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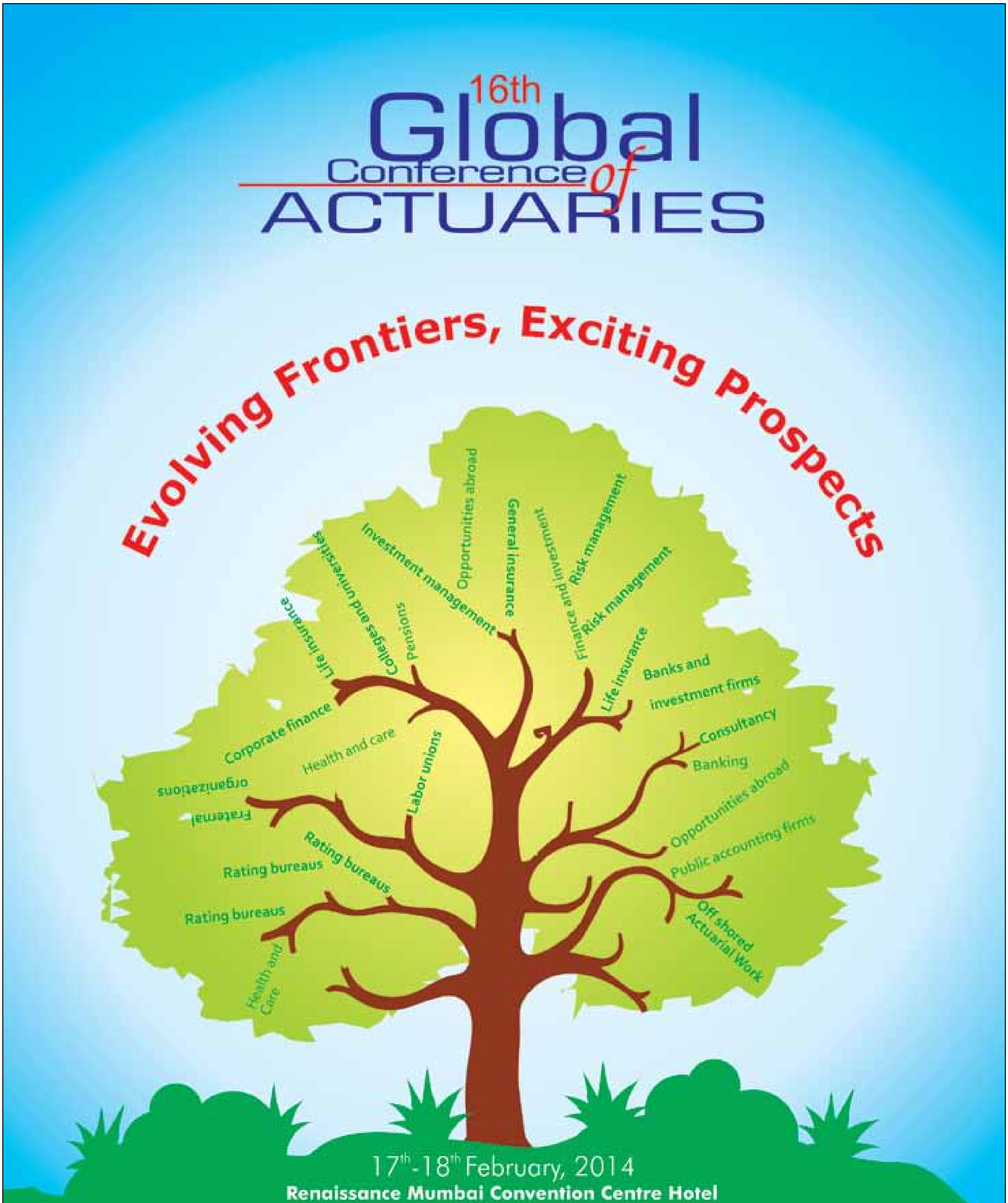


IAI ANNOUNCES
2ND CAPACITY BUILDING PROGRAMME IN NEW MATHEMATICS FOR STOCHASTIC & RISK MANAGEMENT

Date : 30th November, 2013

Venue: Hotel Sea Princess, Juhu Tara Road, Juhu Beach, Santacruz (West), Mumbai - 400049

Who should attend: Actuaries, whether fully qualified or not, at all levels wanting an introduction to the new concepts in Quantitative analysis; Developers and users of economic capital models; Board and Executive Risk Committee members with a quantitative background; Regulators.

The Programme is open to non-IAI members also, however, in case of over registration IAI members will have priority.

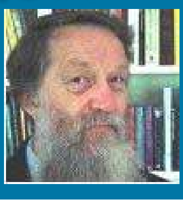
Registration Details: (Rights of admission reserved)

- **Number of participants:** Limited to 30 on first-come-first served basis, IAI members to have priority.
- **Registration Start & End Date:** 1st October, 2013 - 25th November, 2013
- **Point of Contact for any query:** Quintus@actuariesindia.org

Course Content:

- Extreme Value Theory – what goes on in the tails of the distributions?
- Modelling volatility – GARCH processes, asymmetrical volatility, illiquid assets.
- Correlation and Copulas – how do we move beyond correlation to describe relationships?
- Examples of the methods for general use and for economic capital calculations.

Presenter



Dr Frank Ashe has a consulting practice specializing in risk management, investments and the application of behavioural psychology to economics and finance. Risk management covers the gamut from technical matters in option risk, to strategy, to comparative corporate governance and risk culture. He maintains a part-time Associate Professorship at the Macquarie University Applied Finance Centre where he spent 2002 to 2006 as a full-time Associate Professor.

ABOUT 16th GCA

- Institute of Actuaries of India invites **Expression of Interest** to present papers in the 16th Global Conference of Actuaries to be held on 17th and 18th February, 2014. The same will be peer reviewed according to relevance to the conference Theme, originality of the work, specific results described, and potential impact. The Last date to submit Expression of Interest is 31st October, 2013. **Late submissions will not be considered and hence you are requested to kindly stick to the deadline.**
- **16th GCA Theme: Evolving Frontiers, Exciting Prospects**
- **Topic Categories** Life Insurance, General Insurance, Pensions & Social Security, Health Insurance, Enterprise Risk Management, Microinsurance. The topic chosen should be aligned to the theme of conference and from the fields of insurance, retirement benefits, finance, financial economics, investments and other similar fields of interest to actuaries.
- **EXPRESSION OF INTEREST GUIDELINES:**
  - EOI must be submitted in English, via the **Online Submission System only**.
    E-mail submission will NOT be accepted.
  - It should not exceed 200 words.
  - Only IAI members are expected to participate
  - EOI will be selected based on their merit, quality & novelty of data presented.

CONTENTS

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FROM THE EDITOR'S DESK

RAUNAK JHA

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The latest health regulations kept all non-life insurers busy throughout last quarter with re-filing of all their health insurance products. I must admit it was a complete new experience for many of us who got this opportunity to look at things from risk based perspective where the definition of off-setting across different age-bands or locations took altered dimension.

I was pushed to think that what on a larger canvas we are trying to achieve out of health insurance specific regulations. On positive note, my understanding was that these regulations have allowed separate recognition of health insurance from other areas of insurance and have acknowledged it as an effective way of providing for cost of care in our country.

It's a step forward to admitting that how private insurance companies can help in addressing emerging medical needs of the population with their insurance solutions.

This raised curiosity in me to look at what is happening in other countries in the Asian region and where their journey is taking them. I thought to share few insights with you from South East Asian region which has many similarities with respect to socio-economic structure of our country.

The demand for healthcare has grown rapidly in Southeast Asia (SEA) and the overall health expenditures has increased by two and a half times between 1998 and 2010, reaching nearly USD 68 billion. Private health insurance accounted for 4% of this total. What lies behind this rapid growth? In a nutshell: volume and price. The key factors powering the market are population growth in the region, rising medical costs and increases in average per capita expenditure on healthcare services.

Let's see how the private insurance has influenced the healthcare system in the South East Asian countries over last one decade.

Public funding vs. Private Insurance:

The development of private health insurance in Southeast Asia reflects the stage of development of the healthcare system in a country. The least developed countries, where per capita health expenditures are below USD 50 a year, have no private health insurance market at all. Indonesia, Vietnam and the Philippines, the three countries are in the first stage of healthcare development where basic healthcare needs are met by government and per capita health expenditures are in the range of USD 80-100, of which on average less than USD 1 is covered by private insurance. The penetration rate of health insurance in these countries is below 10% of the population.

