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Serving the Cause of Public Interest

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SOME OF THE SPEAKERS FOR 14th GCA

14th GCA: Meeting the Challenges of Change

February 19-21, 2012
Renaissance Mumbai Convention Centre, Powai, Mumbai

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FROM THE CHIEF EDITOR

The end of the financial year is looming, which for one reason or another means that many of us can look forward to late nights in the office and little or no social life.

It seems to be a fundamental law of nature that as each year passes the company's books seem to close later, while the Board meeting at which the financial results are signed off gets earlier. Simultaneously, while the time available to carry out the work steadily shrinks, the amount of reports that need to be generated grows yet larger.

The other day I was contemplating this gloomy outlook while planning out all the work that needed to be done for my company's year end. A little icon popped up to announce the arrival of another e-mail, and it got me thinking about the benefits of quick, simple and cheap communication offered by e-mail.

While e-mail certainly does have many benefits, the amount of mail that comes into each of our inboxes each day can be very disruptive. I am not talking here about spam, I'm talking about official mail which is sent within each of our organisations and between organisations.

As part of our every day professional work we are expected to sort through very large quantities of data, extract the key facts and then present them in a clear and concise manner for our clients or employers. Given these skills surely we must be able to make light of the flood of e-mails that arrive each day. But for most of us it can be a real battle to keep on top of the inbox.

E-mail has made us all very accessible, but as a result have we become too accessible? Everybody and his uncle can send us an e-mail which at the very minimum requires us to spend time reading the mail, but probably also requires time replying or yet more time performing some task that has been requested.

The very attributes that make e-mail useful also make it dangerous. It is just too quick, simple, and cheap to add a few extra names to the distribution list without thinking whether they really need to be included. Similarly, it is too quick, simple, and cheap to ask somebody to provide some information without thinking about whether it is really necessary.

A colleague once proposed the radical solution of deleting all mails he received on the grounds that if it was really important the sender would ring up to find out why they had no response, and if they didn't ring up then it couldn't have been very important in the first place! At first glance this seems a very unhelpful and unreasonable approach. But on second thoughts perhaps there is something to be said for it.

All of our time is very precious both to us and to our employers, is it right for us to allow anyone who cares to send us an e-mail to use our time or our employers' time reading and responding to all their mails?

It is clear from many of the mails that I get that the senders have given little thought to who they include on the distribution list, apparently operating on the principle that the more recipients the merrier. Equally it is clear that many senders have not considered either the amount of effort that will be required in providing the information requested or how useful it will be to them once they receive it.

If senders show such little thought for the recipients before sending an e-mail, then what duty of care do we recipients have to the senders?

It is now fairly standard for e-mails to contain the ecologically friendly advice to think before you print out the e-mail. I think it is time to move one stage further and have a campaign to encourage people to think before they send an e-mail.

Many, many years back before PCs has appeared in offices, the role currently played by e-mails was performed by internal memos and letters. These had to be manually typed, with sufficient copies for all the intended recipients, and then physically distributed. As you can imagine it was time consuming and a hassle, but because of this nobody sent a memo or letter unless it was really necessary.

Perhaps what is needed is to introduce some disincentive for the senders of e-mails. In this modern electronic age surely it would be fairly easy to come up with a simple solution. It may not be strictly in keeping with our Professional Conduct Standards, but a small electric shock could be administered through the keyboard every time the user presses the send key. We must acknowledge that some e-mails are useful, so perhaps the shocks could be graded, a small shock for the first e-mail sent during the day, but increasing in severity with each subsequent e-mail sent. It may seem a somewhat draconian or even inhumane solution, but if you were to check how many mails you have received today, then perhaps you might think it has some merit!

While it is nice to daydream about such wacky solutions, in reality e-mail has become a serious problem for many of us, and I have yet to see a workable solution. Any suggestions most welcome!

Nick Taket

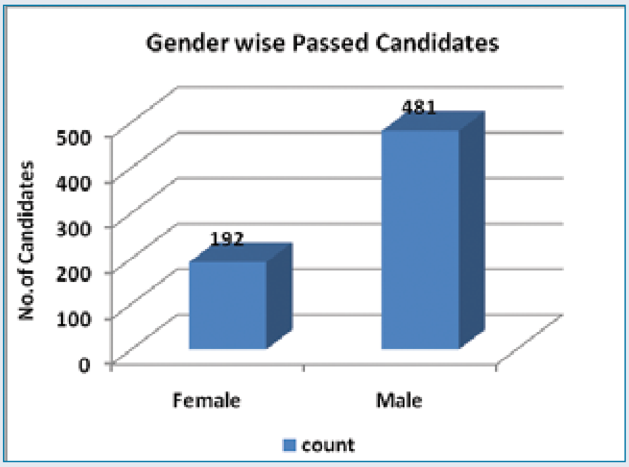
FROM THE PRESIDENT

ACET: Changing face of the Indian Actuarial Profession. At least in my view ACET has the potential that many of us may not realise as of now.

Out of 1,960 candidates who registered from 48 cities across India, 1,663 appeared in the examinations held on 28th and 29th January, 2012 from 42 cities and 673 candidates came out successful, from 38 cities.

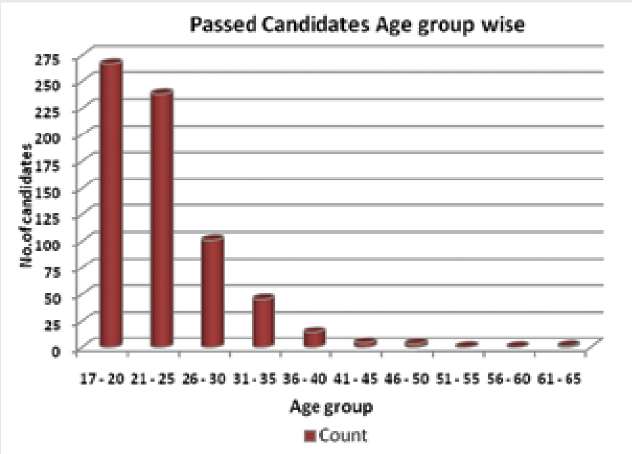
This column in January, 2012 issue gave the profile of the candidates who registered. Herein is the profile of the candidates who were successful in the examination – results were declared on 10th February, 2012.

1: Gender Distribution



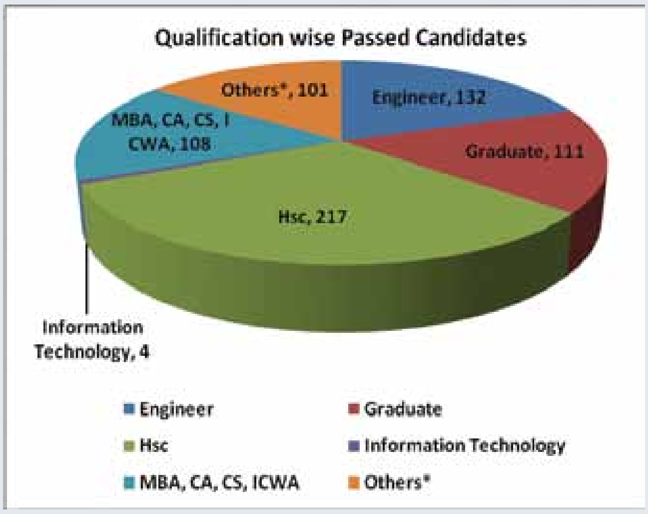
Gender	Count
Female	**192**
Male	**481**
Grand Total	**673**

2: Age distribution



Age Group	Count
17 - 20	267
21 - 25	238
26 - 30	101
31 - 35	45
36 - 40	14
41 - 45	4
46 - 50	**3**
51 - 55	**0**
56 - 60	**0**
61 - 65	**1**
Total	**673**

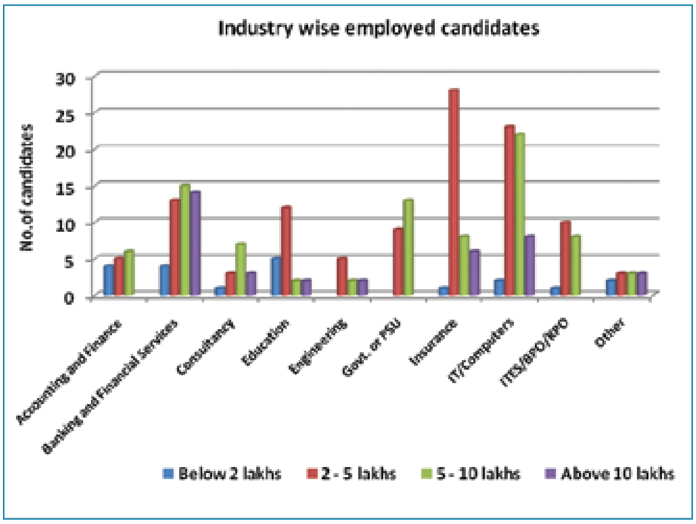
3: Qualification distribution



Qualification	Count	%
Engineer	132	19.61%
Graduate	111	16.49%
Hsc	217	32.24%
Information Technology	4	0.59%
MBA, CA, CS, ICWA	108	16.05%
Others*	101	15.01%
Grand Total	**673**	100.00%

Note :
* Pursuing Graduation
Pursuing Diploma
Pursuing Post Graduation
Pursuing CA/CS/ICWA/MBA or other Management/ Engineering/IT Courses
Post Graduate

4: Employment and Income



INDUSTRY WISE EMPLOYED CANDIDATES

Industry	Below 2 lakhs	2 - 5 lakhs	5 - 10 lakhs	Above 10 lakhs	Grand Total
Accounting and Finance	4	5	6		15
Banking and Financial Services	4	13	15	14	46
Consultancy	1	3	7	3	14
Education	5	12	2	2	21
Engineering		5	2	2	9
Govt. or PSU		9	13		22
Insurance	1	28	8	6	43
IT/Computers	2	23	22	8	55
ITES/BPO/KPO	**1**	**10**	**8**		**19**
Other	2	3	3	3	11
Grand Total	**20**	**111**	**86**	**38**	**255**

Family Income Range of Unemployed candidates

Particulars	Below 2 lakhs	2 - 5 lakhs	5 - 10 lakhs	Above 10 lakhs
Unemployed	116	179	83	40

The above data throws up a number of questions, answers to which, should drive the profession in the right direction:

1) Is the spread across India appropriate? The North-East, Extreme North and South?
2) The economic background? How do we support students who are from lower economic background?
3) Gender mix: Is it not skewed?
4) Examinations across India – from each of the cities where from there are candidates. It does not make sense, for students from the North-East to come over to Kolkata to appear for further examinations? And,
5) Now that the ACET students are available, should the actuarial employers who recruit the very beginners, still go to academic institutions?

Many more questions arise, answers to which require immediate attention, keeping in mind the Vision, Mission and Values statement that we are likely to adopt.

A few aspects of the ACET process, as we went along for the last few months;

The Pass Marks and other Standards with reasons relating to ACET Jan 2012 Exams and taking the ACET Exams forward;

1) **Pass Marks:** The pass marks were based on the mock exam conducted by IAI where 44 existing members appeared in the exam. The members were divided into 3 groups: first group had members who had passed the CT3 exam, second group were members who became student members based on their graduation result and third group had members who got admitted in IAI based on their 12th standard result.

   It should be noted that these existing members appeared in the exam with very little or no preparation and their results can't be directly compared to students who will appear in this exam with thorough preparation. While analysing the results of these 44 candidates, we ignored the non serious attempts based on the negative marks (more than 15) and the number of questions attempted (less than 35, out of 55). The Pass Marks thus determined, were decided to be kept a secret.

2) **Secrecy:** The Pass Marks were decided to be kept a secret from the ACET students and the public at large to avoid a number of undesirable consequences. One of them being, the ACET students may be encouraged to read the study material selectively and still pass. This would go against the objective of encouraging ACET students to read all the prescribed study material so as to gain holistic knowledge right at the entry point.

