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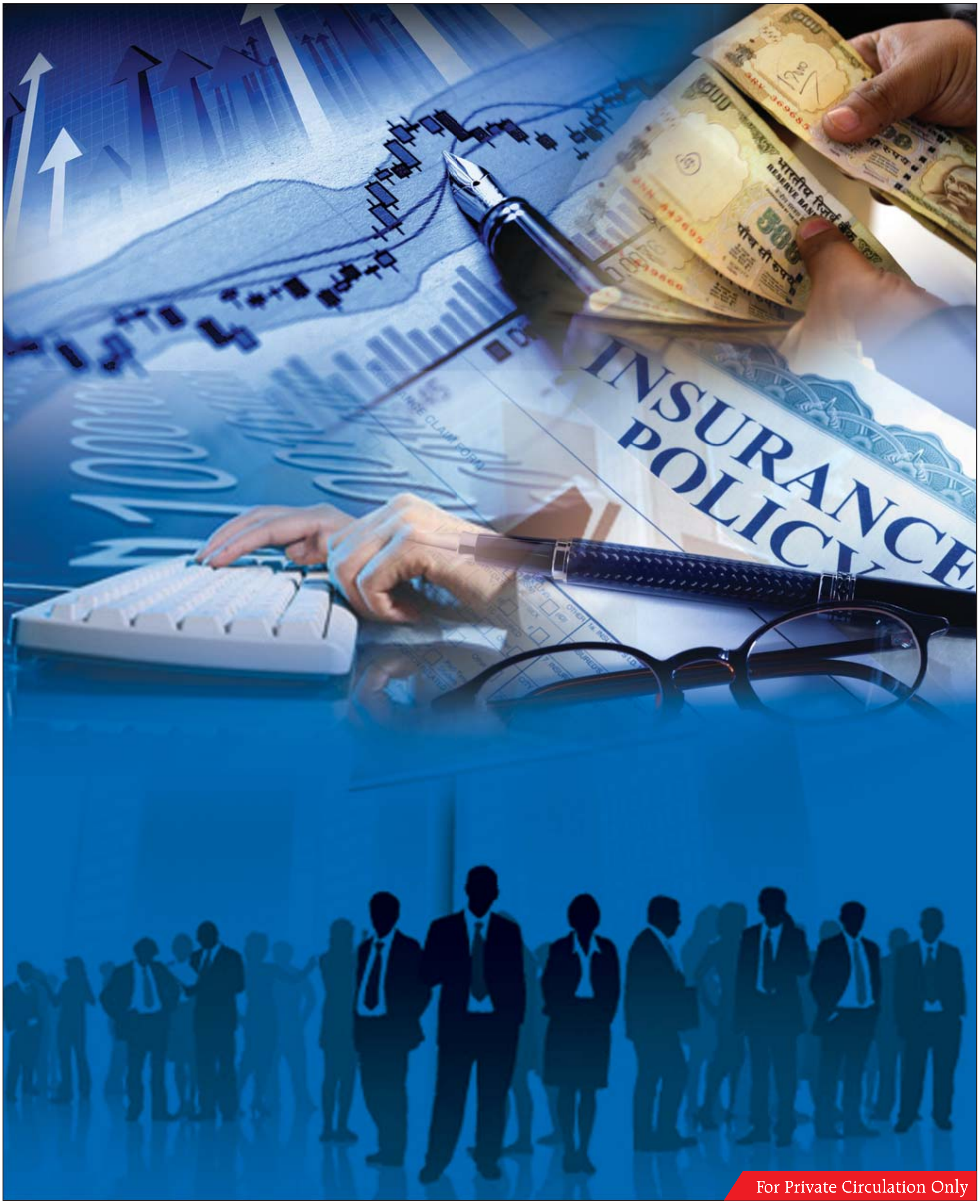

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FROM THE EDITOR'S DESK

RAUNAK JHA

Raunak.Jha@CignaTTK.in

Dear Friends,

Hope you all are doing great and exams preparation is going in full swing!

We all know that actuarial exams are not that easy to crack, even the ones who have completed this journey find it difficult to explain that what would be a straight through approach.

But after talking to students who could not make it first time, the three main causes which limited their exam performances emerged out to be; lack of preparation, starting late with leaving little time for revision and taking multiple exams at a time. Few of you may have been lucky to work around with these limitations (invite you to share exam tips to benefit others). Successful people are always looking for opportunities to help others!

The Institute of Actuaries of India is organizing regular counselling sessions for students to help them improve their exam performances and students who had participated in them have vouched for its benefits. Do avail this help if you can!

I know that studying is not an interesting exercise, but trying to make it fun may help. If you have someone to study with then use the opportunity to test each other on what you've learned so far, when you're away from your books.

Studying at every available opportunity can lead to information overload. Set a program for yourself and stick to it as much as possible. Studying for 20 minutes at a time, followed by a 'reflection period' on what you have learned and then a 10 minute break - is ideal for optimum learning.

And last but not the least, look after your health. Eat and drink sensibly and in moderation, exercise your body and spend quality time on yourself.

Wish you all Good Luck for your Exams!!

We invite opinion and comments on the articles published in the magazine.

E-mail: library@actuariesindia.org

WORKSHOP :
ECONOMIC SCENARIO GENERATORS (ESG)

- **Organized by** : **Advisory Group on Enterprise Risk Management, IAI**
- **Venue** : **Hotel Orchid, Mumbai**
- **Date** : **2nd May 2014**

Workshop : Economic Scenario Generators (ESG) was a one day workshop organized to provide deep insights into Economic Scenario Generators.

The workshop was conducted by Dr. Frank Ashe who is a part-time Associate Professor at the Macquarie University and has a consulting practice specializing in risk management, investments and behavioral finance. He has over 30 years of practical experience predominantly in the measurement and management of financial risk and return.

The workshop commenced with an introductory address by Gautam Kakar, member of Advisory Group on Professionalism, Ethics & Conduct. In his introductory address, Mr. Kakar welcomed the participants and Dr. Ashe on behalf of IAI. Dr. Ashe started the sessions sharing his experience in the field and the research he did for the workshop.

Dr. Frank Ashe is being introduced by Gautam Kakar.

Overview

Dr. Ashe started with the comparison of the Market Consistent and Real World approaches used for ESGs. He touched upon the calibration of ESGs by taking the view of the participants on whether the historic data or the future expectations should be used focusing on the fact that "Calibration is for future use".

There is a need for ESGs as the distribution of key variables of interest are required as part of risk management exercises. The distribution of fundamental variables is not one of the standard distributions and is characterized by fat tails, asymmetry, varying over time, autocorrelations & complicated co-movements. Also, the relationship between fundamental variables and business outcomes are complex and non-linear.

Dr. Frank Ashe

Then he discussed the uses of ESGs in the areas of sophisticated assessments of Capital, Risk Management and ALM, Scenario analysis and stress testing, complex liabilities, asset management and long-term financial risks. Dr. Ashe then touched upon the Market Consistent Valuation (MCV). He illustrated MCV of a liability with a simple example using one-step binomial model. He discussed three sources of errors in the ESGs (and projections using these) – Stochastic, Estimation & Model error. The stochastic error is due to the fact that the forecast involves stochastic process while the estimation error is due to the estimation of parameter. For an asset class with a Lognormal distribution (standard deviation of 20%), the stochastic error and the estimation error for the cumulative log return in n years is $\pm 20\%\sqrt{n}$ and $\pm 20\%n/\sqrt{T}$ respectively (where average parameter has been estimated using historical data over T years).