Malaysia and Thailand are higher stage of healthcare development where the private health insurance system compliments the publicly financed system and the per capita health expenditures are between USD 150 and USD 1,000. The penetration rate of health insurance is also higher here, at between 15% and 20%, although less than USD 30 of per capita health expenditures are covered by private insurance. The absolute level of out-of-pocket expenditures and their growth rate are good indicators of the potential of private health insurance in a country. This is because the primary incentive for buying health insurance is to reduce out-of-pocket expenditures. Another factor is that private insurance can make it possible for policyholders to afford treatment in private healthcare facilities– especially urgent hospital care – without having to shell out their life long earnings. Indeed, out-of-pocket expenditures are the traditional adjustment variable for an increase in healthcare costs or consumption of healthcare.

Out-of-pocket expenditures have more than doubled since 1998 in Malaysia and Singapore, reaching a level of USD 130 in Malaysia (or 34% of total health expenditures) and USD 964 in Singapore (54% of total health expenditures) in 2010. This compares to out of-pocket expenditures of less than 16% of total health expenditures in developed countries such as Japan, France or the USA. The situation in Thailand is different. Here, there has been a sharp decrease in out-of-pocket expenditures, from USD 44 in 1998 to USD 26 in 2010, due to the steady increase in both public financing and private insurance.

Products driving these markets:

The maturity level of a market drives consumers' perception of the necessity of health insurance. Consumers that have only had access to public health insurance in the past and who can now afford private health insurance will generally seek to protect themselves against the most costly contingencies – critical illnesses such as cancer or heart disease and personal accidents. Indeed, these are among the first policies to be sold as standalone policies in emerging insurance markets such as Indonesia and Thailand. As populations grow wealthier and become more aware of the benefits of healthcare, they tend to purchase additional products such as hospital cash, hospital income plans and hospitalization cost coverage. More advanced health insurance markets offer packaged policies that include all of these services yet remain affordable by offering different levels of coverage. This is the case in Malaysia, for example, where most private insurers offer four to five variations on each plan so that they can reach a larger share of the population. Additional coverage for critical illnesses, dental services or maternity expenses is usually sold as riders on the existing personal accident or health policy rather than as a full policy.

The Southeast Asian insurance market is strongly driven by individual policies. Such policies represent between 70% and 80% of the market in Malaysia, Singapore and Thailand. Affordability is a key factor in the development of private health insurance. Companies in Southeast Asia are rarely obliged to take out private health insurance for their employees. Only specific segments of the population benefit from a group insurance scheme or are subject to compulsory private insurance, such as foreign workers, students, civil servants or members of the armed forces.

The group insurance segment has grown quickly over the last decade, at a rate of 20% or more a year. This is much faster than the individual segment, which grew at 11%.

Regulatory landscape:

Insurance regulators and governmental bodies control many structural aspects of the insurance market in Southeast Asia like licenses for insurers, agents and brokers, pricing grids for public hospitals, caps on commissions, and so on. In the past, regulators have had a stabilizing effect on the market. For example, no new licenses are expected to be issued in Malaysia, Singapore or Thailand. Regulation can even benefit health insurers, such as when private health insurance is made compulsory for certain parts of the population, as in Malaysia. Regulatory constraints regarding product specifications and policy termination are less strict in Southeast Asia than in some developed countries. It is therefore possible that they will be tightened up in the future, obliging insurers to pay for treatments in private hospitals, restricting conditions on policy cancellations and enforcing continuity of coverage after retirement in the case of group policies.

Summary:

All these areas highlight the similarities and resemblances between India and ASEAN countries, and stresses that the whole Asian region in a way is gearing up for next generation healthcare reforms supported by private health insurance system. Each country in the region has different needs and the role of private insurance varies from being an initiator/supporter to an administrator helping to align demand and supply within this healthcare system at an affordable cost.

As in the past, the Asia-Pacific region offers great potential for private insurers. Significant top-line growth opportunities are in the offing from the growing population, a rapidly developing customer base, and regulations that support the development of a financially sound industry.

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

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16TH GCA

IT IS WITH GREAT PLEASURE THAT WE ANNOUNCE

MR. T. S. VIJAYAN, CHAIRMAN, IRDA

HAS AGREED TO BE CHIEF GUEST AND DELIVER KEY NOTE ADDRESS AT 16TH GCA TO BE HELD IN MUMBAI ON 17TH – 18TH FEBRUARY, 2014.

Heartiest Congratulations

16th GCA theme Contest winner - Prasenjit Roy

Evolving Frontiers…Exciting Prospects

With an overall experience of more than 3 years, Prasenjit is currently working as Senior Actuarial Analyst in Actuarial Team of AXA Business Services, handling various P&C projects in the area of Pricing and Reserving for global AXA entities. Prior to joining AXA, he has also worked in the area of Credit Risk Analytics with TCS eServe Limited. He completed his Masters in Statistics from IIT Kanpur in 2010. He is currently a student member of Institute of Actuaries of India.

WORKSHOP ON IFRS

• **Organized by: Advisory Group for Accounting and Solvency** • **Venue: - Hotel Sea Princess, Santacruz West, Mumbai**
• **Date: - September 6, 2013**

International Accounting Standards Board (IASB) has issued a revised Exposure Draft (ED) of IFRS 4, Reporting for Insurance Contracts. Comments have been invited by October 25, 2013. The Institute of Actuaries of India (IAI) has set up a drafting group from amongst members of the Life Insurance Advisory Group (LIAG) and Advisory Group on Accounting and Solvency (AGAS) to prepare comments on the ED.

This workshop was facilitated to trigger a discussion amongst members of the profession on the ED.

The workshop was very aptly split into three key sessions: Introduction of the Draft, followed with a detailed set of practical examples and a concluding session discussing the preliminary comments of the drafting group.

Mr. Satyan Jambunathan welcomed all and set the workshop in motion.

Session 1: Introduction and Key Proposals in the exposure draft was jointly taken by **Satyan Jambunathan** and **Peter Duran**.

Satyan Jambunathan

Satyan started with the scope of IFRS 4 and why the first step of determining the appropriate product classification is critical. He talked us through the framework using an easy to understand flow chart diagram.

He moved on to discussing the separation of contract elements with the first element of separation of the contract into two components, i.e. investment and insurance. He highlighted that this split is notional and not actual.

He further highlighted that there is a change in the representation of the financial statements and one is required to have an overall perspective and not just focus on one component. He used examples highlighting and discussing the potential issues that could arise.

He also discussed that as per the current draft, one cannot capitalise future profitability at time zero. Instead a liability is created to the extent of offsetting and delaying emergence of this profit.

He also briefly talked about the BBA (Building Block Approach). He highlighted one of the key differences in Current Fulfillment Value between

- FASB: a single block termed as the Composite Margin, whereas
- IASB: two separate blocks viz. Contractual Service Margin and Risk Adjustment

Peter Duran

Peter started with discussing the BBA in greater detail. The three blocks discussed were:

- Cashflows estimate: A current, unbiased and probability weighted estimate of the contractual cash flows
- Discount Rate: Adjusts first building block for time value of money
- Margins – Risk adjustment: An adjustment to reflect uncertainty in the estimate of fulfilment cash flows affect of adverse selection on the companies generally, further split into two components
  - o Risk Margin (RM)
  - o Contractual Service Margin (CSM)

Peter suggested that it is better to approach the Risk Margin from a cost of capital approach for better understanding.

The CSM was previously known as the residual margin and main purpose is to avoid recognising profit at point of sale. It may also be considered as flooring the value of total contract liability to zero at initial recognition. CSM at point of sale may be thought of as the present value of profits at point of sale. Further, the CSM cannot be a negative quantity. It can at best be zero. If a contact is loss making, then that contract is referred to as an 'onerous contract'.

CSM is to be amortised with interest over the life of the contract, though the rate of amortisation is not prescribed. Peter suggested that it should depend on the way services are provided over the term of the contract.

About the Author

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Mr. Kailash Mittal is Vice President – Actuarial with ICICI Prudential Life Insurance Co. Ltd. He is a Fellow with the Institute of Actuaries of India and is responsible for EV reporting, Business Planning, Solvency II and Actuarial Processes. He is a B.Tech (ME, IITK) and PGDM (IIML).

Peter next talked about definition of acquisition cost. He mentioned that acquisition cost is are now assessed at a portfolio level and is in contrast to the 2010 Exposure Draft (ED) where it was assessed at an individual contract level. He explained it with an example. Suppose 1,000 calls are made for one successful sale. As per the 2010 ED, the expense incurred towards the one successful call could only be allocated to the policy but now the expenses of all 1,000 calls could be allocated. He also highlighted that there is no prescribed deferral framework.