3) **Grading:** No grading based on marks obtained will be done and certainly not published (analysis, though may be made so as to gain insight, if authorised by the President) since the nature of ACET Exam is "hurdle" in nature and once the "hurdle" is crossed all the ACET students should be treated as equal. This line of reasoning broadly follows the philosophy of not disclosing the Pass Marks and marks obtained in any of the current subjects. Generally once an Actuary as qualified by laid down process, is an actuary and marks obtained or grading done based on marks may develop "attitude" which may not be in the interest of "Professionalism" expected of the members.

4) **Topper:** Currently the logic in (3) above however does not restrict the IAI in announcing the top candidate (without letting the marks obtained known) and this will be followed for ACET as well. The Top scorer amongst the pass candidates will be awarded the appropriate award/prize currently instituted by N K Parikh, FIAI in the name of Parikh Family.

Good luck and all the very best to the 673 candidates who came out successful!

Liyaquat Khan

7th SEMINAR ON CURRENT ISSUES IN HEALTH CARE INSURANCE

Organised by : Advisory Group on Health Care Insurance
Venue : The Westin, Gurgaon, New Delhi
Date : 20th of January, 2012

by Shivali Chopra

The event commenced with an introductory note by Herbert Meister, Chair-Advisory Group on Health Care Insurance and Liyaquat Khan, President, IAI inaugurated the seminar. The Key Note Address was delivered by Dr. Damien Marmion, CEO- Max Bupa Health Insurance on current issues in health insurance. In his address he emphasized that demand on health systems in India will definitely rise in future due to three major realities:

Herbert Meister

- Demographics - Population size is growing due to people living longer and have greater disposable wealth than previous generations. Indian population spread will see more people in next 10 years in retired, dependant, married and living in cities category.
- Epidemiology - Lifestyle diseases are growing at a fast pace. Chronic diseases are more prevalent amongs population .People are not following preventive measures seriously.
- Economics - Cost of health care is rising due to increasing cost of medicines & new technology.

Apart from above realities, he also highlighted the expert's forecast that health insurance industry will see a huge growth and penetration in next 20 years. This is supported by demographics, consumer consciousness, improved health insurance products, increase in provision of healthcare services, chronic disease management, government & employer funding and economic improvement.

Damien Marmion

He concluded his note with the remark that the "Current issue in health insurance" is to prepare for these shifts to the benefit of the industry and the population which also means to improve the health of Indians today".

The key note address by Dr. Marmion set the tone for rest of the seminar where the various issues related to the health insurance were presented in detail by the speakers in the sessions that followed.

Session 2: Drivers for Health Insurance Product Innovation by Dr Noel Coutinho, chaired by J Meenakumari

J Meenakumari

This session was presented by Dr Noel Coutinho, Associate Director- Health services –RGA Services India Pvt Ltd and chaired by J Meenakumari, HoD (Health, Actuarial and HRD), IRDA.

J Meenakumari started the session with a brief mention of existing products in the market like Medi-claim, Critical illness, Hospital Cash, Surgical benefits, Disability and overseas medical insurance. She talked about the expectations of the customers to cover permanent exclusions like mental illness, dental treatment, outpatient treatment, preventive care and to introduce disease specific, long term care and income replacement covers. She touched upon some of the current issues and highlighted that there is a lot of demand for health insurance, larger scope to innovate and to reduce complexities in product design.

Dr Noel presented the key drivers for innovation of health products. He stated that need of the customers and their ability to pay is the prime driver for innovating health products. Customer's need changes through the different stages of life cycle but the product tends to be static throughout. Then, he covered various key factors influencing the innovation in health insurance. These included local health care system, adequacy of data, sales & purchase drivers, anti selection risks, regulation and reinsurance etc. The presentation also briefly analyzed basic drivers of innovation of some common products like Hospital Cash, Surgical Cash, & Medical Reimbursements.

Dr. Noel Coutinho

He stated that we should not talk only on innovations in products but also put emphasis on service factor. A survey conducted on customer attitude towards customer service found that customers are generally satisfied with the products but there is a high degree of dissatisfaction with services. He suggested various ways by which we could innovate on services. These included better communication with customers, ease of claim submission with fast & accurate assessment, use of illustrations and policy wording conformed for local market, use of simpler and effective underwriting, sharing of information on fraud.

Session 3: Health Saving Account: Targeting the mass market by Binay Agarwala, chaired by Anuj Gulati

Anuj Gulati

This session was presented by Binay Agarwala, EVP & Head: Products, Risk management & Corporate Strategy-ICICI Prudential and chaired by Anuj Gulati, CEO- Religare Health Insurance Company. Binay briefly shared the experience of developed markets and issues like extensive coverage and over utilization, lack of focus on preventive care causing rising trend in health care expenditure in developed markets.

Binay Agarwala

The presentation focused on the role of savings in healthcare financing like ideal vehicle for managing chronic diseases & funding for high frequency medical needs. It also helps to reduce moral hazard as consumer is spending his money and builds a kitty to cope with the regular and high health expenses during old age. He cited international examples on health savings schemes operating in Singapore, USA & South Africa. He talked about Indian market status and how health saving account could help in improving access to health care. He also discussed issues related to health saving account like tax, portability and sustainability and role of different stakeholders in encouraging health saving accounts.

Session 4: Challenges related to Coverage of Elderly and Portable cases by Dr Bhabatosh Mishra, chaired by Amit Bhandari

This session was presented by Dr Bhabatosh Mishra, VP (Underwriting & Products Development)-Apollo Munich Health Insurance and chaired by Amit Bhandari, VP – (Health Underwriting & Product) - ICICI Lombard

Bhabatosh Mishra

Dr Bhabatosh Mishra presented statistics on estimated cases of heart disease, diabetes & hypertension related to elderly people. Statistics revealed that numbers are higher for 65+ in almost all chronic diseases. He underlined that if appropriately priced & underwritten, this segment could be made profitable & sustainable. The risk may be higher in elderly but is better known than unknown lower risk in young. He added that if adverse selection is assumed to be constant in both young & old, better underwriting may favour elderly. He raised challenges in underwriting of elderly people. The decision making is more complex for the same condition in elderly than in a young. More comprehensive and invasive tests are required to seek more information and assess the complication involved which has high implication for cost.

The last part of the presentation discussed about the challenges posed by portability. These included change in definition of Pre –existing, allowance of transfer among any type of health policy (Indemnity, Fixed Benefits, CI, and High Deductible etc), and inequalities in waiting period and increase in adverse selection as people are more likely to move from restrictive to less restrictive products.

Amit Bhandari

Amit Bhandari also shared statistics on elderly people (60 years & above) which showed that

- There is a rise in senior population from 7.5% in 2001 to 8.62 % presently.
- There is huge spike in claim frequency & 30% higher average claim size from age group 36- 45 years to above 65 years
- Premium for elderly ranges from 15% to 30% of SI for SI ranges of 2-4 lacs.

He suggested that solution could be increase in penetration to reduce frequency and thereby reducing premium cost and making group health insurance coverage mandatory for pvt sector employee group (above 50 years).

Session 5: Update on Hospital Quality of Care and Accreditation in India by A.P.V Reddy, chaired by Richard Kipp

This session was presented by A.P.V Reddy, Managing Director- Family Health

A. P. V. Reddy

Mahendra Kumar, M. Karunanidhi, Sidharth Kachroo, Krishnan Ramachandran, Shiva Belavadi

Plan (TPA) Ltd. and chaired by Richard Kipp, Consulting Actuary – Milliman.

A.P.V Reddy defined Quality as a degree of excellence & a process of meeting requirements of customers & community at large. In context of healthcare, he described "Quality" should comprise of ensuring consistently delivering of safe & superior outcomes, desired patient satisfaction, world class infrastructure, caring staff and process of credentialing and privileging doctors.

He explained that accreditation is a process in which certification of competency, authority or credibility is presented. He stated that there are very few accrediting bodies in India. Hospitals are going in for International accreditations. Around 15 hospitals are accredited by Joint commission International. There is NABH (National Accreditation Board for Hospitals) in India which caters to desired needs of consumers and sets benchmarks for progress of health industry. He underlined the importance of accreditation to enable the organization in demonstrating commitments to quality care. Patients are the biggest beneficiary of accreditation as it results in high quality

Richard Kipp

of care and patient safety. It also benefits the staff by providing continuous learning and a good working environment & above all ownership of clinical process.

Richard Kipp continued by briefly sharing his views. He stated that Quality is not a process rather an end product which should be engineered to meet the needs of various customers such as patients, patient's families, nurses & physicians. He also described various elements of quality care. These included recognizing patient needs and doing appropriate evaluation, diagnosis, starting appropriate treatment, scheduling follow ups and appropriate compliance to treatment. He emphasized that proper quality tools & analyses should be followed to measure quality and benchmark the processes to create the better processes. He said aim of quality care is to decrease complication rate, morbidity, mortality & cost of care. It is also important to actuaries in rate making through its impact on health care costs, health status of population and network membership affecting what providers are being paid.

Session 6: Round Table Discussion on Regulatory Trends in India & Emerging Issues

The panel members of the discussions were Krishnan Ramachandran, COO-Apollo Munich Health Insurance; M Karunanidhi, Director-Actuarial services RGA Services India Pvt Ltd.; Mahendra Kumar, LIC of India ,Shiva Belavadi, CEO – United Health Care and Dr Sidharth Kachroo- Head of Health Business Development, Munich Re.The discussion focused on various regulatory trends in health care in India and emerging issues like portability opening up to arbitrage opportunities, lack of data & statistics for pricing, risks of misinterpretation and fraud and lack of standardization of care and treatment costs. The panel highlighted the need for use of product illustrations and clear policy wordings adapted to local market, standardization of definitions e.g. critical illness. In terms of regulatory perspective, health care needs special focus and should be looked into separately because of the complicating nature of the products.

Jagbir Sodhi

The seminar ended with vote of thanks by Jagbir Sodhi, a member of the Advisory Group and Director-Life & Health, Swiss Re UK. He thanked the Institute for organizing such an informative seminar and the participants for their valuable time and inputs.

About the Author

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Shivali Chopra works in the Actuarial Department of Max Bupa Health Insurance Co. Ltd. as a Manager. She is involved in Products Pricing & IRDA Reporting.

IAI CONNECT

Organised by : Advisory Group on Social, Cultural and Youth Affairs (SC&YA)
Venue : Mumbai
Date : 3rd December 2011

by Aditya Padhi

IAI connect which was held in Mumbai on 3rd December 2011, was a first of its kind of program. The purpose of establishing such a forum is to enhance the interaction between the Institute and the student community particularly young students who are in the initial phase of their actuarial career.

The program started with an introductory speech by Avdhesh Gupta, who explained the purpose of the IAI Connect forum

Session in Progress

and how it could serve different needs of the young student members. Some key areas of concern for young students were identified as follows: Keeping abreast with the developments in the different areas under actuarial domain, Approach towards actuarial examinations, Job opportunities within and outside the actuarial domain

The first presentation was by Sunil Sharma (Head Actuarial, ICICI Prudential) on the recent developments in the field of Life insurance. He gave an industry snapshot and how it has grown over the last few years. He covered the increase in insurance business after denationalization of insurance industry and also shared his thoughts on why this financial year has been tough for life insurance industry's growth. He then touched base upon the issues and challenges such as problems with distribution channels, difficulty in expense management due to changes in regulations, and mis-selling of insurance products, which are currently impacting the growth of the life insurance industry. The presentation was a useful insight in to the current situation in the life insurance industry.

Sunil Sharma

The second presentation was by Akash Gupta (FIAI and a member of the Examination committee of Institute of Actuaries of India). He shared his perspective on how to prepare for actuarial examinations. He stressed on the need for time management and the importance of balance between work and study to achieve the desired results. A good discussion on the current exam patterns, pass rates, and the entire process of checking and reviewing an exam copy took place which gave useful insight and also helped dispel some of the myths about the examination process.

The last presentation was by Rajesh Dalmia (Director, Ernst & Young). He focused on the roles that actuaries in India and abroad play and how the actuarial

Rajesh Dalmia & Saket Singhal

skill set can be used in other fields such as Investments, Risk Management, and Banking. He shared his outlook on the actuarial industry and upcoming area within and outside the actuarial domain. According to him outsourcing industry will play an important role in providing

Akash Gupta

employment to a lot of actuarial students. A good interactive session followed post the presentation.