Dr. Ashe gave an overview of Monte Carlo simulation techniques that are an integral part of ESGs. He illustrated the technique with spreadsheet exercise to calculate price of European call option.

He discussed CLT (Central Limit Theorem) comparing it with the Extreme Value Theorem (EVT) and emphasizing that CLT is for pricing actuaries whereas EVT is for the reserving/capital actuaries to look into the tails of the returns. According to EVT, the tails of distribution of returns follow **Generalized Pareto Distribution (GPD)**.

He gave an overview of Copulas which combines set of marginal distributions to form a joint distribution (using Skylar's theorem) including different correlation measures (Pearson's rho, Spearman's rho & Kendall's tau), transformation of bi-variate normal distribution to Copula graphically and tail dependence property. He touched upon the concept of the statistical bootstrapping.

Dr. Ashe introduced the concept of Risk-Neutral Valuation as a "fantasy world" or "a mathematical trick" under which No arbitrage exists **if and only if** the current asset prices are the present value of a probability weighted average of the future state prices. He explained that the risk-neutral probabilities are derived from the future possible state

About the Author

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Himanshu Bhatia holds a B.Tech. (Mathematics and Computing) from IITG. He is an Associate member of IAI and a member of the Advisory group on Social, Cultural and Youth Affairs of IAI. He works in Product Pricing and Group Insurance domain for a leading life insurer at Mumbai.

prices and no arbitrage principles and not on and are not dependent on economic fundamentals. Under the calculated probabilities all assets and all portfolios earn the one rate of return i.e. the risk free return.

Interest rate scenarios

Dr. Ashe started with the general components of bond yield. He emphasized that the spreads exactly compensates for risk in risk-neutral world while are source of of expected outperformance in real world. He covered upon the difficulty in future projections of interest rates on the historical data in the economies at all time low rates. The ESG jointly developed by AAA & SOA was discussed in detail. This is a very simple model designed for cash flow projections only. It is not arbitrage-free and could give inappropriate values if used to price options and other derivatives. The projection basis is that the long rate and slope of the yield curve reverts around a mean value. The short rate is the long rate minus the slope constrained to a minimum rate.

Dr. Ashe then moved to risk-neutral models and discussed the general misconceptions like "An Arbitrage Free ESG Model will by Itself give a Market Consistent Valuation " & "Models calibrated to deep and liquid markets are market consistent". Then the Hull White model and LIBOR Market Model (LMM) were discussed.

Dr. Ashe discussed the Bootstrap Approach for interest rate modelling which is useful for emerging markets. A "Block Bootstrap" technique is used where a random block of historic data is selected and interest rates are projected on the basis of the movement in the historical block chosen. He concluded the session with the remark that no method is perfect and judgement must be used to ensure that mechanism is reasonable and is suited to the task.

Equity and other assets

The session took off with the AAA Equity model which like its interest rate counterpart is suitable for cash flow analysis, feature mean reverting volatility with return shocks negatively correlated with volatility shock. The prices are not consistent with short or medium term equity option pricing and it is unlikely to be arbitrage free. He touched upon the risk-neutral models where the volatilities are calibrated to the option prices and not historical volatilities and also the consistency between the equity and interest rate.

Dr. Ashe then started brief discussion on the exchange rates (fx) modeling with the interest rate parity. The fx rate needs to follow the difference in interest rates between countries to avoid arbitrage. He emphasized that in reality the Interest rate parity is not a good predictor of long-term movements in currency and there is evidence of trending behaviour not explained by interest rates or inflation. He also touched upon the modeling of inflation.

Dr. Frank Ashe and participants in the session.

Calibration and Governance

Dr. Ashe started with the Principle 15 (related to Calibration) as in the "CFO Forum: MCEV Principles" which says "Stochastic models and the associated parameters should be appropriate for the covered business being valued, internally consistent and, where appropriate, based on the most recent market data. Volatility assumptions should, wherever possible, be based on those implied from derivative prices rather than the historical observed volatilities of the underlying instruments." He emphasized that there is an incredible amount of judgement to be applied here. Also, correlations are not well understood by anybody and hence should be dealt carefully.

He discussed the governance aspect with the six tests which are part of ORSA (Own Risk and Solvency Assessment) - Use Test, Validation Test, Statistical Quality Test, Documentation Test, Profit & Loss Attribution Test and Calibration Test. These tests check the embeddedness of the internal model (and hence ESG) in the organization, quality of input (parameters), consistency of output and input of ESG, adequacy of documentation, drivers of P&L and the calibrations.

Dr. Ashe asked the participants that "Who owns the model?"(which team/group of the organization) which led to a mixed bag of answers. In his opinion the Risk group of the organization owns the model. The last discussion was about the knowledge and understanding of these concepts by the board and other senior members of the organization. He emphasized that ideally these member should have a broad idea about these concepts while few of them should have the in-depth knowledge.

At the end Dr. Ashe quickly summarized the topics of all sessions and answered few questions of the participants.

The Five W's of Life

Who you are is what makes you special. Do not change for anyone.
What lies ahead will always be a mystery. Do not be afraid to explore.
When life pushes you over, you push back harder.
Where there are choices to make, make the one you want regret.
Why things happen will never be certain. Take it in stride and move forward.

WORKSHOP : STOCHASTIC MODELLING AND ALM

- **Organized by** : Educational Committee, IAI
- **Venue** : Double tree by Hilton, Gurgaon
- **Date** : 5th May 2014

The workshop was organized in the backdrop of tremendous changes in the financial services and in particular insurance industry. Government regulation and professional standard are requiring the use of Stochastic Modelling in determining the solvency and capital adequacy of the companies as well as aiming to have a better understanding of the efficient use of economic capital within the firm. Stochastic Modelling acts as an aid in establishing ALM, quantifying the various risks involved.

The main focus of the workshop was on:

- Understanding the stochastic modeling process and its use in ALM
- Statistical Methodologies used with emphasis on Bootstrapping
- Monte Carlo Simulation
- Applications
- Model validation
- Communicating results to specific audience

The workshop commenced with an introductory address by Liyaquat Khan, Appointed Actuary of Religare Health Insurance Co. Ltd wherein he welcomed the participants on behalf of IAI.

Session 1: When and why do Stochastic Modelling

Frank Ashe started the session with a discussion as to what is required from Stochastic Modelling, the governance framework around the modeling, how its results are used and the technical issues involved. Thereafter he gave a theoretical overview of various types of ALM modelling, liability risk factors and asset risk and the sources of error associated with modeling. He discussed at length the three sources of error i.e.

- Stochastic error
- Parameter and Estimation error
- Model error

He later introduced the statistical tools being used in the Stochastic modeling such as basic probability distributions (e.g Lognormal), correlation (e.g. Pearson, Spearman and Kendal Tau correlation) and moved ahead to present the methods of constructing Copulas and discussed the role of copulas in modelling and in the study of Tail dependence.

