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"A noble man's thoughts will never go in vain. -Mahatma Gandhi."
"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 - Francis Bacon"

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From Chief Editor's Desk

Ms. Bhavna Verma

Data science, machine learning and Artificial Intelligence continue to remain the buzzwords in the contemporary actuarial world globally. Taking a notable step in this direction, the Advisory Group on Data Science and Analytics conducted the first Hackathon on Climate Change and Sustainability which saw healthy participation from across the country indicating good adoption of new programming tools among the actuarial community. Results and details of the event are included in this issue of the magazine.

The 3rd Indian Actuaries Day was celebrated virtually on 21st August 2020. Detailed coverage of the event is included in this issue. The keynote address by the Chief Guest, Shri Sanjeev Sanyal, Principal Economic Advisor to the Government of India made several interesting points. He recognized that the role of professionals is rapidly evolving due to the advent of newer tools of data mining and advanced compute capacity which minimize human effort hence actuaries should look to do more than they are doing today. The insights he shared on the thinking behind policy decisions in the pandemic would be relatable for actuaries; as making decisions amidst uncertainty is at the core of this science. Special Invitee at the event, Professor Sumitra Purkayastha, Head of the Applied Statistics Division of the Indian Statistical Institute emphasized on strengthening ties between the two Institutes. The Indian actuarial profession completes 75 years in 2020, and this may actually be a good time to start collaborating actively with other professions such as accountants and statisticians since problems and challenges of the new world will certainly require a multi-disciplinary approach. The International Actuarial Association celebrated International Actuaries Day on 2nd September 2020, marking 125 years of the global actuarial profession.

The other events covered in this issue of the magazine are Webinar on Banking, Finance and Investments, Webinar on Life Insurance - Impact of Covid-19 on Life Insurers, Webinar on Pensions, Employee Benefits and Social Security, Webinar on Health Insurance and Webinar on Current Issues in Retirement Benefits.

Interestingly, it is reported that life insurance claims have reduced this year despite Covid-19, due to lower deaths from other causes such as accidents owing to the lockdown situation. Whilst awareness of life protection and health insurance has naturally increased, there are concerns around persistency owing to liquidity concerns among the population at large. Nevertheless, I believe there is still significant uncertainty around how prolonged this crisis will be and the medium and long term impacts on several industries. The only thing certain is that there will be intensified focus on uncertainty and guarding against it among organizations.

Do write in to us with your thoughts and suggestions at library@actuariesindia.org

Result of First Hackathon by Advisory Group on Data Science & Analytics (AGDSA)

Background

Actuarial profession and Actuaries are expanding their horizon beyond the traditional domain. One of the most relevant fields where actuaries can contribute is in the field of Data Science. Data is available in abundance and professionals like actuaries can provide immense value to every Industry through their analytical and data modeling skills. Hackathons are social events which bring technocrats, programmers and data scientists together to solve problems of social importance. Hackathon is a collaborative, yet competitive event, which invokes innovation among the professionals and creates awareness. The AGDSA conducted the first ever Hackathon that enabled IAI members to participate as a team and work on a real life data set focused on climate change using programming languages like R and Python. This was a week long programme, and enabled the IAI Members to showcase their programming and modeling skills in solving real life problems. This was an attempt.

Objectives IAI on Conducting the Hackathon

The First Hackathon by AGDSA has opened up new flagship event in the history of IAI. The main objectives of conducting the hackathon are as follows:

- Promote the spirit of social problem solving and promote actuarial members into various Data Science field.
- Encourage Programming, Modeling and Problem Solving using analytical approaches through Hackathon can help actuaries develop skills needed to enter Data Science domain.

Benefits of Hackathon

- Events like Hackathon creates visibility and branding for the Actuarial profession among Employers, Government, Regulators and Public at large.
- To showcase the actuarial talent into the wider data science domain and its impact on Public good
- Following statistics shows the success of the First Hackathon:

Hackathon Statistics

- Hackathon Period : Feb 2020
- Number of Registered Teams (Participants) : 86 Teams (386 participants)
- Number of teams completing the Hackathon : 7 Teams
- Number of Cities participated : 23
- Number of Countries : 5

Hackathon Results

Heartiest Congratulations to all the participating and winning teams for their splendid victories in "1st Hackathon on Climate Change and Sustainability".

Rank	Team Names	Summary of Prizes	Team Members
1	DSACTED	First Prize - ₹ 25,000/-	Divyam Sankharva Pavan Jethvani
2	Decoders	Second Prize - ₹ 15,000/-	Om Vishnumurti Prabhu Kanchi Prabhat Poddar Hetvi Sandeep Dhruva
3	Fenam	Third Prize - ₹ 10,000/-	Fenam Sogani

Our heartiest congratulations to the winning teams.

Kind Regards,

Sunil sharma,
President,
Institute of Actuaries of India
Statutory body under an Act of Parliament

Webinar on Banking, Finance & Investments - Assessing Value-for-Money of Investment Funds and Managing Single Factor Risks

Date: 19th June 2020; Friday Time: 15:00 - 16:30 IST

Chair: Phanesh Modukuru

Moderator: Mahidhara Davangere

Speakers: Brandon Horwitz, Principal Consultant, NomBon Consulting Limited

Paul Sweeting, Chief Risk Officer, Hassana Investment Company

Introduction

Actuarial roles in banking, finance and investment are still few and far in India and the webinars on these topics provide a great opportunity to understand global trends on involvement of actuaries in the investment management space. Such webinars also give us a chance to interact with international investment actuaries and make us aware of possible career paths. The webinar was organised by the Advisory Group on Banking, Finance and Investment and the welcome address was delivered by the chair of this group, Phanesh Modukuru. This was followed by the presidential address by Sunil Sharma.

Mr. Mahidhara Davangere, a member of the advisory group was the moderator and he introduced the speakers, Barandon Horwitz and Paul Sweeting, both very experienced actuaries in the UK.

Illustrious Speakers

Brandon Horwitz is the Principal Consultant of NomBon Consulting and specialises in asset management, investment and pensions products. He has rich experience in these areas, having held senior positions in HSBC UK Retail Banking and Wealth Management, Watson Wyatt (now Willis Towers Watson) and Morgan Stanley Investment Management. He is an alumnus of London School of Economics and WITS University. Brandon has been on IFoA's board and also heads a working party on long term guarantees.

Paul Sweeting is Chief Risk Officer at Hasanna Investment Company and an Honorary Professor of Actuarial Science at the University of Kent, UK. Paul has worked extensively on pensions, longevity, investments and risk management. He has held senior positions in Legal & General Investment Management, JP Morgan Asset Management and MunichRe. Paul who is also a CERA and CFA Charterholder and holds a PhD in Economics from Bristol University.

Increasing financial regulation

Brandon's talk began with the changes in financial regulation in the last 20 years. He highlighted that regulation has evolved over time, usually in response to and as a corrective step to address issues in financial markets such mis-selling. The focus of regulation has shifted from product sales to client outcomes, value-for-money and charges. The spotlight is on asset management because this is a highly profitable venture with profit margins as high as 35%. Brandon illustrated with data that many funds and fund providers have charges at approximately the same level while they should have different propositions, costs and so different charges as well. He presented the Asset Management Market Study findings which suggest that

- There is weak competition among many players in the asset management industry
- There is no relation between charges and gross performance of some actively managed funds in the UK
- There is concern about how useful the asset manager's communication is to the retail investor. There are a significant number of investors who are not aware they pay charges for asset management!

Value for Money and Authorised Funds

An authorised fund is a collective investment scheme that is authorised by the UK financial services regulator, where investors' funds are pooled and invested on their behalf by fund managers. These could be unit trusts or open-ended and enable investors to gain a diversified portfolio. Value for money, then, is similar to a form of risk adjusted return that takes account of the fund performance, the risk taken to obtain that level of return and the price paid for investment management services. The Financial Conduct Authority (FCA), one of

the regulatory bodies in the UK, has come up with some value assessment criteria and key questions for both fund managers and investors to consider. These seven criteria are quality of service, economies of scale, performance, costs, classes of units, comparable market rates and comparable services.

Brandon's talk culminated in a set of four highly interesting examples of how the FCA recommendations were implemented by some companies. According to studies, a wide variety of measures were adopted since the FCA only issued the value assessment criteria but did not specify any processes or methods. While many funds reduced fees, some moved investors to lower fee plans, some funds were closed or merged with others for cost effectiveness while some improved governance and client focus. Brandon concluded an interesting session with the rhetoric "does it all come down to performance?"

Measuring Single Factor Risks

The second part of this webinar was Dr. Paul Sweeting's talk on **Economic Exposure and Pension Plan Risk**. Paul elaborated on the sponsor covenant risk for defined benefit schemes. Most defined benefit schemes are in deficit and the ability of the sponsor to make good this deficit is the sponsor covenant. Paul's examines the sponsor's exposure to economic risks and adjusting the pension funds allocation to make it more resilient to these risks. He explained the model used in his study to generate the return and the various risk metrics that can be calculated. The return model in his study assumes a skew -t distribution for asset returns and a t-copula to model the relationships between asset classes. He explained the differences between three risk measures which maybe calculated -

- Value at Risk (VaR) - for example, the 99% one month VaR is 3.5% implies a 1% chance that losses exceed 3.5% in a month
- Conditional Value at Risk (CVaR) - for example the worst 1% loss for a month is 5% is a 99% one month CVaR is -5%.
- Conditional Return CVaR (CRCVaR) - similar to CVaR but the threshold is fixed based on an external condition, for example if oil price falls 1%, the worst case losses for the portfolio are 4% and this can be said with a certainty of 99%

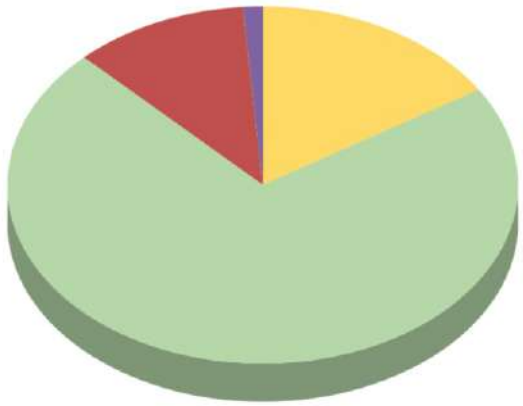
Asset Allocation to Improve Resilience

Resilience of portfolios to changes in economic conditions can be improved by either changing allocation between asset classes or within asset classes. Paul explained that it is best not to try and improve CRCVaR for an already efficient portfolio as this would move it to another efficient frontier or make it less efficient. So this measure is only a good guide and is specially useful when a less than optimal allocation is desired. Paul went on to conclude with an example of how to use equity benchmarks and any chosen commodity index like that of oil for arriving at a risk metric. Some sectors react positively to a fall in oil prices and this is reflected in their equity prices.