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DEVELOPING A FRAMEWORK FOR THE USE OF DISCOUNT RATES

by Amrita Kaur

Discount rates are essential to actuarial work and the use of present values enables actuaries to summarise the underlying cashflows so that they can be communicated to and used by key stakeholders. There are a wide variety of techniques used for setting discount rates by actuaries working in the fields of life insurance, general insurance and pensions. Additionally discount rates are used by non actuaries such as company management, economists, pension fund trustees, accountants and other finance professionals.

The UK Actuarial Profession set up the Discount Rates Steering Committee to analyse the current approaches adopted across practice areas and to produce recommendations for a common framework and language around the use of discount rates. An initial research report was produced by Chris Daykin and Chinu Patel in May 2010, followed by another discussion paper in January 2011 which invited views from stakeholders. Final recommendations were published in September 2011; while these do not constitute technical guidance they are an aid to improve the transparency of actuarial advice in relation to the setting of discount rates.

This article provides a synopsis of the key points raised in the discussion paper.

The Committee recognises two main techniques for determining discount rates- matching and budgeting approaches. A summary of these two techniques is set out below.

Matching techniques

Matching calculations are those where the liability is measured by reference to the market value of assets which replicate the future economic behaviour of liabilities. This is in line with the law of one price, which states that for each set of cashflows there exists a unique market consistent price. The discount rates used are those implicit in the market prices of the matching assets or a reasoned best estimate (i.e. using models to simulate market instruments) if there is no deep, liquid and transparent market. These calculations are generally referred to as 'market consistent' or 'mark to market'.

Using a matching valuation can be appropriate even if the replicating portfolio of assets is not held i.e. the insurer chooses to hold a deliberately mismatched position. It still allows insurers to measure performance, and in particular benchmark the asset returns from the investment strategy adopted against those from holding a replicating asset portfolio. The effectiveness of pricing and reserving can also be measured against returns from the replicating portfolio, with no undue distortions caused by market movements.

Using market consistent techniques for valuing assets as well as liabilities reduces the scope for any accounting arbitrage, where a change in accounting techniques can lead to emergence of profits/ losses. Matching techniques are particularly suitable for transactional events e.g. sale or purchase, a surrender or buy-out and for assessing solvency on a particular date. However they may be considered less appropriate for ongoing financing of liabilities which are still accruing and developing, such as funding of a pension scheme.

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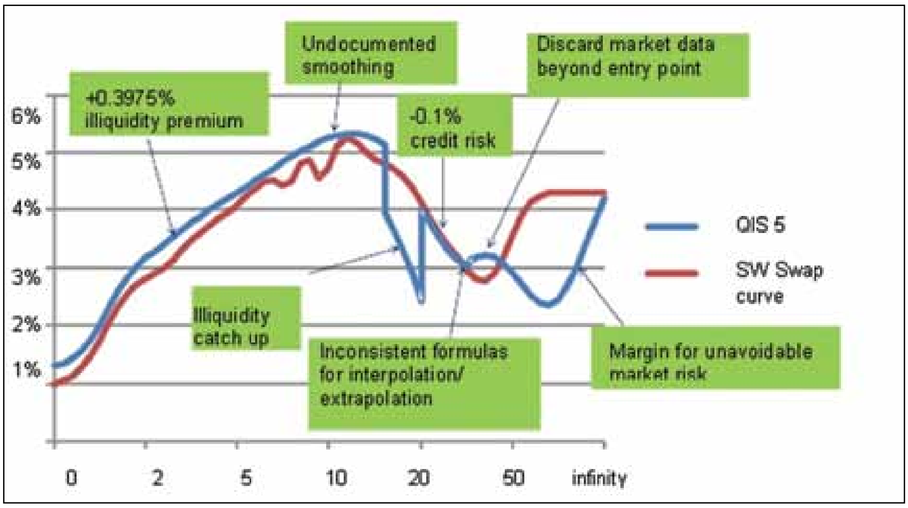
Amrita Kaur is a life insurance actuary based in Mumbai. She is a Fellow of the Institute of Actuaries of India.

part of the Solvency II implementation, published risk free spot rates to be used for discounting. The discount rates to be used for with-profits liabilities (denominated in Euros) incorporate a number of adjustments to the input swap curve in order to derive the final discount rates shown in the graph below.

Some of the advantages of using a matching calculation may be lost, if the adjustments made result in a curve materially different from the input data.



There may be different levels of risk embedded in discount rates derived using the matching approach. Determining the "risk free rate" can also be a matter of considerable judgement involving decisions around

- the choice of the least risk reference point used;
- methods to allow for the full term structure of rates and extrapolating the data at longer durations;
- adjusting for the risk of credit defaults and downgrades; and
- whether to take credit for an illiquidity premium

The QIS5 exercise carried out in 2010, as

Adjustments made to the to the input swap curve

- The inter-bank swap curve was reduced by a nominal amount of 10bps for any credit risk inherent in the use of 6 month EURIBOR.
- The discount rate for with profits business included credit for 75% of illiquidity premium for the first 15 years. This period was based on an assessment of outstanding terms of the existing bond market, after which it reduced linearly to zero over 5 years.
- Illiquidity premium was derived based on a benchmark corporate bond index (independent of an

insurer's actual investment portfolio) and determined as 50% *(Spread minus 40bps). Expected bond default losses were allowed for via the 40 bps deduction. 50% of the remaining spread was attributed to illiquidity risk premium and 50% to credit risk premium to compensate investors for the uncertainty of defaults.

- Though swap data existed for 50 years, the curve was extrapolated after 30 years. In normal market conditions the swap market may be considered liquid for longer terms, but at times of financial crisis the liquidity would reduce and hence a stable long term forward rate was considered more appropriate.
- A risk margin was to be held for unavoidable market risk at longer terms, where no financial instruments are available to hedge liabilities. This is shown as a deduction from the swap curve after a term of 50 years.

Budgeting techniques

Budgeting techniques are those where the liability valuation is based on how the liability is going to be financed. The discount rate is based on the expected returns from a predetermined investment strategy and the assets held to provide for the liability cashflows as they fall due.

In budgeting calculations, matching the liability cash flows may occur only indirectly via the actual asset portfolio held for e.g. annuity business would tend to be backed by long-term government and corporate bonds. The discount rate usually retains a much larger element of embedded risk, often incorporating credit for an equity risk premium. It generally also includes some prudential margins to compensate for the higher risk.

Budgeting calculations are useful in planning and budgeting work where market comparisons are not required. They are particularly useful when funds are being accumulated to meet future cash out flows and management requires an assessment of whether the likelihood of meeting the liabilities as they fall due is sufficiently high. They can be used for calculating shareholder or enterprise value, and are widely used for funding of defined benefit pension schemes and calculating pension transfer values.

Choice of approach

The choice of approach towards deriving a discount rate may be driven by the purpose of the calculation as well as any regulatory considerations/constraints and industry practise.

As per UK Financial Services Authority ("FSA") rules, the discount rate for Pillar 1 statutory reserves is the weighted average of the risk adjusted running yield on the assets held to back the liabilities. The rate of return on the bond portfolio should be adjusted for credit risk but can include illiquidity premium; future capital growth on equities and property is excluded. This resulting discount rate can be considered to fall under budgeting techniques, since it is determined from the actual assets held rather than from a theoretical replicating portfolio.

The Pillar 2 Internal Capital Assessment ("ICA") requires assets to be marked to market, and technical provisions should be a best estimate, reflecting their economic substance. The valuation of liabilities should be consistent with the valuation of assets, and these calculations therefore use matching techniques. The new Solvency II regime also follows matching and market consistent techniques for determining technical provisions.

Traditional embedded value calculations are generally based on a single deterministic projection using best estimate assumptions of future investment returns, incorporating allowance for equity risk, credit risk and illiquidity premia. Such calculations can be considered under the purview of the budgeting family. On the other hand market consistent embedded value use matching discount rates based on the swap yield curve with credit taken for illiquidity premia.

The discussion paper suggests that apart from the aim of the calculations, the nature of the cashflows being discounted may also influence the choice of discount rate.

- Where contractual assets and liabilities are being valued, a matching approach may be preferable.
- Budgeting techniques appear more suitable when assets and liabilities are malleable e.g. when they have not yet crystallised. This is particularly so when actuaries are advising just one party for example on whether the current market price of an asset or liability represents good or bad 'value' to that party.
- When assets and liabilities are more malleable but actuaries are advising multiple parties then a combination of matching and budgeting style approaches may be most appropriate. This also holds true where liabilities are a mix of contractual and discretionary benefits.

Summary of choice of technique

The discussion paper summarises the authors' views on the choice of technique dependent on purpose of the valuation and the nature of the cashflows being valued:

Cashflow Purpose	Guaranteed	Constructive	Discretionary
Solvency	Matching	- (Note 1)	- (Note 1)
Transaction	Matching	Matching	Matching
Funding (Note 2)	Budgeting	Budgeting	Budgeting

Note 1 : A matching framework would be appropriate for projections of future solvency
Note 2 : It may be necessary to introduce matching framework constraints in budgeting calculations. The need for such constraints will be greater if the liabilities / cashflows are predominantly guaranteed rather than constructive or discretionary.

Recommendations

The Discount Rates Steering Committee has the following generic recommendations across practise areas, to be achieved via education and CPD activities.

- Encourage actuaries to determine and justify discount rates within a matching framework and/or budgeting framework.
- Actuaries should be encouraged to highlight and explain any material differences between their valuation of assets and liabilities and the corresponding market consistent valuation; however such additional analysis may not be possible in all scenarios and would depend on the context of the actuarial advice.
- Actuaries should be encouraged to communicate to key stakeholders the framework, building blocks and level of risk embedded in the discount rates.

References:

Developing a framework for the use of discount rates in actuarial work- A discussion paper
By C.A. Cowling, R. Frankland, R.T.G. Hails, M.H.D. Kemp, R.L. Loseby, J.B. Orr and A.D. Smith

MULTIPLE ARCS

Mayur Ankolekar and Nandan Nadkarni demonstrate how higher withdrawal rates in emerging markets can steer pension costs – up, and down as well.

Lump sum entitlements based on last-drawn salary are part of a statutory, employer-financed benefit in many emerging markets like Brazil, Mexico, India, Malaysia and the Philippines. Usually termed as 'gratuity', these lump sum employee benefits increase with the length of service, but are punctuated by a vesting period. The vesting period is guided by national labour laws and ranges from 3 to 5 years.

Emerging markets are characterised by high salary growth rates as well as higher withdrawal rates. In this article, we examine how the assumption of higher withdrawal rates can sway an employer's liability either way. And that the ultimate impact on the liability depends on an interesting interplay of the withdrawal rate with other assumptions. Assumed withdrawal rates – often lesser debated in the pecking order of assumptions for an employer's defined benefit plan valuation, can make a sizeable difference to the ultimate liability of employers in emerging markets.

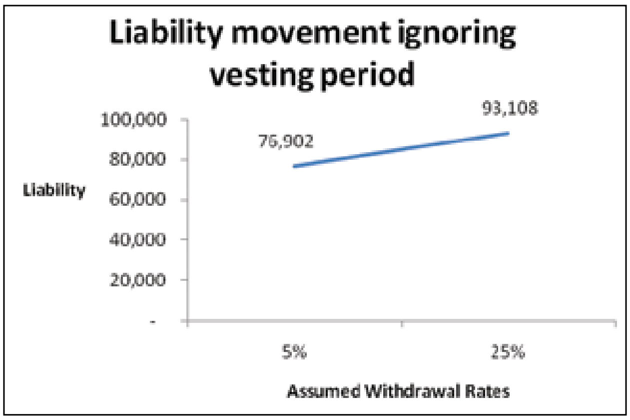
Withdrawal rate sways employer liability

consider a cohort of 30 year-old employees with an aggregate monthly salary of 100,000 currency units and a benefit of ½ month's salary for every year of service. If the cohort has served 2 years, the discontinuance value i.e. immediate payment to outgoing employees would be 100,000 currency units i.e. ½ x 100,000 x 2.