Session 2 : Monte Carlo Simulation

In this session Frank Ashe brought out the difference between the real world and risk neutral approach while pricing the call option. He took us through a case study in estimating the call option price using Monte Carlo Simulation technique. Later he discussed the variance reduction method to reduce the variability of the estimate in order to get better estimates of the price. Some of the commonly used methods explained by him were:

- Antithetic –variable technique
- Control variate technique
- Stratified sampling technique
- Importance sampling technique

He revisited the sources of error and explained how the above methods can reduce the error mentioned in the previous session with the help of an example.

Session 3 : Bootstrapping

Frank Ashe discussed the condition under which Statistical Bootstrapping should be used and went on further to explain the procedure of Boot strapping with the help of an example. He further demonstrated the procedure of optomising the results, if there is some structure in the data e.g. heteroscedasticity and autocorrelation.. Later in the session he touched upon the topic of increasing the accuracy of estimates of the parameters using bootstrapping residuals. He explained the procedure by taking through the worked example of the analysis done by G.Taylor.

Session 4: Nested Bootstrapping and ALM

In the final session Frank introduced the concept of Nested Stochastic Modelling which refers to stochastic pricing where at each node in projection a nested stochastic projection is used to

Dr. Frank Ashe and participants in the session.

About the Author

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Asif Khan is MSc in Actuarial Science from Heriot Watt University, Edinburgh and has been working as a Chief Manager at IFFCO TOKIO General Insurance Co. Ltd.

determine reserve or capital. At each initiated time point, there are a defined number of paths along with defined number of scenarios. The scenario represents the "outer loop" while the path represents the "inner loop". This concept was explained with the help of variable annuity with dynamic hedging. Since hedging parameters are required at each step along each path, the process requires stochastic model to be generated at each step. Though he mentioned the practical difficulty in using this method, he discussed some methodologies mentioned below to estimate the parameters like:

- Least Squares Monte Carlo (LSMC)
- Curve fitting
- Replicating Portfolio

He took us through an example to demonstrate ALM using discount factor and emphasized on having an Asset Liability Committee (ALCO) whose responsibility would be to understand:

- What does Business Unit think about
    - o Expected Cash Flows
    - o Client Options
    - o Pricing Strategy
    - o Profit
- What does Asset Management Unit think about
    - o Asset return
    - o Economic & market forces
    - o Asset management strategies
    - o Trading liquidity
- What does the combined team think about
    - o Maximising risk adjusted return on capital
    - o Asset mix
    - o Capital requirements
    - o Volatility of surplus

The session concluded with the discussion on

- the Liability driven investment where the liability matching portfolios should be set with significant input from asset management experts.
- the role of ALCO in terms of taking decisions, reporting and thinking in strategic terms.
- the model set by ALCO should be calibrated and reviewed periodically.
- the results should be communicated to the audience to whom it matters e.g. Board .

He did acknowledged the fact that this subject is very technical and there is a big challenge as to how to communicate the results to the Senior Mangers. He stressed upon building up a story to communicate the results to the Board.

1ST CAPACITY BUILDING SEMINAR ON INTEREST RATE IMPLICATIONS IN EMPLOYEE BENEFITS AND SOCIAL SECURITY SCHEMES

Date: 20th June, 2014 **Time:** 9 am to 5 pm **Venue:** Hotel Sea Princess, Mumbai

Background:- Much of actuarial work concerns the analysis of future cash flows, arising from both assets and liabilities. The technique of "present values" or "discounted cash flow" is a way to summarize these future cash flows in terms of a more manageable value measured in today's terms. A particular need for discount rates arises in the area of financial transactions. If a transaction includes the transfer of a series of cash flows, potentially over a number of years, then for the purposes of a placing a current value on the cash flows in the context of the transaction, it is often necessary to use discount rates.

Seminar will cover the following:-

1. Asset - Liability matching in Defined Benefit Schemes
2. Discount Rate implications of pension liabilities in Indian, European and US Markets with case studies
3. Liability Driven Investments
4. Interest Rate Guarantee and GN 29
5. Investment approaches adopted by Indian Provident Fund Trusts

Speakers:

Mayur Ankolekar - Ankolekar & Co.

Nirav Mehta & Ganesh Sudrik - M/s K A Pandit

Arpan Thanawala - Thanawala Consultancy Services

Dr. K Sriram - Consulting Actuary

Souvik Nag - AON Hewitt

General matters:

- **CPD Credit for IAI members:** 4 hours, as per APS 9
- **Registration Start & Close Date:** From 20th May, 2014 & Ends on 10th June, 2014
- **Capacity: Limited to 30**, admission will be on **first-come-first served** basis subject to receipt of payment.
- **Register at:** IAI Website – Seminar Tab
- **Contact:** Quintus Mendonca at quintus@actuariesindia.org for any assistance.

AN INTRODUCTION TO PPOS

About the Author

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Charchit Agrawal is a qualified General Insurance actuary working in the UK for nearly 6 years, and is currently employed with AON UK Ltd in their head office in London. .

This article is intended to be an introduction to an emerging form of settling serious personal injury claims in the UK market, known as PPOs.

The intention of this article is to get the idea of PPOs across to readers of this magazine, for many of whom, I believe, the concept of long tailed liabilities in General insurance would be thought-provoking. This article doesn't cover all aspects surrounding PPOs, as readers would appreciate.

What is a PPO?

PPO stands for Periodic Payment Order. This is an order made by court to pay compensation to the victim of an accident in the form of a regular payment rather than a lump sum. Normally a lump sum amount is awarded by the insurance company in the case of bodily injury (which could be fixed in advance, or decided by court on a case-by-case basis). However in recent past, due to some laws that came into force in 2005 in UK, the court can order a series of regular payments against the will of both the insurer and the insured. This has given rise to some interesting dynamics for General Insurance actuaries, who have never dealt with long term liabilities in the past.

A PPO can be awarded in several different contexts (e.g. employment liability claims), but this article introduces it in the context of UK Motor Insurance market.

History of PPOs

PPOs replaced what was known as 'Structured Settlement' which allowed for the claimant to be paid as a series of annual (or semi-annual) payments when both parties consented to it. With the enforcement of The Courts Act 2003 in 2005, judges are now allowed to impose a PPO without the agreement of either or both parties.

Before the Act came into force, it was rare to see either the insurers or the insured wanting to settle using structured settlements. Not only was it administratively difficult to manage for the insurance companies, the claimants preferred to get the whole compensation amount in one go now than to wait for it in future. However as common sense would suggest, there is always a danger that the claimant spends money 'too soon' with nothing left to spend for the remainder of the life. This risk is even more so if the claimant lives beyond his/her own expectations. In a situation like this, they would then have to either depend on State care or have to do with a reduced level of care. So **the basic logic behind PPOs is that they seem to provide money when it is actually needed – and this idea is very potent.**

Please note that we are not talking about small injury claims here, but life-damaging brain and spinal injuries which could render claimants unable to work and make them dependent on full time care. Everyone would agree that money should be provided to the injured when they need it, and so while the idea of PPOs is welcomed by claimants (and the State), it comes with its own pros and cons as we discuss further in this article.