He took us through an illustrative example of a single premium 10 year endowment contract highlighting the gap in the total liabilities and year 1 income statement due to a difference in allocation of expenses towards in cost of acquisition.

Peter next talked about participating contracts and mirroring. Though the ED does not use the term participating contracts, there is a terminology for liabilities that are mirror underlying assets.

He discussed that the cashflows could be split into three components:

- Variable cash flows that depend on the underlying items - no economic mismatch is possible and hence eliminates any accounting mismatch
- Indirectly varying cash flows - likely economic mismatch and creates a put option to the policyholder
- Fixed independent cash flows - use a standard discount rate

He highlighted the two key criteria should be to maximize the extent to which the cashflows vary with the underlying and minimize the fixed payment the policyholder will receive.

He also mentioned that though replicating portfolios are not required they could be adopted to solve some of the issues.

Peter followed with a detailed discussion on the presentation of the balance sheet and financial statements using diagrammatic representation for better understanding. He mentioned that some of the components are not yet clear.

Other Comprehensive Income (OCI) was picked up next. Peter discussed that OCI would not go though the income statement and could reflect anything that is volatile in the short term and not intended to be a part of core underlying earnings, e.g. unrealised gains, impact of change in discount rates, etc. He mentioned that this is a change from the 2010 ED based on the industry feedback. He used extensive simple examples to discuss the likely impact on the financial statements.

He then talked about accounting of assets and how the classification could vary based on how the assets are actually used which could be on amortised costs, fair value though profit & loss and fair value through other comprehensive income. Peter concluded the session highlighting key issues and concerns on the transition and how things are moving.

Session 2: 'Practical examples' was anchored **by Dr. Avijit Chatterjee** and jointly taken by **Balaji Ravi** and **Pratyay Bhattacharya**.

In order to build on the concepts shared in the previous sessions, a session on illustrative examples was included in the programme. Projected profit signatures for a unit linked contract and an immediate annuity contract were presented for this purpose.

Balaji Ravi

Balaji presented the illustrations for a sample model point for a unit linked contract. **Pratyay** presented the

Pratyay Bhattacharya

illustrations for a sample model point for an immediate annuity contract.

The logical flow of the presentation was as given below:

1. A description of contract design, sample model points and assumptions used.
2. A description of the calculation of the elements of the total comprehensive income as per the IFRS Phase II exposure draft.
3. A comparison of the balance sheets as well as profit signatures for the sample model points, between the existing Indian accounting standards and the IFRS Phase II exposure draft.
4. An illustration of the impact of experience variances as well as the change in assumptions on the IFRS Phase II profit signatures.

For each scenario, the impact on various components of the liability, in particular on the absorption of the impact in each scenario by the CSM, were illustrated. The impact on each component of the profit and loss account as well as other comprehensive income with respect to the base scenario was then described.

Avijit Chatterjee

Avijit talked about some generic questions and observations that were very helpful and connected well with the audience.

- The framework for valuation of liabilities could be thought in terms of a Best Estimate Liabilities (BEL) under Market Consistent Embedded Value (MCEV).
- This has an overlay of CSM on top, which results in creating a liability and not recognising any profit at point of sale. Though the CSM accrues interest at a locked-in rate, changes in non-economic assumptions are allowed.
- The income is split between

P&L and OCI. The non-economic variances would flow though the P&L whereas the economic variance would flow through the OCI. This keeps the interest rate volatilities out of the P&L.

- The concept of Mirroring has some differences vis-a-vis the MCEV framework.
- The transition to the new regime could have issues due to accelerated emergence of profits. The characteristic profit signature could be different for high strain high profits type products compared to low strain low profits type of products.

Session 3: 'Preliminary comments on ED of the drafting group' was jointly taken by **Subha Neelakantan,**

Subha Neelakantan

Jose John

Jose John and **Peter Duran**. A total of 5 questions were raised and discussed in detail by Subha and Jose on the following topics:

- Contractual Service Margin
- Contracts that require the entity to hold underlying items and specify a link to returns on those underlying items
- Fair representation of an entity's financial performance
    - o if, for all insurance contracts, an entity presents, in profit or loss, insurance contract revenue and expenses, rather than information about the changes in the components of the insurance contracts.
    - o if, any entity is required to segregate the effects of the underwriting performance from the effect of the changes in the discount rates.
- Effective date and transition

There were many interesting questions from the participants which lead to a meaningful discussion. To summarise, the key takeaways from this highly interactive workshop were that though there are some gaps in the current proposed framework and the industry needs to constantly work towards developing understanding and sharing feedback. Peter also mentioned that one would have to take stock of whether the benefits obtained would outweigh the costs.

In the concluding remarks, **Avijit** called for contribution from all and volunteers to help the working group. He questioned the control and ownership of the model with auditors wanting to have a control although all the row items would be coming from actuarial models.

Jose acknowledged the complexity of the change and absence of processes and resources in the current environment.

REINSURANCE REGULATIONS: IMPACT ON RISKS IN THE INDIAN LIFE INSURANCE MARKET

The key changes in the new regulations include:
1. limits on cession of risk by life insurers;
2. the requirement for a reinsurance programme approved by the Board of Directors;
3. prescribed documentation of aspects considered in the purchase of reinsurance
4. capacity building in order to write more risks.

Executive Summary

The Insurance Regulatory and Development Authority (IRDA) issued the IRDA (Life Insurance – Reinsurance) Regulations, 2013 in February 2013, repealing the IRDA (Life Insurance – Reinsurance) Regulations, 2000. The impact of the change in regulations on risks in the Indian life insurance market has been analysed in this article.

The key changes in the new regulations include :

- Introduction of **limits on the cession** of risk by life insurers,
- Introduction of a requirement to get the reinsurance **programme approved by the Board of Directors**,
- Prescribed **documentation** of aspects considered in the purchase of reinsurance and
- **Capacity building** in order to write more risks.

Reinsurance is a key risk management tool for an insurance company. The changes to reinsurance programmes necessitated by these regulations may significantly affect the business plans of insurers, especially in the area of protection business, where the capability to share risks may be reduced.

II. The need for reinsurance

In order to evaluate the impact of the new regulations, it is essential to look first at the factors giving rise to a need for reinsurance. Some of these are listed in the diagram below.

FIGURE 1 – Need for Reinsurance

III. Prevailing regulatory scenario

The legislations and Regulations governing the use of reinsurance by insurers before the new Regulations were issued are listed below.

1. The Insurance Act, 1938

Under section 101 of this act, life insurers are required to reinsure a minimum proportion of the Sum at Risk on every policy, as specified by IRDA, with Indian reinsurers. These regulations did not preclude and insurer from reinsuring a higher proportion of the Sum at Risk.

2. **IRDA (Life Insurance – Reinsurance) Regulations, 2000**

These Regulations required a "programme of reinsurance", certified by the Appointed Actuary, to be filed with IRDA. There were few prescriptions affecting the decision of the life insurer to reinsure.

3. **IRDA (Appointed Actuary) Regulations, 2000**

These Regulations include reinsurance in the range of issues on which the Appointed Actuary is supposed to advice the management of the insurer.

4. **IRDA (Assets Liabilities and Solvency Margins of Insurers) Regulations, 2000**

These Regulations prescribe the credit that the insurer can take for its reinsurance arrangements in the demonstration of solvency.

5.**Actuarial Practice Standard (APS) 1, issued by the Institute of Actuaries of India**

This APS includes reinsurance in the range of issues on which the Appointed Actuary is supposed to advice the management of the insurer.

About the Authors

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IV. IRDA Life Insurance – Reinsurance Regulations, 2013

These regulations were published by IRDA in February 2013. The key provisions of these Regulations are listed below.

1. Every insurer is to draw up a **reinsurance programme** and submit it to the regulator. The key disclosures forming a part of the reinsurance programmes are listed below.

a. The documentation of reinsurance arrangements, as prescribed in the Regulations.

FIGURE 2 – Objectives of the reinsurance programme

b. The insurer needs to demonstrate, and document, the adequacy of arrangements in respect of catastrophe risks.

c. The insurer needs to document the determination of credit and concentration risk and measures taken to mitigate these.

d. The reinsurance programme needs to be certified by the Appointed Actuary.

e. The reinsurance programme needs to be approved by the Board of Directors.

2. New **limitations** have been introduced on the reinsurance arrangements of insurers. These are listed below.

a. **Minimum retention levels** prescribed depending on the age of the life insurer

b. In addition to the above, the total **reinsurance premium to the total premium** received under a particular product should not exceed **2% for savings** products and **30% for all term insurance or** health products.