With salary escalation rate 6%, discount rate 8%, withdrawal rate 5% and standard mortality, the Expected Present Value of the employer's liability, calculated on principles of endowment assurance albeit with decrements of mortality and withdrawal, is at 76,902 currency units and lesser than the discontinuance value. Note that the discount rate is greater than the salary escalation rate and thus the net discount rate i.e. discount rate minus salary escalation rate is positive.

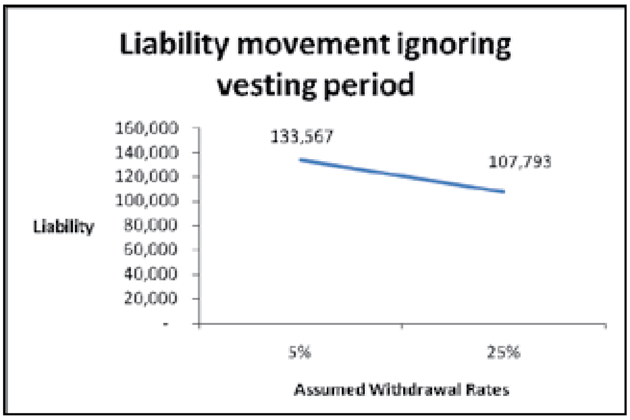
Higher withdrawal rates are endemic in emerging markets and seldom in the single digits. If the withdrawal rate assumption moves from 5% to 25%, the employer's liability increases to 93,108 currency units (see Fig 1). Faced with a higher withdrawal rate, the employer 'misses the opportunity' to invest the fund at a rate higher than the expected salary escalation.

Fig 1: Salary escalation rate lower than discount rate and no vesting period



Now consider that salary escalation changes from 6% to 10% while all other assumptions continue – a real possibility in emerging markets. The Expected Present Value of the employer's liability stands at 133,567 currency units and 107,793 currency units at withdrawal rates of 5% and 25% respectively (see Fig 2). The net discount rate is negative as salary escalation rate has climbed above the discount rate, so the liability has exceeded the discontinuance value.

Fig 2: Salary escalation rate higher than discount rate and no vesting period



An increase in the withdrawal rate from 5% to 25% reduced the employer's liability when salary escalation rate exceeded discount rate whilst increased it when the salary escalation rate trailed the discount rate. Changes in withdrawal rates can sway the employer's defined benefit liability in either direction.

As employees tend to be more mobile in high-growth emerging markets, employers often face higher withdrawal rate assumptions when compared with developed markets. The change in withdrawal rate assumption can be large and discontinuous between successive years, thus throwing sand in the otherwise smooth gears of the employer's income statement. And whether the result will be a write back or a charge to the income statement depends on the coupling outcome of the change in withdrawal rate with the net discount rate.

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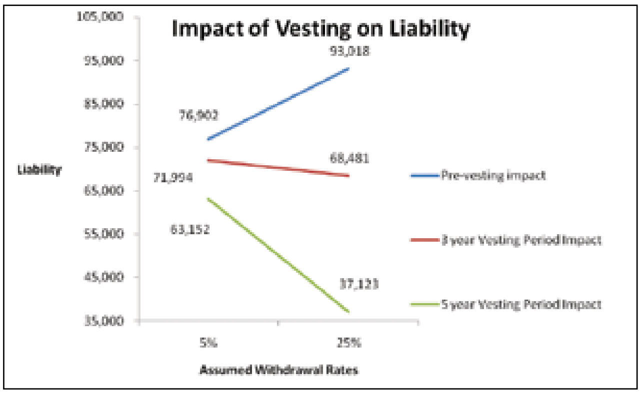
Plunge due to the vesting period

When punctuated with a vesting period, the withdrawal rate parameter reduces the liability. The impact - characterised by a negative gradient, has a different shape that is caused by the net discount rate. When the net discount rate is positive (salary escalation rate lower than discount rate), the gradient is less steep whilst it becomes steeper when the net discount rate is negative. Recall that our cohort has completed 2 years of service. Figs 3 and 4 demonstrate the impact on an employer's liability of vesting periods of 3 years and 5 years.

Fig 3: Salary escalation rate lower than discount rate, 3 and 5 year vesting periods



The effect of the vesting period is more pronounced at 5 years as compared with 3 years. The lower Expected Present Value under a 5-year vesting period is due to the 'longer window effect', which means that the employee cohort exposed to higher withdrawal has lower probability of earning the benefit over 5 years as compared with 3 years.

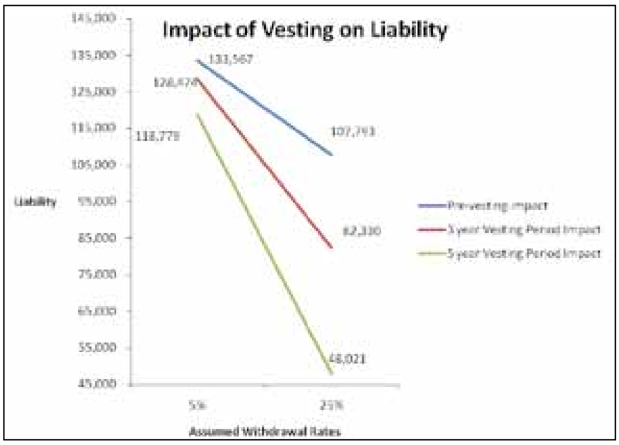


Fig 4: Salary escalation rate higher than discount rate, 3 and 5 year vesting periods

Fig 4 is perhaps typical of emerging markets where employers often experience and hence assume a higher salary escalation rate than the discount rate. An increase in the withdrawal rate will cause the liability to nosedive if the vesting period is longer. Note that we started with a liability that was higher than the discontinuance value of the employee benefit.

Withdrawal rate's interplay

IAS 19 and accounting standards on employee benefits in most emerging markets cast responsibility on the employer for assumptions of salary escalation and withdrawal rates. Pension actuaries are obligated by professional guidance to advise employers in setting appropriate assumptions.

The withdrawal rate assumption is a tricky one: an increase in withdrawal rate can increase and decrease the liability when the net discount rate is positive and negative respectively. And when faced with different vesting period conditions, the gradient of liability reduction can plunge, especially in emerging markets which feature a higher employee withdrawal experience. Moreover, as employers tend to fill up positions caused by employee attrition, the withdrawal experience will behave differently than salary escalation and expected investment returns. The pension actuary in an emerging market environment may get to the foreground the sensitivity of the withdrawal rate assumption and its multiple arcs on salary escalation and discount rates.

RISK CLASSIFICATION-A REVIEW

by Peuli Das

On Risk Classification is a monograph published by the Risk Classification Work Group of the American Academy of Actuaries in November 2011. It is fashioned as a White Paper regarding risk classification principles and has been developed in conjunction with the 2005 revision of the Actuarial Standard of Practice (ASOP) No. 12.

As the name suggests, the monograph presents a detailed discussion of the fundamentals of a risk classification system including the need, design, success criteria and management of such a system which can be applicable to all areas of actuarial practices.The style of discussion is lucid, providing a structured description of the basics of risk classification starting from the identification of the need of so called financial or personal security systems which are private or governmental arrangements for risk transfer, and finally setting the ground for the crux of the monograph - the important role that risk classification plays in assuring that such security systems are successful.

Risk classification has been a fundamental part of actuarial practice since the beginning of the profession. The work group themselves point out that the financial distress and inequity that can result from ignoring the impact of differences in risk characteristics was dramatically illustrated by the failure of the nineteenth-century assessment societies, where life insurance was provided at rates that disregarded age. Failure to adhere to actuarial principles regarding risk classification can result in lack of coverage for lower risk individuals, and can result in coverage at insufficient rates for higher risk individuals, thus threatening the viability of the entire system. Moreover, it presents the discussion in form of an optimization problem resulting from simultaneous consideration of the success criteria of such a security system, with the final outcome being a "Pareto" optimal equilibrium where no one can be made better off without making someone else worse off.

The monograph is divided into four sections: the first two sections form the preliminary forum namely the background of Financial and Personal security systems and the expected costs for administering and maintaining such systems. It prepares the stage for the last two chapters that form the heart of the intended discussion materials for the monograph - risk classification and considerations in designing such a system.

The first chapter recognizes at length the main three success criteria of a security system - that a financial security system should provide coverage to those who desire it, the term of the coverage should be acceptable to the participants, and most importantly, the security system should have sufficient resource to fulfil its promises. It further identifies the conflict between ensuring that the coverage provided is tied proportionally to the expected cost of coverage, while at the same time, honouring the social obligation towards keeping the coverage available to most of the group at affordable prices. An efficient risk classification can be the answer to such problems by providing reasonably accurate estimates of the expected costs of coverage thereby ensuring a pricing structure that reflects this expected cost.

The second chapter provides concrete definition of the cost of providing coverage to a covered risk and a few more related concepts while explaining in detail how proper assessment of expected costs contribute towards the aforementioned success criteria of financial and personal security systems.

The third section describes risk classification as the method of using historical data to group events with similar risk probabilities and establish representative risks for each of these groups. The process of identifying the most appropriate set of risk classes can be quite involved and would often require professional experience and sound judgement. One must continually adapt to various practical difficulties that frequently turn up.

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This section details many of these aspects, while supporting the discussion by practical examples which apply by and large to all insurers and practitioners administering such systems.

The final section expands on important aspects of establishing, maintaining and managing such risk classification systems over a period of time and the importance of review of such a system in view of accumulating experience, or when conditions change due to organizational, social and legal considerations.

The monograph is supplemented with a handy "Glossary" at the end of the discussions and would aid risk management practitioners from any background. The essay intends to capture a large spectrum of audiences and readers, hence starts from the basics of risk management. In fact, it forms a strong and structured platform for any actuary involved in pricing and reviewing and hence risk management practices. The monograph borrows liberally from the Actuarial Standard of Practice No. 12, with an aim to provide an actuary with ideas to substantiate discussions when called to provide advice regarding the design of risk classification system.

The monograph thus serves as a useful guide for any risk manager who is trying to formulate a security system from the scratch and wants to ensure the success of the same from time to time.

CALCULATION OF IBNR IN CURRENT INDIAN CONTEXT

by Bhudev Chatterjee

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Author's professional career started in 1966 at Government Actuary's Department, U.K. to continue in Calcutta from 1976 as a Consulting Actuary covering over 400 Clients.

Appointed Actuary is required to calculate IBNR on a quarterly basis for Insurance Company. Insurance Regulatory and Development Authority has issued a booklet outlining the various Methods that would be used to estimate IBNR. At the out-set this exercise is to be carried out if Actuary is satisfied with the correctness of the data.

However, we feel that certain thoughts should pass through the Actuary's mind before finalizing the IBNR Reserve Certificate. Among the various Methods discussed in the above booklet, Chain Ladder Method is mostly sought after by Actuaries. This Method depends upon the:

i) Correct recording of the Premium earned over n years.

ii) Correct recording of the Claims Paid over n years.

iii) Assuming development of claims is completed by n yrs.

Where n will depend upon the line of business.

It works out Paid Claim Ratio for each of past years.

It projects Ultimate Claim, based on these rates.

There are 3 such Ratio methods mainly:

i) Link Ratio Method

ii) Development Factor Method

iii) Bornhuetter Fergusson Method

These Ratio method pre-suppose, pattern of Claim Settlement will not undergo change in future years. Against this back-ground, we analyze the passage of General Insurance business over past years.

Up to year 2007 Tariff Premium was compulsory for General Insurance Companies. It was exclusively decided by Tariff Advisory Committee (TAC) and applicable to all Insurance Companies. Therefore, Paid Claim Ratio will follow definite pattern over these years.

W.e.f. 01.01.2007, Insurance Companies were allowed to use Tariff Rates as applicable to its experience. Invariably the De-Tariff Rate was lower than Tariff Rate. Therefore, Paid Claim Ratio in the De-tariff Regime will exceed Paid Claim Ratio in the Tariff Regime.

The process for allowing Discount on De-tariff Premium was started and Premium was further reduced. Therefore, Paid Claim Ratio in the Discounted De-Tariff Regime would be higher than those of earlier Regimes.

There are certain other developments which have taken place in different lines of business. One typical example will be Health Insurance Policies. TPA has come into existence and this has resulted in some control over the expenses.