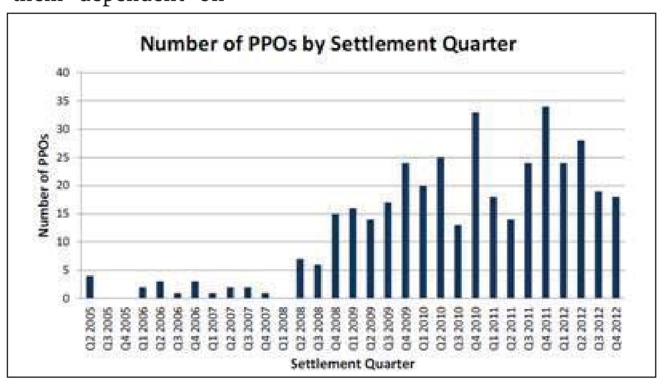
Indexation of PPOs

The Court Act originally allowed for the payments under a PPO to be indexed (inflated) in accordance with the Retail Price Index in UK. However this changed in 2008 (following Thompstone vs Tameside court case) when the court ruled in favour of using a wage inflation index instead of RPI. It was argued that the wages of caretakers such as nurses usually increase at a rate above the RPI, and hence a more appropriate wage inflation index should be used.

The most popular index used so far is the Annual Survey of Hourly Earnings (ASHE). PPOs have usually been awarded for medical case, and have been linked to the sub-code 6115 of ASHE, which relates to the salaries of 'Care assistants and Home carers. It is, however, possible to agree with other indices should all parties involved agree to that index.

Some Statistics

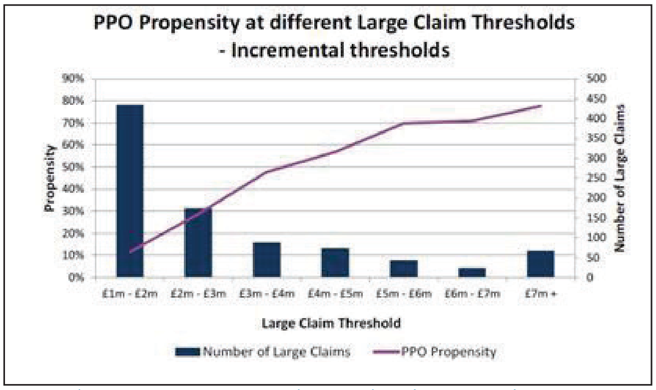
I would like to present some statistics around PPOs in the UK market which have been sourced from the latest report of the PPO Working Party.



Source: http://www.actuaries.org.uk/research-and-resources/documents/update-periodical-payment-orders-working-party-0

As can be seen from the chart above, the number of PPOs awarded in the UK started to rise in 2008 following the Thomstone vs Tameside case, and seem to have almost reached a plateau now (around 75 each year). The above graph shows that there is some variation by the quarter of settlement, which is quite interesting.

Earlier in the article I mentioned that PPOs only concern severe injury cases, and this means that the claim amount could run into millions of pounds. In fact data suggests that a significant proportion of very large injury claims in motor insurance are now being awarded as PPOs. The chart below shows the propensity at different large claims threshold for claims to be settled as PPOs. As we can see below the larger the claim size, the higher is the propensity for the claim to settle as a PPO.



Source: http://www.actuaries.org.uk/research-and-resources/documents/update-periodical-payment-orders-working-party-0

Pros and Cons

It would be inappropriate to discuss the pros and cons in isolation to the parties involved as the implications of PPOs have been quite different for insurers and claimants, and to some extent to the Government and the Reinsurance companies. However we will only discuss the first two stakeholders in this article, and keen readers are suggested to read the PPO Working Party reports which can be found on www.actuaries.org.uk (albeit with little bit of treasure hunting skills!)

Let us look at PPOs from the point of view of insurance companies. Insurers really do not like PPOs, and there are several valid reasons for their dislike:

- It costs more to settle a claim as a PPO than as a lump sum, because the discount rate that is currently used to discount future payments is higher than investment returns (roughly). This discount rate is prescriptive in nature and is currently set at 2.5% but is subject to review. But this means that it discounts future payments too much, which reduces the value of the claim, making it cheaper to settle as lump sum
- Under lump sum awards, it is the claimant who effectively bears the mortality/longevity, investment and any inflation risks. With a PPO, it is the insurer who has to bear all these risks and keep the case file open until the claimant dies. In some cases where the claimant is an infant, this could mean understanding those risks over a 30-40 year period.
- Another big reason for concern is that **currently there are few products in the market which can mirror the cashflows of a PPO. This is so because most index linked investments provide indexation by RPI,** and not ASHE.
- There are far-reaching implication on the resources required to maintain these cases, and models needed to correctly calculate the amount of reserves to be held by insurers. From a more practical side, General Insurance companies are not accustomed to managing long-term liabilities, unlike Life-insurance companies who deal with annuities. There is still uncertainty in the industry around how to reserve for these claims, and how to manage the investment strategies so that they continue to generate cashflows in 20-30 years time.
- Insurers are also not happy with the uncertainties surrounding the assumptions used to value these claims and the sensitivity of results to small changes assumptions.

While PPOs are designed to give claimants greater protection and certainty that the real value of their awards is maintained, there are still few concerns from the claimants' point of view:

- Claimants may dislike being attached to an insurer, and having to prove that they are still eligible for payments each year. As with insurers, claimants might also prefer the finality that comes associated with a lump sum payment
- PPOs may not allow the flexibility to invest the lump sum money into investments of their own choice, thus limiting income to what the insurance company pays and hence little choice in the level of care.

However as the reader might appreciate that despite these shortcomings, claimants are better off with receiving a PPO settlement simply because their money is safe and all mortality and investment risks are passed on to the insurer for as long as they live. PPO payments in some cases are stepped which means if the insurer can anticipate a step shift in the level of care required as the claimant grows older (e.g. extra nurse needed when parents die), which provides added security.

Conclusion

Settling a claim by means of a regular series of payments is no longer restricted to the willingness of the claimant and the insurer, and the court has now the discretion to award a PPO. This has forced companies to develop relevant models and in some cases re-think about their investment strategies. The UK Motor Industry is making rapid progress to develop sophisticated models to capture the different variables that can affect their reserves and prices.

While it seems that there is some stability in the market as to the number of PPOs being awarded in the market, it would be interesting to see how the market develops and claimants could potentially get higher returns from investing lump sum amounts themselves rather than leaving it in the hands of insurance companies.

Hopefully this article has generated some interest amongst readers, and I look forward to getting any thoughts and comments.

STUDENT COLUMN

INSURANCE TELEMATICS - A BIRD'S EYE VIEW

Telematics, as a concept in motor insurance, refers to the recent technological advancement that allows real time recording of driver behavior, driving patterns, miles travelled and other such aspects through communication between a satellite device such as a GPS, and a specialized device fitted in the insured vehicle.

It allows insurers to adjust the price of the insurance policy based on accurate driving data of each particular customer. Simultaneously it gives customers a potential benefit if their driving records suggest that all other aspects being the same, they are 'relatively safe' drivers. This is becoming increasingly popular with consumers and insurers alike in mature markets like the UK and Europe. The US is also starting to follow suit, but in terms of reach, it remains far behind the level of popularity that telematics insurance has achieved in the UK.