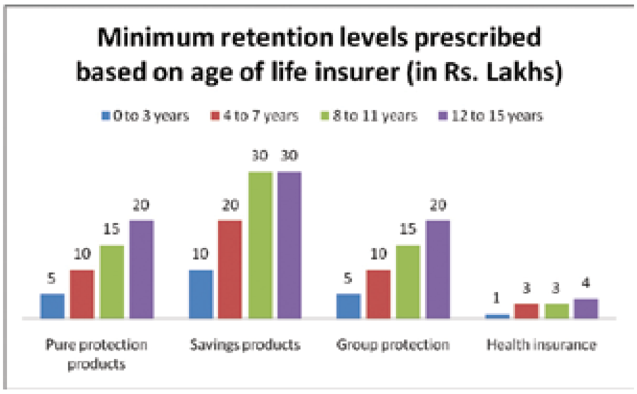

FIGURE 3 – Minimum retention levels prescribed

c. If the insurer is **introducing the risk** for the first time, in such cases the limits specified for 0-3 years' insurer age in the diagram above would apply irrespective of the actual age of the insurer.

d. In addition, IRDA may **review the limits** specified above every 2 years and increase them if necessary.

e. Insurers may be allowed to reinsure on a **quota share basis** in the first two years of operations of starting operations, or within the first two years of introducing a new product or risk for health insurance and group term insurance business. This is provided the minimum retentions in all such cases shall be at least as specified for 0-3 years' insurer age in the diagram above applicable to health insurance business (Rs. 1 lakh) and group term insurance business (Rs. 5 lakhs).

3. In the event of a **breach of the retention/cession limits** specified above, the life insurers need to report the same to IRDA with the submitted reinsurance programme for its approval, along with product-wise details of the following:

a. Underwriting processes

b. Claims fluctuations and claims experience

c. Current retention levels

d. Financial strength of the company

e. Volume of business

f. Capital requirements

g. Past claims payment history of the reinsurers

h. Capacity building measures taken in terms of building up capacity in underwriting, claims handling, risk management, pricing, valuation, etc. since introducing the risk.

4. **IRDA**, on examination of this submission may take the following **actions** on the submission of the reinsurance programme:

a. Ask for additional justification in support of the submitted programme of reinsurance.

b. Allow a lower credit for reinsurance in the demonstration of solvency.

c. Suggest changes for the insurer to incorporate into the programme.

V. Implications for the market Life Insurers

1. **Review of reinsurance submission by the Board of Directors**

This is a positive step. Risk management should not be a responsibility of the Appointed Actuary alone. Management should incorporate the mitigating impact of reinsurance arrangements into the risk management framework.

This will require investment – in setting up the infrastructure for data capture, analytical capability and reporting structures in order to ensure compliance with the regulations – especially with regard to the "building of capacity" envisaged by the regulations.

2. **Focus on the "building of capacity"**

It can be reasoned that these regulations are intended to compel insurers to write and retain large amounts of risks on their balance sheet. This should imply that the law of large numbers applies to the claims experience of insurers, leading to a decrease in the claims volatility risk as well as parameter risk. There are some **areas of concern** here:

a. Reinsurance is not needed solely to mitigate parameter and claims volatility risk. This approach ignores the other benefits of using reinsurance – notably the access to reinsurers' expertise which often acts as an enabler of product innovation – in protection business in particular. Some examples are illustrated below:

b. The decision to reinsure should foremost be driven by commercial considerations, guided by the risk appetite of the company. Insurers should make the decision to reinsure by comparing of the price of reinsurance with the additional cost of capital if the risks are to be retained, in the overall context of the risk management process of the company.

c. The element of parameter risk arising from trends in the drivers of risks also needs to be mitigated. The associated cycles underlying these may have a long duration, and considerable experience may be needed to assess these.

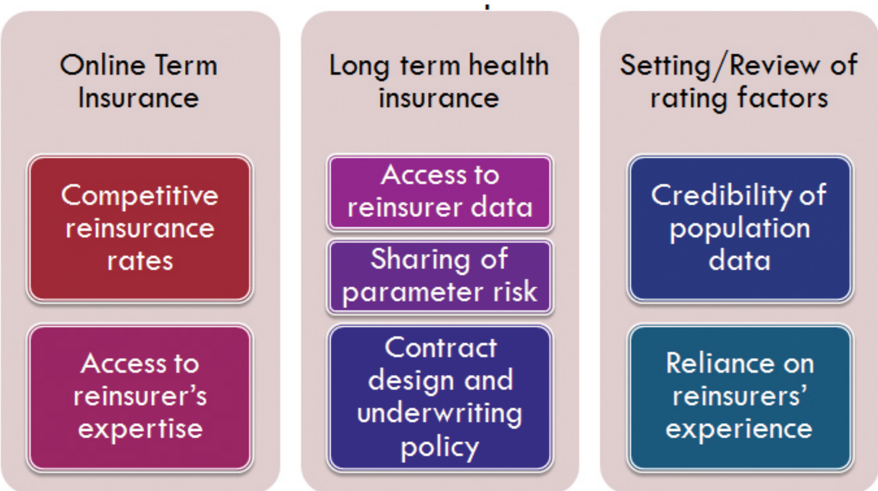

FIGURE 4 – Reinsurance as an enabler of product innovation

3. **Impact on supply of reinsurance**

It should be noted that placement of reinsurance business outside India will need the approval of IRDA. The impact of the new Regulations on the supply of reinsurance in the market remains to be seen. The restrictions may affect the benefits of geographical diversification passed on by way of reduced risk rates. This may also increase the concentration risks, going against the objectives of the regulations.

4. **Impact on cost of reinsurance**

It is not certain what impact the changes may have on the price of reinsurance.

If there is a fall in business ceded, the resultant diseconomies of scale may lead to an increase in prices, especially if there is insufficient diversification on account of the lower retentions. This may be exacerbated if there are fewer reinsurers with monopoly power.

On the other hand if the higher retention leads to significant volumes of "select" risks being reinsured, reinsurers may pass back the benefits of the resulting diversification in the portfolio through lower premium rates, especially if the market remains competitive.

5. **Impact on product design**

The role of reinsurance in product innovation has been mentioned above. Insurers may build the following mitigation measures into product designs in the new paradigm.

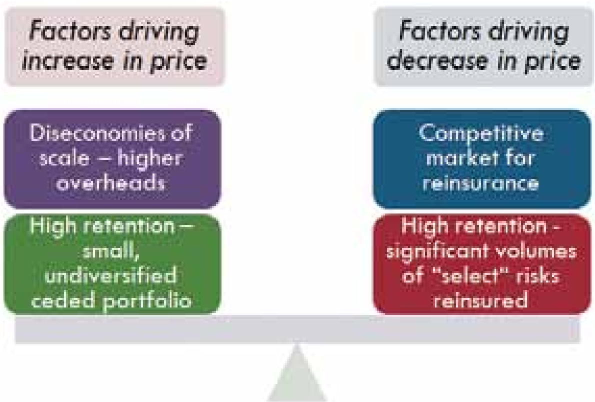

FIGURE 5 – Impact on Price from Differing Levels of Reinsurance

a. Build buffers into assumed risk rates, leading to a hardening of premium rates

b. Increase underwriting requirements

c. Greater risk aversion leading to higher claims underwriting and claims control

d. Incorporate the cost of capacity building into premium rates.

Reinsurers

1. **Definition of "Indian reinsurer"**

As discussed above, the impact of this on the ability of insurers to continue placing business with existing reinsurance counterparties remains to be seen. Business ceded may fall under the new regulations.

2. This may promote the **development of an "Indian" reinsurance sector**. However, promoters of these companies will need to be aware of the barriers to entry, listed below:

a. High capital requirements and long gestation period

b. Regulatory oversight

c. Acquisition of expertise

d. Risks of reinsurance business

3. Indian reinsurers will have to build and demonstrate **capability in all lines of business**.

Policyholders

1. Current products priced assuming prevailing treaties may be unaffected.

2. Product innovation may suffer. This may lead to cover for some risks not being available at an affordable price.

3. New risk covers may become expensive if insurers charge for the higher risk on their books.

4. There may be an increase in exclusions on new products.

5. Proposal and claims underwriting may become more stringent.

Macroeconomic

1. As product innovation suffers, there may be an impact on the Regulator's objective of increasing insurance penetration.
2. There may be an impact on India's image as an investment friendly destination.
3. There may be implications for other economic reforms e.g. pertaining to FDI in insurance, where existing and potential foreign will need to evaluate an investment decision within the new paradigm.
4. An increase in retentions within India on account of these Regulations may flow back into the economy, having an effect on economic growth.