Therefore, it requires to be worked out the Ratio methods for TPA Policies separately which is normally not possible because Claims for TPA Policies are not ear-marked accordingly. It is expected, aggregate of TPA and Non-TPA Policies together will result in fewer claims compared to those in past.

There has been change in the Claim Settlement pattern after introduction of Maximum limit on item expenditure instead of Global limit of policy. This has resulted in the reduction in the Claim, but only from 2009.

Previously, policies were taken by well-to-do people. Now-a-days, policies are taken by not-so well-to-do people also. Group Policies have come and Policies have been issued through Credit Card as well.

Experience of different type of policy holder has not been worked out separately. It is a common experience that last 2 categories will have much higher, Claim than Individual policyholders.

After the Insurance market was opened to Private Insurance Companies, some of them have put a maximum age limit as low as 45 for coverage. Consequently, PSU Insurance Companies have to take larger share of older lives. Consequently, experience of Claims has worsened for PSU Insurance Companies.

Income Tax Act has been amended.

Trust Funds created to make payment on Medical Benefits to Employees/ Retired Employees does not acquire status of Tax Exempted Fund.

Although in the case of Employees, certain benefits are Tax Allowable if paid by Employer from his Revenue, no benefits paid to Ex-employee is Tax Allowable unless payable by way of Premium for Insurance Companies during their working life.

Therefore, Company has the option to create Un-funded Liability during working life of employee and use it as Corpus to take Medical policies at the Date of Retirement or opt for Deferred Medical policies payable from Date of Retirement. Acceptance of large number of such policies will alter age distribution in Medical Policy holders resulting in changes in Paid Claims pattern.

There are local factors, for eg: If you are in Kolkata, when you seek Hospitalization, hospitals will ask if you are covered by medical policies. If the answer is in affirmative, invariably they will raise the fees of rooms / Doctors etc. If you ask for a seat in Private hospitals in the Hospital Counter, they will say no seat is available. However, someone will appear to arrange a seat for you and say that the Rates will be high. Since bill is paid by Insurance Companies, Claim will go up.

If you go to Government hospitals again they will also say no seat available. Someone will appear and say that there will be a seat but you need to take an attendant from him. Again attendant expenditure will be payable by Insurance Company.

Medicines purchased at hospitals can be returned and cash taken without Original bills being amended and submitted to Insurance Companies for re-imbursement. All these will push up Claims.

Ratio Methods which averages the experience over a longer period of time, is unlikely to give due weight-age to current changes in situations. These current changes are expected to be permanent. Therefore, dependence on the method which does not give enough weight-age on current issues will lead to wrong Reserve. This leads to choice of OCP Method which gives greater weight to current situations. However, since changes are very recent the long term pattern of change for claim development is not clear.

Consequently, solely depending on OCP Method may not be reasonable as current trends of settlement pattern will take time to settle. But taste of the pudding is in the Eating. IBNR Reserve made, irrespective of method, should match IBNR Utilization. Deviation of plus/minus 10% will be acceptable limit. On the safe side we will take average of 3 yrs of IBNR Utilization instead of that of current year.

In the cases, when above criteria for IBNR utilization are not satisfied, whichever method produces Reserve closest to IBNR utilization should be taken for IBNR Reserve.

BEST'S REVIEW RECOGNIZES RGA REINSURANCE COMPANY FOR SUCCESSFUL INNOVATION

RGA Press Release; January 20, 2012

RGA Reinsurance Company has been recognized for its Prescription History Mortality Research and its Automated Selection & Assessment Program in the Innovators Showcase, published in the January 2012 edition of *Best's Review* magazine.

For its Prescription History Mortality Research, RGA analyzed the mortality risk of more than one million insurance applicants based on their prescription drug histories. This study, published in the Journal of the Academy of Life Underwriting, was used to develop underwriting rules based on individual use of more than

50,000 prescription drugs, with risk assessment variations by gender, age, mode of delivery and frequency of

drug fills. These risk assessments reduce the amount of underwriter time spent researching all the different drugs and deliver results to clients via RGA's proprietary automated underwriting tool.

Upon reviewing this submission, Robert Stein, Vice Chairman of Global Financial Services, Ernst & Young wrote, "It is a strong application of predictive modeling techniques to the life insurance industry. RGA has commercialized new knowledge and has made it available to the industry, which is an important component of innovation and a step that much pure research does not accomplish."

ASAP[SM] (Automatic Selection & Assessment Program[SM]), a proprietary web-based underwriting process, was developed by RGA to provide automatic facultative assessment for common impairments as substandard table-shave programs began to be phased out throughout the industry. RGA's placement rates, increase in case volume per year and new clients added to the program are evidence of ASAP's success.In 2010, ASAP processed approximately 10,500 cases involving $5.1 billion of face amount.

The ASAP program has innovated underwriting from the direct company underwriter perspective by streamlining the facultative shopping process. Direct company underwriters receive a facultative decision for one or two impairment cases in minutes rather than days.

"One of RGA's core strengths remains our expertise at analyzing and synthesizing data and insights from our mortality experience, and developing truly innovative research studies and products that ultimately help our clients improve their ability to assess risk profitably," said Anna Manning, Executive Vice President and Head of U.S. Markets, Reinsurance Group of America, Incorporated.

Innovators Showcase is a forum for recognizing forward thinking among insurance organizations. A panel of insurance industry experts assessed the relative merits of nearly 70 submissions.

"RGA associates continue to share new insights and ideas with our clients and the industry, and have demonstrated innovation in many ways over the years. I am very pleased to see their work recognized by industry experts, and gratified that both RGA innovations submitted to the Innovators Showcase were selected to receive these recognitions among the other excellent innovations chosen by Best's Review," said Greig Woodring, President and Chief Executive Officer, Reinsurance Group of America, Incorporated.

To read about RGA's recognized innovations, visit: http://www3.ambest.com/bestweek/getpublication.

sp?issueid=72ecd829&pageid=34 and http://www3.ambest.com bestweek /getpublication.asp?issueid= 72 ecd 829 & pageid=31

Source: http://www.rgare.com/media-center/Pages/Press%20Releases/RGA-Reognized-by-Best's-Review-for-Insurance-Innovations-Jan--2012.aspx

NEW CHAIR OF THE JOINT FORUM

BIS Press release, 13 January 2012

The Joint Forum's parent organisations, the Basel Committee on Banking Supervision (BCBS), the International Organization of Securities Commissions (IOSCO), and the International Association of Insurance Supervisors (IAIS), have announced the appointment of Dr Therese M Vaughan as Chair of the Joint Forum. This two-year appointment is effective 1 January 2012.

Therese Vaughan, who succeeds Tony D'Aloisio of the Australian Securities and Investments Commission (ASIC) in this role, is the CEO of the National Association of Insurance Commissioners (NAIC) in the United States.

The Joint Forum's parent organisations expressed their gratitude to Mr D'Aloisio for his important leadership and contributions during his time as Chair.

Therese Vaughan noted the importance of the Joint Forum's international focus on cross-sector supervisory issues: "I look forward to working with Joint Forum members and the Joint Forum's parent organisations to advance the international regulatory agenda with a focus on cross-sector issues."

The Joint Forum was established in 1996 under the aegis of the Basel Committee on Banking Supervision, IOSCO, and the IAIS to deal with issues common to the banking, securities and insurance sectors, including the supervision of financial conglomerates.

Source: http://www.bis.org/press/p120113.htm

EDUCATIONAL MONOGRAPH:ADJUSTMENT FOR RISK FOR FINANCIAL REPORTING PURPOSES

IAA Press Release; January 16, 2012

The IAA is pleased to announce the successful completion of a Request for Proposal to author an international educational monograph on the Adjustment for Risk for Financial Reporting Purposes, scheduled for completion in April 2013.

Risk and uncertainty are key factors that actuaries consider in a wide range of practice. Inclusion in general purpose financial reporting is no exception. In the measurement of the liabilities of insurance contracts, the principle that the liabilities should reflect the risk and uncertainty associated with the effect of the obligations and rights provided in the insurance contracts is firmly established in many countries. Nevertheless, the methods of reflecting them are still evolving.

The monograph will address the application of risk and uncertainty to the measurement of the liability of insurance contracts in the context of general purpose accounting as adopted by the International Accounting Standards Board (IASB). Although actuarial literature and regulation around the world are full of examples of methods used to quantify risk and uncertainty, only a handful of financial reporting requirements in a limited number of small jurisdictions currently require an explicit adjustment for risk of the type contemplated in the upcoming revision to IFRS 4. These applications call for more refined and explicit techniques than some actuaries have historically applied.

This monograph forms an important part of the IAA's research and educational objectives, to facilitate and provide useful educational material that is accessible to actuaries everywhere.

The project, which has been awarded to the firm of Deloitte Consulting LLP, an international actuarial and consulting firm, has been made possible through the generous support of the following actuarial organizations:

- Institute of Actuaries of Australia (Australia)
- Canadian Institute of Actuaries (Canada)
- Institute of Actuaries of Japan (Japan)
- Institute and Faculty of Actuaries (United Kingdom)
- The Actuarial Foundation's James C.H. Anderson Fund (United States)
- Casualty Actuarial Society (United States)
- Financial Reporting Section of the Society of Actuaries (United States)
- The ASTIN Section of the IAA
- The AFIR/ERM Section of the IAA

In addition to their financial support, these organizations have appointed representatives who will provide technical guidance and ongoing monitoring of the project as members of the ad hoc Project Oversight Group (APOG) created to oversee the project. Other members include the leadership of the IAA Committees on Insurance Accounting and Insurance Regulation.

To learn more about the work of the IAA on this topic, contact the IAA Secretariat, care of the Chairperson of the APOG.

ORSA WORKING GROUP ESTABLISHED

IAA news Release; January 19, 2012

The International Actuarial Association (IAA) is pleased to announce the creation of the ORSA Working Group under the leadership of Co-Chairs Henk van Broekhoven of The Netherlands and Lars Pralle of Germany. The Working Group's membership comprises actuaries and other professionals with the relevant expertise and interest.

Own Risk Solvency Assessment (ORSA), is a tool used to assess the adequacy of the insurer's risk management and solvency position. The Working Group aims to advance the actuarial view in this area and to promote the competencies of actuaries to perform the ORSA.

In carrying out its mandate, the Working Group will monitor developments with regard to the quantitative and qualitative elements of the ORSA in jurisdictions adopting ORSA under IAIS Insurance Core Principle 16 (for example in the United States and in Europe under Solvency II). The Working Group will also contribute to international discussions relative to the ORSA, support actuarial associations in discussions with their regulators, where appropriate, and encourage actuaries to be involved in ORSA.

One of the main objectives is to help prepare the actuarial profession to fulfill a major role in the implementation of ORSA by insurers, which may involve the enhancement of training and education programs for actuaries worldwide. In this respect, the Working Group will serve as a forum for exchanging views and developing positions to ensure that best practices emerge more quickly and are shared across the profession.

"Actuaries have a great deal to contribute to the development and advancement of this new regulatory thrust into Enterprise Risk Management. I am pleased that our initiative to create the ORSA Working Group will provide a focal point for international involvement in future developments, both for the actuarial profession and for the regulatory community." – Desmond Smith, President of the IAA.

IAA ADMITS TWO NEW MEMBER ASSOCIATIONS

IAA press Release; 2 February, 2012

The International Actuarial Association (IAA) is delighted to announce that it has admitted the Aktuarsko društvo u Bosni i Hercegovini (AD BiH) from Bosnia and Herzegovina as its sixty-fourth Full Member association. The AD BiH was founded in 2002, joined the IAA as an Associate Member in the same year and now has a membership comprising 23 fully qualified actuaries. The association will be hosting its first seminar as a Full Member of the IAA on February 1–2, 2012, on the topic of professionalism.

The IAA is also pleased to announce it has admitted the Actuarial Society of Armenia—founded in 2010 and consisting of 30 actuaries and prospective actuaries—as an Associate Member. As a result, the IAA retains its level of 26 Associate Members.