In markets where competition is fierce and profit margins are low, this new technology is offering insurers a way of differentiating price based on the risk an individual carries. It is therefore seen to have huge potential in terms of improving price adequacy and retention, and demonstrating fairness to customer.

What's in it for the insurer

The first and more perceptible benefit of this technology to the insurer is that it allows real time access to records on speeding, braking, roads used, peak driving time etc which is otherwise impossible to achieve through a policy form. The general idea is that a driver who has the tendency to speed, brake suddenly, drive at peak office hours etc will be charged a higher premium. This can be put into effect in the next renewal, or through some other innovative product where premium changes real time as well. That said, it equally gives the insurer the ability to soften prices on policyholders that are more 'benign' risks.

Illustratively speaking, this could well mean that no two drivers are charged the same premium. Hence the onus of being fair to all customers belongs to the insurer, and this will probably get its fair share of attention from local regulators. Any slip on this aspect is likely to find its way to public domain very quickly, given the number of social platforms available today to share experiences.

The increased insight into individual customer data opens new windows in product innovation, risk selection and experience based pricing. For instance, some insurers in the UK charge a premium subject to a pre agreed limit on number of miles that the policyholder is allowed to drive in the year. As the driving data keeps getting collected, the customer can 'earn' extra miles or a discount on renewal premium.

IT functions of insurance companies will need to have their hearts firmly seated in this project - data capturing, data integration, system enhancements, analytics- these are all cogs in the wheel, and the importance of getting this right cannot be overemphasized. Dynamics like change of owner, change of vehicle etc will need to embedded into the system such that data integrity is maintained, and the benefits earned can be transferred on.

This poses challenges for reserving actuaries as well, as this will undoubtedly lead to changes in risk mix, and can well be thought of as a way of driving customer behavior. Most reserving techniques are based on the principle that 'Past is a good indicator of future trends.' A technological leap of this nature, especially in personal lines motor insurance, may mean that the impact of reserves will be unclear for a certain period till adequate exposure on such policies is earned.

Another aspect insurers will need to be particularly watchful about is the increased need for data protection and operational controls given the sensitive nature of information being recorded. For instance, the insurer will have accurate data on the time of the day every insured leaves for work, and therefore if the data goes to the wrong hands, it could lead to increases cases of household theft.

The policyholder's perspective

Potential benefits to the policyholder have already been spoken about above. Reduced premiums for safer drivers, a steer towards better overall driving techniques, increased compliance with road safety rules being the major ones.

More and more major insurers are fighting over the same pie of motor insurance customers. Competition will nudge them towards becoming increasingly sharp with the analytics that they can produce with the telematics data. Customers, at least the ones that present the better risk, can therefore reasonably be expected to be the overall winners in this new way of effecting insurance.

But not all policyholders will like the feeling of being monitored 24 x 7, so the proposition is only likely to take off with some segments.

Second Order Effects

As mentioned above, this may lead to better driving standards, as the driver is aware that mistakes in driving can lead to higher renewal premiums. This can also lead to insurers wanting to centralize driving records for being able to share more insight across the industry.

Smartphones and tablets can play their part in making this a better experience for the customer and insurer alike. It can help the insurer get regular touch points with the customer in terms of miles earned, projected renewal premium, distance driven, driving feedback etc.

Till the time the technology is robust and stable, and all its holes are plugged, the possibility of increased fraud cannot be overlooked. For instance, if customers have the ability to turn the device on and off, then customers may end up turning the device on only when they know they will be on their 'best behavior' as a driver.

The Last Word

Overall, this breakthrough in insurance is definitely one that appears to have more benefits than pitfalls. That said, human behavior can very well be significantly more complex than seen by the naked eye, or in this case, by a telematics device. The true impact on the industry and risks that have not been envisaged will only become clearer as volume increases and as exposure is earned.

About the Author

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Anita Subramani is a nearly qualified actuary with close to 6 years of experience in General Insurance, all of it with RSA Insurance Group. She currently works in the group's Oman arm, and focuses on pricing and technical analysis of their Motor and Health accounts.

LIFE INSURANCE INDUSTRY UPDATE

Private life insurers closed FY2013-14 with a 5% contraction in weighted new premiums compared to the previous financial year, marking the third consecutive year of degrowth. Overall industry growth, at 2%, was pulled up by the 7% weighted new premium growth for the Life Insurance Corporation (LIC) of India driven by growth in the group segment.

An estimated over 500 products compliant with the new product regulations have reportedly already been approved by the Insurance regulatory and Development Authority (IRDA) and are likely to be introduced through 2014. Starting FY2014-15, however, the IRDA proposes to limit the number of product filings in one financial year by mandating additional information requirements if the proposed number of product filings exceed five. For the current financial year, the IRDA has asked life insurers to submit their 'product planners' by the end of April.

Initial trends based on product launches so far indicate that traditional non-linked products are the preferred choice among life insurers. The LIC, for example, has only launched non-linked products compliant with the new regulations till date (with company officials indicating there is a conscious focus on traditional products currently). It is worth noting that few other private life insurers have also only launched non-linked products (although some unit-linked products may be in the pipeline). It will be interesting to see whether or not the new products intended to be more customer-focused and simplified help lift the generally low new business premium growth rates of private life insurers over the next few months.

The last update covered growth forecasts of various industry bodies for the life insurance industry in India most of which are rather optimistic predicting a return to high growth levels by 2020, despite the current volatility and short-term challenges. Given that the industry is currently undergoing a sort of revamp on the product and regulatory front, there may be a bit more time before the industry returns to its pre-2008 growth levels. Developing customer-centric products and practices would be key to achieving optimum growth for life insurance in the long-run. At the end of this update, we also present an insight into the general market sentiment on recent growth trends and future outlook based on a recent Towers Watson survey - 'Growth prospects of the Indian life insurance industry'.

Amidst the intense products related activity, there have also been some developments on the M&A front. Dewan Housing Finance Corporation Limited (DHFL) has acquired DLF's 74% stake in DLF Pramerica Life, for an estimated price of Rs2.5-3 billion as per press reports. The life insurer has now been renamed as DHFL Pramerica Life Insurance Company Limited. Future Retail Limited, owned by Future Group and formerly known as Pantaloon Retails, has sold a 22.5% stake in the Future Generali Life to Industrial Investment Trust Limited, for an estimated Rs3.6 billion. Aviva is looking to exit the Indian life insurance market and has reportedly shortlisted three life insurers for its 26% stake sale. On the other hand, HSBC has officially announced that the group will not exit Canara HSBC OBC Life in which it holds 26% stake, keeping the purely bancasurrance driven insurance joint venture intact for now. Over a year after Exide Industries took full ownership of ING Vysya Life, the Company has been renamed Exide Life Insurance.

While life insurers are reported to have been increasing emphasis on improving agent productivity and persistency, the IRDA has dismissed the 50% persistency criterion for agents to renew their

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Director-Risk Consulting India Towers Watson.

agency license in an effort to lower the high agent attrition rates observed recently. Instead, the IRDA has mandated life insurers to establish their individual persistency standards for the renewal of individual agent license and corporate agency license by 1 July 2014. Comparing with global standards, research indicates that agent persistency rates of over 85% are standard in countries such as the United States and Japan.