Key Learnings from the Webinar

This webinar had a wealth of information. There were many technical aspects discussed in detail such as value for money of authorised funds, the set of criteria that the UK regulator has issued which could be food for thought for Indian fund managers , sponsor covenant and how economic risks affect the sponsor and risk metrics that can be used to measure this. Apart from technical details, this also highlighted the areas where actuarial expertise plays a vital role and the kind of career/ research opportunities available to actuaries in the fields of banking, finance and investments.

There were also some poll questions for the audience to gauge their understanding and interests. One of these questions was about career interests in which 71% expressed an interest to move into the investment actuarial space and 1.23% indicated they wanted to move out of this field.



- I work in investment and I want to keep doing so
- I don't work in investment but want to
- I don't work in investment and I don't want to
- I work in investment but I want to move to another area

Written by

Rajeshwarie VS

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2nd Webinar on Life Insurance - Impact of COVID-19 on Life Insurers

Date: 13th August 2020; Thursday Time: 14:00 - 16:00 IST

Chair: Sunil Sharma, President, IAI

Moderator: Sunayana Mahansaria, Member, AGLI

Speakers: Madhusudanan Sridharan, Chief Underwriting and Pricing Officer, Munich Re

Arun Kishore, Underwriting officer - Life, Hannover Re India Branch

Introduction

As the social distancing is becoming new normal, the Institute of Actuaries of India is proactively conducting webinars on various relevant topics. A webinar titled "2nd Webinar on Impact of COVID-19 on Life Insurance" was conducted by the Life Insurance Advisory Group on August 13, 2020.

Prithesh Chaubey, Chairperson, AGLI started the session providing his key observations on COVID-19 impacts on the Life Insurance Industry, which was followed by a presidential address by Sunil Sharma.

Madhusudhan Sridharan and Arun Kishore discussed the response to the pandemic and medical update on COVID-19 along with impact on Life Insurers' risk management.

Snapshot of Current Situation

COVID-19 has triggered economic slowdown and loss of employment, impact of which can be felt across industries.

In the Life Insurance industry, growth of new business and renewal business has been slower than usual, with savings and Unit Linked products being impacted the most. This is coupled with declining interest rates, impacting the savings portfolio. Unit linked portfolio is impacted by the volatility in the stock market.

On the positive side however, awareness of protection oriented products (both in individual and group platforms) have increased. Since these products exhibit higher margins, margins for insurers have gone up. Although deaths have occurred under COVID-19, overall claims to insurers have seen a decline during this period mainly due to slowdown of accidents etc. Companies have also invested in digital processes, like underwriting, e-KYC which is expected to benefit in the long term.

Evaluating our response to the pandemic

What type of event is COVID-19?

To evaluate our response to the pandemic, it is essential to understand the nature of event of COVID-19. Is it a black swan? Does it fall under "known, known", "known unknown", "unknown unknown" or "unknown known"? Or is it a Gray Rhino?

A black swan event is a highly improbable event with major effect. "Known Known" are things we know we know; "Known unknowns are things we know we don't know; "Unknown Unknown" are things we don't know we don't know; "Unknown knowns" are things we intentionally refuse to acknowledge we know. A "Gray Rhino" is a highly probable, high impact event - yet a neglected threat.

Pandemic was identified as high risk event expected to occur within 1-5 years in risk assessment of major risks (expected to impact the world), since 2016. Hence, COVID-19 may be classified as a "Gray Rhino" as it was a highly probable, high impact event but was neglected. The world was not prepared for a risk that was expected to occur.

How did the market, Govt. and insurers respond?

Markets
After initial fall during March, the world markets like S&P bounced back to almost pre COVID levels. This may be attributed to the fact that there is no alternative investment opportunities and hope of vaccines. However, most of the gains were driven by very few companies.

Government
Govt. absorbed most of the medical cost, treated people in govt. hospitals and special facilities (built for the purpose). However, after an initial period, health or insurance regulators in some markets nudged/issued directive to insurers to ignore any exclusions and cover COVID cost.

Insurers

Impact on insurers

a) Mortality/Health plans - Impact has not been significant till date. Moreover claims from accidents, other health related issues, travel related medical claims etc. have come down. However, health claims are picking up after a delay.
b) Critical Illness - Impact has not been significant, however, long term impact is unknown at this stage.
c) Disability Benefit - Impact has not been significant, however, in some places due to poor contract wording, payments had to be made for voluntary stay at home also.
d) Unemployment benefits - Insurance mostly covers socio economic strata where job losses were limited, hence the impact is insignificant.

Insurer's response

a) COVID Specific covers - Insurers scrambled to develop COVID specific covers due to lack of understanding of drivers of incidence/prognosis. Limited ability to price such products possibly led to over-charging of customers. As a result, a few regulators clamped down on development of new products.
b) Drop in sales and persistency - Insurers were worried about the drop in sales and persistency. Companies tried to develop new systems/processes, and focused on target markets for new sales. For renewals, Companies extended grace period, provided premium holidays etc.
c) New normal - Insurers may extend temporary measures implemented beyond COVID, and make substantial changes to the way insurance business was transacted.

Medical Update on COVID-19

COVID-19 is caused by family of viruses having a crown like structure causing respiratory symptoms. They form enveloped and spherical particles of 100-160 nm due to which multi-layer masks are recommended.

COVID-19 symptoms vary from mild to critical. Mild symptoms includes no symptoms; moderate symptoms include fever/respiratory symptoms/Pneumonia; severe symptoms include respiratory distress, low oxygen level; and critical symptoms like organ failure, respiratory failure. Diagnostics test include PCR test for throat swab, Chest Imaging and antibody test. The treatment strategies include supportive therapy, anti-viral therapy, anti-bacterial therapy (for bacterial infection), antibody/plasma therapy and glucocorticoids (usage of steroids) therapy. For anti-viral therapy, there is no clinically proven specific anti-viral agent, but a few drugs like Remdesevir, Favipiravir etc. have been effective in patients.

Occurrence, spread and severity depends on interaction between virus and individual's immune system, along with factors like genetics, age, gender, nutritional/physical status.

COVID-19 is further complicated by co-morbid conditions like diabetes, obesity, renal disease etc. Although it is a respiratory disease, it may impact other organs as well. This might have an impact on the critical illness claims. Mortality rate of COVID-19 is expected to be in the range of ~1.5%-~3.6%.

Second level impacts include anxiety/depression, substance abuse, avoiding hospital visits for other diseases may have long term repercussions, job losses/financial insecurities resulting in increased crime, increase in financial fraud (concern for insurers) and domestic violence.

Implications on Life Insurer's Risk Management

On account of COVID-19, following underwriting challenges may be encountered in life insurance industry:

- Limited direct customer contact
- Reluctance in providing information like financials, KYC etc.
- Obtaining medicals
- Request from distribution to waive requirements
- Demand for allowing NRI's exposed population
- In spite of volatile situation, requests for peak exposure
- Financial fraud, over insurance, anti-selection including suicide

To overcome the challenges, underwriting practices have to be adaptive to the new normal, by having properly designed COVID questionnaires, approach based on client profile, product offerings, enhanced digital journey, alternate medicals, risk scoring models, comprehensive data gathering from industry etc.

On account of COVID-19, following claim pay-out challenges may be encountered in life insurance industry:

- Delayed Intimations
- Non-availability of documents, cooperation of claimants/hospitals
- Challenge with employer checks
- Demand for expediting COVID claims
- Changing modus operandi of fraudsters

Closing Remarks

The Webinar was concluded with Vote of Thanks from Sunayana Mahansaria on behalf of the Advisory Group of Life Insurance, IAI.

Poll Questions

In order to make the webinar more interactive, the

organizers also arranged for few online poll questions, the results of the same provided below:

Evaluation of response to pandemic:

Q1) What would you expect the S&P index to be now, as compared to its level on 1 Jan 2020 (pre-crisis)

Sl. no	Question	% of response
1.	lower than its level as on 1 Jan 2020	65%
2.	higher than its level as on 1 Jan 2020	23%
3.	same level as it was on 1 Jan 2020	12%

Q2) Of the following four lines of business which one, in your view, would have been heavily negatively impacted by the COVID pandemic:

Sl. no	Question	% of response
1.	Health insurance	39%
2.	Living benefits issued by life insurers like critical illness, disability benefits	13%
3.	General insurance (non-life and health)	38%
4.	Mortality benefits	11%

Q3) With which one of the following statements do you agree:

Sl. no	Question	% of response
1.	Actuaries should not be modelling pandemics without support from subject matter experts.	58%
2.	Actuaries are best suited to modelling pandemics.	17%
3.	Nothing wrong in actuaries trying to model the pandemic.	25%

Q4) Directive from government or regulator to ignore exclusions in the policy contract is

Sl. no	Question	% of response
1.	Correct as insurers do have a social responsibility	24%
2.	Not correct as agreements cannot be unilaterally changed by third parties without consent and such exposures have not been priced	60%
3.	Probably correct and, probably incorrect too	16%

Q5) What does a "Grey Rhino event" refer to:

Sl. no	Question	% of response
1.	Highly probable, not-too-hard-to-predict event that causes high impact	57%
2.	Highly improbable, hard-to-predict event that causes high impact	32%
3.	Highly improbable, hard-to-predict event that causes low impact	11%

Q6) COVID-19 has lead to a change in the consumer behaviour. Will this result in protection (Life and Health) products becoming a pull product rather than a push product?

Sl. no	Question	% of response
1.	Pull product	76%
2.	Push product	16%
3.	No idea	7%

Q7) Which of the following holds good for you?

Sl. no	Question	% of response
1.	Have not gained weight in the last 06 months	53%
2.	Have lost weight in the last 06 months	21%
3.	Have gained 3kg in the last 06 months	23%
4.	Have gained 5kg in the last 06 months	4%

Q8) Which of the following is true for COVID-19 ?

Sl. no	Question	% of response
1.	COVID-19 has effects on multiple systems in the human body	80%
2.	COVID-19 affects only the respiratory system	20%

Written by

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Sanghamitra is a Fellow member of Institute of Actuaries of India and working in Exide Life Insurance.