Associate membership of the IAA is normally the first step toward Full Member status. Admission as a Full Member association of the IAA follows a rigorous process that includes reviewing the education program and ensuring that the applicant association has a Code of Professional Conduct, a formal discipline process, and a formal process for the adoption of standards of practice, where applicable. The IAA Accreditation Committee reviews each of these documents to ensure compliance with IAA set requirements. The IAA Education Committee ensures that the association's education program meets the criteria set out in the IAA Education Guidelines and Syllabus and that all the actuaries that will be recognized as attaining fully qualified status will be required to have successfully completed this program.

ANNOUNCEMENT FOR MEMBERS OF IAI

The Actuary India Scheme of Awards for Best Article & Reportage for the Calendar year 2012 and thereafter till amended

The objectives: recognition of the efforts put in and encourages members to write for the Actuary India magazine either in the form of Articles and/or reportage for various IAI events.

Process of selection: Three member Selection Group will be appointed by the President in Dec. 2012 and every December thereafter to set parameters for selection and recommend best two Articles and best two Reportages in order of merit.

The Awards and recognition: Based on the Selection Group's recommendations, the following rules shall apply;

a) The awards will be given by the Chief Editor during the AGFA held immediately after the end of the calendar year 2012. The awards will be in the form of **cash prize and recognition plaque**.

b) The three member selection Group will send its recommendation by January each year based on editions published in a calendar year 2012 and each Calendar year thereafter.. Every member of the selection Committee will come out with his/her own list of best five articles/reportages. Thereafter, the Group will meet in the second week of January and come out with a commonly agreed upon best two. In the event there is no unanimity the Selection Group will decide on how to select the best two (e.g. going by majority view, draw of lots from the five best drawn by each or any other). This list, along with justifications, will be sent to the President well in time for him/her to announce.

c) The Author/s of first best Article and Reportage will receive a prize of Rs. 10,000/- for the Article and the Reportage and the next best will receive Rs. 5,000/- accordingly. In case there are more than one Authors, the amount will be allocated equally, however the recognitions plaques will be given to each.

d) In order to qualify each article/reportage should meet the following minimum criteria;

   I. at least about 500 words.

   II. should not be reproduced from articles elsewhere (while sending the article the author should give a declaration to this effect.

   III. Should be written by a member of the IAI (in the case of joint authors, all should be members of the IAI) at the time the article is published.

   IV. Reportage should be based on event organized by IAI only.

e) The award winning authors along with the Selections Groups key points on selection will be published in the **March** issue of **the Actuary India** each year.

Liyaquat Khan

NEW ZEALAND - INSURER LICENSING

By John smith

On 7 September 2011, Reserve Bank of New Zealand became the prudential regulator of all insurers in New Zealand. Supervision is risk-based, consistent with supervision of banks, outcome based and minimises compliance costs on Insurers.

The Bank's policy team has issued various guidelines, developed with industry and actuarial consultation. Insurers must have a provisional license before 7 March 2012 and a full license before 7 September 2013.

For the provisional licence, insurers must have:

- Appointed Actuary
- Audited financial statements
- Fit and proper policy for Directors and Officers
- Risk management programme

For the full licence, insurers must also have:

- Financial strength rating for New Zealand
- Financial Condition Report, prepared by Appointed Actuary
- Solvency margin (new basis finalised in August 2011).
- Demonstrate adherence to fit and proper and risk management policies
- Establish statutory fund(s) (draft regulations circulated in December 2011)

Initial applications were lodged by 30 June 2011. As at 11 January 2012, 1 full and 11 provisional licenses were issued. The remaining 120 applications are being processed by a team of 8 people which includes 3 actuaries.

Christchurch earthquakes

New Zealand's second largest city suffered 9,786 earthquakes since 4 September 2010. Around 180 died from the 6.3 magnitude 'quake on 22 February 2012. No fatalities were recorded from other big 'quakes on 4 Sept 10 (7.1), 13 June 11 (6.4) and 23 Dec 11 (6.0). The estimated insured property damage is NZ$ 30 billion (US$ 24 bn.), representing about 15% of GDP. Government will also incur $ 6 billion in infrastructure, social welfare and bail-out costs.

The Earthquake Commission (EQC) was established in 1945 to provide the first slice of cover for natural disasters on insured domestic property. Private insurers cover damage in excess of EQC coverage and include the cost of the EQC levy in their premiums.

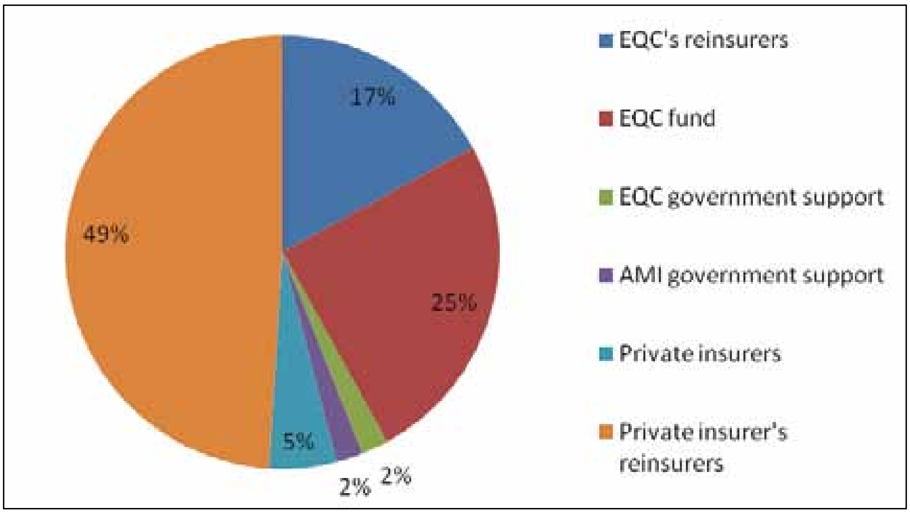
EQC had pre-quake assets of $ 7 billion plus $ 4.2 billion reinsurance and a government guarantee. EQC covers the first $ 100,000 property damage, $ 20,000 contents and land remediation. Up to 22 December 2011, EQC received 420,271 claims and paid $ 2,765 million on 175,393 claims, with 337,823 open claims.

The cost of insured claims is estimated to be shared:

An earthquake levy is added to domestic property insurance premiums. On 11 October 2011, the government announced the levy would increase from $ 69 to $ 207 per annum.

New Zealand Society of Actuaries

The AGM was held on 25 November 2011. Ian Perera was elected as President for another year. Linda Caradus, Paul Rhodes and John Smith were re-elected and Anne Lord was elected to Council for a two-year term. Richard Beauchamp was elected last year and remains on Council.



Source: RBNZ Financial Stability Report, November 2011

AMI was a private insurer that the Government bailed out.

Membership of New Zealand Society of Actuaries

	Total	Assoc	Fellow	Student	Retired
Members on 1 October 2010	288	6	162	107	13
Members on 1 October 2011	297	12	164	105	16
Resident in New Zealand	231	9	109	100	13
Non Resident	66	3	55	5	3

About the Author

John Smith is Secretary of New Zealand Society of Actuaries and Appointed Actuary of the largest New Zealand owned life insurer. John previously worked in Zambia, UK and Zimbabwe before migrating to Auckland in 2000.

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UPDATES ON THE ACTUARY INDIA & LIBRARY SERVICES

THE ACTUARY INDIA

The team of **the Actuary India** magazine, devoted exclusively to Actuarial enthusiasts would appreciate your suggestions for article ideas and suggestions for improvement.

*Have an idea for a new feature or a change that would make **the Actuary India** better? We'd love to hear from you!*

The Actuary India welcomes volunteer contributors from members of our community. Here are some of the ways you can get involved:

- All community members are invited to submit articles on a variety of subjects related to Actuarial Science. For Article submission and other related information please visit IAI website at: http://www.actuariesindia.org/research-resources-a-publications/actuary-india.html
- **Cartoonist:** We require a cartoonist for the magazine so as to add a humorous touch to the magazine.
- **News/Views form Regional Reporters**: We would appreciate reports/ news/photographs on any happenings anywhere which has connectivity with actuaries within your company or in actuarial community.

If you are interested in helping in these roles, please send an email to **Binita@actuariesindia.org**

Binita Rautela

LIBRARY SERVICES

The library is the access point to get material for further reading in the subject of interest. Library membership is increasing with increase in the membership of IAI.

As per the request from members of the Institute, books are added in the library. Library collection is distributed as per the subjects and Online Public Access Catalogue is available on our website.

For Circulation and Reader Services please refer http://www.actuariesindia.org/research-resources-a-publications/library-services.html :

Latest Arrivals in the year 2011

NEW ARRIVALS - 2011	
Acc No	**Title**
B10925	Statistical tools for finance and insurance / Cizek, Pavel. : Springer, 2005
B10589	Equity option valuation made simple and more reliable / Pemberton, John. : Staples Inn Actuarial Society, 1997
B10744	Valuing our customers / David Gott. : Staple Inn Actuarial Society, 1998
B10757	Making actuaries less human / Nigel Taylor. : Staple Inn Actuarial Society, 2000
B10891	Basics of personal financial planning / Mishra, K C. : Cengage Learning, 2009
B10899	Financial management and Insurance Accounting / Mishra, K. C. : Cengage Learning India Pvt. Ltd., 2009
B11080	Simple tools and techniques for enterprise risk management / Chapman, Robert J. : John Wiley & Sons , 2006
B11088	Enterprise risk management from incentives to controls / Lam, James.: John Wiley & Sons, 2003
B11127	The fundamentals of pension Mathematics / Berin, Barnet N. : Society of Actuaries, 1989
B11135	Indian Accounting Standard (Ind AS) 19 - 2011: ICAI , 2011
B11140	Transforming Pensions and Healthcare in a Rapidly Aging World: World Economic Forum, 2010
B11145	Stochastic Modeling Theory and Reality from an Actuarial Perspective: IAA, 2010
B11146	A problem-Solving Approach to pension funding and valuation / Aitken, William H. : ACTEX Publications , 2000
B11147	Pension Mathematics for Actuaries / Anderson, Arthur W. : ACTEX Publications, 2006
B11148	Pension Mathematics for Actuaries, commentary and solutions / Sharp, Keith P. : ACTEX Publications, 2006
B11151	A briefing for Chief Executives, Audit Committees & Boards of Directors 2011: IFRS Foundation, 2011
B11152	Financial Enterprise Risk Management / Sweeting Paul. : Cambridge University Press, 2011
B11153	The Secret / Rhonda Byrne. : Simon & Schuster, 2006
B11154	Modelling in health care finance: a compendium of quantitative techniques for health care financing / Michael Cichon. : International Labour Office, 1999
B11156	Census 2011 - Provisional population totals (Book 2) / -. : Office of the Registrar General and Census Commissioner, 2011
B11157	Census 2011 -Provisional population totals (Book 1) : Office of the Registrar General and Census Commissioner, 2011
B11174	What do you think?: / Bradly M. Smith : Society of Actuaries, 2010
B11197	Economics for business / Solman, John. : Pearson Printice Hall, 2010
B11217	Merriam Webster's Collegiate dictionary: Merriam-Webster, Inc, 1993
B11218	Merriam Webster's Collegiate Thesaurus / -. : Merriam-Webster, Incorporated, 1993
B11219	New Oxford Dictionary of English: Oxford University Press, 2000
B11231	Microinsurance innovation facility: protecting the working poor-Annual report 2010: ILO, 2011
B11591	Reinsurance Group of America: RGA, 1999
B11652	Health Insurance in India a review / Agarwala, Rakesh. : The Insurance Times, 2009
B11667	Financial Laws Amendment Act 1997,No.107, 1997 / Australia Dept of Attorney Gen. : Scale Plus, 2001
B11716	Quantitative Risk Management / McNeil, Alexander J. : Princeton University Press, 2005
B11717	Simple tools and techniques for enterprise risk management / Chapman, Robert J. : John Wiley & Sons Inc. , 2006
B11776	Kellogg on Branding / Tybout, Alice M. : Wiley India (P) Ltd., 2005
B11786	Health Insurance in India: FORTE, 2011
B11796	Bootstrap Leadership / Arneson, Steve. : Berrett-Koehler Publishers, Inc, 2010
B13031	Economic Capital and Financial Risk Management for Financial Services Firms and Conglomerates / Porteous, Bruce T. : Palgrave, 2006
B13101	Kellogg on Branding / Tybout, Alice M. : Wiley India , 2005
B13102	Indian Accounting Standards / Asish K Bhattacharyya.
B13103	Pension Mathematics with numerical illustrations / Howerd E. Winklevoss. : University of Pennsylvania Press, 1993
B13104	The Indian Penal Code / Ratanlal Ranchhoddas. : LexisNexis Butterworths Wadhwa Nagpur, 2011: Tata McGraw-Hill, 2006
B13105	XBRL zero to pro in 2 days: compliance of MCA XBRL Mandate / CA. Uttam Prakash Agarwal. : Taxmann Publications Pvt. Ltd., 2011
B13106	Loss models from Data to Decisions -3rd edition/ Klugman Stuart A. : John Wiley & sons, 1949
B13107	PREVENTION OF CORRUPTION ACT / Dr. Ashok Dhamija. LexisNexis Butterworths Wadhwa Nagpur, 2011: Tata McGraw-Hill, 2009
B13108	The code of criminal procedure / Ratanlal Ranchhoddas. : LexisNexis Butterworths Wadhwa Nagpur, 2011: Tata McGraw-Hill, 2006