Reportedly, the IRDA may make it compulsory for life insurers to tie up with the five licensed insurance repositories by July 2014. Although there may be initial costs involved in transferring the policies to electronic format, this is a good step towards digitization and centralization.

As was expected, banks have expressed concerns over the insurance broker draft regulations released by the IRDA. Banks have communicated to the regulator that their contracts with their joint venture partners, equity arrangements and non-compete clause with insurance companies are major roadblocks to adopting the broking route to selling insurance policies. The draft regulations mandate that banks will be required to limit sales from their insurance partners to 25%. Recent reports suggest that the implementation of this directive may be deferred by 5 years, although no timeline has been fixed formally.

In another distribution related development aimed at boosting overall insurance penetration, the IRDA has issued draft regulations for a new distribution channel 'insurance marketing firms', intended to be similar to the independent financial advisor model that exists in several insurance markets (based on the recommendations of the Govardhan Committee on Distribution). Essentially, insurance marketing firms are intended to provide an avenue to serious agents to expand and diversify product offerings leaning towards the broker model, however without any restriction on the amount of business that can be secured from one insurer. An insurance marketing firm will be required to have net-worth of at least INR1 million and will be allowed to tie-up with multiple insurers, while also selling other approved financial products such as mutual funds and pension products. At the time of writing, final regulations are awaited.

INDUSTRY SENTIMENTS – LIFE INSURERS EXPECT A RETURN TO GROWTH FOR THE INDUSTRY

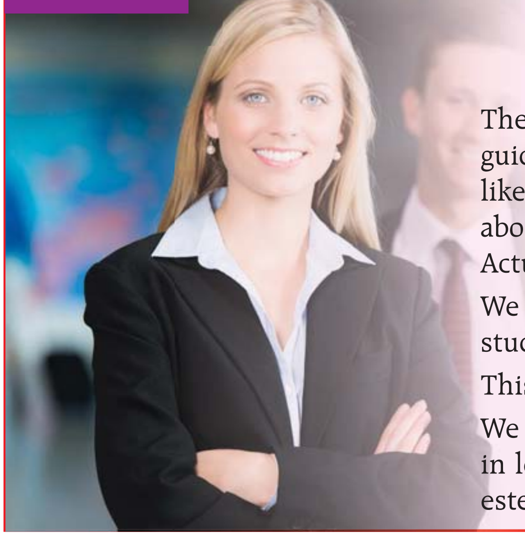
Towers Watson recently conducted a survey to understand the general mood in the life insurance industry in the current operating environment. The survey was targeted to gauge the views of senior life insurance company management on the drivers of recent trends in new business growth as well as long-term expectations for the industry. The survey was concluded with participation from 22 senior management members (Chief Executive Officers, Managing Directors, Chief Risk Officers, Appointed Actuary and other senior actuaries) from 18 private life insurance companies.

- Over 40% of the respondents to the survey believe that the decline in new business premiums in the recent past is largely due to rapid regulatory changes that have made the operating environment for life insurers more difficult. At the same time, there is significant consciousness of the fact that the regulatory changes themselves have been prompted by questionable business practices and market conduct that had crept into the life insurance industry (over 20% responses in this category for the reasons in decline in new business) in a possibly less controlled regulatory environment, clearly indicating that the industry is self-critical and recognises its own misdeeds for its misfortunes. It is particularly interesting to note that none of the respondents believe that life insurance products as a whole have lost favour with customers hence conveying the sentiment that the industry believes that the current situation is only temporary and that the fundamentals for the industry are still strong, providing it sufficient potential still to increase life insurance penetration.

- The survey also sought opinions on the immediate, short and long term growth outlook for the life insurance industry. Nearly half of the respondents expect to see improved moderate growth in new business premiums of private insurers (of 3%-8%) in FY2014-15 while around 35% expect continued flat growth, similar to the trend in FY2013-14. A small 5% of the respondents believe the worst isn't over and expect to see a decline in new business premiums in FY2014-15. Nevertheless, consistent with the belief that the fundamentals in the industry are still strong, participants expect to see a gradual recovery over the next few years, with the industry returning to steady growth levels (8%-12% per annum) over the next 5 years or so and possibly achieving heady growth rates (in excess of 15% annually) over the next 10 years or so.

- Amongst the drivers of growth included in the survey, around 45% of respondents expect that growth in coming years is likely to be driven by an increase in wealth and rising middle class leading to a greater demand for insurance products. Over 30% also believe that reforms in distribution, including emergence of alternative channels and better trained intermediaries will drive the growth. A relatively small proportion of participants believes that increased customer sophistication and focus (in terms of product innovation and delivering the right product to the right customer), and impending legislative and regulatory reforms (including a favourable tax regime and higher Foreign Direct Investment limits) will drive the growth.

NOTICE



VACANCIES FOR ACTUARIAL STUDENTS

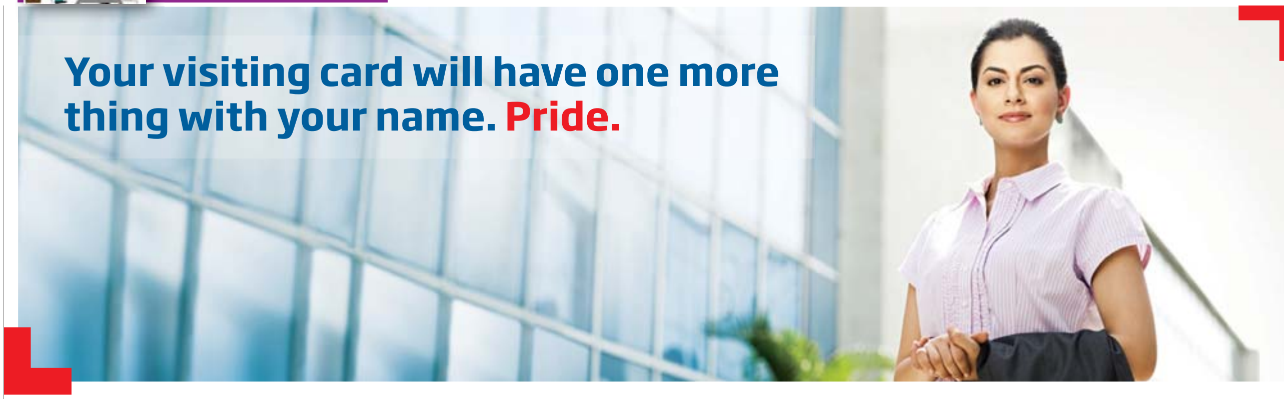
The Institute of Actuaries of India in its endeavour to provide guidance and information to its student members would like to publish on its website under the Careers Tab, details about available vacancies for Actuarial students in the various Actuarial Organisations.

We could also send the obtained information vide mail to our student members.

This is applicable only in India

We would greatly appreciate your support and co-operation in letting us know as and when such vacancies arise in your esteemed organisations.

CAREER CORNER



HDFC Life, one of India's leading private life insurance companies, offers a range of individual and group insurance solutions. Our product portfolio comprises solutions, which meet various customer needs such as Protection, Pension, Savings, Investment and Health.