3rd Webinar on Pensions, Employee Benefits & Social Security (PEBSS)/ 17th CIRB Module 1

Exempt Provident Fund Actuarial Valuations - Overview of Industry Opinions and Way Forward

Date: 18th August 2020; Tuesday **Time:** 17:30 - 19:00 IST

Moderator: Chitra Jayasimha, Lead, Task Force on EPF Valuations 2019-2020

Chair: Kulin Patel, Chairperson, Advisory Group for PEBSS, IAI

Speakers: Chitra Jayasimha, Lead, Task Force on Exempt Provident Fund (EPF) Valuations 2019-2020

Hemanshu Jain, Member, Task Force on EPF Valuations 2019-2020

K Sriram, Consulting Actuary

Vote of thanks: Kartikey Kandoi, Secretary, Advisory Group for PEBSS, IAI

Introduction

Company-sponsored Provident funds are approved Trusts under the Income Tax Act and granted exemption ('Exempt Provident Funds' or 'EPF' hereafter) from the application of the provisions of the Employees' Provident Funds and Miscellaneous Provisions Act 1952) (EPFMP), under Section 17 of the Act. One of the criteria for such EPFs is they must credit equivalent or higher investment returns than that declared by the EPFO (complying with paragraph 60 of the EPFMP Act). This introduces an embedded interest rate guarantee for EPF with the companies being liable to make good on any shortfall.

The practices amongst the industry professionals with regards to this valuation have been widely varied on aspects of measurement, recognition and disclosures.

The objective of the webinar was to share the task force's findings and emerging views on EPF valuations. It is not a definitive guidance but would chart a way forward for actuaries to arrive at a common consensus in this area of work.

Kulin Patel gave a brief overview of the Task Force's work on this subject in the backdrop of falling interest rates, defaults of bonds, changes in the investment pattern under regulation and introduced the speakers.

Chitra Jayasimha provided an overview of the issues underlying EPF valuations and summarized the findings of the Task Force regarding stakeholder views.

Hemanshu Jain covered specific issues in relation to the measurement of the liability of the interest rate guarantee embedded in the EPF plan and how to measure the assets backing PF obligation.

K Sriram discussed the disclosures required under Ind AS 19 for the EPF plan.

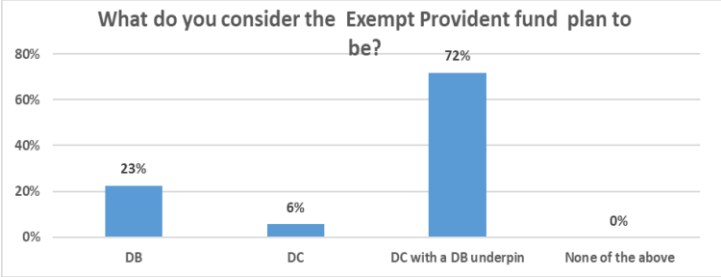
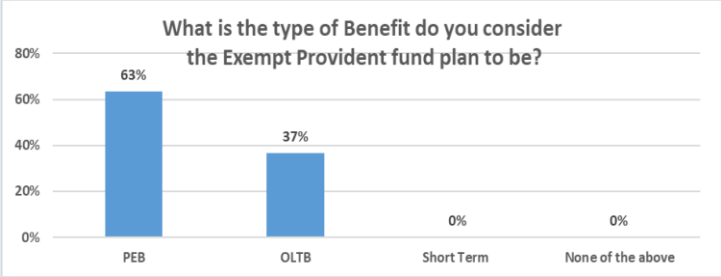
The webinar was concluded with a Q&A session facilitated by Chitra Jayasimha and a discussion on the future plans of the task force by Kulin Patel.

How to Categorize Exempt PF Valuations?

The Task Force reviewed various papers by the ICAI, accounting standards, evaluated the responses received to the questionnaire sent to actuarial practitioners, auditors and company's finance teams and arrived at some draft conclusions to the some of the issues.

The opinion of the ICAI, task force and of the audience of the webinar (wherever applicable) are also shown below.

Issue	ICAI's opinion	Task force's opinion	Webinar Poll Responses
1. Do the EPF plans need to be valued?	Yes	Yes	NA

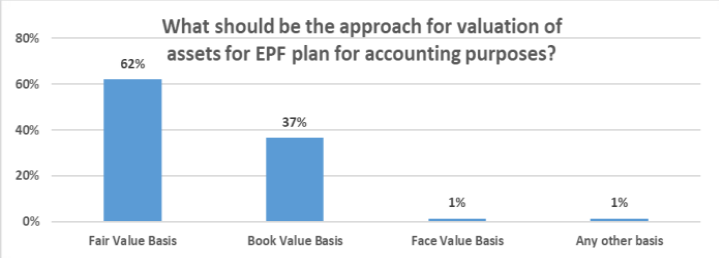
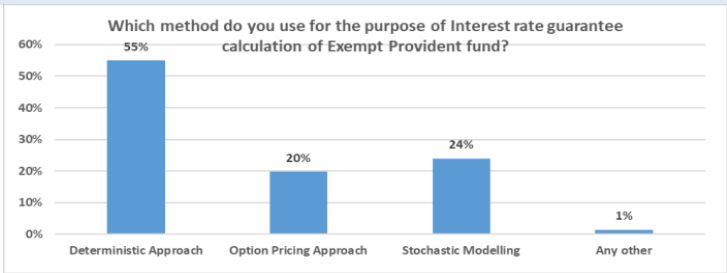
2.	**DB vs DC?**	DB Plan	DC Plan with a DB Underpin	
3.	**Post-employment benefit (PEB) or other long-term benefits (OLTB)?**	PEB	PEB	

Measurement of Assets and Liability

In days gone by the EPFO regulations required the EPFs to hold holding assets till maturity and thus, for internal EPF Trust accounting, have been using book value. This has stemmed into different views on measuring plan assets on a fair value or book value basis for the purpose of financial reporting of the Company. However, the situation has become more complex in the last few years as investment pattern regulations do allow a portfolio turnover of up to two times the value of the corpus in a year. It was also to be noted that the accounting for the Trust requires alternative accounting treatment than the Company accounting standard.

The Task Force believes that three methods of liability calculation are appropriate as covered in GN 29 viz. a) Deterministic approach, b) Option pricing model and c) Stochastic modelling. The Task Force recommends that the estimation of yield on the asset portfolio under the deterministic method be based on market values.

The opinion of the ICAI, task force and of the audience of the webinar on issues related to measurement are shown below.

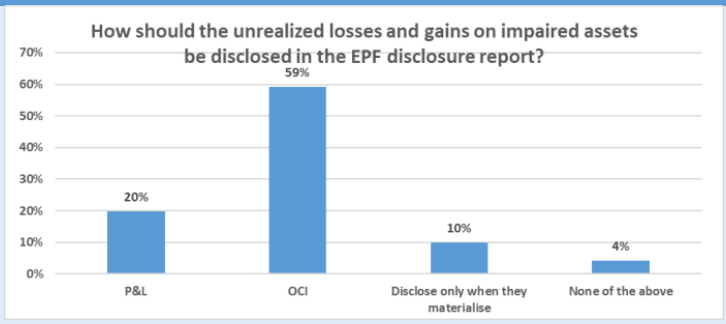
	Issue	ICAI's opinion	Task force's opinion	Webinar Poll Responses
1.	**Should assets be stated at fair value or book value?**	Fair value	Fair value	
2.	**Liability valuation methodology**	Refer to GN 29	Methods in GN 29 are appropriate though they will be reviewed to ensure sufficient guidance is given to adapt to the recent market risks emerging	

Disclosures as per Ind AS 19

As the EPF plan has two components, the core PF liability (which is a DC plan) and the interest rate guarantee (which is a DB plan), disclosures have varied in the past (from auditors and actuaries) to be on an aggregate or disaggregate basis between the two components or not having full disclosures at all. The disclosures should be in full if the EPF is a post-employment defined benefit plan.

The panelists described, in detail, some specific line item suggestions if calculated on an aggregate basis viz. Opening PVO, Current Service cost, Interest cost, Closing PVO, interest income on plan assets under the EPF Plan.

There are varying views on how to disclose unrealized gains and losses. The opinion of the ICAI, task force and of the audience of the webinar are shown below.

	Issue	ICAI's opinion	Task force's opinion	Survey Responses
1.	**Treatment of unrealized gains/ (losses)?**	OCI in Ind AS 19 PL in AS 15 (R)	OCI in Ind AS 19 PL in AS 15 (R)	

Losses arising due to special cases like defaults on assets held by PF trusts are currently routed to the OCI under Ind AS 19. Since these are one-time events, the Task Force would discuss with the ICAI to determine the treatment of such events.

Additional disclosures (required under paragraph 145 of Ind AS 19) on ALM strategies, funding arrangements, sensitivity analyses, weighted average duration and maturity analyses should be provided. The disclosures for EPF plan are similar to other PEB plans, but the EPF assumptions should include the discount rate, estimated term of obligation, guaranteed rate of interest, expected rate of return on assets, and volatility of the return on assets.

Next Steps

The entire exercise of the task force will be translated into some amendments to GN 29 and/ or would create an IAI FAQs as a technical note with support from ICAI. The methodologies will be strengthened with some examples and any new methodologies from some international cases would be looked into.

The Task Force and the AGPEBSS is in the process of building a consensus on the treatment of defaults of companies whose bonds are held by the PF trusts with the ICAI amongst other issues.

Thank You

Written by

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Celebrating Actuaries Day - 2020

Date: 21st August 2020; Friday Time: 16:00 - 17:30 IST

On the 21st of August 1893, Sir L.S. Vaidyanathan was born, India's first Actuary & true pioneer. To commemorate this great day, our Actuarial community celebrates 21st August as "Actuaries Day".

Actuaries are prompt & extremely adaptive, and this year's celebrations were a testament to just that. The pandemic situation did not lull our spirit & a grand virtual seminar was organized with an illustrious panel of chief guests.

