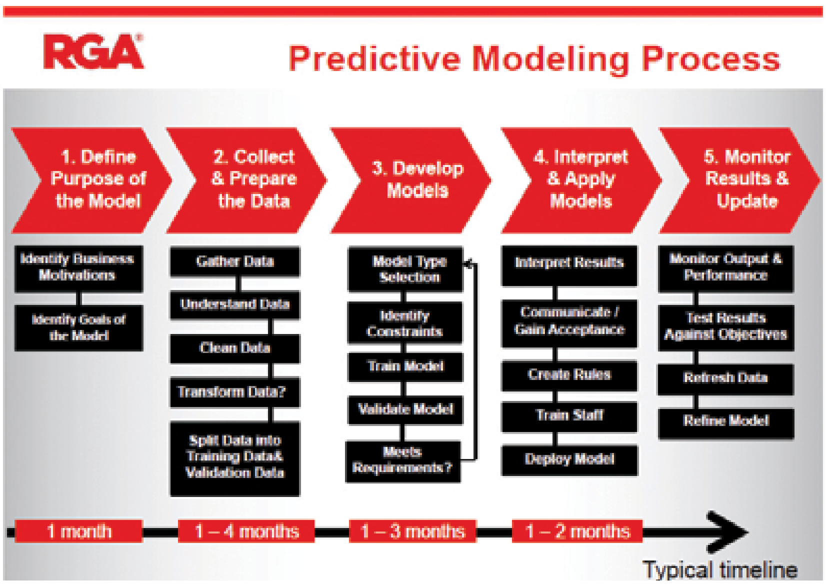
- ❖ High data quality
- ❖ Statistical modeling and
- ❖ Decision making based on prediction

This session was taken by Dr. Richard Xu on Skype

He explained the advantages of predictive modeling to grow business by identifying new and existing customers to enhance sales; he said that the predictive modeling also help in improving efficiency through accurate & granular view of driven factors of experience and in performing better risk segmentation. The advantage of prediction is better business decision where competitors cannot replicate.

The predictive modeling is getting popular because of **demand** from the market to manage the competition better by having insight into various details on products and services; while there is a **supply** in a form of availability of data base, statistical tools and computing power. This demand and supply is helping the business houses in reaching to customer better.

The statistical model used for the purpose of prediction is Generalized Linear Model ("GLM"). There are five steps required for the purpose of predictive modeling as described in the slide below



Dr. Richard showed the application of Predictive modeling in the insurance application as below in the slide. It may be seen that the application of predictive modeling has application is many areas of insurance business

Dr. Richard covered four case studies; the first was on predicting underwriting decision

Underwriting Model: Dr. Richard considered a case study on underwriting decision on existing customer from Bancassurance channel to sell product to existing customer without underwriting or short form of underwriting to reduce the acquisition cost and increase sale. This channel may give better result as the customer information is already available with the bank.

He however cautioned that in this approach, there could be some challenges with small number of fully underwritten cases in this channel, there could be missing value in the older data and also all the information is not collected at a time of underwriting.

For the purpose of projection he suggested to use GLM with binomial and logistic link function using for about a dozen of variables that are statistically significant for prediction that are readily available in client database. The output from the model could be on likely proportion of acceptance of cases on standard rate and on sub-standard rates.

Medical Product Up-sell: The second case study was explained on Increase sales by up-selling of new PHI products to a very large portion of the in-force medical policyholders with reduced underwriting. The Predictive Modeling likely to simplify the underwriting approach as the current underwriting process has been intrusive, long and expensive. This would make the sales process simpler and quicker for both customers and agents thereby reducing acquisition expenses and maximize sales.

The model prediction suggested that the underwriting requirements could be significantly reduced from 3-4 pages questionnaire to one single question.

Long Term Disability Pricing: The third case study was on US group Long-Term Disability(LTD) with about 13k policies, with lives per policies from 10 to 30k. The current pricing variables are about 30-40 with experience data of past 5 years with >80 variables. The major pricing variables: age, gender, industry, location, benefit structure. The objective of predictive modeling was to determine additional pricing variables and possible interaction terms (for pricing) and to identify groups with experience deviating from pricing assumptions for underwriting

Risk Segmentation: The fourth case study was on assessing mortality and morbidity risk on life insurance resulting from increase in foreign travel over last 50 years as location of residence has impact on mortality and morbidity. The risk segmentation was made on the 25 factors affecting the risk; based on the Principle Component Analysis, the world was classified into low to high rating based on most important four components.

Summary:

Mr. Richard Xu, showed the power of statistical prediction based on the historic data in the application of insurance sector. He also showed, if this power is used, it would make the decision making more informed and this trend is quite popular in developed economy.

ABOUT THE AUTHOR

Mr. Sonjai Kumar

is working as a Vice President in Risk Management area in Aviva India Life Insurance. He is involved in providing oversight risk management in wider risk area, his key strengthen is in insurance and financial risk oversight.

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Don't compare your self with anyone in this world. if you do so, you are insulting yourself.

-Bill Gates

EVENT FEEDBACK

Continue including topics that are relevant to the local Regulatory & Business Landscape. Good session overall.

Topics could also include setting up thresholds for risk appetite statement for various risks (detailed presentations in terms of concepts, considerations, methods adopted, 1 - 2risks at a time)

It's perfect! The case studies discussed are actually helpful.

Share the material before session (handouts)

Please include ERM, Global Practice in ERM, Practical Aspects

A more detailed information on the presentation may help preparing for the seminar

There should be some practice session for such a type of program

Both Presentations were excellent, to the point of perfection. Involved the participants & created very good interest

Provide some workshop to understand things better with suitable examples

Richarad had to dial in via skype. This caused him to lose the connect with the audience. Needed more interaction vs. monologne style

More sophisticated topics with Indian Appreciation

It would have helped if Richard could make it to India. Otherwise a very good session.

Hands on for Predictive Modelling & ALM

Richard is less technical; also graphs were not clearly visible making it difficult to understand the presentation.

Some work based examples along with seminar would be helpful

Farewell

My term as Compliance Officer has come to a close. I would like to take this opportunity to thank each one of you for allowing me to serve as your Compliance Officer for the past three years. It has been my honor and pleasure to serve the Institute and to work alongside some of the fellow and associate members of the Institute.

It is been wonderful 3 years in IAI. I have grown professionally and enjoyed my time here. Thank you for all the support, insights and help that i got over the last 3 years. Its been a great pleasure working in IAI. Thanks again for everything.

23RD INDIA FELLOWSHIP SEMINAR

Organized by : Advisory Group on Professionalism Ethics and Conduct, IAI
Venue : Hotel Sea Princess, Mumbai
Date : 18th - 19th June 2015

Day 1

On a day of monsoon showers in Mumbai, inside Hotel Sea Princess, a group was active and ready for the showers of knowledge from the would be actuaries and senior members of the profession. The fellowship seminar – a forum where the new blooming actuaries go beyond the course notes to get to know and learn more about the practical aspects of rendering their services. To set the tone for the show, **Mr. Abhay Tewari, Chairperson of Advisory Group on Professionalism Ethics and Conduct**, after welcoming the participants highlighted the importance and timeliness of decision making in our professional day to day life and how these decisions play significant roles. He quoted how a noted cardiologist in the city performs his role by taking quick and timely decisions in treating his patients. He wished all the presenters and encouraged the participants to make the seminar interactive.

The seminar was for duration of two days and filled with active participation of senior members of the profession which was enlightening from the professional and technical perspectives. It was great to be a part of the seminar where one gets to view the different aspects of any issue learning from experience and exposure of fellow professionals.

The first day had 9 sessions with 4 case studies and 5 topical presentations by 7 teams of 17 participants. The first session was a case study on **Another Actuary's Work** presented by **Mr. K. T. Jayasager, Mr. Banashree Satpathy and Mr. Sachin Madan under the guidance of Mr. Aditya Tibrewala.** The case study required the participants in their role as an employee of an insurance company, to discuss an actuarial report prepared by a UK actuary which is received as a part of documentation of the planned acquisition of an insurance operation by their employer. The requirement is discuss another actuary's work under three scenarios:- Unrealistic assumptions while still compliant with GN12, Non-compliant with GN12 but work is adequate, incompetent work using inappropriate data and methodologies.

The presenters explained each scenario taking turns - how and under what circumstances another actuary's work can be commented/criticized. The emphasis was on documentary support of work and reasonableness checks required in preparing a report to support the purpose for which the report was prepared even if it was not compliant with the relevant guidance note. The discussion was also on how one should adopt a careful and judgmental approach while commenting on another actuary's work. The guidance notes are specified for the practitioners to understand and appreciate the best practices and non- compliance is not necessarily a disciplinary misconduct. However, documentary evidence has to be maintained of all the work done. One of the participants quoted about the whistle blowing guidance available for the profession and the associated material offered by the Institute and Faculty of Actuaries, UK.

The next session was on a current topic - **Use of derivatives in hedging interest rate risks and its relevance in Indian Insurance Industry** by **Mr. Aditya Bathiya, Mr. Vijay Mudaliar** and **Mr. Vamsidhar Ambatipudi** under the guidance of **Ms. Aditi Trivedi.** It is an ever interesting topic as it deals with hedging risks which has been one of the prime areas of concern from the days of the failure of Long Term Capital Management (LTCM), a well known hedge fund. The presenters discussed about the interest rate environment in India highlighting the dominance of fixed rate instruments. They discussed the impact of offering products with guaranteed returns in a highly volatile environment. The behavior of assets and liabilities in a volatile interest rate scenario and the use of interest rate derivatives to combat the same were discussed along with an overview of the various interest rate derivatives currently available in the market (including traditional products like Forward Rate Agreements (FRAs) to non-traditional Credit Default Swaps (CDS) and exotic options). The participants put forth their views on the current illiquid nature of the Indian derivatives market and how it is an impediment for the insurance companies to diversify their investments into derivatives to hedge the interest rate risk even though the current regulations allow them as permissible assets

The participants resumed after tea with renewed energy for the session on the Case

Study – **Data Quality** by **Ms. Santosh R Charan, Mr. P S Karthikeyan and Mr. Varun Agarwal** under the guidance of **Ms. Kirti Kothari**. The first speaker started with the introduction to the case study how an actuary should perform his/her role while issuing an actuarial certificate confirming the adequacy of claims reserves when faced with the possibility of poor quality data. The best approach that can be taken in the absence of a specific guidance note for issuing an actuarial certificate was discussed - how the certificate can be backed by a GN12 compliant report as Statements of Actuarial Opinion (SAO). The relevance of GN33, GN18 and GN20 was also mentioned. The second speaker emphasized on the reasonableness checks that need to be done to validate the data and the imperative need to capture the shortcomings if any in the report. The third speaker talked about the importance of assuring the completeness and adequacy of data before issuing the certificate when there is evidence to suggest the possibility of flaws in the data. He also discussed the option of denying a certificate on the grounds of inadequate data as an extreme step. However, one of the experienced members suggested that if the actuary can document the data checks performed and the reasonable assumptions made in the process of arriving at the reserves with due diligence, the actuary can provide the certificate under the said circumstances. At this point of time, a mild aroma from the kitchen activating our hunger, we took a break for a quick lunch which of course involved networking along with some informal actuarial topical discussion as many of us could not afford to miss an opportunity to do so. The first session post lunch was yet another hot topic on **Management of expenses and Relevance of 17D rules post Product Regulations 2013** by **Ms. Aparna Mhatre and Mr. Kshitij Sharma** under the guidance of **Mr. Sunil Sharma**. As indicated, the topic was hot as it dealt with regulations and as always it is wide open for interpretations. The speakers discussed about the challenges one faces when dealing with expenses in pricing a product. In particular how the new regulation hinders the development of new products thereby posing a bottleneck for developing new business. They presented the current expense position and its consequences for the Indian life insurance companies. The operating expense ratios were presented for the Indian life insurance companies to highlight how the profit margin gets affected because of the expenses. However, one of the participants shared the view that operating expenses for different lines of business would be different and hence should be compared separately rather than taking one single figure for the entire company to make any meaningful conclusions. Some experts shared their views on factors causing expense inefficiencies. Many of the participants actively participated by giving their view points in the challenges they face in their work.