FROM THE DESK OF CHAIRPERSON - ADVISORY GROUP ON HEALTH CARE INSURANCE

HERBERT MEISTER

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It is a commonly known fact but it cannot often enough repeated: Health Insurance is an very important vehicle to protect individuals and families from financial ruin due to sickness or accident and plays an important role in any healthcare system. Under certain circumstances Health insurance can even play a supportive role to assure adequate quality of medical treatment at the right location at the right time. Health Insurance and it's affordability is seen globally as very important social and emotional matter and -quite understandably- regulatory decisions related to the healthcare systems in general and related to health insurance in particular are often to be seen in a political context.

To identify and advise the Institute on such regulatory or market issues -in India and elsewhere- that may affect the status of the profession or the Health Insurance Industry in India is one of the key functions of the Advisory Group. Members of the Group are currently Vibha Bagaria, Vishwanath Mahendra , Jagbir Sodhi, and Biresh Giri acts as the group's secretary.

Private Health Insurance in India is offered by various entities: Stand Alone Health Insurers, General Insurers and Life Insurers. Furthermore, health insurance depends on various third parties like the medical providers -namely doctors, nurses, hospitals, pharmaceutical -Third Party Administrators (TPA's) as well as distribution channels. Insurers and most of those third parties are also regulated either by IRDA or state governments. It is a fact that even minor looking and less technical perceived changes in the healthcare system can have huge impact on the health insurance and affect the industry and our profession. This complexity makes the task for our advisory group definitively challenging and even more important.

In this context I can mention here a few topic which have been on the agenda of the advisory group: portability rules and its potential impact on chronically sick insured's, the impact of unlimited entry age on insured's age distribution and premiums as well as the affordability of those premiums, identify reasons, hurdles and barriers why health products with saving elements are not quite common in India.

As described above there are many stakeholders in the emerging Indian Health care system and almost all of them –not only the insurers - require some health actuarial knowledge and expertise. This leads me to assume another important function of our advisory group. The group organises together with IAI continuous professional development programs which does included seminars and workshops for the enhancement of skills and knowledge of the IAI members.

Lacking quality or even unawareness of health actuarial matters can become very costly to enterprises and bear high reputational risks for insurers. Let's take the simple term medical inflation. What does this term really mean? Does it mean increased claims cost due to inflation of the medical bill amount? Or does the term also include the increase of medical provider utilization because of medical advances and higher density of providers in a certain area? Does the term eventually also include the changed utilization behaviour of insured – as it is the case for Caesarean section?

With the significant growth of the health insurance market the number of actuaries exposed to health insurance matters has been significantly growing and so did the demand to increase knowledge in health insurance matters.

The Advisory group conducts annually a seminar on Current Issues in late January. In the recent years these seminars were conducted in Pune together with NIA. In 2012 –for the first time- the seminar was conducted in Gurgaon in order to allow also participants located in the northern part of India to conveniently participate. A separate article related to this event will be published in the IAI journal soon.

With the globally ageing population, healthcare systems are running into funding problems in an increasing number of countries. This also drives our profession world more and more into health insurance to support private but also public health insurance in identifying necessarily more sustainable technical health insurance solutions. To observe those trends and developments and bring those issues to the notice of IAI - whenever relevant for India – is another important task of the advisory group.

As I highlighted at the beginning– health insurance is a serious and a very important matter and in various ways different from any other business line. The complexity of health insurance and the dependency of a large number of parameters can be considered as a real challenge for an actuary. Health Insurance is growing fast and health actuarial work becomes increasingly important. I would like to encourage actuaries and forthcoming actuaries to make themselves familiar with the topic, increase their knowledge and expertise related to health insurance and seek for best health actuarial practice whenever exposed to health insurance related tasks. The Institute and the advisory group shall support all members in this regard.

FROM THE DESK OF CHAIRPERSON - ADVISORY GROUP ON COMMUNICATION (AGC) -

SUNIL SHARMA, MSC. FIAI, FIA

sharma.sunil@iciciprulife.com

It gives me immense pleasure to connect with you again and this time fill you with what is being planned for the 14th Global Conference of Actuaries (14th GCA) which is annually organised by the Institute of Actuaries of India (IAI) in conjunction with the International Actuarial Association (IAA). The 14th GCA is scheduled to be held from 19-21st of Feb in the financial capital of India, Mumbai.

Before jumping on to the 14th GCA, I would like to give you a brief flashback of how global conference of actuaries was started. The idea of GCA germinated in the mind of K Subramanyam while he was transitioning from LIC to IRDA in Delhi. The first global conference of actuaries was orchestrated in 1999 by the then Delhi Chapter of Actuarial Society of India along with FICCI in the leadership of K. Subramanyam. Having been part of this Delhi Chapter team, I feel honored and still have good memories of how the team managed the show with no prior experience of handling such events and believe me the event was a grand success. Thanks to the vision and planning of Mr. K Subramanyam and a great team work. Since then the Actuarial Profession in India has never looked back and year after year the Institute is conducting very successful event which provides a platform for the global dialogue and debate. This event provides a rare opportunity to listen to the views of senior and most experienced actuaries and business leaders in Financial Sector not only from India but from all across the globe.

Coming back to the 14th GCA, in order for the event to be truly global and maintain a high standard, Liyaquat Khan, President IAI has constituted a 14th GCA organizing group (GOG) to plan and execute the plan for a successful outcome. The members of various advisory groups along with budding actuaries are actively involved with the planning of the 14th GCA.

After series of theme surveys and competition, the 14th GCA organizing group decided the theme for 14th GCA as "Meeting the Challenges of Change", the entry by Amrita Kaur, a Fellow member of IAI. Given that the markets around the world are so interlinked today, if someone sneezes in USA or Europe the effects are felt all across the globe, the theme of this year's GCA is very topical. No economy in the world is immune to these economic changes. The financial landscape is changing at a pace significantly higher than what one could have expected few years back. This clearly reflects the fact that the change is a reality and the only thing that does not change is the change itself. Therefore, we as a Profession need to manage challenges of this change and meet the expectation of various stakeholders and users of our services in the changing landscape.

The communication advisory group is working with the paper and digital media via PR Agency to ensure that the event is highlighted in various financial dailies.

One of the objectives of the media communication is to ensure that the public in general understand how actuaries add value in the financial sector and protect the interest of the policyholders as appointed actuary.

The 14th GCA will start at 5.00 PM on 19th Feb 2012 with the Actuarial Gala Function and Awards (2012 AGFA). After the grand success of last year's AGFA, the Advisory Group on Social Cultural and Youth Affairs, Chaired by Saket Singhal decided to continue to unhide the hidden art and culture treasure within the actuarial community and demonstrate that actuaries not only know how to value and manage the liabilities but also know how to enjoy the life after hard work. You will, therefore have the performances and additionally some art exhibitions (Art-e-actuary).

Given the popularity of Varun Gupta as host, he continues to be the host for the 2012 AGFA. I would not reveal too much at this stage and maintain some suspense for 19th Feb evening.

Moving on to the main GCA, this year we expect more than 750 participants to attend the deliberations. A significant proportion of these are expected to be coming from overseas making the event truly global. Mr. J. Hari Narayan, Chairman, IRDA will Inaugurate and deliver his key note address. The key topics to be discussed during the presentation include:

- Responsible Intermediation: Lessons From Emerging and Developed Markets
- Enterprise wide Risks
- India: Global Destination for Service Delivery
- Educating Actuaries for Business Leadership
- Micro insurance & Microfinance: Defining the Minimum Financial Security.
- Concurrent sessions on Life, Health, Pension and general insurance.

For more details, please have a look at the profession website.

http://www.actuariesindia.org/gca/Conference_Program.php

I would not like to reveal more than this at this stage and now would like to sign off and look forward to see you in the 14th GCA in Mumbai.

Institute of Actuaries of India

THE ACTUARY INDIA – EDITORIAL POLICY

(ver. 2.00/23rd Jan 2011)

Version history;
Ver. 1.00/31 01 2004
Ver. 2.00/23rd Jan. 2011

A: "the Actuary India" published monthly as a magazine since October, 2002, aims to be a forum for members of the Institute of Actuaries of India (the Institute) for;

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

B: The I Institute recognizes the fact that;

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

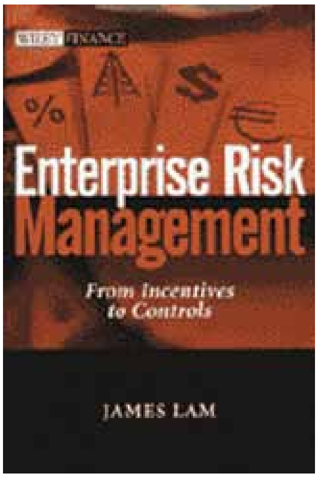
C: Given this background the Institute strongly encourages contributions from the following groups of professionals:

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

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

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

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



ENTERPRISE RISK MANAGEMENT – FROM INCENTIVES TO CONTROLS

By James Lam

Book Number : B11088
Status : Available at IAI Library

Reviewed by Heerak Basu
Heerak.Basu@tata-aig.com

This book is a good primer on the subject of Enterprise Risk Management (ERM) and will give readers a good idea of the various concepts involved.

In the first section the author sets out the rationale for ERM by arguing that there is an optimal level of risk to be taken in order to maximize risk-adjusted returns. In the absence of ERM he argues that companies may drift into a zone of excessive risk-taking which may imperil the organization. This book was written in 2003 but events in recent times have only underscored this observation powerfully.

He also shares his experiences as a CRO of a leading mutual fund organization and mentions the criticality of sharing the lessons from other organizations with colleagues so that people become more aware of the risks they are running in their individual business units. The risk management function can often be seen in adversarial terms by the rest of the organization and the author strongly warns against this tendency counseling risk managers to work closely with line managers. The author also talks about the need to have checks and balances within the organization so as to avoid concentration and aggregation of power which as we have seen in recent years can have very deleterious effects.

In the second section the author discusses the various components of successful ERM. The components discussed are as follows:

- Corporate governance
- Line management
- Portfolio management
- Risk transfer
- Risk analytics
- Data and technology
- Stakeholder management

I found the chapters on corporate governance and risk analytics of particular interest. The chapter on corporate governance sets out the various developments in this area and the need for the Board to get involved in setting risk appetite, risk policy and corporate values. While there have been several subsequent developments in this area the chapter gives a good grounding in corporate governance and the overarching need for it.

The chapter on risk analytics describes the various techniques for measuring risk including scenario analysis, economic capital and risk indicators. Furthermore, the author explains various performance metrics including risk-adjusted return on capital and economic income created. There is also a detailed discussion on various credit risk analytics.