The session was hosted impeccably by Sana Konnur who started off the session by introducing the panel of our esteemed dignitaries:

1. Sanjeev Sanyal - Principal Economic Advisor to the Government of India
2. Professor Sumitra Purkayastha - Head of Applied Statistics Division, Indian Statistical Institute
3. Sunil Sharma - President, Institute of Actuaries of India
4. Dr. Utture Shivkumar Shankar - President, Maharashtra Medical Council
5. Richard Holloway - Vice President, Institute of Actuaries of India
6. Subhendu Kumar Bal - Honorable Secretary, Institute of Actuaries of India
7. Sanjeev Kumar - Immediate Past President, Institute of Actuaries of India
8. Dr. Rajesh Dalmia - Past President, Institute of Actuaries of India

Presidential Address by Sunil Sharma, President, IAI

The introduction was followed by the Presidential Address who heartily thanked our chief guests who graced the occasion by their presence. He addressed the unfortunate pandemic situation but also acknowledged the phenomenal response to the virtual celebrations for Actuaries Day 2020. With members joining into the webinar from all across the globe (UK, USA etc.) totaling to over 1000 members, making this celebration even more special.

Our President paid homage to the 40 leading legends of our Actuarial profession who are all above the age of 75. He emphasized how these stalwarts are our guides & how they keep energizing us to continuously grow this unique profession.

Additionally, he also highlighted the noteworthy developments made since last year. Enriching relationships with all the other international actuarial bodies, the glorious platinum jubilee celebration by release of the coffee table book that capture the magnificent 75 years of the profession, expanding the scope and criterion of membership, setting up of a taskforce to collaborate with the Government of India on creation of a Government Actuaries department etc. were some of the highlights explicitly mentioned by our President.

Additionally, he added that the pandemic report released by the Institute was lauded widely & appreciated the effort of the various advisory groups that conducted multitude of webinars during this unprecedented time.

The Presidential Address also covered the administration of online examinations this diet & added how this online format of examinations could be a great low-cost solution leading to more frequent examinations conducted in the future, if every works well this diet.

Professional Video

What is an Actuary? A question almost all of us have encountered. In order to demystify our profession and increase awareness, an engaging professional video has been made which was also showcased during the webinar. It aptly summarizes what is Actuarial science & what our profession is all about. It was presented right after the Presidential Address.

Keynote Address by Chief Guest - Shri Sanjeev Sanyal, Principal Economic Advisor to the Government of India

Post the professional video, our renowned guest of honor, Sanjeev Sanyal, was invited to deliver the keynote address.

Sanjeev Sanyal, Principal Economic Advisor to the Government of India & Co-Chair of the G20 framework working group, is also a Rhodes Scholar. The representative of India to several international forums, a global strategist and Managing Director at a leading investment bank, etc. are just a few of his multiple accolades.

Our keynote speaker started off by recognizing how Actuaries & Economists have opposite problems pertaining to the recognition of their work on what they actually do. He acknowledged the importance of Actuaries & appreciated the hard work Actuaries do for the economic system as a whole, be it banking, pensions, insurance etc.

He explained that the essence of many professions including Actuaries & Economists is now slowly evolving. How machines are slowly handling tasks, like data mining, processing etc., better and better than us. He exclaimed that we humans simply cannot compete with that. But it does not mean we are redundant; it simply means we cannot solely play the role we did previously. We should move towards utilizing the insights derived via Artificial Intelligence & drive forward with it. It's more about leveraging the information rather than mining it. Artificial Intelligence is a tool at the end of the day. It is a poor master but a very good servant. Humans will be required to manage these tools and therefore, require training to do so.

Another evolving aspect that we need to brace ourselves for is understanding the difference between risk and uncertainty. Most people assume that risk and uncertainty are the same thing, however, they're fundamentally different. Risk is being able to look at things that you can assign probabilities to, on the other hand uncertainty is about unknown unknowns. This is where we (Actuaries) can come in. No tool/machine can predict accurately black swan events. & human beings will always have a part to play with these events. Events like pandemics push us not to just restrict our role to predicting but also resilience and stress testing. This will be a very important evolution to our profession and its future.

Our keynote speaker, Sanjeev Sanyal, also shared valuable insights on the current pandemic situation from the policymaking perspective. It was enriching to understand why the lockdown was implemented early on in India & why the un-lockdown has been initiated. He explained how back in March the Government was quick to realize that they were dealing with pure uncertainty, no amount of analytics was going to predict the outcome of the pandemic accurately.

They had to make a firm decision for 1.3 billion people, because changing approaches mid-way like other countries, was not an option for us.

The Government of India opted for a "barbell strategy". A barbell strategy is a financial term which means to hedge for the worst possible outcome & then for the rest, responding as better information emerges.

Hence, the Government imposed a complete lockdown in March to hedge against the worst outcome which was millions of people dying. This also gave the Government time to work on the other side of the barbell which was the feedback loop i.e. gather more information.

It addressed the looming question as to why there is an un-lockdown today when there are far more people infected than in March. He rightly elucidated that now the Government is much more aware of the nature of the disease, understands the economic costs better & therefore can make reasonable trade-offs which was simply not feasible back in March. This emphasized the point that risk and uncertainty are different.

He also highlighted the several economic reforms the Government is undertaking for trying to provision of a safety net and how they are cautiously putting efforts into reviving the economy.

He ended his wonderful address by saying that the post COVID-19 world will not be a re-inflation of the pre COVID-19 world. The new world will have its own risks & opportunities. & this will give our profession a great boost.

Address by Special Invitee- Professor Sumitra Purkayastha, Head of the Applied Statistics division in the Indian Statistical Institution

Proceeding, our second guest of honor, Professor Sumitra Purkayastha, was introduced. He is the Head of the Applied Statistics division in the Indian Statistical Institution. Professor Sumitra is a post doctorate fellow at the department of Statistics at the University of Toronto, Canada. He has made invaluable contribution to various practical and theoretical problems in fields of neurosciences, geology etc. Continuously teaching, mentoring and researching, his address and views were extremely motivating & futuristic.

He commenced his address by mentioning a paper he read in the British Actuarial Journal where even cognitive science has been considered as a factor. & how more and more people are taking into account human behavior for their statistical analysis. "Data Science" is the new thing on the block. He emphasized the importance of understanding the depth of what data science means & its implications.

He was strongly in favor of strengthening the ties between the Indian Statistical Institution & Institute of Actuaries of India. He believes the scope of interaction between the two is high & there is already a Memorandum of Understanding in place between the two reputed institutes since 2006-2007.

He summarizes what an Actuary does & reiterated the parallels that can be drawn between a Statistician & an Actuary. Actuaries & Statisticians can provide jointly offer service to the society or create manpower that can

provide service to the society. Collaboration between the two can lead to wonders. To foster collaboration, he put forth three suggestions:

1. Online lectures that encompass some practical and theoretical issues that provide an opportunity to the participants to garner hands on experience.

2. Set up a taskforce to chalk out a plan to take the collaboration forward.

3. Joint program/joint course between Indian Statistical Institution & Institute of Actuaries of India. & reviving the MoU between the institutes.

He concluded his session by wishing all of us at the institute luck and leaves us with some enlightening thoughts.

75-year video

This video captures the 75 glorious years of our profession. This was a beautiful video that captured every era of our profession and history. With renowned dignitaries expressing their views and reminiscing memories of the journey that has led us here and shaped our profession. It was captivating and thoroughly invigorating. It reminds us of the strong legacy set out by our predecessors.

Felicitation of Corona Warrior

Dr. Utture Shivkumar Shankar, President of the Maharashtra Medical Council, Member of the National Medical Commission & Medical Advisory Council. General Surgeon & Laparoscopic surgeon, Dr. Shiv Kumar holds multiple degrees. He is also a Fellow of the International College of Surgeons and the list of achievements is endless. His paper has even been on the cover of an international journal. He is luminary for us all. The institute felicitated Dr. Utture for his immense contribution & thanked him for his contribution during this situation.

Our President, Vice President, Immediate Past President & Past President earnestly thanked Dr. Utture for sparing the time to attend the webinar and highlighted the importance of the auspicious day we were all gathered to celebrate.

Dr. Utture shared his views on the Actuarial profession. He said Actuaries touch every aspect of every profession and every business today. Actuaries are risk management experts & also, possess the acumen to gauge the financial impact of every business decision.

He also shed light on how the pandemic was handled & discussed the strategy of dealing with curbing the outbreak inside Dharavi, Asia's largest slum. Dr. Utture was at the frontline at Dharavi. He praised the Government authorities as well as the kind residents of Dharavi for efforts in curbing the virus.

Vote of Thanks

Subhendu Kumar Bal, Honorary Secretary of Institute of Actuaries of India, delivered a heartfelt vote of thanks to everybody on the panel for their time and concluded the marvelous celebrations.

The Actuaries Day 2020 Celebrations can be viewed on IAI's youtube channel at
https://www.youtube.com/watch?v=xdtKsxtqQUE

Written by

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Krushmi Gandhi is a student of IAI & IFOA. Having previously worked at Navi General Insurance & interned at HDFC Ergo.

Photo Features of Actuaries Day 2020

2nd Webinar on Health Insurance

Date: 27th August 2020; Thursday **Time:** 15:00 - 16:30 IST

Chair: Sunil Sharma, President, IAI

Moderator: Raunak Jha, Secretary, Advisory Group for Health Insurance, IAI

Welcome Address: Vishwanath Mahendra Chairperson, Advisory Group for Health Insurance, IAI

Speakers: Dr. Yan Yang, FSA, PHD, GM, Health Greater China, Munich Re

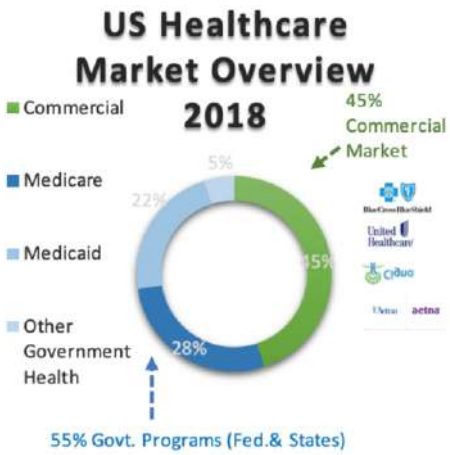
Mr. Sanjiv Kumar Dwivedi, SVP, Investigation and Loss Mitigation BAJI
Introduction

INTRODUCTION

The calm and breezy afternoon of 27th August perked up with the second health insurance webinar conducted by the Institute of Actuaries of India. As expected by audience, this webinar put the spotlight on some key aspects of healthcare like the 'High Risk Pool' in USA and the current developments in Indian healthcare vista.