After the debate on the regulatory constraints in management of expenses, the next session was yet another ongoing issue in the industry **Ageing population: Importance of long term health care product and issues in pricing** by **Mr. K T Jayasager, Ms. Banashree Satpathy and Mr. Sachin Madan** under the guidance of **Mr. Aditya Tibrewala.** The speakers discussed about the problems associated with increasing longevity supported by some statistical data. They also discussed in detail about life style changes and the associated financial implications in old age. Factors that would lead to a huge demand for old age long term care products were discussed. However, practical issues in pricing such a product from the contract design stage to claims handling like uncertainties about the type of products that would be sought after and the economical factors like medical inflation etc. were explained. It was agreed that there are complexities in modeling and marketing such products as there is a potential for mis-selling and the associated regulatory implications.

The next presentation was a case study on **Model Office Projections by Mr. Ankur Saraf, Mr. Bharat Khurana and Ms. Arpita Jetha** under the guidance of **Mr. Kailash Mittal**. The case study required the participants to play the role of an actuary of a life insurance company responsible for forecasting and also as an Actuarial Function Holder (AFH) while dealing with the issue of increasing charges levied on the policyholders to meet internal targets and profits. The presenters discussed the Guidance Notes and PCS relating to the actuary's duty towards meeting Policyholders' Reasonable Expectations (PRE) and Treating Customers Friendly (TCF) issues. They explained the possibility of legal implications of increasing charges if policy wordings do not permit to do so. They emphasized the need to discuss with the AFH while rendering the role of a forecasting actuary the effect of increasing charges on statutory valuation assumptions as the above action may lead to high lapse rates. They discussed the possible ways of dealing with conflict between PRE/TCF and maintaining profits while addressing simultaneously the effect of increase in lapse rates on profitability.

A presentation on **Impact of revised APS on peer review and Issues involved in the Peer Review of Appointed Actuary work**

Participants during the session

by **Ms. Malvika Nath and Mr. Vishal Ahuja** under the guidance of **Mr. Bikash Choudhary** followed next. As a topic on current developments in the profession, it did invoke a lot of participation from our senior members which added value to us. The presenters discussed the scope of peer review and the need for peer review to be completely external and independent with adequate competency for the job. As per APS, the peer reviewer should hold the appropriate Certificate of Practice. Interestingly this point was debated as there are a few COP holders and the role will be limited to a few individuals taking turns in the process. As one of the participants rightly pointed out, that there are many competent members of the profession who are not qualified but can be serve as good peer reviewers due to their rich experience. Practical issues relating to new version of APS4 (3.02) which set out the eligibility criteria of a peer reviewer were discussed. With additional CPD requirements (as expected by APS9 version 2) number of COP holders would come down and hence the availability of peer reviewers meeting the required criteria. Some senior members of the professions discussed the value of the peer review by sharing their experience.

The closing session of the day was another topical presentation **Opportunities and Challenges in offering whole life fixed rate annuities by Mr. Davangere Mahidhara and Mr. Chinnaraja Pandian** under the guidance of **Mr. Hemanshu Jain.** The discussion started with the need for well planned retirement in lieu of increasing longevity. They discussed about the ageing index of developed and developing countries and the position of India in the next 50 years in terms of ageing index. After setting up the context in which the demand for whole life annuities would move in the coming decades, they went on to discuss the different types of annuities that are available in the market currently and the opportunities and challenges in offering such products in the future. The challenges discussed include the appropriate risk management methods required, regulatory approval and increasing tax benefits for the public in subscribing to such products.

We had come to the end of the day. We were ready for the desserts. Desserts mean the lecture by our guest **Mr. Neil Hilary, Education Actuary, Institute and Faculty of Actuaries** was there to share his views on the professional developments and the opportunities for growth of the profession not only in UK but also in India. He shared his experience of the professional challenges he faced in his work. He stressed on the importance of maintaining professional ethics and conduct at all circumstances to uphold the respect of our profession.

Mr. Neil Hilary

Day 2

With heavy downpours from a vigorous monsoon, the sessions started with a delay having due consideration for the difficulties of the participants in reaching the venue. The first session of the day was a case study on **Capital Injections by Ms. Malvika Nath and Mr. Vishal Ahuja** under the guidance of **Mr. Navin Vishwanath.** The presenters briefed on the case study – role of an Actuarial Function Holder (AFH) when faced with conflicts with the board of the UK based subsidiary that merely relies on the decisions taken by the Chief Executive of the parent company in the Far East. AFH indicates the need for capital to maintain the competitive free asset position. AFH was informed that the timing and amount of capital will be decided by the parent company. In this backdrop, the team discussed the regulatory and professional context in which the AFH has to function citing the relevance of IRDA regulations, APS1 and APS2. They also discussed the implications of inadequate capital on the solvency of the company and the courses of action that are open for AFH under the given situation.

A case study on **With Profit Guarantees** by **Ms. Aparna Mhatre and Mr. Kshitij Sharma** under the guidance of **Mr. Shubhendu Bal** followed next. The case study was about a senior life actuary who would be a member of the working party looking into the affairs of the profession. The main issue was that the senior life actuary had worked in a junior role earlier in a troubled mutual life office which faced a court ruling on issues related to with profits business. The team discussed about the conflicts of interest in accepting the role in a working party as he/ she was an employee of the troubled mutual life office. They also indicated the problems that would be faced when addressing a press conference intended for discussion about the role of the working party and its constituency as the past press coverage alleged that the profession failed to act in the public interest. The team put forth the challenges of the working party in facing the criticizing press to express their opinion on the role of the Actuarial Function Holder. There was another interesting case study on **Advising a new client** by **Mr. Davangere Mahidhara and Mr. Chinnaraja Pandian** under the guidance of **Ms. Subbulakshmi V** which threw up challenges faced by an investment consulting actuary who needs to consider regulations of different professional bodies and regulatory authorities apart from the Actuarial Profession. The trustees of a pension Scheme had sought the advice of a new investment actuary who is working for pension consulting firm. The trustees were not happy with the previous adviser and now need a quick and full review of the Scheme's investment arrangements on strategy, structure, and managers. The challenge that the actuary faces is that he is aware that the director of his firm is also one of the fund managers managing the funds of the pension scheme and is also the director of the firm. The team discussed the need for eliciting the nature of dispute between the trustees and the previous adviser before accepting the role. The presenters explained the relevant PCS requirement in disclosing the conflict of interest to the trustees and how the role needs to consider the stakeholders' interest, beneficiaries of the pension scheme in particular since the advice given would influence the investment of bulk transfers in the coming months.

The topical presentation on **Sustained low interest rate environment- Impact on guarantees and PRE** by **Mr. Ankur**

Saraf, Mr. Bharat Khurana and Ms. Arpita Jetha under the guidance of **Mr. Souvik Jash** touched upon how decrease in interest rates will affect the guaranteed products and policyholders' reasonable expectations. The presenters had to imagine not only a low interest rate environment in India but the one that is sustainable, which we had not witnessed in the recent past. Given such a challenge, the team did not give up but made the session interesting that led to a series of thought provoking discussions. The team explained how the long stretch of low interest rate environment affected the guarantees in countries like Japan, Germany and the UK. The experience of Japan was unique as they had a very short tenure of negative interest rates. The team discussed the impact of the low interest rates on different types of fixed rate products offered by Indian life insurance companies.

Due to the need to conclude early in view of inclement weather, we had an additional pre-lunch session - a case study on **Mr. Audit Trail** by **Mr. Aditya Bathiya, Mr. Vijay Mudaliar** and **Mr. Vamsidhar Ambatipudi** under the guidance of **Mr. Tushar Chatterjee.** As emphasized by Code of conduct and TAS, communication plays a key role in rendering our professional services. Audit trail is one method of recording the work done and communicating the findings to the target audience. A new investment consultant appointed by the trustees of a pension scheme got an opportunity to meet the new Finance Director of the company who raises the issue of an old investment allocation strategy report draft given by previous consultant and subsequent alteration to the same before final sign off. The team discussed about the various stakeholders in the case and the problems faced by the new consulting actuary. They explained the possible courses of action that are open for the new consultant with reference to the appropriate PCS and actuaries code of conduct. The team concluded by stressing the importance of proper documentation of work via Audit trail and thorough investigation of any situation before commenting on other member's work.

The first session post lunch was on **Natural disasters: Importance of household insurance and issues involved in pricing household insurance products in India** by **Ms. Santosh R Charan, Mr. P S Karthikeyan and Mr. Varun Agarwal** under the guidance of **Ms. Kirti Kothari.** A topic which the industry, government and the public should think about concurrently to combat highly uncertain and extremely dangerous events which are beyond human control and predictions. The team briefed about the damages caused by natural disasters in various parts of the country in the last decade including the recent earthquake in Nepal. They discussed the perils that are covered under household insurance and the factors that influence the premium setting while these perils are covered. The team also explained the practical difficulties in pricing household insurance because of lack of data and the fact that past history need not be a good guide in this particular instance. The nature of the claims (low frequency and high severity) associated with natural disasters and the lack of expertise in predicting their occurrence pose a challenge to price the household insurance products in India though the country has witnessed periodic occurrences of such disasters.