In line with our aggressive growth plans, we are constantly looking for team members to partner us in our growth and achievements. So come, **be the life in HDFC Life.**

We are currently inviting applications for Vice President (Actuarial) with experience in the following areas:

Management Reporting & Statutory Reporting – The incumbent will be responsible for MCEV reporting including analysis of movement, liability valuation, regulatory reporting and experience analysis, business planning and with profit management.

OR

Product Development & Pricing – The incumbent will be responsible for development and pricing of various products spanning across life, health, pension and group business ; Filing products with IRDA for approval; Good knowledge of regulations; Good rapport with regulators ; Supporting various initiatives around product implementation and launch such as benefit illustration development, systems implementation & testing etc.

Applicants should meet the following requirements – Qualified Actuary with 3 years PQE, with minimum 5 years experience in Life Insurance. Strong Analytical, Communication and Managerial skills are essential.

To apply:
e-mail your resume to **natasham@hdfclife.com (Please mention your area of interest in the e-mail)**
A comprehensive list of openings is available online
at http://www.linkedin.com/company/hdfc-standard-life-insurance/careers

HDFC Life
Sar utha ke jiyo!

FACE TO FACE

ANIL KUMAR SINGH

AnilKumar.Singh@birlasunlife.com

Personal

What jobs and experiences have led you to your present position?

For present position obviously one need to confirm to all the eligibility conditions as required by the Appointed Actuary regulation and so I. Then comes the requirement of experiences and skills. I was fortunate enough to get early exposure with couple of start-up companies at their early stage of operation which gave me opportunity to work in areas which comes directly under Appointed Actuary's job profile. This mainly involves developing actuarial skills, understanding the regulatory environment and the financial market, understanding the policyholder's behaviors and the expectations of various stakeholders and to learn how to manage them.

Describe your current roles and responsibilities?

As an Appointed Actuary my role and responsibilities are mainly governed by the Appointed Actuary regulation which includes product development, pricing and certification, statutory valuation and reporting, solvency monitoring, reinsurance management, asset liability management and other risk management activities like experience monitoring, regulatory compliances etc. Additionally being Chief Actuarial Officer, I hold responsibility of a Chief Actuary and Functional Head as well of Actuarial and Product Management team. This requires determining, reporting and monitoring of the shareholders value (Embedded Value), play active role in business planning, collaborate with other teams to manage products and to manage the functional team.

What are the key qualities required in your position?

Strong actuarial skills, managerial skills, in depth knowledge of regulatory environments, understanding of the financial market and overall insurance industry and ability to analyze problems and convey solutions/advice in simplest terms to various stakeholders including the Board of Directors.

Challenges that you faced on the route to becoming an Actuary?

The first and foremost challenge for any of us who aspire to become an actuary is to devote hours on studies on consistent basis and so the case was with me as well. When I started actuarial exams in 1991, we used to study from text books and content of the syllabus used to be spread across many text books. We used to get very few questions from text book or from past years question paper for practice and even if you get some questions there used to be no means to verify the correctness of solutions developed by us. Also that time there was no mutual recognition with Institute of Actuaries of UK and fellowship exam used to held once in year only, which used to limit attempts of taking exams. On one hand such challenges used to reduce the possibility of passing exams quickly but at the same time used to bring more seriousness in candidate to attempt exams.

How did you balance your job, studying for exams, and personal time?

Managing personal life is always a challenge particular during early days when lot more time goes to studies. My priority was to focus on work as that was a learning phase for me and that had given me opportunity to test whatever actuarial skill I had acquired till then. Then second priority was to pass the exams as quickly as possible for two reasons; one to save time from studies once it gets over and second, passing exam used to be very rewarding in terms of monitory benefit as well as quick career progression. Personal life used to be the last priority but if you could pass exams quickly and at early age it helps to manage your personal life well afterwards.

Profession

Please describe how you start a typical day at work and your team management approach?

A typical day starts when I reach office by 9.15 or 9.30 in morning. First thing I do is I scan financial news paper quickly to get sense of what has happened in the financial market. Then I look into my mail box to check what mails have already been replied and what all need further information to revert or action plan. Then I look at what all meeting are scheduled for the day and does that require any advance preparation. Also I take update from team members if any reporting deadline has fallen due or any important information or document has to be delivered on particular day and what is the readiness to comply that. This sets tone for the whole day and provides me roadmap as to where I have to focus during the day. I start my work by looking at any document pending on my table which I need to review, I take that on priority so that by evening no critical file is pending at my desk when I leave my office. Also during the day I try to meet team members to take update on what are they working on and what is the progress from previous day, are they facing any problem and is there something I can guide them or arrange support. So whole approach is to give independence to team to think through and perform and at the same time feel that somebody is there to guide them and support.

What can you tell me about the employment outlook in your occupational field?

As of now I feel lot more employment

opportunity come from off shore activities in India, which is likely continue. As far as local insurance companies are concerned, their growth has slowed down significantly and private companies have even de-grown which has put pressure on cost management. My sense is actuarial team of existing insurance companies has not grown over last couple of years and also no new company has not entered into market so job opportunities in local insurance companies are almost stagnant at this moment. However in short to medium term looking at the potential of the market, growth would come back and that would not only result in to team expansion by existing player but also job opportunities would expand because of new players coming in. Also in longer term new segments like health insurance, annuities, risk management (risk based capital), IFRS would create new opportunities. These activities would not only lead to new recruitments by insurance companies but would also encourage actuarial consultancies and audit firms to expand their actuarial team.

How much demand is there for people in this occupation? How rapidly is the field growing?

Very difficult to give any number about demand but my sense is in couple of years time once insurance industry is in more comfortable situation in terms of growth, volume, quality of business and expense management, I see more activities and project starting on actuarial side and hence demand coming for actuarial resources in the market.

What do you consider to be the key areas where actuaries add value to the business?

So far it has been traditional areas only with insurance companies only like product pricing, liability valuation, embedded value, experience studies, asset liability management, business planning, solvency monitoring. New areas need to be explored like project management and risk management in other than insurance industry.

What impact do actuaries have on consumers and society?

Insurance companies play significant role in protecting the financial loss to the individuals and to the society from various unforeseen events beyond human control and also provide tools for long term saving and income. Actuaries play significant role in ensuring that such covers and tools are available at fair price to individuals and to the society. Also actuaries ensure that companies who are providing these covers or services are run on sound financial grounds and they keep enough assets to meet their obligations.

How do you think IAI can support better its members?

To me the biggest challenge for students are skill developments and getting timely job opportunities. IAI do conducts seminar for actuarial professionals but there is scope to have program for students for skill development; technical as well behavioral. Also need efforts at Institute level to market the actuarial profession in industry, which would not only open new avenues for members but would also give them opportunity to showcase actuarial skills in risk management or project management outside the insurance industry.

Insurance Industry in India

What trends do you see for this industry in the next 3 to 5 years?

I expect industry would be in much better position than it is now. This year I expect industry to come back to growth path in terms of individual new business under new product regime. The positive impact of product regulations would be that now business is being written with much longer term view to retain customers on book and much more focus on quality of business in terms of persistency and claims. Also transparency and disclosures in sales process would result in less customer complaints and better customer relationship. AUM growth might still take some time but once new business starts growing and persistency improves the asset base of companies would also start growing. So overall I am very optimistic about the industry in 3-5 years time.