The session was set to roll with the welcome address by Vishwanath Mahendra, enlisting the topics and speakers. Moderator Raunak Jha, introduced the eminent speakers and led the audience to Dr. Yang. What followed was an in-depth analysis of the "US High Risk Pools" by Dr. Yang.

Dr. Yang set the stage with an overview of US healthcare insurance market and its major sectors.



High-risk pools consist of individuals like the aged, the disabled and those with pre-existing ailments who are left uninsured due to various policy exclusions, medical screenings etc. prevalent, to protect the insurers from anti-selection. The ***first "High Risk Pools"*** were created in ***1976*** which were insurance programs sponsored by the state or federal government for the uninsurable individuals, like the 'Federal Pre-existing Insurance Program' viz. PCIP.

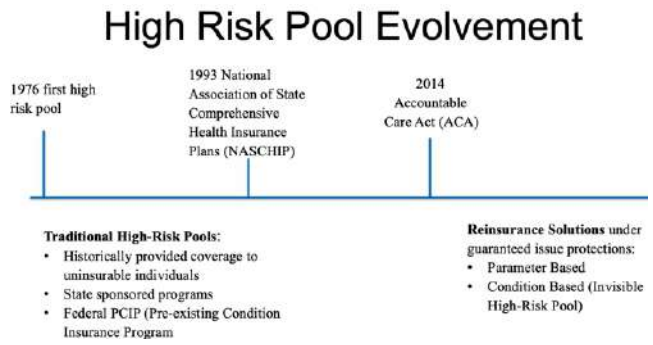
1993 saw the setting up of the National Association of State Comprehensive Insurance Program ***('NASCHIP')***; an interstate platform for the different state-run high-risk insurance pools' to exchange information, pool data and provide educational opportunity for enhancements and improvements.

With time the issue of 'uninsured citizens' started broadening in context and finally culminated into the historic enactment of the ***Affordable Care Act of 2014***. This aimed to provide comprehensive healthcare to every citizen irrespective of their health conditions, improve care products and contain costs. The resulting healthcare market being based firmly on the following three pillars:

First pillar: 'Reinsurance Solutions', in which, everything goes through the ***guaranteed issue protections***. Insurers could no longer 'cherry-pick' the better risks. Thus, everyone entered the protection net irrespective of their health complexities.

Second pillar: 'Individual Mandate'. This requires everyone to buy health insurance when they can afford to do so, or pay a tax penalty.

Third pillar: 'Low Income Subsidy' to help economically weaker individuals get healthcare coverage.



RESULTING BENEFITS	
Accessibility	Only available option to reach the subset of the uninsured population who have serious health conditions
Economic Benefits	Properly managed care—reduced overall health care expenses; Direct payment of medical providers—reduced the cost shifting from uncompensated care

High risk pool funding & eligibility

The premiums are calculated based on a state law defined formula. The table below illustrates the typical rating factors. Clearly, premiums often fall short for the high-risk members. This necessitates multiple innovative approaches to subsidize this pool, like service charges on hospitals and appropriation of the state income and federal tax.

PREMIUMS	
	Premium are rated by age/gender, geographical location Some states use ratings like smoking status, income, length of time in the pool, prior continuous coverage. Rate are caped: from 125% to 200% of the standard risk rate

Operating such a pool requires supervision from a diverse board, competent administrators and strict cost control via tight eligibility conditions, maximizing premiums and limiting claim costs.

Eligibility

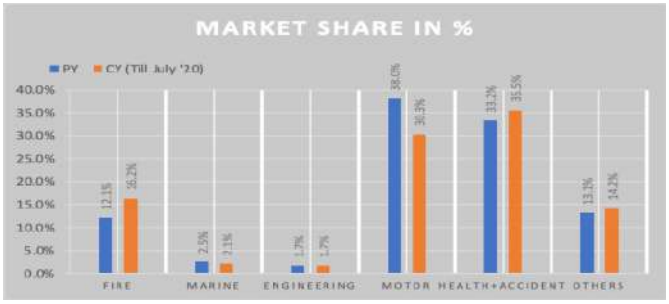
- If individual has been rejected for health insurance by one (or sometimes two) insurer(s);
- If demonstrates any pre-existing condition limitation;
- Coverage at a rate exceeding the pool premium

Claims Experience & Investigation

Sanjiv Kumar Dwivedi took over the stage putting the spotlight on hearty year-on-year growth of 5.9% for health insurance in GI sector. Competing that was 26% growth in the standalone health insurance sector fueled by sharp 47% increase in retail health.

Current analysis showed following trends:

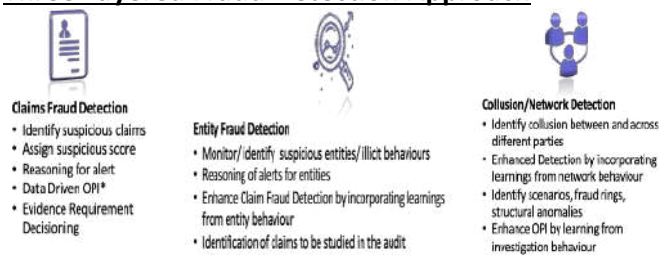
- Increase in demand for comprehensive policies, higher sum assured, super top-up option, pandemic coverage queries and senior citizen policyholders' purchases.
- Likely increase in premiums fueled by higher demand and greater number of diseases covered
- Around 74% of customers like interacting with modern technology & computer-based systems.



Frauds and Investigations

As per analysis, insurance frauds cost Indian insurers almost ₹2,500-3,000 Cr., an impact on loss ratio of around 4.3%; often arising due to, unlisted diagnostic laboratories in use, telemedicine misuse, fraud rings as well breaches in cyber security.

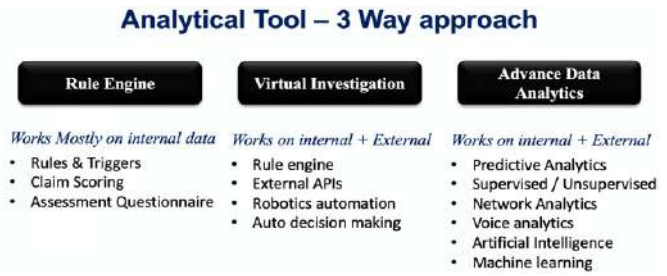
Three Layered Fraud Detection Approach



How To Combat Insurance Fraud ?

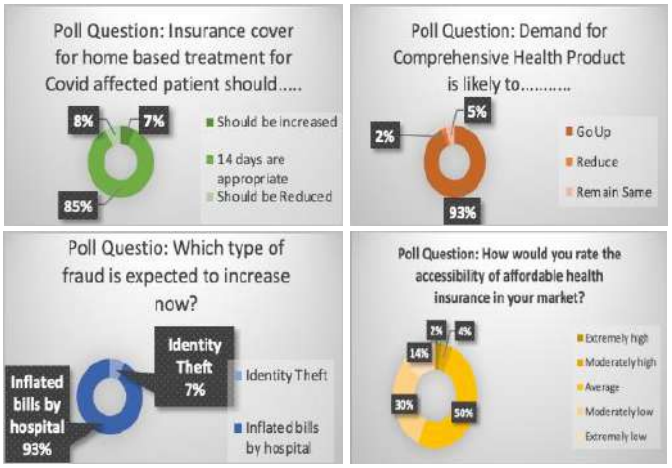
- Leverage Right People, Process & Technology
- Ensure Enriched & Structured Data
- Integrate with External Data Sources Like – *Police, RTO, Health record, Personal, Block Chain*
- IOT Based Data to analyze

The session's final topic related to the intriguing details of how to systematically control frauds by leveraging advanced analytics as well as by integrating databases and API(s) with available external databases/API(s) like those of Police, RTO. etc.



Adopting techniques like virtual investigation saves time spent in repetitive tasks of fraud investigations like searching extensively large databases, enhances decision making capabilities by employing powerful algorithms and ensures real-time updates to the databases with news/ regulations/developments etc.

Throughout the session the responses from the involved audience, to all poll questions was exhilarating; the snapshot below being a testament to some of the palpable enthusiasm amongst them.



This enriching webinar was wrapped up with gratitude and appreciation for the speakers by Raunak Jha on behalf of the audience and the Institute. Tune in to www.actuariesindia.org for many more stimulating webinars!.

Written by

Arunima Sinha

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Arunima Sinha is a Fellow of Institute of Actuaries of India with 8 years of experience in the actuarial domain.

UPCOMING WEBINARS

S.No.	Webinar	Date	CPD
1	Tech Talk	12 September, 2020	No CPD
2	3rd Webinar on Health Care Insurance	23 September, 2020	1.5 hrs in Health Care Insurance
3	6th Webinar on Data Science & Analytics	3 October, 2020	1.5 hrs in Any Area of practice
4	Tech Talk	10 October, 2020	No CPD
5	4th Webinar on Health Care Insurance - Data Science and Health Insurance	29 October, 2020	1.5 hrs in Health Care Insurance
6	Tech Talk	7 November, 2020	No CPD
7	3rd Webinar on Banking, Finance & Investment	5 December, 2020	1.5 hrs in Banking, Finance & Investment
8	Tech Talk	12 December, 2020	No CPD

Webinar on Banking, Finance & Investments: Performance of Volatility Asset as Hedge for investor's portfolio against Tail Risk Events: COVID19 and 2008 Financial Crises

Date: 5th September 2020; Saturday **Time:** 15:00 - 16:30 IST

Presidential Address: Sunil Sharma, President, IAI

Chair: Phanesh Modukuru, Chairperson, Advisory Group on Banking Finance and Investments, IAI

Moderator: Mahidhara Davangere, Member, Advisory Group on Banking Finance and Investments, IAI

Speakers: Chinnaraja C, FIA, CERA, FRM, PRM, Secretary, Advisory Group on Banking Finance & Investments, IAI

Dr. Piyush Pandey, B.Tech, MFC, Ph.D. Assistant Professor, Finance, Shailesh J. Mehta School of Management, IIT-Bombay

Introduction:

Recent events of market meltdown (COVID-19, Global financial crises 2008 etc.) indicate that extreme market moves occur more frequently than those predicted by statistical models. Interval at which such events occurred was nearly 5 times in last 20 years. Such events lead to financial loss and instability particularly for the financial institutions.