With several practitioners actively participating in the event, it was very insightful. The final session was on **IAI Disciplinary Process** by a highly experienced member of the profession, **Mr. K S Gopalakrishnan** who also was a member of the Disciplinary Committee till last year. He guided us through the different stages of the process from initial application stage through hearing stage. He highlighted the events that would trigger disciplinary action. He urged each member to be acquainted with Actuaries Act which specifies the dos and don'ts and follow professional ethics and conduct to stay away from unwarranted disputes.

Mr. Pritish Chaubey concluded the seminar with his vote of thanks for all panelists, participants, and special guests and of course the organizers from the Institute.

ABOUT THE AUTHOR

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VOLUNTEERING OPPORTUNITIES

IAI invites its fellow members and qualified actuaries of IFoA, UK and IAA, Australia to join in its Volunteering Opportunities Initiative. Through this platform, members will be able to share ideas, gain a broader perspective and experience of work outside their own specialist area, through networking with peers, gain CPD hours and be able to give something back to the profession. We invite members who respect the IAI values and what it stands for and wish to take the profession to newer heights of success through their willingness to share their knowledge and/or skills by working in partnership with peers/colleagues.

If you are interested in applying, please visit our website for more details: www.actuariesindia.org

LEADERSHIP DEVELOPMENT PROGRAMME

Organized by	:	Institute of Actuaries of India
Venue	:	Hotel Sea Princess, Mumbai
Date	:	20th June 2015

On the 20th of June 2015, when I was reaching the venue (braving Mumbai rains) to attend the Leadership Development Programme I was occupied with mixed feelings. I was enthusiastic as this was something that our actuarial syllabus did not cover. I knew that the day was going to be different from others as I would learn new nuances out of it and it would help me to improve my leadership skills. At the same time I was a bit downhearted with the thought of one day weekend. I told myself that if at the end of the day the things I learn supersede my mewling then it would be worthwhile.

Mr. Nimesh and participants during the session.

OUR FACULTY

The programme started with our faculty, **Mr. Nimesh Rathod,** introducing himself. He is an engineer by education and is an Associate Certified Coach by International Coach Federation, USA. Through his coaching he has enabled various business owners and professionals to maximize their potential across different industries. He has been imparting quality education through his role as a visiting faculty to many renowned educational institutes in the country and has been associated with IAI for more than 4 years as a faculty.

KNOWING EACH OTHER

Our coach made it very clear from the beginning of the session that it was going to be an interactive one with the audience driving the discussion. To start with he encouraged all the participants to introduce themselves to the group. It was a useful exercise as at the end of the session we knew more about each of the participants. Fortunately, ours was a diverse group with people from different work sphere (mind it – couple of them are entrepreneurs!) with a range of experience and background.

LEADERSHIP AND THE ART OF NEGOTIATION

Mr. Nimesh revealed that we would be focussing on one of the important characteristic of leader, i.e. negotiation as it is one of the key skills that all the successful leaders around the world possess. He asked the group their expectation from the programme and if anyone wanted to understand anything specific related to negotiation. We spent some time discussing what we meant by negotiation, how we deal with negotiation in our day to day work experience and what we would like to learn from the programme.

Our faculty touched the very basics of negotiation by stating that negotiation is a continuous process, everyone in this world is constantly involved in this process and negotiation is not always about price. To cite a few examples, a child negotiates with his parents for a piece of toy or an employee negotiates with his employee in terms of number of holidays that can be approved etc.

Mr. Nimesh further explained that one of the key principle of negotiation is that it is not always about price. Price is usually the last thing to be discussed, or rather to be discovered by the end of negotiation. Negotiation is a process that delivers far more than price. Successful negotiators use this process for different purpose such as to

- Clinch a deal,
- Understand expectations of the other party,
- Have a clearer scope,
- Understand if there is any room for margin,
- Better understand of peoples' negotiation behaviour,
- Strengthen long term relationship etc.

Taking real life examples our coach explained that human beings have an inborn aspiration of winning every transaction – whether in terms of money, time or any other substance of interest. Good negotiators cash in on this attribute by giving the other party a sense of winning and by this process taking care of their own interests as well.

GROUP ACTIVITY – KNOWING THE OTHER PARTY

In the next session all the participants were split into many groups of two members each. Each member of each

Mr. Nimesh and participants were enjoying Group activity group was assigned the task of making the other member divulge three key pieces of information related to him by asking indirect questions. The learning from this was to understand the background of the counterparty in a negotiation by asking open ended questions rather than direct questions. All the participants agreed that it was effective in ensuring effective information exchange. The other learning was that we have to be a good listener if we aspire to be good negotiators. The more we allow the other party to talk, the more information we can gather which we can use in the negotiation process. It is a fact that negotiators do not always reveal intentions or interests out-rightly. So, one has to talk less to observe and understand the unsaid.

BUILDING TRUST AND RELATIONSHIP – KEY TO SUCCESS IN NEGOTIATION

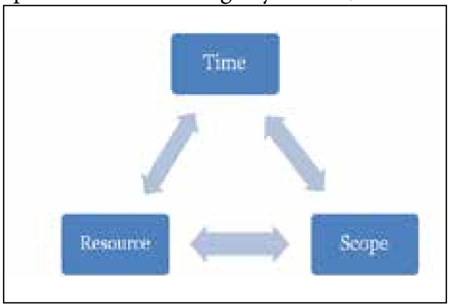
In the next phase of the programme our faculty encouraged us to discuss how building relationship helps in sailing through tricky situations. Building relationship happens over time and trust is built when we keep in touch with people even when we don't have any interest to be taken care of by them, stick to our promises and respect the interest of the counterparty. Most of the participants shared their work experience to echo the fact that human beings should not be treated as resources and informal relationship with colleagues helps to make day to day tasks easier. Most of us work in a cross functional environment where negotiation takes place day in and day out and building trust and relationship makes life a lot easier for all of us. These are key nuances to be taken into consideration if one aspired to succeed as a negotiator.

TEN INTRIGUING QUESTIONS

Mr. Nimesh shared ten very thought-provoking questions with the audience and each one was supposed to be answered with true/false. While answering these questions the participants discussed and there was healthy debate whenever there was disagreement. Through this exercise we got to know the characteristics of good negotiation, how to approach it and how to take further the outcome of any negotiation. Our coach further stated that during negotiation one has to ensure that the other party wins and yet you get what you want.

APPROACHING DEADLOCK SITUATION

Our faculty explained that in case of a deadlock situation where the negotiation process is not moving any further, one has



to take into consideration the time, scope and resource triangle. If the negotiation is in relation to time and the discussion is going no-where, then the resource available for the work can be negotiated. If this also fails to reach an agreement, negotiation should move on to the scope of the work. There is no prescribed order to be followed. The idea is that there is no reason as to why a negotiation should fail if there are some deadlocks. The process of negotiation should focus on different aspects so that some worthwhile outcome is there for both the parties to the process.

CASE STUDY - POSITION VERSUS INTEREST

We understood that negotiation is about taking care of interests of all the stakeholders in the process in a case study that Nimesh involved us in. Through this case study we appreciated that stakeholders, their position and interest are three different facets which exist everywhere there is negotiation. The key point in any negotiation is to address the interest of the stakeholders. Unless interest is addressed, it would be very difficult to take care of the position of the stakeholder.

VIDEO CLIP – TIMING MAKES THE DIFFERENCE

The next session was very interesting as all the participants got to watch a video clip from a movie. Here, the protagonist successfully negotiated a deal with the use of his keen observation, presence of mind and proper timing. All the participants understood the relevance of using these skills in the negotiation process.

ROLE PLAY – USING POSITION AS CURRENCY

After this we participated thought provoking role play where all the participants were split into two groups and each member was assigned a key role to play. There were different points on which both the groups had to agree. This role play gave an opportunity to the participants to implement their learnings from the earlier sessions of the day. This made us think through the different stakeholders involved in the role play and their positions. The next challenge was to understand their interests and it took quite a bit of an effort to understand the background and hence the interest of the other group. After the role play, Mr. Nimesh reiterated another very important characteristic of negotiation. That is to use position as a currency in the negotiation. If one party is giving some leeway to the other party in negotiation, then the former party should also demand something in exchange from the later one.

TOOLS OF NEGOTIATION

The last session focussed on understanding various tools used for negotiation and most importantly, BATNA (Best alternative to non-agreement). Our coach mentioned that about even after deadlock one should think what is to be taken out of the process of negotiation. Before walking into any negotiation, BATNA should be thought of. Mr. Nimesh further emphasized on the fact that it is always wise to take time to yield to any negotiation. He cited his personal life experience whereby Japanese businessmen tend to drag negotiations until the very last moment so that the other party becomes vulnerable nearer to the deadline.

CONCLUSION

I didn't realise that we had reached the last session of the programme and was glad that I got the opportunity to participate in the programme. The insights that we got from the programme was unmatchable as we can see from some of the feedbacks below. The realisation that negotiation is omnipresent and we negotiate constantly (whether knowingly or unknowingly) was an eye opener. That means negotiation is something one has to live with and one can't shy away from it. It would be wise to master the art by practising some of the key aspects like understanding the background and stake of the other party, building strong and sustainable relationships, use of alternatives in case of deadlock situation etc.

EVENT FEEDBACK

Enjoyed the case studies and role-plays.

The program was particularly very effective in certain simpler aspects of interaction that invariably tends to get missed.

Best part of the programme was to make participants realize the goal/objective through participation in exercises.

It helped us to understand the subtle things which lead to making people successful.

This is one of the best sessions I have attended. Such sessions could be included as part of the CPD requirements.

The session was an excellent experience.

Fantastic program – Engaging & Interactive…thoroughly enjoyed the day

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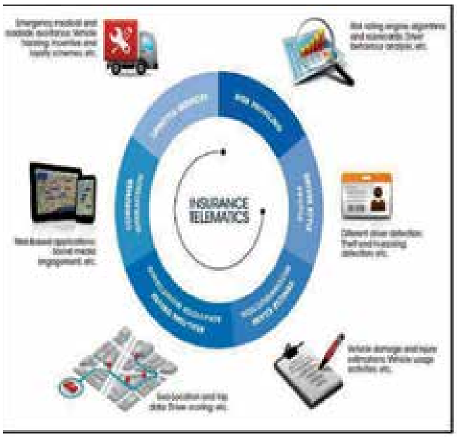
MOTOR INSURANCE FUTURE - WHAT LIES AHEAD?