VI. CONCLUSIONS

These Regulations will significantly alter the risk profile for various classes of risks, and consequently, product categories. Insurers will need to create or modify systems to achieve compliance and feed all this back into their strategic plans in order to maximise value under the new paradigm. This is described below.

1. IMPACT ON RISKS.

Type	Impact	Driver
Parameter risk	High	Higher retentions, restrictions on quota share
Claims volatility risk	Medium	Higher retentions
Large risks	High	Higher retentions
Catastrophe risk	Low	No limits stated
Operations risk	Medium	In respect of new systems and processes for monitoring and reporting compliance
Contract design	High	Lesser risk mitigation options available to company, high regulatory scrutiny of product development

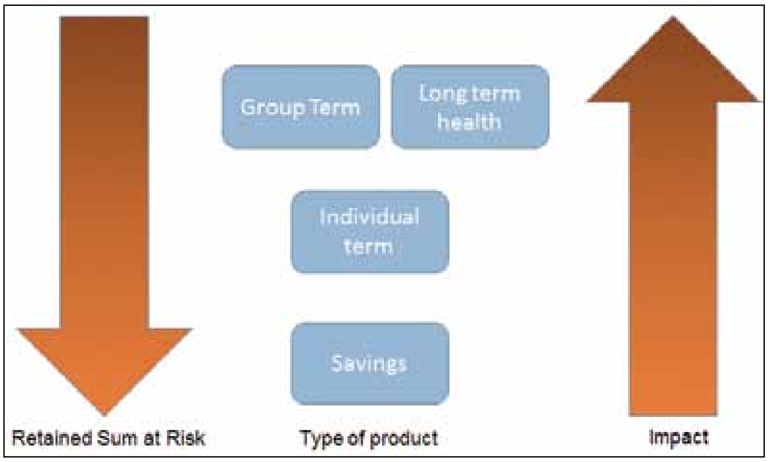

FIGURE 6 – Risk Analysis

2. IMPACT ON PRODUCTS.

The Regulations will have a significant impact on the product categories for which prevailing retention levels are low.

In the absence of publicly available data on prevailing retention levels, some assumptions need to be made on retention levels for each product category. The impact on various categories under this assumption is as given in the diagram above (fig.6).

3. IMPACT ON COMPANY STRATEGY

Most Indian insurers have a product portfolio predominantly composed of savings products. Given this, most companies should not need to make wholesale changes to strategy. Some adjustments will need to be made in respect of products and channels where the use of reinsurance as a mitigant is restricted by the regulations, leading to an increase in capital requirements. Companies will need to feed these inputs, combined with the costs of any supporting capital expenditure on account of "capacity building" into the business plan projections to give management a clearer picture of risks and returns in the new paradigm.

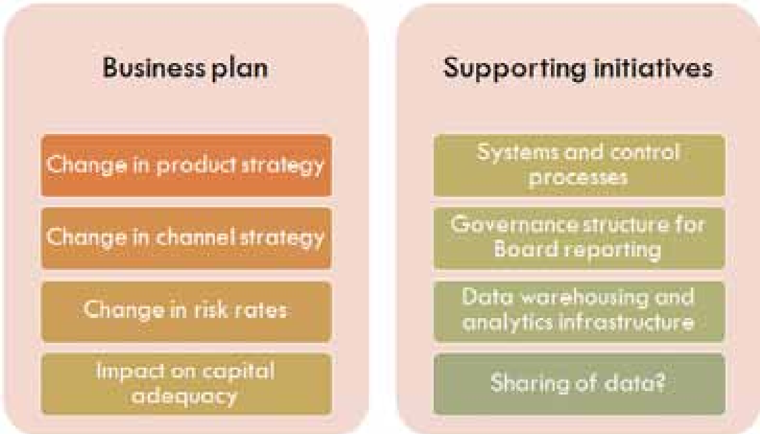

FIGURE 7 – Impact on Company Strategy

These Regulations will significantly alter the risk profile for various classes of risks, and consequently, product categories. Insurers will need to create or modify systems to achieve compliance and feed all this back into their strategic plans in order to maximise value under the new paradigm. The regulations also directly impact the level and type of business for reinsurers.

PARTICIPATING BUSINESS: ISSUES TO CONSIDER

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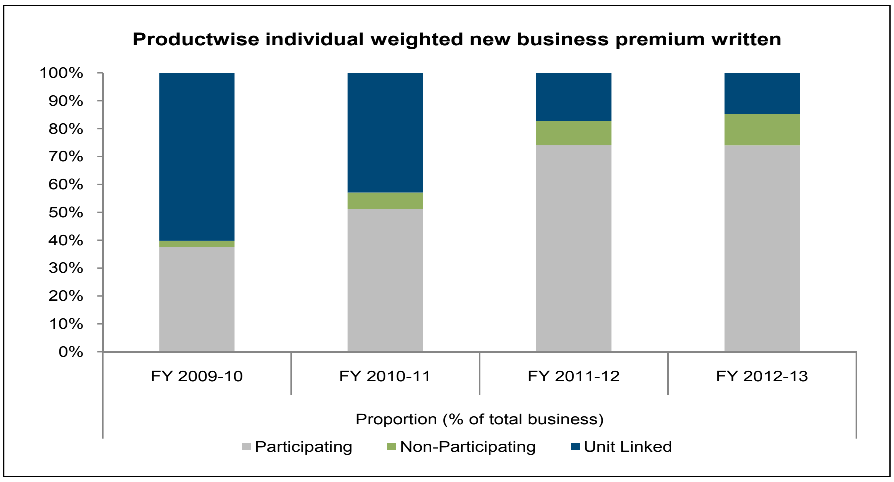
Overview

A few years ago, many industry practitioners would have predicted a reducing role for participating products in life insurance markets across the Asia Pacific region, owing to falling interest rates, increasing customer sophistication and demand for unit-linked products. This was certainly true in India, where up until FY2009-10 a significant proportion of the new business for the industry (including that from the LIC) was from the sale of unit-linked products. The proportion of new business from unit-linked products in FY2009-10 was around 60%.

However, contrary to these predictions, India has seen a resurgence of participating business, primarily due to the regulatory changes that have adversely impacted the sale of unit-linked products, and continuing high long term interest rates. The market share of participating business has increased substantially from 38% of weighted new business premium in FY2009-10 to 74% in FY2012-13. This growth has been precipitated by increased demand from both consumers and distributors. Consumer demand for participating business has increased since the 2008 global financial crisis as consumers are now seen to prefer products that offer more stable investment returns and some guarantees. Distributor demand for participating products has also increased considerably following the unit-linked product related regulations that have been introduced by the Insurance Regulatory and Development Authority ("IRDA") over the past few years that have led to participating products having more attractive levels of commission.

Since participating products have not been the area of focus in many companies in the past, less attention has been given to the establishment of an appropriate framework for managing participating business. However, given the increased volume of participating business now being written and the recent regulatory developments, companies will need to pay careful attention to all aspects of managing participating business in the future.



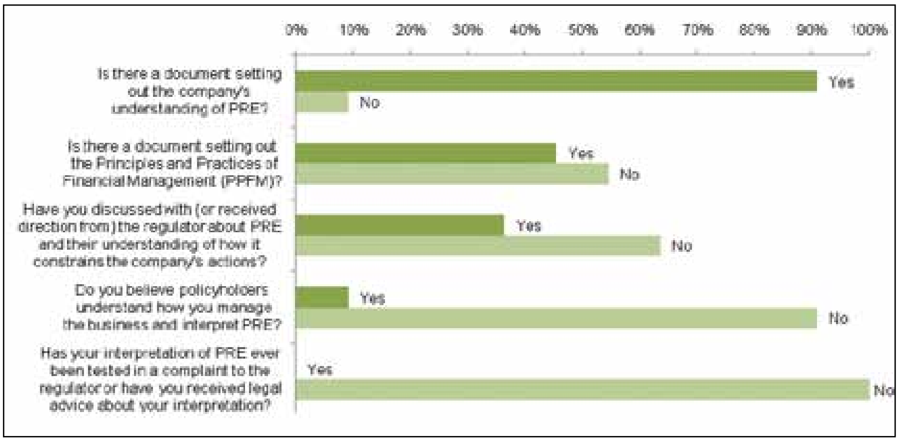
Source: IRDA monthly journals

The Non-Linked Insurance Products Regulations 2013 released by the IRDA require life insurance companies to calculate asset shares (broadly, the accumulation of policy cash flows, expenses and claims) and to setup a "With Profits Committee" ("WPC") to oversee the management of participating business. In addition, the Institute of Actuaries of India ("IAI") has issued two guidance notes ("GN"), GN6 ("Management of participating life insurance business with reference to distribution of surplus") and GN22 ("Reserving for Guarantees in Life Assurance Business") that come into effect in March 2014.