Are there things that the IRDA or the Government should have or should not have done to assist the industry?

The insurance industry is still evolving, so regulatory changes were inevitable. Initially many things were allowed which got tested over time so it was necessary to review and amend quite a few things which had not yielded desired results and also allow new things and that is what regulator has done exactly. So in my view all the regulatory changes were very well thought of and were based on experiences gained over last 10 years. On government side I feel more clarity on tax benefits for pension and annuity benefits would help grow this segment, which has big potential to generate long term capital and support the growth of economy.

What market share do you see the private sector players having in ten years time?

Anil: I do not see any significant change from the current status.

What are the top three issues facing the Insurance sector in India.

Low quality and high attrition rate of sales team, poor quality of business (high early claims and poor persistency) and high expense overruns.

What do you believe are the inefficiencies in the insurance industry? How do you think such inefficiencies can be overcome? What are its strengths?

In my view industry was too focused on short term growth which was being achieved by adding capacity. Companies did not focus on quality and productivity. To overcome this it needs completely new approach. Higher capacity without quality would add more to the cost than to embedded value. Focus should be on building a quality sales force and retention of customers and their satisfaction. Strength of the industry is the huge market potential across insurance, pension, health and annuities segments, which offers great opportunity of growth once we have right approach and strategy.

AG UPDATE

ADVISORY GROUP ON LIFE INSURANCE

The Advisory Group on Life Insurance shoulders the primary responsibility to address issues, actuarial or otherwise, in respect of the Life Insurance Industry. This would include such matters addressed to it, but essentially the Group would be proactive to sense emerging critical areas and identify issues where there is a need felt to engage itself so as to give insight and provide solutions.

Putting in place the Actuarial Practice Standards and maintaining and updating the existing APS/GNs in the Life Insurance areas is a vital means by which it can engage itself in the Life Insurance areas and with practicing actuaries.

The other area where the group has to contribute to the profession and its members is in the skill development. This is done by undertaking CPD programs and workshops / seminars so as to enhance skills available with its members in the Life Insurance area. CILA is the flagship event that this advisory group organizes every year which benefits the industry and draws participants from both actuarial and non actuarial areas.

The Regulatory changes that have taken place over the last few years have thrown up great challenges to the industry and the profession alike. The Advisory Group has felt the need to be alert to the needs of the industry and the profession and has been proactive in supporting the profession and the industry in its efforts to adjust to the changing Regulations.

- The Advisory Group has made efforts to influence the Regulator and the shape, direction and pace of the Product and Reinsurance Regulations
- Over the last year, the group has been very active in providing inputs on behalf of the profession to the Regulators on the draft Product and the Reinsurance Regulations
- In order to address certain requirements of the Regulations, specific APS have been drafted and some are currently in the due process

The plans for the current year remain similar, issues to be taken up to support the profession/industry, provide support in technical, actuarial governance areas though APS, CPD programs, seminars and workshops. The Group would also meet its responsibility as far as providing advice to the Institute on emerging and critical issues.

The group will carry out its business with the active participation of its members and also seek the support of the members of the profession at large. The group will meet periodically to deliberate on issues of significance, take decisions and engage with other groups and committees whenever required.

- Sanjeev Kumar Pujari
Chairperson, LIAG

CAREER CORNER

COUNTRY REPORT

INDONESIA

Warm Greetings from Indonesia!

In this article, I would like to cover general economic scenario and the latest market updates on Indonesia's life segment.

For the first quarter of this year, Indonesia has posted the lowest pace of economic growth in the last 5 years with the economy expanding by only 5.2% - well below the forecasted median growth of 5.6%.

Indonesian economy has been impacted by the slowing foreign investment and recently investors had pulled out their money out of Indonesia in response to US closing out the stimulus program which is popularly known as "Quantitative Easing". Indonesian rupiah has lost almost 20% of its value during last few months and with presidential elections round the corner (in July) overall economic situation will definitely be a key focus issue with both the government and the voters.

Due to currency depreciation, 2013-14 may represent a slow growth period in the overall development of Indonesia's insurance sector. However, if we look in terms of overall activity in the Insurance sector, Indonesia continues to be an attractive destination for market players fuelled by continuing growth of life insurance which is perceived as an attractive savings mechanism by local insurance households. Recently British insurer Aviva entered into a partnership with local conglomerate PT Astra International to form Astra Aviva Life to sell and distribute life products in Southeast Asia's biggest economy.

Companies are working hard and are open to innovative ways of product pricing and the ways in which life insurance products are being distributed. Top players are capitalizing on Bancassurance and affinity marketing and are parallelly focusing on improving agent productivity. Unit Linked products continue to remain the most popular product form amongst the Indonesians and increasingly there is a clear need and demand being seen for Takaful products.

Regulatory Overview

I. Gross Premium Valuation – Syariah Products

As covered in the last country update, the reserving methodology has been changed from Net Premium Valuation ("NPV") to Gross Premium Valuation ("GPV") effective 1 January 2013 for all products except Shariah.

Based on recent guidelines from OJK for Syariah products it is proposed that with effect from 31 December 2014 all Syariah products should follow GPV methodology. The prescribed methodology for Syariah products will be similar to Conventional Products.

About the Author

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Pranshu Maheshwari FIA, FIAI is currently working as AVP Product Pricing with PT AIA Financial Jakarta and is also Member, IAI Advisory Group on Examination

■■■

OBITUARY

M. S. Venkataraman, MA, FIAI, Who was consulting Actuary, who retired as Asst. Actuary, Lic of India Chennai, Z.O. aged 81 years has left his eternal life on 2nd May 2014 at his residence. His survivals are his wife and his only son.

PUZZLE

Puzzle No. 213:

There are three measures of distance in the land of irrationalia: the mile, the dist (equals 1 + √2 miles) and the ance (equals 1 + 1/ √2 miles).

Measured from the beginning of the proposed new motorway, the Dist Automobile Club has agreed to place an emergency telephone every dist, while the Ance Automobile Club has offered the same but at every ance. Also, measured from the beginning of the motorway, there will be a milestone every mile. There is an emergency telephone at the beginning of the motorway. How often will an extra emergency telephone be required if there is to be an emergency telephone somewhere between every two consecutive milestones.

Puzzle No. 214:

In the diagram (right side) put a dot in exactly 16 of the unit squares, so that:
each row
each column
every diagonal
is either empty or has exactly two dots in it. Moreover, the completed diagram must not be symmetrical. (There are six symmetrical solutions).

shilpa_vm@hotmail.com

(We will publish the combined list of solutions in the next issue)

MANY HAPPY RETURNS OF THE DAY

the Actuary India wishes many more years of healthy life to the following fellow members whose Birthday fall in **MAY 2014**

S. CHIDAMBARAM
N. M. GOVARDHAN
P. C. GUPTA
P. I. MAJMUDAR
N. G. PAI
A R. PRABHU
ANDREW THOMAS WAKELING

(Birthday greetings to fellow members who have attained 60 years of age)

SUDOKU

SUDOKU No. 22 for the month of MAY 2014

SUDOKU GENIUS

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

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.21 published in the Month of April 2014

SOLUTION

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

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