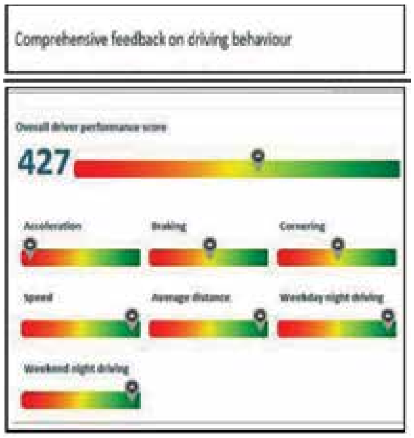
It's 2025 and you've just purchased a new car. It means you need motor insurance. How might the insurance product offering and customer experience differ from today?

Will cars really need the type of Insurance we are selling today or will there be a major overhauling in the way we rate motor insurance products?

Two primary findings which have established huge anxiety among insurance stakeholders for the upcoming future:

1. What can the insurance industry do to embrace the changes and innovation to succeed?
2. What form does "innovation that matters" take in the insurance value chain as we approach the end of the first decade and a half of a new century?

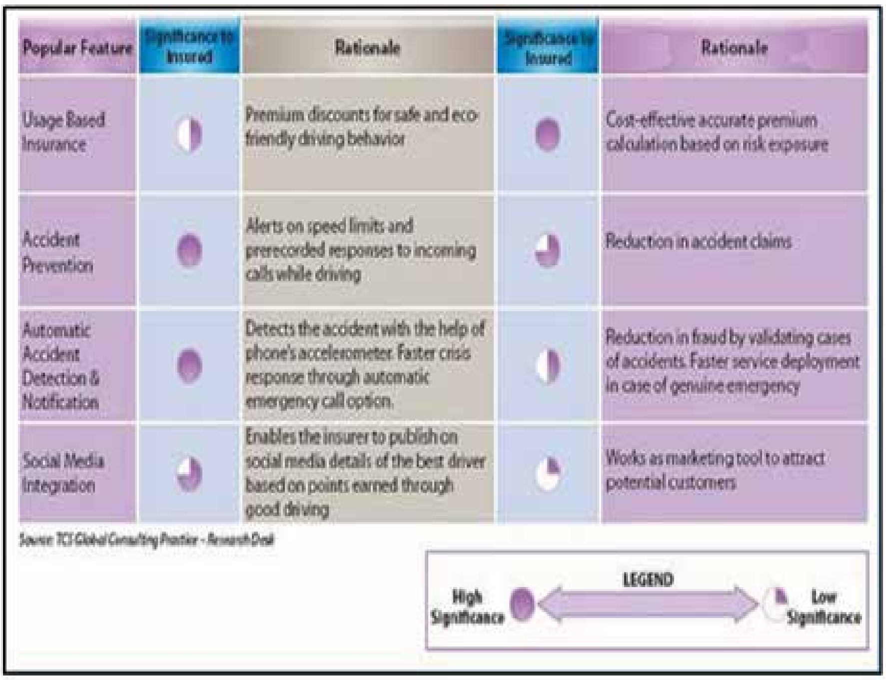




1. Telematics by Default

Telematics devices record distance, location and time of day travel data, as well as driving style information based on acceleration, braking and cornering data. Some insurers have also started offering smartphone apps that gather similar data. If the telematics/smartphone app data computes a customer to be a safer than average driver, his premium will be lower than average. Within next 5-10 years, telematics-based premiums will be the norm, rather than exception. New cars will drive-off the showroom floor with a telematics device fitted by default. Drivers who elect not to share this data with their insurer will automatically pay the maximum premium for that vehicle. Association of British Insures UK came up with a set of guidelines for Motor Insurer's operating in UK which sets out high-level actions that insurers should seek to achieve to ensure that customers understand and trust telematics-based motor insurance products.

Benefits of Telematics to Insurer and Insured



Popular Feature	Significance to Insured	Rationale	Significance to Insured	Rationale
Usage Based Insurance		Premium discounts for safe and eco-friendly driving behavior		Cost-effective accurate premium calculation based on risk exposure
Accident Prevention		Alerts on speed limits and prerecorded responses to incoming calls while driving		Reduction in accident claims
Automatic Accident Detection & Notification		Detects the accident with the help of phone's accelerometer. Faster crisis response through automatic emergency call option.		Reduction in fraud by validating cases of accidents. Faster service deployment in case of genuine emergency
Social Media Integration		Enables the insurer to publish on social media details of the best driver based on points earned through good driving		Works as marketing tool to attract potential customers

Source: TCS Global Consulting Practice – Research Desk

LEGEND: High Significance ↔ Low Significance

Future Telematics devices will be integrated with sensors connected to the cars panels, bumpers, windows, lights, wheels and even the paint. In the event of a fender bender, shopping cart collision, nasty paintwork scratch, or something more serious, insurers will have the luxury of knowing about it at the time of accident which will reduce claim settlement processes and save huge amount of cost. Sensors will even be smart enough to know how much damage has been done, which insurers could further use to develop reasonably accurate repair cost estimates.

2. Person to Person (P2P) / Social Motor insurance

P2P insurance was pioneered by Friendsurance in Germany in 2010. P2P motor insurance is a combination of a peer risk pool and a traditional insurance policy. A group can be set up by the policyholders forming a social network like Facebook. The only requirement is that all group members must have the same type of insurance like motor insurance. When a customer joins a group his premium goes into a group protection pool. This pool is used to pay for any claims during the year. Leftover funds in the pool at the end of the year are rolled over to the next year, meaning group members only need to pay what is required to top-up the protection pool. The more safely the group drives, the more money in the pool at the end of the year, and the less group members need to pay to top-up the pool. If someone in the group is making too many claims, the group can suggest to have them removed. In addition to providing discounts for good driving behavior, this approach aims to strengthen the sense of responsibility towards the group while minimizing fraud.

But some people might ask what is the difference between Mutual and P2P Insurance?

Mutual Insurance Co. is owned entirely by its policyholders. Any profits earned by a mutual insurance company are rebated to policyholders in the form of dividend distributions or reduced future premiums whereas P2P insurance is a concept to make insurance cheaper. A part of the insurance premiums paid flow into a group fund, the other part to the insurer. Minor damages to the insured policyholder are firstly paid out of this group fund. For claims above a certain defined limit the regular insurer comes into picture.

RECENT DEVELOPMENTS

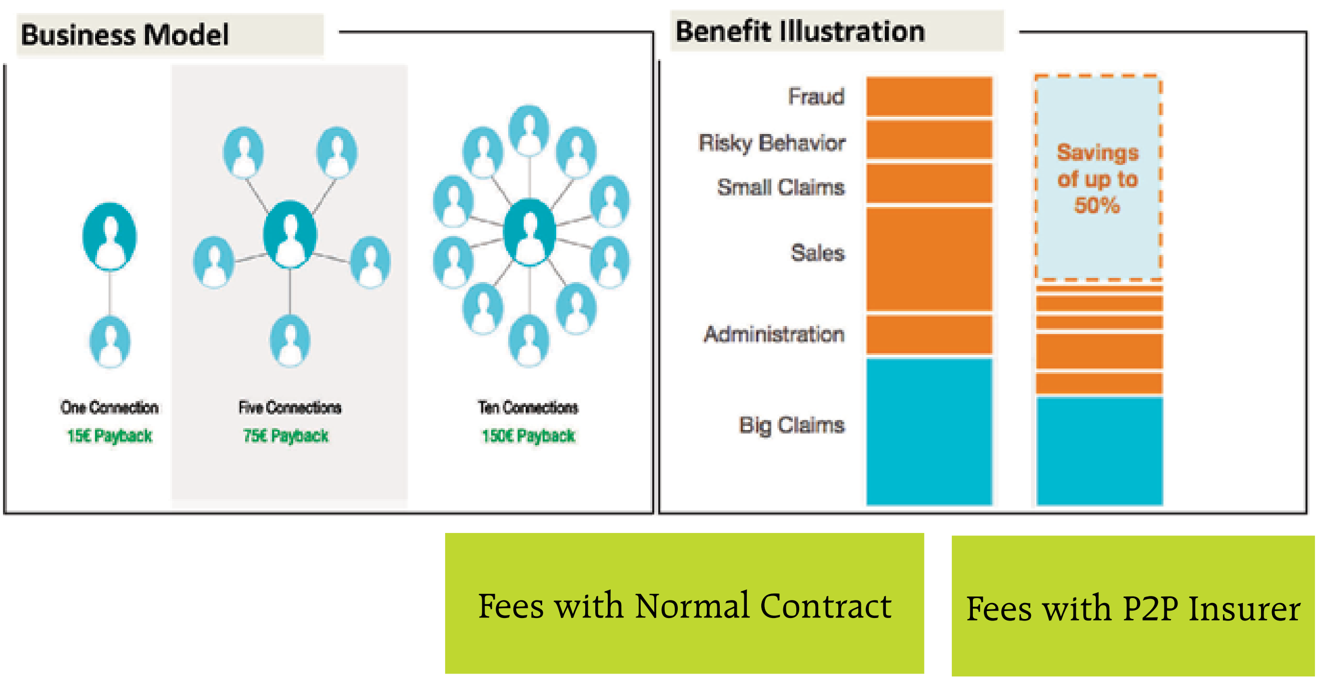
1. In 2014, the British insurance company Guevara introduced the peer-to-peer insurance concept for car insurance in the UK.
2. In 2014, Friendsurance launched the peer-to-peer insurance concept also for existing policies. In cooperation with the insurance company the existing policy will be adapted to enable use of the concept. Price and service remain unchanged.

3. Driverless Cars: Will Auto Insurers survive the collision?

Recently we have seen that significant investment is being channelized towards the development of driverless cars. Nissan has announced that it will deliver a commercially viable self-driving car by 2020. In the US, studies suggest that over 90% of accidents are actually caused by human error, while in the UK traffic accident statistics show that cars with driving assistance systems have 30% less accidents. So, what will be the impact on motor insurance due to the introduction of autonomous vehicles in future? We know that insurance premiums are a direct function of the frequency and severity of accidents. In a world of driverless cars, where accidents are significantly curtailed, most of those premiums will go away. Some car insurance will be needed, but the market might be reduced by 75% or more. This is a grave situation for all those working in Insurance.

Google is currently working on the technology of driverless cars and trying to make it a commercial success. Google's 'driverless' car program has started a technology arms race across the auto industry specifically in the developed world. If auto industry executives and boards members were not focused on this transition earlier, they are paying a lot of attention now.

Most automakers are racing to differentiate their premium models with intelligent driver-assisted functions like smart cruise control, accident avoidance, and crash monitoring and reporting. These efforts will hasten consumer trust in driverless technology and accelerate the proliferation of the technology throughout all car models. This incremental approach will lead not only to the eventual business model disruption



for automakers brought on by totally autonomous cars—it will also hasten the disruption for auto insurers. Forecasts have estimated that a 20% adoption rate of incremental driver-assisted technology might result in significant enough reductions in accidents to trigger material reductions in premiums. So, Insurers who are not keeping a tab on the changing pulse within the auto industry will start feeling the effects of driverless technology long before fully autonomous cars become ubiquitous.