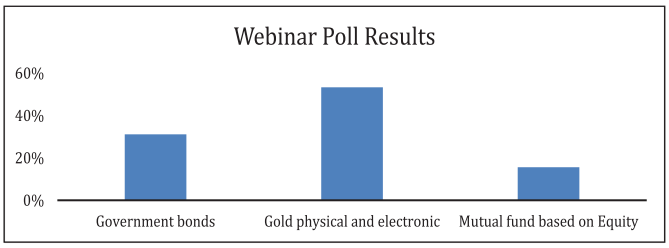
During extreme events, called Black Swan Events, the theories like Markowitz portfolio diversification and asset manager investment strategies goes for a toss. This is because most assets in the market start showing a downward trend and the correlation between different securities not only changes but becomes nearly impossible to gauge, leading to sudden and unpredictable nature of these tail events.

Asking the question of 'Now What?'., Chinnaraja C and Piyush Pandey started researching on the possibility of using "Volatility" as an asset class and the potential it possess to help asset managers and investors side-step the slump in the market. They used two Black Swan events which are 2008 Global Financial Crisis and COVID-19 Pandemic as basis.

Mahidhara Davangere started the session by providing his key observations on the current financial situation, which was then followed by the presidential address by Sunil Sharma who was supposed to retire the same evening from the position of the President, IAI.

Details of the presentation:

The presentation started with a poll question where attendees are required to choose the asset class which they feel would be most suited to hedge the risk of Black Swan events or Equity market down fall.



Not surprisingly, 53% choose 'gold'. Whenever such crisis strikes, prudent asset managers and risk averse investors tend to opt for gold or government bonds. These are not full-proof hedge against the falling market. Moreover during 2008 crises, gold even sunk in the mid-2008 period before rising in 2009, which proves gold to be not a good hedge.

"Volatility Index" on the other hand can prove to be a good hedge. Volatility is generally considered as risk which results in fall in value of assets. Contrary to this, Chinnaraja C and Piyush Pandey researched on "Volatility" as an asset class in such Black Swan events.

Volatility Index (VIX) and VIX linked futures and Options:

VIX marks the expectation of market volatility over the next 30 calendar days and creates a benchmark index known as Fear Gauge Index. This was started by the Chicago Board of Option Exchange. India has a VIX based on the securities listed with Nifty.

In order to hedge using VIX, investors and asset managers can invest in futures and options linked to the index known as volatility assets which are mostly available in developed countries.

VIX is inversely proportional to market performance, so in times like COVID 19 when all major indices like S&P500

fell by 30% in just 16 days, the VIX linked options and futures will rise, offsetting the loss caused by the market slump.

Methodology:

Chinaraja and Piyush collated time series data of asset classes, one on one comparison of different asset classes like gold, blue chip equity stocks in Indian and USA Markets and US ETF. The data was rescaled to 100 to ensure uniformity and the events of 2008 Global Financial Crisis and the COVID-19 pandemic were chosen to see how these asset classes reacted on these tail events.

They constructed a portfolio of blue chip India and US securities and made an alternative portfolio including US ETF (VIX based derivatives, since a similar counterpart was not prevalent in India) and used mean-variance analysis to judge how the VIX and non VIX portfolios performed on:

1. Maximizing Sharpe ratio
2. Minimizing volatility
3. Achieving target return of 10%
4. Achieving target volatility of 20% with max Sharpe ratio (for risk seeking investor)

The results show that return in the case of the VIX portfolio was able to help side step the market slump and help with earnings even in times of market crash. Additionally, even in times when the market is stable a small proportion (1% to 5%) of VIX does not lead to negatively skewed returns of the portfolio.

Conclusion:

In the concluding note, both the researchers presented their findings from the point of view of two major stakeholder groups; asset managers and policy makers.

From the Asset managers' perspective: They would want negatively correlated assets to increase diversification benefit and introduction of VIX derivatives can help achieve that even during Black Swan events. 1%-5% of the portfolio if held in a volatility related asset class would insure the portfolio against such extreme outlier events. This proportion can be changed based on the asset manager assessment of market performance and can be reduced during phases when the market is performing well or predicted to be stable.

For the Policy Makers: Earlier India VIX used to have derivatives trading but due to the poor public response they were scrapped. They wish to bring to the notice of the policy makers how such an asset class would help insulate the Shareholder Value in Business and overall market against losses and will also continue to ensure liquidity to company even in times of challenging economic conditions .

This provided a fresh perspective and highlighted what was earlier hidden in plain sight. With the fast changing world and adaption to the new normal, the principle of VUCA (Volatility, Uncertainty, Complexity and Ambiguity) is now more pronounced than ever. We as members of the financial community should encourage and partake in such asset classes to make them a part of this new normal.

Thank You

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Webinar on Current Issues in Retirement Benefits

Module 4 : Pensions in a low to very low interest rate environment

Date: 11th September 2020; Friday Time: 17:00 - 18:30 IST

Chair: Kulin Patel, Advisory Group on Pensions, Other Employee Benefits and Social Security, IAI

Moderator: Preeti Chandrashekhar, Advisory Group on Pensions, Other Employee Benefits and Social Security, IAI

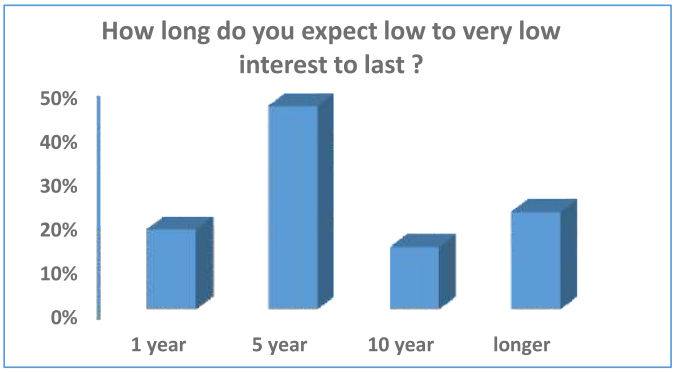
Speakers: Satish Betadpur, CFA, Managing Director, Head of Investments State Street Global Advisors

Gopal Kumar, FIAI, CFP, MBE, DBF, Radgo & Company Actuaries and Consultants

Introduction

With the ongoing COVID-19 pandemic the interest rates have fallen steeply, even showing negative returns on short term debt in some countries. The interest rates in India are also low and hence the Institute of Actuaries of India conducted an insightful webinar on this topic. The webinar titled "Current Issues in Retirement Benefits in a reducing interest rate environment" was conducted by the Advisory Group for Pensions, Employee Benefits and Social Security on September 11, 2020. The objective of this webinar was to cover the impact of low interest rates on pension funds and insurance industry.

Satish Betadpur started the session by taking a poll question to understand views of the participants on how long they expected the low interest rates to stay and the results suggested that we are in a 'low for long' interest rate environment. He discussed the interaction of demographic decline and technological advent and its impact on the interest rate. He posed a question whether we are at the bottom of the growth rate or will it further fall?



Pension funds and insurance companies in low interest rate environment

Low interest rates are expected to stay longer.. They pose a challenge for defined benefit plans. The speaker pointed out that, there is a fundamental mismatch because the assets held by pension funds are generally of shorter duration and hence the duration of liabilities is longer than that of assets. Due to decreasing interest rates the duration of assets keep coming down but the duration of the liabilities, which are based on already promised benefits, remain as they are. Negative duration gap implies value of liabilities is higher than the value of assets. This leads to unfunded pension liabilities. How does one address this challenge?

Some tools to address the risk of persistently low interest rates suggested were -

- Increasing duration of the assets which means aim for asset liability match which is not easy. So get as high a duration as possible
- Alter terms of new insurance policies (lowering guaranteed rates)
- Renegotiating existing contracts, if allowed

Other ways of addressing it is by diversification.

Hunt for yield

The speaker rightly pointed out that we cannot wait for the interest rates to go up, instead, the companies need to hunt for yield. But with the prevailing difficult conditions, where can investors find the yields they need to fulfil their requirements?

But "Hunt for yield is not for free" and there is risk involved. Companies need to use their risk bucket carefully as search for yield would mean buying higher-risk products, including some that may have limited liquidity and transparency. He also cautioned to check for the asset bubble, i.e. when the price of an asset rises at a rapid pace without underlying fundamentals, such as equally fast-rising demand, to justify the price spike.. If companies seek to hedge interest-rate risk by engaging in derivative transactions, it will create further downward pressure on the yields.

As financial firms respond to “low-for-long” interest rates by reallocating their funds to higher yielding but riskier and less liquid assets, they become more vulnerable to potential market shocks especially if they do not hedge their risks.

Lower for longer interest rates also effect the pattern of consumption, borrowings and savings thereby effecting GDP growth rates.

The next speaker, Gopal Kumar started second session by discussing economic aspects of high and low interest rate environments vis-a-vis reality, explaining how in 'new normal', the theory of growth in low interest rates does not apply, due to liquidity trap.

Impact on Actuarial Assumptions

For Actuarial Valuation of Employee Benefits, discount rates will be down due to low interest rates increasing liabilities. For an unfunded plan this will have a significant impact since there are no assets to offset the actuarial liabilities. For a funded plan, the impact will depend on other factors such as investment mix and duration of assets.

Theoretically in low interest rate environment there is demand stimulation: High Capital, High Demand stimulate employee attrition and salary rises. But due to liquidity trap wherein lower interest rates don't boost spending, growth remains negative/weak.

The speaker highlighted aspects relating to Actuarial Assumptions in the context of a low interest rate environment that shall be unbiased and mutually compatible (Para 72 of Ind AS19). This encourages need of an integrated and consistent view while setting these assumptions.

Though the assumptions of Attrition Rate and Salary Growth Rate are determined by the employer, the Speaker highlighted aspects relating to consistency and compatibility of the assumptions and presented an insightful and thought provoking approach on how, as actuaries, we can add value through an integrated view to these assumptions going forward in the 'new normal'.

Can we forecast Salary Growth rate and attrition as a function of interest rate?

A well-versed forecasting method viz. 'Regression Analysis' was suggested which is commonly used by economists. The speaker further recommended linear, additive regression equation with potential independent variables.