The increased focus on participating business by the industry, the new regulations issued by the IRDA and the guidance notes issued by the IAI are all expected to result in companies paying greater attention to the many issues that need to be considered in the management of participating business in the near future.

POLICYHOLDERS' REASONABLE EXPECTATIONS (PRE)

The first step in developing a sound participating business strategy is for the company to share a common understanding of how the company interprets PRE. PRE may encompass many aspects of the operation of the participating business, such as bonus strategy, investment policy and equity between different groups and generations of policyholders. Building an understanding of PRE may involve consideration of how the frequency and content of various documents and



Source: Milliman's India Participating Business Survey

communication issued to policyholders and past actions taken by the company.

From a recent survey carried out by Milliman (published at http://in.milliman.com/insight/2013/India-Participating-Business-Survey/), while most companies believe they have a good understanding of how they interpret PRE, very few companies have formal documentation that sets this out. According to the survey results, a majority of life insurance companies in India have not had discussions with the IRDA, received directions from the IRDA, or tested a complaint or received legal advice on their interpretation of PRE.

Documentation of PRE may be simple or it could be as comprehensive as the Principles and Practices of Financial Management ("PPFM") document produced by UK insurance companies and disclosed to participating policyholders. While we don't expect companies in India to start publishing PPFM statements on their corporate websites, maintaining a well-articulated PRE document at least internally, would promote a better understanding of the company's philosophy regarding PRE, amongst all its stakeholders. The company can also use such a document to seek regulatory or legal feedback on their interpretation of PRE.

ASSET SHARES

The new non-linked product regulations require all life insurance companies to calculate asset shares at a policy level, which may be used for taking decisions regarding discretionary benefits. While some companies in India already calculate asset shares at a policy level, many companies are yet to adopt this practice.

Setting up asset share calculations at a policy level may pose significant challenges for life insurance companies, especially those that have been offering participating products for a long period of time and have not yet established the asset share calculations.

Apart from modelling and systems related challenges, there may be a number of other issues to consider such as:

- **Historical operating experience**
  - o Have the companies systematically stored the historical operating experience in all relevant areas?
  - o Is the experience granular enough to be able to determine the asset shares for participating products?
  - o Has the experience analysis been robust in each of the years?
- **Investment return reflected in asset shares**
  - o If companies do not separately identify the investments for the participating fund (e.g. in companies where the participating funds are small) from the other funds, how should investment income be allocated between participating and other businesses?
  - o Should the investment return used for asset shares be smoothed or unsmoothed?
  - o Is the actual investment return reflected derived consistently against the approach adopted in sales illustrations issued to the policyholders?
- **Level of expenses charged to asset shares**
  - o What is a fair level of historical expenses to be charged to the participating fund and to different cohorts of participating business?
  - o What proportion of expenses should be charged to the asset shares? It may be noted that the GN6 issued by the IAI requires the Appointed Actuary to be satisfied that if the total expenses allocated to the participating fund are higher than those charged to the asset shares, such an approach is sustainable and would not impact the company's ability to meet PRE by its effect on the surplus or working capital of the participating fund (the "inherited estate").
  - o How do you split these expenses amongst different cohorts of participating business?
  - o Are the expenses charged (particularly the acquisition expenses) consistent with those reflected in the sale illustrations issued to the policyholders?
- **Cost of guarantees reflected in asset shares**
  - o For what cohorts of business should the cost of guarantees be reflected in the asset shares?
  - o How do we calculate the cost of guarantee? If using stochastic techniques, how should the scenarios be calibrated?
  - o Is the allowance for cost of guarantees consistent with that reflected in the sales illustrations issued to policyholders?
- **Cost of capital reflected in asset shares**
  - o Should the inherited estate be used to cover the required solvency margin (RSM)? Or should all policyholders be charged for the cost of capital provided? Conversely, if a policy's contribution to the estate enables other policies (non-participating or participating) to

cover their respective RSM, should there be a credit to the policy's asset share to reflect this?

- o At what level of RSM should the cost of capital be reflected in the asset shares in each of the past years? Should it be at the statutory minimum level (150%) or at the company's target level or at the actual level of solvency capital held?
- o How should this required capital be split amongst different cohorts for each participating product?
- o Is the allowance for cost of capital consistent with that reflected in the sales illustrations issued to the policyholders?

• **Treatment of miscellaneous sources of profits / losses**

- o How should the company deal with miscellaneous sources of profits / losses such as those arising due to surrenders, profits / losses from non-participating products or riders written in the participating fund? Should such profits / losses be allocated to the asset shares or reflected in the inherited estate?
- o Is the treatment of such miscellaneous sources of profit / losses consistent with that reflected in the sales illustrations issued to the policyholders?

• **Income tax**

- o Should income tax be charged to the asset shares when the company has not been paying taxes in the past? If not, when should the company start charging income tax to the asset shares? Should this be when the company starts making statutory profits or when it utilises all of its historical tax credits?

In order to develop a satisfactory approach to calculate the asset shares, companies may be required to invest a significant amount of time and to also carry out several iterations of the asset share calculations to assess their impact on bonuses and policyholder benefits. The Appointed Actuary is required to giving due importance to PRE and the need to maintain equity amongst different generations of participating policies, balancing this against the needs of shareholders as set by the Board of Directors.

A clear documentation of the company's philosophy for managing participating business in general and calculating the asset shares in particular would be essential.

SETTING BONUSES

Once the company has calculated its asset shares, this can be used for different purposes such as setting policyholder bonuses, setting the surrender value scale, determining the level of statutory reserves to be held etc.

The preferred methodology for distributing bonuses in India is a combination of reversionary bonuses and terminal bonuses. As per the Milliman survey, insurers do not seem to be inclined towards reducing the bonuses if investment returns decrease, possibly due to resistance from the distributors and due to PRE. A well-documented (and publicised) approach to managing bonuses, might facilitate more active management of bonuses by the companies.

The Milliman survey suggests that most insurers seem to have a good understanding of how discretion is to be applied given changes in market conditions (such as lower interest rates) and seem to have a clear idea of the triggers that would lead to a change in the bonus rates. While some companies already distribute bonuses based on target level of asset shares, largely, there does not seem to be a well-documented bonus management framework. It is important for companies to document such a framework, the key aspects of which may include:

• **Smoothing policy**

- o To what extent can reversionary bonuses be changed from one year to the next?
- o By how much will the company change bonuses in response to varying levels of changes in the economic environment or operating experience? At what level will the company abandon its smoothing policy completely?
- o How does the company ensure that all policyholder's are being treated fairly?
- o How is the surplus or deficit arising out of a smoothing operation treated?

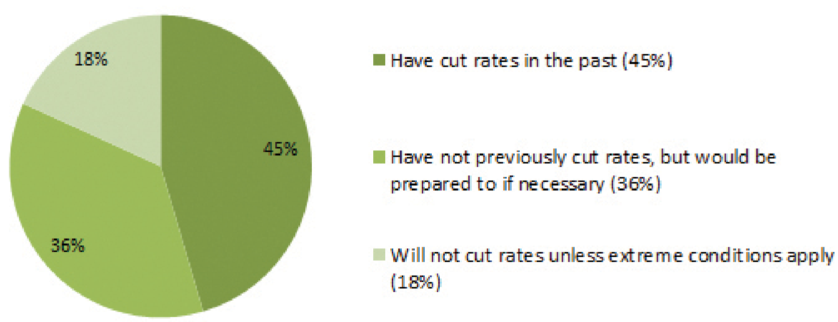
• **Cross-subsidies**

- o What is an acceptable level of cross-subsidy between different cohorts of business? For example, how much of the excess investment returns earned by one cohort of business can be used to smooth bonuses for other cohorts of business?

• **Treatment of the inherited estate**

- o What are the company's upper and lower limits on the amount of inherited estate in the participating fund?
- o What is an acceptable level of inherited estate? It may be noted that although having such an estate is important for the smooth operation of a participating fund, a very high level of estate may also not be desirable, if it arises essentially

Q15. What is your view on cutting future bonus rates?



Source: Milliman's India Participating Business Survey due to 'under-distribution' of bonuses to past generations of policyholders.