Because of these changes and also with the knowledge that premiums lag actuarial data, insurers will face some strategic choices in future.

1. Some insurers will delay instituting price reductions and enjoy greater short-term profitability.

2. Others, more focused on the transition, will use the drop in claims to be aggressive on pricing, taking away the best customers and gaining market share.

   The motor insurance industry may have to start making these strategic choices in the next few years.

3. Another approach that some are currently thinking off is that Insurers issuing policies for cars based on driverless technologies will set high prices or simply refuse to cover driverless technology cars at all.

The danger with this approach is that it leaves an opening for someone else to innovate and create the right insurance products and business models for the emerging world where driverless cars are pervasive. Driverless technology will take human error out of the equation and make "underwriting" less important. The basis of competition will shift to other aspects of the business such as customer relationships, claims processing, expense management and distribution. Auto insurance will become much more like homeowner's insurance, where claims are rare but very high. Whether today's market-leading insurers survive the collision with driverless cars, and perhaps even thrive, will depend on how they manage the transition to an inevitably disruptive future. Certainly, there is a lot of peril. But there are immense opportunities as well. Today's market leaders have the expertise necessary to reimagine what insurance in the world of driverless cars could look like. They have trusted brands, strong customer relationships and operating capabilities to smoothen and even accelerate the transition to technologies that promises to save thousands of lives, hundreds of thousands of injuries and hundreds of billions of dollars in accident-related losses each year.

Some Future Challenges in terms of insurance liability.

Driverless cars are expected to present a variety of challenges for insurers. Changes surrounding the concept of fault, the possibility of cars being shared between multiple owners and the fact that many conventional rating factors will take on less relevance will all have to be considered in this new environment. These challenges are not just confined to comprehensive and third party motor vehicle insurance, product liability insurance will also be impacted.

4. The Silver Tsunami: Over 50's reshaping Motor Insurance

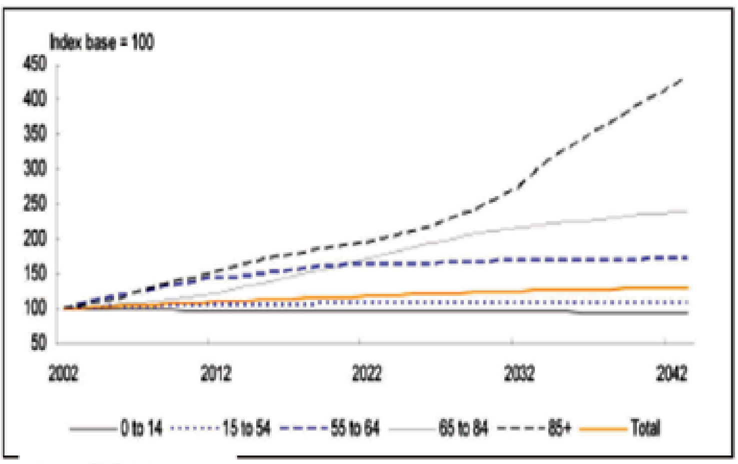
Today's large cohorts of working-age individuals (20 yrs-50 yrs) will be large cohorts of elderly citizens in the future. They will become a major force in wealth and spending over the next two decades. They will work longer but in more flexible roles, be more technologically literate than previous generations of older people and have dramatically different expectations. Managing technology, product design and service are just some of the changes which need to be addressed to meet the needs of this customer segment.

But across the globe there are only few companies like "Apia" Insurance in Australia who are providing specialized motor insurance to over 50's in Australia by rewarding experience and have strategies in place to maximize the opportunities arriving from the ageing population in future which is expected to grow to 40% of the total population in the next 10 years.

What are the issues with using age as a rating factor?

With the EU Gender Directive ruling in 2011, there are increasing concerns around the legitimacy of using age as discriminating factor. Critics feel that age is similar to gender and race in the way

Population Indices by Age Group in Australia from 2002-2042



Source: ABS Statistics

As per the Treasury's Intergenerational Report 2010, proportion of Australian population over 65 will almost double from 13% in 2001-02 to 25% in 2040. Relative to the younger age cohorts, the number of Australians aged 65 and over is expected to increase rapidly. Proportion wise, the silver population will account for nearly 40% of the overall population over the next two decades. General insurers who are able to tap into this market may enjoy the benefits of increased revenue and potentially, greater market share. Similar shift will be observed in other countries like India, China.

that people do not possess control over it. Therefore, using this fact to discriminate against is not fair. The accuracy of age as a rating variable is also under criticism. Age based rating may be based on generalized assumptions which may be inaccurate and in all probability will no longer be true given the increasing diversity within the older population.

Experience: Overseas Regulations

The EU Gender Directive ruling in 2011 has opened doors for further debate and legislation around modes of discrimination that have been traditionally allowed in the Insurance industry. The ruling officially implemented the principle of equal treatment for men and women in the access to and supply of goods and services, and prohibited both direct and indirect sexual discrimination in the provision of goods and services in the European Union. Increasingly, it is now forcing Insurance companies explore ways in which they can write business without using rating factors which may be considered discriminatory.

Future Marketing Strategy.

As the proportion of older population is growing, marketing which appeals to the older audience is gaining importance. However, this also presents another set of challenges for insurers given the increasing diversity within the older population.

If targeted marketing is to be used, a thorough understanding of the target customers is required to reduce the risk of marketing backlash such as offending potential customers due to inappropriate stereotyping or alienating a segment of the older population.

Future Strategies to overcome the challenges discussed

1. Be an innovator: Insurers may want to reshape their future through innovation, focusing on research and development of new products and investing in analytical decision-making through the use of new technology.
2. Be an expansionist: Insurers can grow through expansion by leveraging off their existing capabilities and expanding globally or into new customer segments for existing products or by using new distribution channels.
3. Be a fast-follower: Insurers may decide not to be the leader but be agile enough to follow the leader and establish a strong presence.
4. Be a survivor: Insurers may focus on short-term performance and survival by waiting for the majority of the industry to adopt new ideas and practices before adopting them.

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ABOUT THE AUTHOR

Mr. Deepak Sharma

is engineering graduate from NIT Jalandhar and currently a student member of IAI and IOA UK. He has more than 7 years of strong experience in Actuarial and Insurance Analytics space mainly Personal Lines, Claims Analytics and Workers' Compensation. He is currently working as an Actuarial Consultant with AXA Business Services, Pune

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Welcome

Ms. Swetha Jain has joined on 23rd June 2015 as Sr. Executive-Examination. She is B.E (ETRX) and carries 2.5 years of experience. Her hobbies include Reading, Listening Music, and Badminton.

We welcome Swetha to the family of Institute of Actuaries of India. She can be reached at swetha@actuariesindia.org

ESTIMATING ADJUSTMENT COEFFICIENT FOR RISK PROCESS

EXECUTIVE SUMMARY

Insurance companies receive claims on a daily basis for their different insurance policies. Deciding on the most profitable premium and deciding on what rate of reinsurance to take out, if any, are some of the main functions of these companies. The insurance companies not only need to decide on premium and reinsurance but they also need to compare different portfolios with regard to the risk involved. To assist in these decisions insurers use the adjustment coefficient as a measure of risk.

For the classical risk process, which is generally defined to have independent, exponentially distributed inter-claim times, independent, identically distributed claim sizes and a fixed premium rate; we are interested in the probability of ruin. Let X(t) be the surplus at time t and $\Psi(U)=P(X(t)<0 \text{ for some } t|X(0)=U)$, is the probability of ruin with initial surplus level U.

Under suitable assumptions on claim sizes it can be shown that:

$$\Psi(u) \approx e^{-RU}$$

where 'R' is called the adjustment coefficient .

In the conventional risk process, the adjustment coefficient 'R' is the positive root of

$$\lambda M_X(r) = \lambda + cr,$$

Where λ is the parameter in the claims arrival Poisson process, c is the rate of premium charged and $M_X(r)$ is the moment generating function of the claim amount, on the assumption that the claim amounts are independently and identically distributed.

The value of λ is unknown and thus the insurance companies make inferences about it by using the data on claim sizes and on the claims arrival process.

An important problem is how to estimate the adjustment coefficient since in many circumstances insufficient knowledge about the claim size distribution is known. In this article I will explain what the adjustment coefficient is and how it can be used to compare risks from different portfolios, and thus assist in calculating the upper bound for the probability of ruin.

INTRODUCTION

The primary reason for the existence of insurance companies is to share risk. Insurance companies have the ability to pool funds from many individuals in order to pay for the losses that some may face at a particular time. The insured individuals are therefore protected from these losses for a fee charged by the insurance companies. Therefore, it is the duty of the insurance company to help ensure that it has sufficient funds as surplus available at all times.

Ruin occurs when the claims paid are more than the premium collected. Thus, the insurance companies have to help ensure that they are protected at all times from ruin and are always able to accumulate a surplus. In the long run the insurance companies may be able to accumulate a surplus as the premiums received are more than the claims paid. The problem arises in the short run as the companies may not have enough resources to prevent ruin. Thus, the companies should provide enough initial capital to provide sufficient initial surplus. In addition the insurance companies should also organize the required reinsurance in order to help diminish the effect of large claims.

The circumstances of the companies are further complicated by the nature of the risks as some risks might be extremely large or on the other hand there might be a large number of small risks. Thus, it is very essential that the surplus is modeled, predicted and managed appropriately to facilitate the continual existence and success of the company.

With the help of the assumption of the Classical Risk Process we can calculate the probability of ruin by making certain assumptions on the claim sizes. The main parameter in the estimation of the probability of ruin, the adjustment coefficient can be used to compare risks from different portfolios.

Before we begin to learn about the adjustment coefficient and how it can be used to compare risks from different portfolios, and thus assist us in calculating the upper bound for the probability of ruin, we need to understand Ruin Theory.

RUIN THEORY AND THE CLASSICAL RISK MODEL

Throughout this article we make some assumptions, these are:

- Claims occur continuously over time.
- Claims are paid immediately and in full.
- The premium income for the portfolio of business is received continuously and at a constant rate.
- We ignore interest on the insurer's surplus.
- We ignore any expenses arising.
- We ignore the possibility of reinsurance.

1.1.1 THE SURPLUS PROCESS

"The surplus process is a model of the accumulation of the insurer's capital.

Let X_i be the size of the i^{th} claim in insurer's portfolio.

Further, let $X_1, X_2, \ldots$ be independent and identically distributed random variables.