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4$$

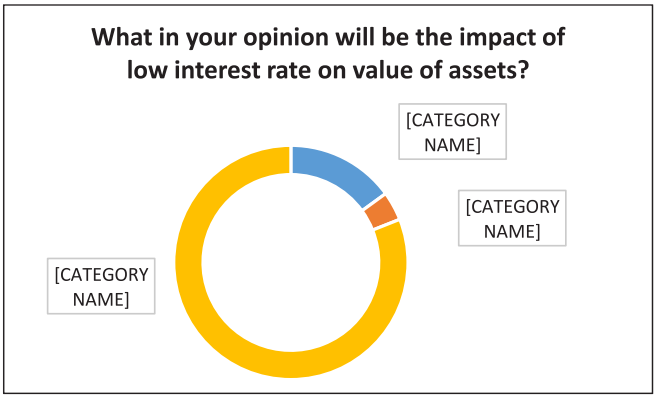
Y : Attrition Rate or Salary Growth Rate
a : y-intercept
X_n : age, industry, past service etc.
b_n : regression coefficients

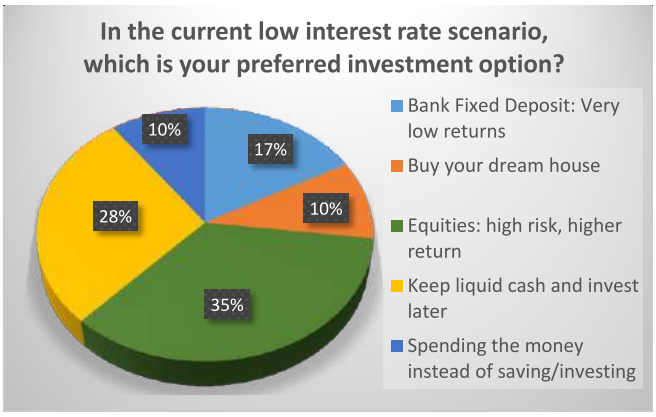
Interpretation of results and challenges in modeling with standard remedy was highlighted. Holistically actuarial assumptions should be mutually compatible if they reflect economic relationships between factors such as inflation, rates of salary increase, attrition, return on plan assets and discount rates.

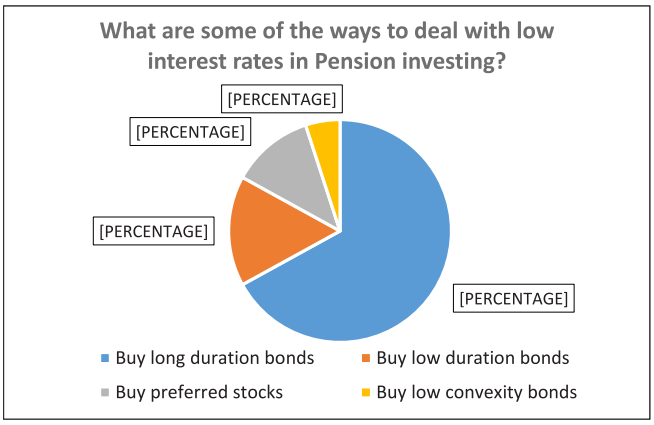
The key takeaways from the webinar:

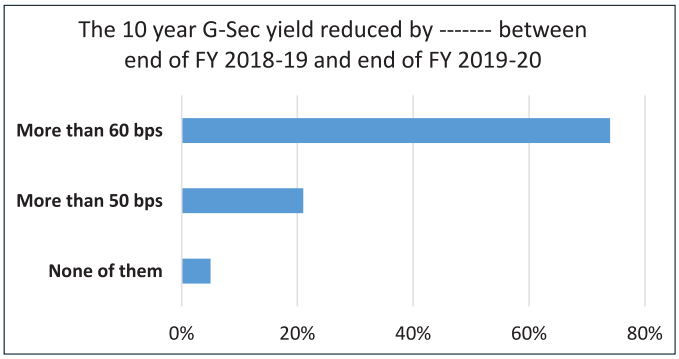
- Low interest rates is the new normal
- Hunt for yield is not for free
- ALM and diversification is the way forward
- For actuarial valuation, use of parametric models for forecasting key assumptions with more of an economic sense

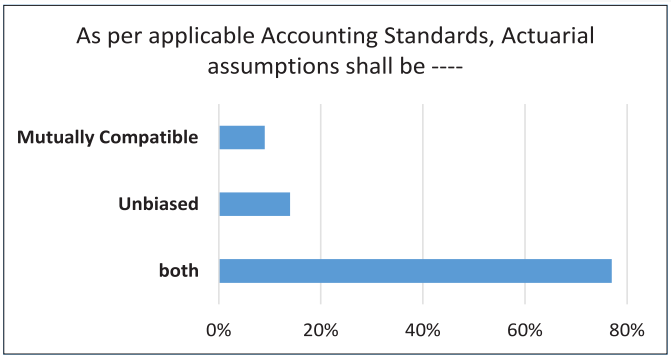
There were a few more online polls conducted in order to make the webinar more interactive.











The Webinar was concluded with Vote of Thanks from Jenil Shah on behalf of the Advisory Group on Pensions, Other Employee Benefits and Social Security, IAI.

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Last date:
15 December 2020

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Four levers of controlling health claim costs

The Indian private health insurance (PHI) industry has more than doubled in the last five years, with annual gross written premium now at INR 51,636 crore ($6.9 billion) as of March 2020. While the premium growth has been encouraging, most insures are struggling to make any underwriting profits. The ongoing pandemic (Covid-19) has made it even harder to offset the losses through investment income. Although the insurers are hoping to capitalize on increasing awareness about health insurance, adding new people to the insurance fold who will remain as customers for the medium to long term is still a daunting task. Therefore, it has become all the more important for insurers to manage their claims and expenses. In this paper we will only focus on managing claim costs.

When we think about managing claims costs, we tend to think about four "levers" that the payer (insurer) can pull.

Underwriting/ risk selection	Benefit design	Network management	Care management

We will take each of these in turn and explain a little more:

Underwriting / risk selection.

An individual's claims risk is related to various factors: genetics, environment, lifestyle, culture, access to healthcare, to name just a few. Historically, we have used age as a proxy for claims risk, but most statistical models show that it is an imperfect proxy. That is why rating models have become more sophisticated over time - to the extent that many insurers in the market are using 10 or more different rating factors to set premiums. It has been found, through detailed statistical modelling, that one (not the only one, but a major one) of the most important predictors of claims risk in future is whether you have had claims historically. This is part of the reason that factors like No Claims Bonus (NCBs – generally provided as 5% or 10% increase in sum insured on renewal for every claim free year cumulative up to 50%) have grown so dramatically, because actuaries have not been able to find better proxies for future health risk than using a combination of age, historical claims (where NCB level serves as a useful proxy), location (location reflects access to facilities and not just local cost) etc.. We can speculate that the historical claims experience is a proxy for some of those environmental and genetic factors, lifestyle and cultural factors that we cannot measure directly, but of course, we do not know this for certain.

Insurers use pricing to select risks. The more sophisticated and accurate the pricing model, the easier it is to attract good risks (as your competitors with less sophisticated rating models will tend to over-price these risks). So having a less sophisticated rating model than your competitors opens you up to significant anti-selection. This implies that if you do not have for e.g. an NCB scale, you need to find other, more accurate (predictive), factors to use in your rating model, otherwise your competitors will always be able to select preferential risks and you will be left with the poorer risks.

Medical underwriting has always been an imperfect way to limit anti-selection (i.e. the tendency of the applicant to know more about their health risk that you, the insurer can ever hope to do). However, medical underwriting struggles in the face of new advances like genetic tests and can never hope (with limited time and budget and the inevitable obstacles it creates in the sale pathway) to fully negate the information asymmetry that exists between the applicant (member) and the insurer. That is not to say that it is not useful, but we would never rely on it as our only tool to manage anti-selection risk.

Other ways to manage risk selection are to have a closed distribution channel and marketing strategy that is very tightly aimed at preferential risks. So, for example, the need to have a sophisticated rating model is lower if you have a distribution channel where you are not competing directly with other insurers in an open market because the customers will be unable to compare prices on a like for like basis.

Benefit design

The benefits you include and the limits and co-pays you put on those benefits have a significant role. Benefit design does two separate things:

(I) the types of benefits and the way the product is put together appeals to particular groups of people (we call that "risk selection" because it can be designed to target particular low risk people, i.e. by including high deductibles, you are more likely to attract healthier lives who feel they are less likely to use their insurance, but they want high level protection) and

(ii) the limits and copays/coinsurances on benefits manage moral hazard – which is the tendency of people to access services and benefits they are insured for that they would not access if they were paying themselves directly. If you do not have a

sophisticated pricing model, a leaner benefit design can manage some of the financial risks that arise, because if you have high coinsurances or strict benefit limits, you become less attractive for poorer risk lives.

In some markets (Ireland, South Africa etc.), you are not allowed to price by age, and benefit design becomes critical because you can design products that appeal to younger or older people specifically and, by designing and marketing these products to a specific target audience, you can price that pool of people more accurately.

Network management

This is simply the prices insurers pay to the providers, and whether or not the insurers can steer customers towards specific providers where you have cheaper deals. This has become much more important over time, because the gap between what the larger insurers pay and what the smaller insurers pay for the same service has become meaningfully wider in the last 10 years. This is therefore a key cost control mechanism for the larger insurers.

Care management

This is about how insurers manage the claims from pre-authorisation through to final payment and how much directing of customer treatment you do. Denying inappropriate or experimental treatment would come in this category, but also a host of other things such as:

- programmes to encourage use of established public or not-for-profit provider services for cancer etc..
- utilisation management
- care co-ordination
- musculoskeletal (MSK) triage (referring potential MSK surgical claims to a counselling service and explaining the options of conservative treatment before moving straight to surgery for example)

The larger insurers have a fair amount of sophistication around these programmes and some certainly reduce the incidence and size of large claims significantly for certain population segment.

In addition, developing capabilities to better understand market practices, benchmarks, clinical profiling of members, provider profiling, and customer segmentation provide necessary edge to insurers and enable them to use the above levers more effectively. Quality financial and clinical data is the prerequisite for all such capabilities. Some insurers understand this more than others and are investing in enabling tools for clinical codes, OCR technologies, Machine Learning (ML), and Artificial Intelligence (AI).

Conclusion

All the above are relevant for health insurers to manage the financial risk and some of these levers are just not available with every insurer or not being used in India. For example:

- Insurers don't have better data than the competition to estimate accurate prices for risks
- Insurer's benefit design and marketing/branding are not aimed at preferential risks
- Insurers don't have a closed distribution channel, but instead are competing for customers in an open market
- Smaller insurers don't have access to the hospital rates of the large competitors
- Large insurers may have some care management capabilities, but most insurers are still in early stages of exploring their potential role and building capacity in this area.