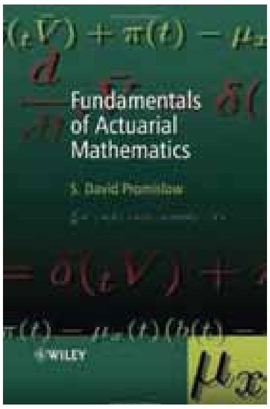
In the third section the author reviews the application of ERM in three key functional areas namely credit, market and operational and also for the financial and non-financial sectors. These chapters are very well written covering the subject in extensive detail and giving case studies of how different organizations have dealt with the different aspects of risk management. The chapter on market risk management and the approach taken by Chase Manhattan is particularly illuminating

The author closes the book by making some observations on the profession of risk management. He cites the growth in the profile and earnings of CRO's as they are viewed to be more and more useful by organizations. Reading this piece I felt that risk management professionals have marketed themselves very well by largely moving from a loss minimization perspective to a shareholder value maximization perspective. I cannot help but thinking that there are lessons for us as a profession as we try to extend our influence within organizations.

In summary, an excellent book which introduces the reader to the subject of risk management with numerous real-life examples together with an explanation of the concepts involved.

"Leadership must be based on goodwill. Goodwill does not mean posturing and, least of all, pandering to the mob. It means obvious and wholehearted commitment to helping followers. We are tired of leaders we fear, tired of leaders we love, and of tired of leaders who let us take liberties with them. What we need for leaders are men of the heart who are so helpful that they, in effect, do away with the need of their jobs. But leaders like that are never out of a job, never out of followers. Strange as it sounds, great leaders gain authority by giving it away."

— Admiral James B. Stockdale



FUNDAMENTALS OF ACTUARIAL MATHEMATICS

by S David Promislow

Book Number : B10416
Status : Available at IAI Library

Reviewed by V Subbulakshmi
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The fact that I am reading this book without any exam tension and time constraints made me enjoy the book with heavy subject inside. The step by step approach followed by the author is very conducive for the reader for better comprehension of the most important concepts.

The author has made a conscious attempt to make this book serve as an excellent guide to actuarial students in giving them an elaborate understanding of the principles of Actuarial Mathematics. It is divided into three parts: The Deterministic Model, Stochastic Model and Risk Theory.

The author has used simplified notations throughout the book though differing from the conventional notations. However, he has made a mention of the equivalent conventional notations in the book so that the reader does not have to learn new notations. Each chapter in each part concludes with three types of exercises: Type A – are straightforward exercises that have general application of the formulae given in the corresponding chapters. Type B - are thought provoking problems and give an opportunity to strengthen the understanding of the concepts and the formulae in the corresponding chapters. The third type involves spreadsheet exercises which give a practical perspective of the life insurance mathematics.

In the first part, The Deterministic Model (consists of 12 chapters), most of the important concepts related to Life contingencies are covered in detail in a logical sequence starting with an introductory chapter on theory of interest. The author has limited the discussion to deterministic interest rate theory and life assurance mathematics.

A quick overview of the basic life table concepts such as survival probability, mortality rate at age x, curtate expectation of lifetime of an individual is given in the short chapter titled “Life Tables”. The spreadsheet exercise given at the end is a very good starting point for the students in enhancing their understanding of these basic concepts. The chapter on life annuities provides a very good coverage of annuities due, immediate annuities and deferred annuities. The nomenclature interest and survivorship discount function (in place of commutation function) used enables students to readily remember the concept behind it.

A brief introduction of different types of insurance contracts was made before discussing the calculation of insurance and annuity reserves. The method used to arrive at the recursive formula for calculation of reserves was very simple and easy to follow. A new interpretation of the difference between the benefits and the reserve is made as *net amount at risk* as this is the amount that would be at risk for the insurer when the death benefit exceeds the reserve maintained in respect of a policy. This interpretation helps in breaking the recursive formula into different components and facilitates easy understanding. Fractional duration for life annuities is dealt in an exclusive chapter in detail which covers corresponding premium and reserve calculations as well. The chapter on continuous payments is almost structured in a similar way, however it includes introduction of the constant force of mortality, differential equation concepts for reserve calculation, and Demoivre’s law. Before going on to discuss the perceived difficult concepts of multiple life and multiple decrements, the author briefly covers the topic of select mortality in a lucid way. Because of the role expenses play in setting the premium rates, the author gives a practical perspective of expenses and how the reserve calculations modify to take into consideration the expenses.

The second part, *“The Stochastic Model”* comprises 4 chapters. This part assumes some prior knowledge of probabilities and related theories (for those with rusted memories, there is an appendix devoted to this for quick reference of good old concepts). The chapter on Survival Distributions and failure times discusses the discrete case and continuous case before explaining the probability distributions for continuous failure times. In order to reinforce the vital role of the stochastic model, stochastic life table and the life expectancy in the stochastic models are explained in detail. The second chapter in this part deals with “Stochastic Approach to insurance and annuities”. This is an extension of the discussion on the same concepts which were dealt in the first part “The Deterministic Model” with appropriate examples. The penultimate chapter in the second part is an interesting one as it deals with simplification of the stochastic models discussed earlier for constant benefits. The detailed examples help in strengthening the understanding of the stochastic models. The last chapter in this part deals with joint distributions (general and independent case), density and survival functions and hazard functions. This is the heaviest chapter of the book I would say as it discusses the complicated theories of copulas and common shock models. This chapter may require two to three rounds of reading to get comfort with the contents.

The final part, “*Risk Theory*” is one of my favorite topics and the author has added to my affinity towards the topic. This part though brief in the book, has 4 chapters which deal with the most important aspects on the subject risk theory. In the first chapter on compound distributions, difference between individual and collective risk models is introduced and how the latter find more application in select situations is explained in an interesting manner. The standard discrete and continuous distributions used for modeling claim amounts (binomial, Poisson negative binomial, normal and gamma distribution, lognormal and Pareto distributions) are discussed and an adequate number of problems are given in the exercises for students to practice. The chapter on “An introduction to stochastic processes” deals with Markov processes and multi-state insurances and annuities. This is yet another heavy chapter in the book however with adequate coverage of illustrations. As Poisson Processes deserve special mention in the context of risk theory, a separate chapter discusses its applications in details. The last chapter in risk theory discusses the most averse concept in life “Ruin theory”. The presentation of this chapter makes an interesting read though. The martingale approach to ruin theory, Distribution of Deficit at ruin and recursion formulae for calculating ruin probabilities and the compound Poisson surplus process are discussed at length with unambiguous explanations.

As a closing note I would say, “***I wish I had got hold of this book before I had appeared for CT4, CT5 and CT6. Nevertheless it was a good refresher and an appropriate text book for Life Actuarial Mathematics.”*** I realized that this book provides a comprehensive coverage and it is a good read at any point of time whether you are a student or not.

LETTERS FROM READERS

Dear Readers,

*Starting this month we are introducing a new column – **LETTERS FROM READERS**. You can send letters / comments on articles, reports, or any other aspect of the magazine to binita@actuariesindia.org.*

Binita Rautela

Date : 31-12-2011

From J. R. Joshi, a fellow Member

Dear Liyaquat,

Your missive in Dec-11 issue of "the Actuary India" caught my attention.

For one likely friend, we hope to make, we have already made about two young aspiring persons unfriendly to our profession (11,000 vs. 19,000). Sometime back I had written to Dilip Chakrabarty expressing similar apprehension arising out of syllabus for entry exams (ACET). But I did not have statistics with me to make the point forceful. We must feel accountable, you are quite right. The child is the father of the Man. . I agree.

The poem by W. Wordsworth runs thus:

My heart leaps up when I behold
A rainbow in the sky:
So was it when my life began;
So is it now I am a man;
So be it when I shall grow old,
Or let me die!
The Child is father of the Man;
And I could wish my days to be
Bound each to each by natural piety.

All my best wishes to you for a happy and successful 2012.

J. R. Joshi, Pune

From Ahsanul Haq, a Student Member (Actuarial Society of Bangladesh)

Date : 6-1-2012

Dear Sir,

Your message about the Values Statement, Leadership and information about the book B-11144 touched my heart. As an ordinary student member of IAI what I observe, think and believe, is that IAP is shifting to a new position. I as a hard working person influenced by the leadership, wish to share some co incidents with you.

Here are some points for observing, thinking and commenting upon. If these touch your heart it will inspire me further.

1. Please look through the cover page - Khondkar Monwar Hossain (30th April 1930 – 27th June, 1999) Memorable Book. It was first published in August 2000 but we found it by 31st December 2011 and 1000 copies of the book were sold in a day, which is a record for it.

The enlightening history is that, in 1961 Late Professor KM Hossain founded Statistics Department at Rajshahi University, the 2nd largest public University in Bangladesh. Last week we celebrated the Golden Jubilee of the Department. To honor Prof. KM Hossain and celebrate the occasion many Books, Souvenirs, Billboards were printed using his portrait.

2. Please look through the photograph of the editor of the above mentioned Book Dr. Rahmat Ullah Imon (Who is also the greatest record holder for achieving both B.Sc & M.Sc degree in RU Science Faculty history) is in front of the Billboard of K M Hossain. He was asked about the photographer of that Portrait but had no information!

By comparing the messages from the editor of that Book and the Presidential message of the Actuary India December 2011 both coincidently indicated the same mistake. It was found that both thanked the cover page designer but ignored the contribution of the photographer who used his prudence, third eye; sixth sense beyond the dictates of Professionalism to capture the essence and the Present Value of it which is timeless.

As a learned Society member what should be our professional responsibility and ethical point of view?

A great service will be done if there is any chance to either mention the name of the photographer or the source of the historic photograph.

3. I am personally hoping that you are also trying to find the VISION of Enduring Though Leadership.

Actuarial Science, Statistics, Photography and any modern media has a lot of Scientific, Philosophical Power generated by Human beings that can make a Prosperous Socio-Economic Peaceful World, if the Leader can integrate it all by sharing mutually recognized views, knowledge and prudence.

M. Ahsanul Haq
Bangladesh

Shilpa's Puzzles

Puzzle No. 167:

What is the next number in this series?

64 729 4096 15625 ?

Puzzle No. 168:

Apollona Constantino has 57 of them. Maggie Lieber has 36 of them. Paul Furstenburg has 45 of them.

Based on the above, how many of them does Mary Les have?

Solutions to puzzles:

Puzzle No. 163:

Q, K, Q, Q, K, K, and K is the order that works.

Puzzle No. 164:

The powers of 7 have a repeating pattern for the last digit that can be found easily without performing the entire multiplication of each power.

7^0 7^1 7^2 7^3 7^4 7^5 7^6 7^7

1 7 9 3 1 7 9 3

With the repeating pattern of four, 7^32 has the same remainder as 7^0, which is 1. Then 7^33 would be in the next column 7^1. Its remainder is 7 when divided by 10.

Correct solutions were received from:

Puzzle No. 163:

1. Akasa Kapoor
2. A. Vishnu Bharadwaj
3. Utkarsh Gupta
4. Sushant Jain
5. Sejal Chhatriwala
6. Jayant Kaul
7. Ajay Singhal
8. Nikhil Sheth
9. Saraswathi S.

Puzzle No. 164:

1. Sushant Jain
2. Sejal Chhatriwala
3. Jayant Kaul
4. Shilpi Jain
5. Prasham Rambhia
6. Saraswathi S.
7. Vikas Rathi
8. Sudanshu Kalsotra

shilpa_vm@hotmail.com

Quotable Quotes

"Leadership is not so much about technique and methods as it is about opening the heart. Leadership is about inspiration — of oneself and of others. Great leadership is about human experiences, not processes. Leadership is not a formula or a program, it is a human activity that comes from the heart and considers the hearts of others. It is an attitude, not a routine."

— Lance Secretan, Industry Week, October 12, 1998

ONE LINE HUMOR

NO FUN.... ITS SERIOUS

Regular naps prevent old age, especially if you take them while driving.

I believe we should all pay our tax with a smile. I tried - but they wanted cash.

Bad officials are elected by good citizens who do not vote.

Laziness is nothing more than the habit of resting before you get tired.

Those who can't laugh at themselves leave the job to others.

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 **February 2012**

K. HANUMANTHA RAO	M. VENKATESAN
A.P. PEETHAMBARAN	CHANDAN K. KHASNOBIS
V. RAJAGOPALAN	A. VENKATASUBRAMANIAN

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

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