Let $\{N(t)\}_{t\geq 0}$ be the claims number process so N(t) is the number of claims that occur upto time t

Therefore, total claim amount $S(t) = X_1 + X_2 + \ldots\ldots\ldots + X_{N(t)}$

The rate of premium income is denoted by c

U= U(0) is the initial capital where $U \geq 0$. This is because the future premium income may not be enough to pay for the future claims.

Surplus at time t = initial surplus + premium income up to time t – total claim amount up to time t

$$\text{Or, } U(t) = U + ct - S(t) \quad (1)$$

Here, we define $\{S(t)\}_{t\geq 0}$ as a stochastic process called the aggregate claims process.

$\{U(t)\}_{t\geq 0}$ is a stochastic process called the surplus process" (Lochowoski, 2009).

We should note further that the premium income and the initial surplus are not random variables since they need to be determined before the process starts while the insurer's surplus is a random variable as its value depends on the claims experience up to time t.

PROBABILITIES OF RUIN

Ruin occurs when U(t) is less than 0. In reality, this implies that an injection of capital is required by the insurance company to maintain solvency. We are interested in the probability of ruin and we shall see that its occurrence depends on U, the initial surplus, and θ which is the relative security loading.

Let U(τ) be the insurer's surplus at time t with U(≡ U(0)) being the initial surplus.

Then,

$\Psi(U) = P[\, U(\tau) < 0 \text{ for some } \tau, 0 < \tau < \infty]$

Ψ(U) is the probability of ultimate ruin, given the initial surplus U

$\Psi(U,t) = P[U(\tau) < 0 \text{ for some } \tau, 0 < \tau < t]$

Ψ(U,t) is the probability of ruin within time t, given initial surplus U

The following relationships on the probability of ruin are true:

For $0 < t_1 < t_2 < \infty$ and $U_1 \geq U_2$

- $\Psi(U,t_1) \leq \Psi(U, t_2) \leq \Psi(U)$
- $\Psi(U_1) \leq \Psi(U_2)$
- $\Psi(U_1, t) \leq \Psi(U_2, t)$

The intuitive reasons for the above relationships are:

- The larger the initial surplus, the less likely it is that ruin will occur either in a finite time period or an unlimited time period.
- For a given initial surplus U, the longer the period considered when checking for ruin, the more likely it is that ruin will occur.

In the following theory we make some assumptions:

- $\{N(t)\}_{t\geq 0}$ is a Poisson process with parameter λ, and so $N(t) \equiv P(\lambda t)$
- The X_i's are independently and identically distributed.
- The X_i's are independent of N(t) for all t.

Then, $\{S(t)\}_{t\geq 0}$ is a compound Poisson process and, for fixed t, S(t) has a compound Poisson distribution such that $S(t) \equiv CP(\lambda t, F_x)$.

Let $E[X_i] = m_1$, $E[X_i^2] = m_2$ and let the moment generating function(m.g.f.) of X_i(assumed to exist) be denoted by $M_x(r)$ where

$M_x(r) = E[\exp(r\, X_i)]$.

This implies the following:

- Mean $E[S(t)] = \lambda t m_1$,
- Variance $V[S(t)] = \lambda t m_2$
- M.g.f. $M_{S(t)}(r) = \exp(\lambda t(M_x(u) - 1)$

Since c > 0, ruin is realized instantaneously at the occurrence of a claim in continuous time, but can only be realized at the finite points where surplus is checked in discrete time.

The insurer's expected surplus at time t is:

$U + ct - E[S(t)] = U + ct - \lambda m_1 = U + t(c - \lambda m_1)$

Therefore,

If $c > \lambda m_1$, the insurer's surplus will drift towards +∞ but ruin could still occur.

If $c < \lambda m_1$, the insurer's surplus will drift towards -∞ and ruin will occur eventually.

If $c = \lambda m_1$, the insurer's surplus will drift towards +∞ and to -∞ and ruin will occur eventually.

We write $c= (1+\theta)\, \lambda m_1$ where θ is the premium loading factor or the relative security loading.

The insurer should load the premium for profit so that $c > \lambda m_1$; therefore in this project we make this natural assumption that $c > \lambda m_1$.

THE ADJUSTMENT COEFFICIENT AND LUNDBERG'S INEQUALITY

The most important result here is Lundberg's inequality, which gives an upper bound on the probability of ultimate ruin. It states:

$$\Psi(U) \leq \exp(-RU) \quad (2)$$

The upper bound is expressed in terms of the initial surplus U and a further parameter R known as the adjustment coefficient. Increasing U decreases the bound, and hence the probability of ruin, substantially, so a large value of R is desirable. R gives a measure of risk for a surplus process. It is a single parameter which provides a comparison of risk between different portfolios.

We shall now see how the value of R depends on the rate of premium income (through θ) and the distribution of aggregate claims (through the distribution of X_i).

Increasing θ increases the insurer's security and makes ruin less likely; therefore we would expect R to be an increasing function of θ.

Let us consider two scenarios:

1) The claim amount distribution is exponential with mean = 1
2) The claim amounts are constant (=1)

Note that, in the above two claim distributions, we have the same mean but the exponential distribution has higher variability implying higher risk which in turn implies a lower value of R. So R depends on the loading factor, θ, and the characteristics of the claim amount distribution.

If we consider the case when the aggregate claims process is a compound Poisson process with claim rate λ we see that R is the unique positive root of

$\lambda M_x(r) = \lambda + cr$ (3),

or $M_x(r) = 1 + cr/\lambda$ (4)

Now, $c = (1+\theta)\lambda m_1$ and so we have an alternative version: R is given by

$M_x(r) = 1 + (1+\theta) rm_1$ (5)

We see that R depends explicitly on the loading factor θ and the claim amount distribution – but not on the claim rate.

CONCLUSION

Thus, we see that if we can estimate adjustment coefficient we can determine the Probability of Ruin. An important problem is how to estimate the adjustment coefficient since in many circumstances insufficient knowledge about the claim size distribution is known. In practice, the precise knowledge of the risk model is available only through observed data. There has been a lot of research already done in this area and many methods have been used such as estimation of the adjustment coefficient using parametric assumptions, using empirical moment generating functions, or stochastic approximation procedure.

Statistical estimation in risk and ruin theory has been considered by many authors, see, for example, Pitts (2004) and the references therein. These include other approaches to estimation in risk and ruin models, and there may also be other set ups, for example, we may have direct observations on different quantities, and these may mean that different statistical tools will likely be more relevant. Or we may have a different observation scheme, for example, we may observe the claim arrivals and sizes up to a fixed time T (see Grandell (1991)). Possible developments include the application of the methods discussed here to other risk models and other quantities of interest.

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ABOUT THE AUTHOR

Ms. Vidhi Bhimani

is a consultant at Deloitte. Consulting, Hyderabad and have been working here for the past 2 years.

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Welcome

Mr. Rushikesh Shrikant Patankar has joined on June 16, 2015 as Compliance Officer. He is M.Com and has completed his executive level of ICSI and carries 3 years of experience. His hobbies include playing all kinds of outdoor games, reading, trekking.

We welcome Rushikesh to the family of Institute of Actuaries of India. He can be reached at compliance@actuariesindia.org

LIFE INSURANCE INDUSTRY

Following the passage of the Insurance Bill which raises Foreign Direct Investment (FDI) in the insurance sector to 49% from 26%, there have been stake sale announcements in the press by various Indian promoters such as Edelweisss Financial Services, HDFC, Bharti Enterprises, Max India, Bank of India, SBI, Religare, Aditya Birla Group, IDBI Bank and Federal Bank and there may be more in coming months. At the same time, several companies have sought clarification on the "Indian management" clause in the Act. As per the most recent clarification issued by the Finance Ministry, foreign shareholding in parent companies of insurance ventures would not be counted as foreign ownership for computation of FDI in the insurance ventures, unless the foreign shareholder in the parent company of the insurer is also a shareholder of the insurance company. The Foreign Investment Promotion Board (FIPB) has reportedly approved AXA's proposal to increase its stake to 49% in Bharti AXA Life insurance.

While existing foreign partners look to increase stake in their life insurance joint ventures in India, new interest also continues with press reports suggesting Swiss insurer Zurich Insurance Group plans to enter the Indian insurance sector.

New product offerings and resurrected interest in unit-linked products (ULIPs) in an enthused macro-economic environment led to the private life insurers recording healthy growth of over 15% in weighted new business premium collections in FY2014-15. However, with the drastic fall in the weighted new business premium collections of the state-owned Life Insurance Corporation of India (LIC), the industry as a whole recorded a contraction of 9% in weighted new business premium collections in the last financial year.

The LIC witnessed a year-on-year contraction of about 24% in weighted new business premium collections, resulting in around 10% loss of market share, to 53% in FY2014-15 from 63% in FY2013-14. To compete better with private insurers in terms of premium collection, the LIC has taken approval for a new ULIP which is expected to be launched soon. So far, the LIC was focusing only on traditional products.

Few senior company officials indicated that while ULIPs did play a big role in boosting premium collections for insurers, they also caused a strain on profits due to customers booking profits and exiting early. Prior to the implementation of the new product regulations, surrenders on ULIPs used to bring in substantial profits for insurers, however lower surrender charges are stipulated under the new rules in the interest of policyholders. Companies therefore need to lay adequate emphasis on ULIP persistency to achieve profitable growth in the long run.

The Insurance Regulatory and development Authority of India (IRDAI) approved 83 products since March 2015 of which 10 are ULIPs and rest are traditional products.

Bancassurance has been driving new business growth in the last few years with almost all the public and private Indian commercial banks and several foreign banks having bancassurance agreements with a life insurance company. In a significant development on bancassurance distribution, the IRDAI has issued draft guidelines on registration of corporate agency. The IRDAI was considering making it mandatory for banks to adopt open architecture (to tie-up with minimum two insurers), however the recent amendments to the draft guidelines registration of corporate agents allow banks to tie up with a maximum of three insurers with no mandatory minimum on the number of tie-ups and no mandatory maximum premium for each tie-up.

To further strengthen the distribution of insurance policies, the IRDAI has released regulations for the registration of Insurance Marketing Firms (IMFs), a licensed entity allowed to distribute insurance products of multiple insurers through Insurance Sales Persons and Financial Service Executives. An IMF can engage with two life insurance, two general insurance and two health insurance companies at one time and operate only in one district during the first three years on the license.

Historically dominated by the individual agency distribution model and now led by bancassurance sales, the industry is continuing to move towards the low cost proposition of online sales for procuring new business. Max Life is planning to join other insurers such as Aegon Religare Life and HDFC Life to introduce ULIPs via the online medium.