- o How should the inherited estate be distributed (if at all) to each cohort of policyholders?
- o How much of the inherited estate should be retained to fund for future bonus pay-outs, RSM, new business strain and / or as working capital in the participating fund?

Finding an acceptable solution to these questions will require a clear understanding and documentation of the company's philosophy of managing participating business. Inputs on these aspects would be required from the Board of Directors.

INTERNAL GOVERNANCE

Given the significant discretion currently available to companies to distribute the profits in the participating fund, it is essential for companies to have a strong internal governance mechanism. The new non-linked product regulations require companies to take many steps towards improving the governance.

Appointed Actuaries are now required to demonstrate the following in the annual Actuarial Report and Abstracts:

- the appropriateness of the reinsurance arrangements adopted and demonstration that it is in the best interests of the participating fund;
- the appropriateness of and prudence in the approach adopted for debiting expenses to the participating fund, the cross sub-subsidies reflected between various cohorts of policyholders, and the appropriateness of the overall management and governance of the participating fund.

In addition, these regulations require the setting up of a 'With Profits Committee' ("WPC"), which would include one independent director of the Board, the CEO, the Appointed Actuary and an independent actuary. The WPC is required to approve the detailed working of the asset share calculations. A report of the WPC is required to be attached to the Appointed Actuary's annual Actuarial Report and Abstract.

Other key aspects of the management of the participating fund include setting the investment strategy based on a careful asset liability management ("ALM"). The IRDA already requires all insurance companies to setup an 'Investments Committee' and an 'Asset Liability Management Committee' to manage such aspects. While the regulations do not explicitly require the WPC to consider investment and ALM related aspects of managing a participating fund, companies may choose to expand the role of the WPC to include such aspects.

Such initiatives will go a long way in enhancing the transparency and governance standards in the management of the participating fund.

CONCLUSION

Participating business is complex! Companies need to ensure that there is an appropriate level of governance and documentation for an orderly growth of this business.

As participating business re-gains momentum in India, it is essential for companies to focus on the sound management of this business.

Managing participating business is likely to be a key role of the actuaries for the foreseeable future. It is important, therefore, for actuaries to develop a sound understanding of the various issues and challenges in managing participating business. ■■■

IN-FORCE VALUE OPTIMISATION
ENHANCING VALUE FROM THE EXISTING BUSINESS

Focus on the "top-line" in terms of growth in (as well as the absolute quantum of) new business premium income has been a key performance driver for many insurance company managers since the opening up of the industry in 2000. However, with more than ten years in operation for many companies, shareholders (and potential new investors) are now also eager to get a reliable picture of the value generated by their past investments in the business. This leads logically to a pertinent question that the management of all companies must ask themselves: "In addition to growing our new business volumes, what can be done to extract greater value from our existing business?"

Drivers for a shift in focus

Before delving into the possible value optimisation opportunities, it is relevant to first consider the key drivers for shifting primary focus from new business growth to better management of existing business. There are several reasons why companies may look towards in-force portfolios as valuable assets providing reliable and steady source of earnings and therefore, ought to make conscious efforts in maximising this:

First and foremost, the actual experience of many companies, particularly in respect of expenses and persistency has turned out very differently to that originally priced for at the time of product launches or that shown in the initial business plans when obtaining capital infusions from the share-holders. This has led to the very real risk that even if the future experience for existing policyholders turns out to be perfectly in line with the *current* best estimate assumptions (revised since the time of original pricing based on actual experience), the overall value generated over the lifetime of the remaining policies may not reflect the expectations of the returns shareholders may have had originally. This inevitably presents two choices to the management: to re-price and sell increasing volumes of new business reflecting current view on margins or to revise expectations, look inwards and put in place concerted management actions aimed at cutting down on the operational inefficiencies and improving experience to "get back on track" – to the extent that this is achievable.

The former option above is indispensable for a going concern. However, in the current scenario, this option is increasingly constrained by the significant pressure on new business volumes seen in recent years (the annual growth in weighted APE written by private life insurers was a negative 4% in FY2012-13, negative 18% in FY2011-12 and negative 17% in FY2010-11). Moreover, the macroeconomic as well as industry specific challenges facing life insurers currently are expected to remain for the rest of FY14 and the immediately foreseeable future.

High new business margins seen previously are also being challenged by the regulator with increased focus on transparency and greater value for the customer. Consequently, whilst insurers must continue to write profitable business in order to maintain their operations in the long run, they must also recognise that existing in-force portfolios are valuable assets that if managed appropriately can yield significant returns. This is particularly true for larger players that have been in operation for more than ten years and have established a substantial in-force book. For these, even **very small improvements** in margins earned on in-force portfolios could have **substantial impact on earnings**.

Optimisation opportunities

For any business, one can think of any number of innovations that could lead to improvements in efficiency and add value to the organisation. However, it is the "big wins" – items that are relatively straightforward to implement in a reasonable timeframe but can have a significant impact on earnings – that would stand out to the management and potential investors. Within the context of the life insurance industry and the current operating environment for many companies in India, we can identify several such opportunities. Assimilating these into a structured framework provides a five dimensional targeted approach to extracting greater value from existing portfolios by implementing the necessary management actions.

Highlighted below are some key areas where it might be possible to achieve some quick wins – if an optimisation program is carried out in a structured way with appropriate buy in from the senior management.

Targeted customer management

This refers to managing existing customers through the individual life-cycle in order to extract the greatest value possible, for example through effective retention management. 5 year persistency ratios for several companies are currently appalling (based on public disclosures) with 61st month premium persistency rates of well below 20 - 25% being the norm rather than an exception. Significant gains can be achieved through a concerted persistency management programme. Further benefits can be achieved relative to implementation costs if efforts are targeted towards

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retaining high value clients if the top-end products/clients contribute to the bulk of the surplus generated in the business. Some rudimentary statistical tools (including basic predictive modelling) can be used to provide rich insights into the experience data and provide competitive advantage by ensuring that retention targeting is not just carried out at a blanket company level, but that the right customer is provided with the right incentives. A sophisticated persistency management program will necessarily rely on a robust communication and customer service strategy but it might also be time that companies begin to think about more innovative loyalty schemes, for example how about offering reward points on renewal premiums to eligible high value clients. A successful program will be able to deliver solutions that are practical to implement but at the same time underpinned by a deep understanding of the portfolio profitability across segments and reflect both the short term and *lifetime* value of a customer, across all current and *potential* product holdings.

Retention and persistency is only one aspect of customer management, which encompasses wider areas including amalgamating effective customer service models with value generation. For instance, recognising high value customers and delivering commensurate levels of customer service can potentially create an unbeatable value proposition for customers with high end services offered to premium customers. At the same time medium value customers can be moved to low cost service channels whilst low value customers moved to self-service channels. A similar proposition can be extrapolated to agents and other distributors, in addition to direct customers.

Operational management

At the heart of operational management lies improving cost efficiency and implementing expense reductions. There are examples in the industry today of companies still suffering from maintenance expense over-runs despite being in operation for more than a decade. If managed under the supervision of an experienced expense reduction practioner focussed on insurance industry, a well thought out cost reduction program can result in a guaranteed 5-10% reduction with potential of up to 25-30% savings as well. However, such a program requires strategic assessment of each reduction opportunities – to ensure one does not end up cutting corners with core competency areas whilst at the same time achieving the desired reductions that would be value drivers without compromising on business growth.

Key enablers of a high quality assessment that will be able to 'deliver the goods' are sufficiently granular details on expenses and operational metrics, identification of areas of potential cross subsidies and ensuring sufficient management buy in to see through the project. For the actuary to be an enabler – and indeed a key actor – through such a program, one would need to have an intimate understanding of the expense analysis, including accurate details of fixed versus variable costs; initial versus renewal costs; recognition of arbitrary allocations and approximations in the analysis and building robust capacity models. Often, the reasons for high costs in a particular department are very different to that originally anticipated by the management and efficiencies are usually possible in all of the areas of people, processes and systems. This can be a startling and valuable insight for the management, but requires a good diagnostic approach with a mixture of actuarial, strategy assessment and change management skills.

Finance management

A potential big-win for many existing insurers can be achieved by improving investment performance through better focus on the mix of asset, liabilities and achievable investment returns. This involves not just the appropriate asset selection but also devising potentially high return investment mandates for the fund managers. Skilful asset allocation reviews and dynamic ALM strategies can deliver flexible mandates with the possibility to invest in high return instruments without breaching the risk appetite limits of the company. Insurers in India are typically restricted by regulations as well as convention, investing predominantly in orthodox asset classes. Identification of "new" assets providing higher returns can be a critical driver of value, given the large volumes of assets under management for insurance companies.