Not all of the insurers in the market use all of these levers, but most have a significant advantage in at least one. Insurers through their business strategies need to continuously strengthen their core area so that they can build capabilities to make use of these levers as much as possible. For example, an insurer may use group business to build volume to enable a stronger negotiating hand with hospitals to build economic advantages through provider discounts. This becomes self-fulfilling, as more business drives more discounts which drives more business.

Increasing pressures on new business volumes and entry of new players with disrupting pricing, making it even more important to reduce claims costs. In this scenario, existing insurers may use very tight medical management to build a competitive advantage with a focus on lower cost mass market segment and manage their claims tightly.

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Building an Efficacious career in Actuarial Science

It's a no brainer that Actuaries are intelligent and smart people who are ready to face storms with full of confidence and resilience. But, when it comes to getting your first actuarial job, this resilience seems to fade.

But exceptions do exist. And, today I have the pleasure to interview Rishabh Surana who gained an 11-month internship experience before even graduating, without any referrals, solely based on his talent and skills. He is currently working as an Actuarial Executive in Bharti AXA Life Insurance Company, India and in this interview, he would be sharing his thoughts and experiences on wide variety of areas.

Q. Could you tell us more about yourself and how did you begin with your actuarial journey?

I live in a joint-family in Mumbai and my family and friends are my major support system. Since childhood, I always used to like maths as a subject and even wanted to pursue a career related to maths. I have taken up Bachelors in Commerce as my graduation course from H.R. College, Mumbai from 2017-20. During my graduation, I managed to clear 6 Actuarial papers (CT1, CT2, CT3, CT5, CS2, CM2).

Since my school days; I have always been fond of participating in elocution, extempore, debate, Olympiads, MUN, business games, etc. because I always believe that it is better to participate and fail than fail to participate. I'm also a member of the Math Club of my college and was recently conferred as a 'Young Promising Leader' by my college. I am currently working as an Actuarial Executive at Bharti AXA, after interning there for 11 months.

Q. What made you choose Actuarial Science and what was the moment in your life that you have made the right choice?

Post my higher secondary exams, the biggest question was which professional field should I opt amongst Chartered Accountant (CA) & Actuarial Science. Almost all my friends either opted CA or no professional course. I was sure that I didn't want to follow the herd. But, I didn't have much idea of what actuaries do and what exactly actuarial science means, I have only heard some rumours such as after clearing 5-6 actuarial exams one receives a very high salary, there are only a few Actuaries in India & It is very difficult to clear exams (this is not a rumour actually).

I finally decided to take this risk and pursue actuarial science as I didn't want to have any regrets in future. So, I decided to give ACET (Actuarial Common Entrance Exam, an enrolment exam conducted by Institute of Actuaries of India) but unfortunately, I failed. This failure motivated me to work even hard and in the next attempt not only I managed to clear ACET but even CT1 exam with a 90+ score from IFOA. This gave me a great boost and confidence that I have chosen the right career. And as a future actuary, I feel that I have made the best investment of my life.

Q. How did you manage to get an internship for 11 months at Bharti AXA Life while still pursuing graduation?

After clearing CT1, CT5, CT3 and CT2 I was planning to appear CS2 in April 2019 attempt but there was a long gap of around 6 months. Thus, I had started looking for an internship to gain some insights about the real-life role of an Actuary. I came across an internship opening at Bharti AXA Life through a LinkedIn post.

They took a telephonic Interview and although I had no prior intimation of the interview, it went quite well but the only hindrance was that I haven't completed my graduation which I feel is a hurdle for almost every undergraduate. Due to this, they were quite unsure about my selection. But I had ensured them during my interview, that I would try to manage all the responsibilities assigned to me and give my best and they got convinced and I got the internship.

Q. What do you think, is the reason behind your resume being selected?

I think the major reason which made my application to stand-out among other applications was my resume & job application email. After knowing more about the industry, I think, my resume was comparatively better structured & well-articulated compared to most other candidates looking for a job.

Q. How was your overall internship experience with Bharti AXA Life?

I have received wonderful learning exposure here. I had the opportunity to work with 3 different teams (Pricing, Valuation & Modelling) and many different projects under each team. Everyone in the office is very helpful and super approachable. At first place, they always try

to encourage me to find a solution on my own and then guide me on various alternative techniques that could be used for a given problem. This helped me a lot in developing key insights about understanding and solving a problem. They also ensured that I am comfortable with the work and I learn while doing it. In summary, this internship is truly a blessing to me and provided me with a momentous jump in my knowledge and my actuarial career.

Q. How difficult was it for you to manage college, internship and actuarial exams all at the same time?

Initially, it was very difficult for me to maintain a balance. When college exams were near, I even regretted about my decision of taking up the internship but thanks to Bharti AXA team for providing me with continuous support, guidance and adequate leaves which helped me in clearing both my Graduation as well as my Actuarial exams. It was indeed hard to manage everything, but looking back it was one of the best things that could happen to me as I learn a lot about personal time management and it made me more resilient as an individual.

What is your current role as an Actuarial Executive and how your work experience so far?

I have received a great work exposure at Bharti AXA. I'm currently working in Pricing Team where my major role involves pricing of new products and getting approval from various stakeholders & regulators. Other tasks involve refilling of various products, preparing benefit illustrations, calculation of NBV (Net Benefit Value) Margin for group scheme, system setup for new products, working on IRDAI queries, etc.

During internship, I got to learn about building a model, analysis of data, interpretation of results and various Excel techniques used for performing Analytical Review Procedures. I have worked in th preparation of Reduced Paid up (RPU) Models, built an automatic calculator for Premium Value Check, RPU Rate Check, Common Surrender Value and Death Benefit Calculator for all non-linked products, etc. Most importantly I learnt how to be more systematic and presentative in any task assigned to me. This internship made me more confident about my career choice.

Q. Nowadays, actuarial jobs demand vast skill sets. How do you plan to upscale your skills?

I am a strong believer of self-study, as it has always helped me to learn beyond the prescribed limit of the course. Whichever programming language or software I intended to study; I have always found a good amount of content available online and if I have doubts, I just refer to different online portals.

Q. You also have a strong actuarial connection in the industry. How did you build that?

When I started my journey, I didn't know anybody from the actuarial industry. But, with time due to various activities, groups & organisation which I was a part of, I was able to develop some valuable connections.

I have always tried to keep up good relations and I feel, a good network would always help in one's career by providing better advice, getting answers quickly and understanding a different perspective. I also try to interact more often with professionals in different fields and ask friends about their work, which enables me to learn more about various applications of actuarial science in different domain.

Q. What lessons have you learnt in your career that helped you in becoming who you are?

Few things which I had learnt in my overall journey from my seniors and mentors, that helped me are:

- Try to solve as many problems as you can on your own. instead of seeking assistance from others. This will help you grow.
- Don't just run behind pursuing various educational courses; instead make sure whatever you learn, you should be just good at it.
- What actually counts is the number of experiences & not the number of years of experience. So just try putting yourself in such a situation.

And lastly, don't miss opportunities, try to make the best use of it. You never know, what may lie ahead.

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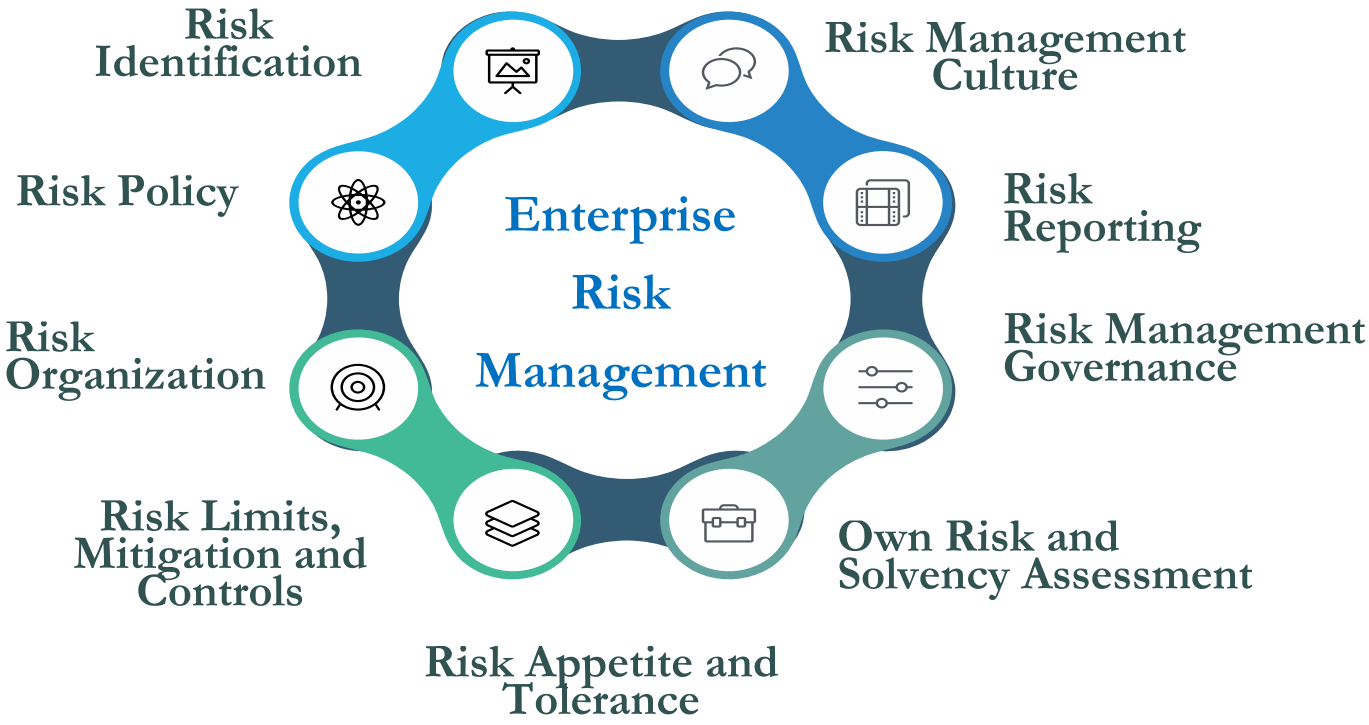
M/s. K. A. Pandit

Consultants & Actuaries

"You don't have to believe in coincidences because they happen every day. The trick is to be able to discern when something is more than coincidence." We believe that Risk Management needs to lift up from risk control to risk intelligence which can identify potential business growth opportunities.



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