ABOUT THE AUTHOR

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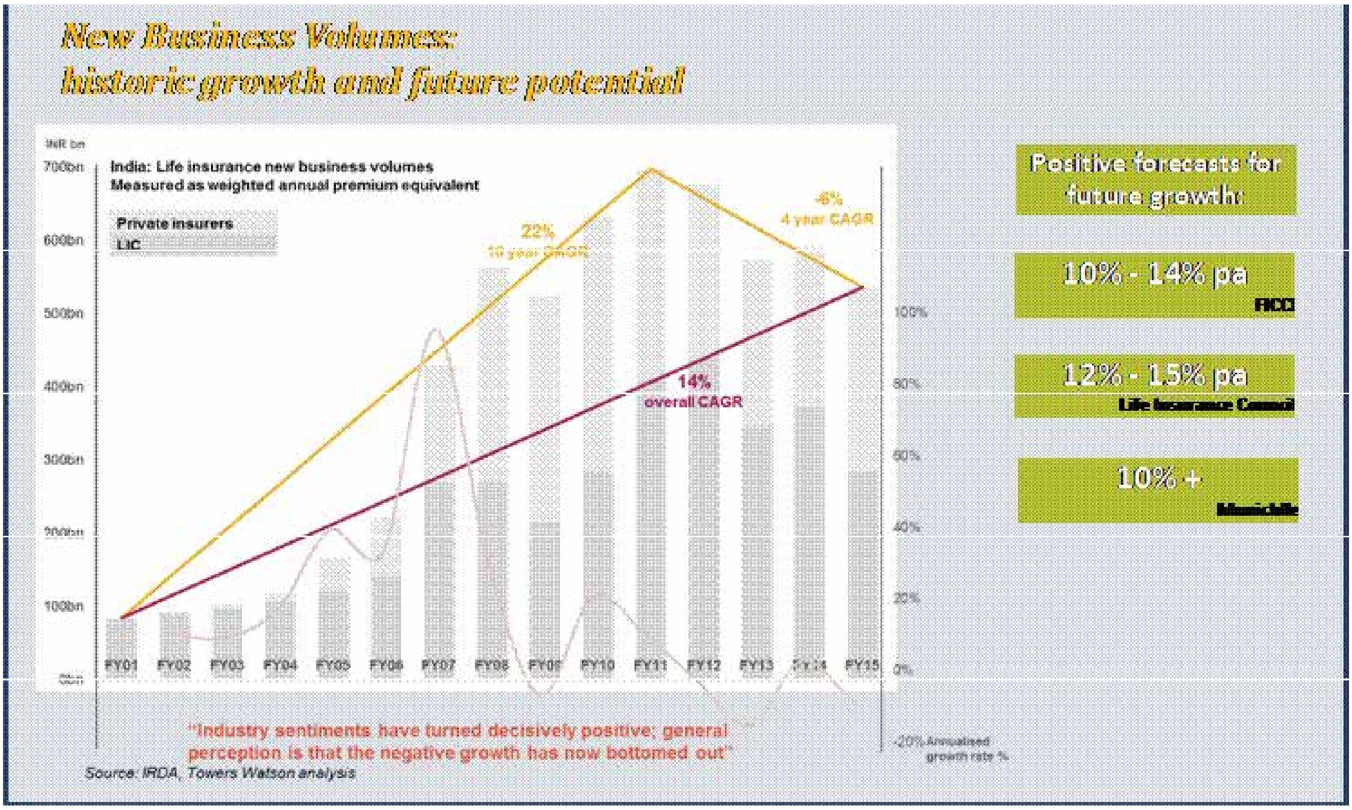
After the IRDAI releasing its revised guidelines with regard to repositories and dematerialisation, the regulator is proposing to make it mandatory for policies with premium above INR 50,000 to be issued in the electronic form.

With a view to expanding penetration of insurance and creating universal social security system in India, the Prime Minister has announced three social security schemes with an aim of enrolling nearly 100 million people under the schemes. Of these the life insurance plan is called "Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)" and will offer a life cover upto the age of 50 years of INR 200,000 against an annual premium of INR 330. The LIC has entered into Memorandum of Understanding with various state banks to implement the scheme for saving account holders of the banks. Few private insurers such as Max Life, SBI Life are also offering the scheme via their bancassurance tie-ups. Some life insurance companies are however pessimistic about offering the low-priced scheme with an additional downside of possible fraudulent claims.

The graph below shows new business volumes and premium growth since privatization of the insurance sector. Despite the struggle to maintain growth levels in the last four financial years, market sentiment appears more positive now. The overall economic landscape of India also looks promising with 2015 GDP growth estimated at 7.8% by the Asian Development Bank.



The Actuary India – Editorial Policy

Version 2.00/23rd Jan 2011

A: The Actuary India – Editorial Policy Version 2.00/23rd Jan 2011 A: "The Actuary India" published monthly as a magazine since October, 2002, aims to be a forum for members of the Institute of Actuaries of India (the Institute) for;

a. Disseminating information,
b. Communicating developments affecting the Institute members in particular and the actuarial profession in general,
c. Articulating issues of contemporary concern to the members of the profession.
d. Cementing and developing relationships across membership by promoting discussion and dialogue on professional issues.
e. Discussing and debating issues particularly of public interest, which could be served by the actuarial profession,
f. Student members of the profession to share their views on matters of professional interest by way of articles and write-ups.

B: The Institute recognizes the fact that;

a. there is a growing emphasis on the globalization of the actuarial profession;
b. there is an imminent need to position the profession in a business context which transcends the traditional and specific actuarial applications.
c. The Institute members increasingly will work across the globe and in global context.

C: Given this background the Institute strongly encourages contributions from the following groups of professionals:

a. Members of other international actuarial associations across the globe
b. Regulators and government officials
c. Professionals from allied professions such as banking and other financial services
d. Academia
e. Professionals from other disciplines whose views are of interest to the actuarial profession
f. Business leaders in financial services.

D: The magazine also seeks to keep members updated on the activities of the Institute including events on the various practice areas and the various professional development programs on the anvil.

E: The Institute while encouraging stakeholders as in section C to contribute to the Magazine, it makes it clear that responsibility for authenticity of the content or opinions expressed in any material published in the Magazine is solely of its author and the Institute, any of its editors, the staff working on it or "the Actuary India" is in no way holds responsibility there for. In respect of the advertisements, the advertisers are solely responsible for contents of such advertisements and implications of the same.

F: Finally and most importantly the Institute strongly believes that the magazine must play its part in motivating students to grow fast as actuaries of tomorrow to be capable of serving the financial services within ever demanding customer expectations. Version history:

Ver. 1.00/31st Jan. 2004 Ver. 2.00/23rd Jan. 2011

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CA2 TOPPER : MARCH 2015

jasdeep2512@yahoo.co.in

Congratulations! Mr. Jasdeep Singh, for being Topper in CA2 Exam held in March 2015. Tell us about yourself, your educational background and your hobbies?

Thanks for the wishes.

Born and brought up in Delhi, I did my graduation from Sri Guru Gobind Singh College of Commerce, Delhi University. I have cleared 12 papers and am studying towards the remaining Actuarial exams. I am currently working with Aviva Life Insurance Company as Senior Manager – Group Reporting, based out of Gurgaon. I have previously worked with Prudential Process Management Services in Mumbai and with Aon Consulting in Bangalore.

Like any other Actuarial student, it is a difficult task for me as well to strike the right balance between work, studies, personal, and social life. Personally, I love driving, cooking, and spending quality time with my family, especially with my 9 month old daughter.

How did your parents, family and friends contribute to your success?

My parents have always been a great support for me in whatever I have chosen to do. They have provided me complete independence and have always been by my side. They have celebrated my successes with enthusiasm and have provided me immense comfort in my failures, which has been most important for me. I have been married for four years now and my wife continues to be my better half in all senses. She understands the grind that we students have to go through in order to reach the summit. She has been very helpful all this time, be it late working hours in office or studying over the weekend. I have promised her that I would make up for all the lost weekends once I get qualified. I am extremely grateful for all their support and guidance throughout.

How many hours of study on average per day did you put in to top the CA2 result where in only 30 candidates passed out?

This is unlike most of the other Actuarial exams where one should allocate standard number of hours. My routine work in office gave me a good exposure to model development and documentation. However, closer to the exam I put in at least 2 hours during working days and attempted a few mock exams for about 8 hours in the last week.

How much time do you think one requires for serious preparation for this examination?

Acted has recommended 50 hours for the course, however, one needs to allow for some extra time for mock exams and attempting past exam papers. I would suggest another 30 hours as preparation time in addition to Acted recommendation.

Did you face any difficulty while studying this subject?

I used Acted online classroom in my preparation for this exam which clarified most of my doubts, so I did not face any significant difficulty.

CA2 is a 7.5 hour long exam which examines documentation, analysis and reporting skills of the candidates within the given timeframe. What was your strategy to cover all these aspects while preparing for exam?

As all of us know, for us to be successful, we need to be excellent in prioritizing and time management. CA2 especially is all about time management. The key focus while preparing for this exam was on the marking schedule. My focus was on specific areas in the Audit Trail and Summary section where abundant scoring opportunities are usually available. I ensured that I apply adequate self-checks and thoroughly review working assumptions, results, and next steps. It is very easy to lose focus on such key elements under the time pressure one faces. My focus during the mock exams was to manage sufficient time for such scoring areas which capitalized in the exam. I intended to devote 3 hours to excel model and 2 hours each to Summary and Audit Trail with remaining time to check whether all requirements/objectives are adequately met.

I was a bit lucky on the exam day to complete the model in 2 hours.

As for the excel model, I intended to create a simple model which could be easy to document. The strategy was to allow enough flexibility in the first scenario so that other two scenarios could be done quickly and would be relatively easier to explain in the audit trail.

It is also important to read the instructions carefully and understand the objective. Each results and objective need to be ticked off to make sure that you score maximum marks.

How this exam has helped you at professional level?

Working on excel model and documentation is a routine part of my job, however studying for this exam has helped me to improve my documentation skills even further. It has helped me in enhancing my eye for details.

How do you think you can add value to the Actuarial Profession?

In my career I have had a lot of opportunities to work overseas, where I found the level of support available to overseas students (UK students) is far more than the support available to us in India. They get opportunities for face to face tutorials, online classroom, and even exam counseling. It is heartening to see that the institute is now making an attempt to provide such facilities to students in India. I would like to contribute to this initiative and help in the development of the Actuarial students and the profession.

What was your purpose while selecting this course - Core Application Model Documentation, Analysis and Reporting?

Honestly, I selected this course in order to move a step closer to becoming a qualified Actuary. However, I strongly feel that this course is a great value-add to the Actuarial career as it helps in developing a good skill set which is extremely key to any Actuarial role.

EMPLOYMENT OPPORTUNITY

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4.	Experience	:	Preference will be given to the candidates having experience in General Insurance Industry.
5.	Age	:	The candidate should preferably be over 30 years of age.
6.	Duties & Obligations	:	As per Regulation 8 of IRDA (Appointed Actuary) Regulations, 2000.
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DGM (HR)

Government of India
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INVITATION FOR OFFERS FOR ENGAGEMENT OF FULL TIME ACTUARY

The Chief General Manager, Postal Life Insurance, Department of Posts, Chanakyapuri P.O. building, New Delhi-110021, invites offers from interested fellow members of the Institute of Actuaries of India for engagement of a full time Actuary for a period of two years initially and extendable by one year on certain conditions. The bid document, along with terms and conditions, has been uploaded on www.eprocure.gov.in. (No: 2015_DOP_34917) on 26.06.2015 at 17.00 hrs . The bidders can log on to the website and see the tender document. The interested eligible Actuaries who are desirous of participating in e-procurement shall submit their Technical & financial bids in the standard formats prescribed in the Technical documents, displayed at www.eprocure.gov.in . Schedule of bid is as under

Date of issue of RFP No.	29-06/2013-LI, dated 26.06.2015 17.00 hrs
Bid submission start date	27.06.2015 10.00 hrs
Date of submission of queries (if any) / sought clarification	06.07.2015
Date of Pre-Bid Conference on queries/ clarifications	10.07.2015 at 10.00 hrs venue : Dte of Postal Life Insurance, Chanakyapuri Post Office Complex, New Delhi-110021
Issue of clarifications	17.07.2015
Last Date and Time of submission of bids	29.07.2015 at 15.00 hrs
Date and Time of opening of online bids	29.07.2015 at 16.00 hrs

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MANAGING CHANGE IN INDUSTRY TOP RISK FOR INSURERS: SURVEY

The Economic Times 16th July 2015

MUMBAI: Insurers in India perceive managing change in industry as the top risk to their business, which is in sharp contrast to overall global results that cite regulation as a major risk, says a recent survey.

"Respondents from India perceive regulation as the least important risk and this could only be a reflection of the new reality where post the Foreign Direct Investment (FDI) changes, industry has accepted the new set of regulations as the 'new normal'," PwC India Director Anuraag Sunder said, quoting the survey 'Insurance Banana Skins 2015'.

He said domestic insurers are now more focused on 'change management', which is ranked as the top business risk.

"Fast paced changes on the ever-evolving customer side and increasing demand of digital interface is also a reflection of 'change management' that insurers would need to walk through," he said.

'Insurance Banana Skins 2015' survey was conducted by Centre for the Study of Financial Innovation (CFSI) and PwC, which polled over 800 insurance practitioners and industry observers in 54 countries (including India), to find out where they saw the greatest risks over the next 2-3 years.

The survey also revealed that the economic environment was also a lower order concern, with positivity about India's growth and inflation under control

"Cluttered at the top are financial risks (exposure through long term liabilities and investment performance) and human capital risks (quality of management and human talent), signifying lack of confidence on the talent pool," Sunder added.

The report said as India's customers continue to adopt technology in a big way, adapting to their ever-evolving expectations, especially from a technology standpoint was high on the priority list of the respondents.

On the non-life side, the absence of any common data platform to make informed decisions was an area of concern, it added.

It said the concern raised is that the traditional insurance industry will be slow to grasp the opportunity and will end up facing a threat.

Developments such as digitisation, the Internet and social media are already profoundly influencing price and demand for insurance products, and the means customers use to interact with their insurance providers, it added.

Ref: : http://economictimes.indiatimes.com/wealth/insurance/news/managing-change-in-industry-top-risk-for-insurers-survey/articleshow/48103879.cms

Funny Actury

A psychologist was studying the problem-solving abilities of engineers and actuaries. During a joint interview with one engineer and one actuary, the engineer was asked "If there was a fire in the wastebasket and a bucket of water on my desk, what would you do?" The engineer responded that he would put out the fire with the bucket of water. Then the actuary was asked "If there was a fire in the wastebasket and a bucket of water on the window sill, what would you do?" The actuary's studied reply was "I would move the bucket to the desk, thus reducing the problem to the previously solved one."

(Submitted by Stephen Prevatt)

MANY HAPPY RETURNS OF THE DAY

the Actuary India wishes many more years of healthy life to the fellow members whose Birthday fall in **JULY 2015**

MR A. V. GANAPATHY
MR. A. D. GUPTA
MR. H. L. JAIN
MR. A. K. GARG
MR. R. SRINIVASAN
MR. JAGADISH S. SALUNKHE
MR. MICHAEL JOSEPH L. WOOD
MR. K. K. WADHWA
MR. K. N. VISHWANATHAN
MR. K. V. Y. SASTRY
MR. P. C. MOHANTY

[Birthday greetings are made to veteran actuaries who are 60 and over.]

Submit your article atlibrary@actuariesindia.org

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 for submitting the articles are available at **http://actuariesindia.org.in/subMenu.aspx?id=106&val=submit_article**

We regret to say that Puzzle column will not be published for next 2 months.

SUDOKU

SUDOKU No. 34 for the month of July 2015

HARD SUDOKU

	6	3			2			
	5	2			9			
					7	5	1	2
5	4			1				
9				8				7
				2			9	6
8	1	9	2					
			5			3	2	
			4			6	8	

HOW TO PLAY

Fill in the grid so that every horizontal row, every vertical column and every 3x3 box contains the digits 1-9, without repeating the numbers in the same row, column or box.

You can't change the digits already given in the grid.

- Sudoku Puzzle
by Vinod Kumar

Solution of Sudoku Puzzle No.33 published in the Month of June 2015

SOLUTION

7	5	8	1	9	3	6	2	4
3	4	9	5	2	6	7	1	8
1	6	2	4	8	7	9	5	3
4	9	3	8	6	2	1	7	5
6	2	7	3	1	5	8	4	9
5	8	1	9	7	4	2	3	6
9	1	5	2	4	8	3	6	7
2	3	6	7	5	9	4	8	1
8	7	4	6	3	1	5	9	2

11TH SEMINAR ON CURRENT ISSUES IN RETIREMENT BENEFITS

Date: 21st August, 2015 | Venue: Hotel Sea Princess, Juhu, Mumbai

The importance of Pension and Employee Benefits and the emphasis an employer is placing on them has increased rapidly in the last few years in India. Moving closer to the implementation of new accounting norms, the Indian government has notified the rules for Indian Accounting Standards (Ind AS) which will be mandatory for companies from April 1, 2016. In a notification, the Corporate Affairs Ministry said the 'Companies (Ind AS) Rules 2015' would come into force from April 1, 2015. The notification of these IFRS standards fills up significant gaps that exist in the current accounting guidance. This will in turn improve India's place in global rankings on corporate governance and transparency in financial reporting.

The National Pension Scheme (NPS) is gaining a lot of popularity with each passing year with the government making available attractive tax breaks. There has been more than 100% increase in the member ship and funds under management under the NPS in the last 3 years.

The speakers and panelists will be a mix of actuarial and non-actuarial professionals with vast experience in Pension and Employee Benefits domain.

SR	NAME OF SPEAKER	TOPIC
1	A. D. Gupta	Inaugural Address
2	TBD	IND AS 19 - ICAI perspective
3	Preeti Chandrashekhar	IND AS 19 Technical Aspects
4	Khushwant Pahwa	IND AS 19 -Impacts and Examples
5	Mayur Ankolekar	IND AS 102 - Share based Payments
6	Anuradha Sriram	Retirement Adequacy Overview and impact of NPS?
7	TBD	Technical Updates - India and Global

Who should attend?

1) Middle and Senior professionals in Finance and HR functions of corporate bodies.
2) Auditors in relation to Employee Benefits Scheme provisions in financial statements of corporate entities.
3) Officials working in Group Insurance Departments of Life Insurance Companies
4) Actuaries and other professionals involved in assessment of employee benefit liabilities for reporting in financial statement of employers.
5) Actuaries and other professionals involved in funding issues relating employee benefit schemes.
6) Trustees of Gratuity, Provident Funds and Approved Superannuation Funds including officials having responsibility of such Trusts

General matters:

- Participation Fees: 5000 INR (+14% Service Tax)
- CPD Credit : 6 hours, as per APS 9 (Version 2.00)
- Registration : IAI Website->Seminars->Upcoming Seminars within India ->Seminar Registration
- Last Date to Register : 5th August 2015
- Point of Contact for query : quintus@actuariesindia.org

9TH SEMINAR ON CURRENT ISSUES IN HEALTH INSURANCE

Date: 25th August, 2015 | Venue: The Plazzio Hotel, Gurgaon

The seminar will focus on existing and emerging risks faced by health insurance sector in India, role and need of innovation, future of health insurance in India and last but not the least "how to leverage actuarial talent beyond core technical areas to bring synergy in the health insurance eco-system".

Speakers:

Prominent leaders from Indian Insurance Industry would be sharing their thoughts on the current issues limiting Indian health insurance sector and the possible solutions.

General Points:

Participation Fees : 5000 INR (+14% service tax)

CPD Credits for IAI members : 6 hours as per APS 9 (version 2.00)

Registration: Ends on 10th August, 2015

Register now at: IAI Website->Seminars->Upcoming Seminars within India ->Seminar Registration

Accommodation Details: IAI Website->Seminars->Upcoming Seminars within India ->Accommodation Details

Point of Contact for query : quintus@actuariesindia.org

3RD CAPACITY BUILDING SEMINAR ON HEALTH CARE INSURANCE

Date: 26th August, 2015 | Venue: The Plazzio Hotel, Gurgaon

Health Insurance is considered to be quite complex in nature and needs actuaries who have expertise in different facets of Health Insurance. As in the past, Advisory Group on Health Insurance is determined to promote actuarial talent to meet the growing demand in this upcoming area. The experts will share their views in many topical issues including, managed care & wellness, issues related to pre-existing diseases, predictive modelling in health insurance and above all learning from overseas countries, etc.

Speakers:

Experienced professionals with number of years of experience in health insurance industry would be participating in this capacity building seminar and sharing their experiences and insights with the audience.

Who Should Attend?

The seminar is for IAI members who wish to enhance their skills in health insurance domain.

General Points:

Participation Fees : 7500 INR (+ 14% Service Tax)

CPD Credits for IAI members : 6 hours as per APS9 (Version 2.00)

Registration: Ends on 10th August, 2015

Register now at: IAI Website->Seminars->Upcoming Seminars within India ->Seminar Registration

Accommodation Details: IAI Website->Seminars->Upcoming Seminars within India ->Accommodation Details

Point of Contact for query : quintus@actuariesindia.org

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