Capital management

Capital management involves identifying and then releasing/removing capital trapped or blocked within the organisation or certain specific lines of business, for example through reinsurance, re-design of corporate structures or even through release of (more than required) prudent margins in the reserves held. This could potentially be a one-off exercise but could deliver reasonable gains for the shareholder. However, a word of caution is necessary: in releasing excess reserves, the actuary needs to be particularly attentive to the requirements of the relevant regulatory provisions and practice standards. Nevertheless, it is not uncommon for some companies to infuse disproportionate levels of prudence within their reserving methodology and assumptions, which can be to the detriment of both the shareholder and the policyholder. An honest review of the reserving margins might lead very defensible arguments for an acceptable release of capital previously blocked in the business. At the same time, and to avoid arbitrary changes in reserves from one year to the next, companies can specify explicit reserving guidelines based on risk appetite and confidence levels and determine reserves based on established capital determination methodologies. For example, define appropriate target level of security – say 90th percentile or 75th percentile (in line with the risk appetite of the company whilst having due regard to policyholder interests) and then determine reserves at the required target level. This would ensure excess capital is not locked into the business and also provide a justification for the use of chosen MADs in the reserving basis. The ability and the extent to which reserves can / should be released depends critically on the current practices and requires very careful consideration to ensure appropriate compliance as well as not jeopardise policyholder interests.

Computational integrity

A number of companies have already started publicly reporting their internal estimates of embedded value. There is further interest in the valuations of insurance companies given a number of transactions – both actual and potential – in the Indian market in the recent years. Further, some promoters are keeping a keen eye out for a potential public listing as soon as an appropriate opportunity presents itself. All of these factors combined mean that the reported valuations are gaining prominence for shareholders, analysts as well as potential investors. Therefore, it is essential that the computation of embedded value (EV) is robust and accurate. For the actuary computing these (whether internal to the company or an independent expert), it is essential that all sources of value are appropriately captured and valued using suitable methodologies. There is an inherent tendency amongst actuaries – by training and/or nature – to err on the side of caution and be conservative in their estimates. It is not unheard of that even within the *best estimate* assumptions there is an element of prudence concealed. It is essential that such areas - where judgement plays a critical role in the calculation of value – are appropriately highlighted and reflected in the shareholder/investor communications. Whilst (hidden) potential prudent margins in *best estimate* assumptions may be relatively easier to salvage, there are often additional - less obvious - areas where implicit margins may found. A good example is in the number of modelling assumptions and approximation that are typically made when setting up product models. Many legacy cash-flow models were typically built originally for the purpose of statutory reserving and then later adapted to calculate best estimate cash-flows for EV purposes as well. An unintended consequence of this is that there are inevitably a fair number of modelling approximations that were made to be characteristically prudent (such as timing of certain cash-flows or charges / computations of certain ages and durations etc.) and may appear to be trivial or driven by convention at first sight, but could potentially lead to surprisingly material differences in value when modelled more accurately. A further question that a discerning practitioner must ask is whether *all* sources of value have been appropriately captured in the computation of VIF. For example, are there any global (unmodelled) provisions that are inadvertently missed in the calculation of the company level embedded value? Equally, have all possible margins in each provision been recognised appropriately?

Clearly, the above factors with respect to computational integrity are not sources of *true* value for the company but could definitely be significant items in the *reported* value – which is inevitably the metric markets and potential investors can see and measure the company against.

Final remarks

In order for in-force optimisation programmes to be successful, significant buy-in is required from senior business leaders as such programmes typically require cultural change within the business. Moreover, the management needs to be committed to see through the entirety of the program as well as ensure that recommended actions are thoroughly embedded within the organisation for the benefits of such programmes to be realised. Moreover, the responsibility for in-force business is often delegated to technical or BAU departments with an enormous imbalance between in-force focussed employees new business focussed employees. We have seen several large multinationals across the globe being proactive in recent years in building high profile teams with responsibility and accountability for in-force portfolio optimisation and one can fully expect that companies in India will surely follow suit as it is in their best interest to get most out of what they already have. Clichés become clichés because they are true: a bird in the hand is worth two in the bush.

TAKEAWAYS FROM A SURVEY ON EMPLOYEE BENEFITS & ACTUARIAL REPORTING

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Introduction

It has been more than 6 years since the Accounting Standard (AS) 15 Employee Benefits (revised 2005)- (referred as AS 15 (R) in the rest of the report) issued by the Council of the Institute of Chartered Accountants of India effective from 1st April 2006 which is mandatory for all companies for the accounting and disclosure of Employee Benefits.

AS 15(R) was based on IAS 19 and differs in the treatment of actuarial gains and losses in a way that it should be recognized immediately in the profit and loss statement of the company. This essentially led Companies to use services of a Qualified Actuary for Actuarial valuation of Employee benefits. The Institute of Actuaries of India has issued Actuarial Practise Standard 26 (APS 26) (version 1) and have made effective from 1st January 2007 and its version 1.01 effective from 1st January 2012 and applicable to any fellow member of the Institute of Actuaries of India carrying out such actuarial valuation under AS 15 (R).

Terminologies like Actuarial assumptions, Actuarial valuation, Actuarial risk, Actuarial gain and loss and Actuarial techniques are extensively used in this prescription mainly in relation to valuation and accounting of employee benefits of long term nature.

The implications of implementation of AS 15 (R) is significant on company accounts and services by a qualified Actuary is essential for valuation of long term benefits, albeit AS 15 (R) referring it as a responsibility of the reporting enterprise.

Objective

Main objective of the survey was to determine the needs of external stakeholders (mainly companies/clients) of the actuarial consulting profession, in the area of employee benefits, so that the IAI could look to provide further support to those actuaries and also educate external stakeholders on the topic of employee benefits (as it relates to the actuarial consulting profession).

The areas covered by the survey, conducted by Institute of Actuaries of India were to:

a. Understand the current practises of companies on implementation of AS 15 (R)

b. Understand levels of utilisation of Actuaries by Indian companies for their Actuarial valuation of employee benefits.

c. Understand the awareness of companies on the role of actuaries and guidance notes applicable for discharging their duties

d. Understand market requirements in respect of guidance and support from the Actuarial Profession

e. Understand the scope for increased role to play in the market for implementing statutory and regulatory practises for Employee benefit reporting by Indian companies

The Survey

Survey carried 20 questions and was administered through an external online survey tool; almost all the questions were structured in multiple choices and run for nearly a month and ended up with responses from 41 out of 870+ targeted companies. In view of this, the findings need to be put into that context and may not be entirely representative of the 870+ companies.

The subject of Employee benefits and Actuarial reporting should be familiar to all senior level executives and so valid reason for not responding to the survey could be due to (this list is based on our perceptions and responses whilst following up for participation, it is not intended to be exhaustive but only indicative):

a. interest level of such a survey where they may have perceived a lack of value for them in return

b. non-disclosure policy adopted by the Companies to respond to such surveys or

c. distancing from disclosures that might lead to identifying companies who are not complying with Accounting Standards (AS 15) (Revised 2005), the aspect to be addressed by the Institute of Chartered Accountants of India.

d. our survey may be one of many other requests and may not have been prioritised by target companies

e. potential participants were familiar enough with the topic and so did not feel the need to respond

f. The subject of AS 15 (R) and funding and accounting of employee benefits might have turned out to be a subject of internal activity for some companies without using actuarial services (possible at the smaller scale of companies)

g. Disclosure of information in respect of funding and accounting is considered as confidential

Key Findings from companies that participated in the survey

a. Survey participants include 6 SMCs and 35 Non-SMCs

b. Barring one or two, all companies get their valuation done by

Actuaries.

c. 20% of the survey participants require compliance to international accounting standards include IAS 19 (International GAAP), FAS87/ FAS158 (US GAAP)

d. 47% of companies do separate valuation for accounting and funding

e. 78% of Certification of valuation done by a Consulting Actuary, 17% by the Insurance company, rest done by non-actuaries

f. The required qualification of the person/ consulting actuary signing in the figures for Employee benefit is known to be the fellow of Institute of Actuaries of India or Fellow of any other internationally recognised actuarial institutions.

g. The company has access to an Actuary any time when actuarial services required

h. Only 60% of companies availing actuarial services are aware of APS (Actuarial Practise Standards) to be complied by the Consulting Actuary prescribed by the IAI

i. 81% of participants desired to have an understanding of regulatory requirements and professional guidance within which Actuaries must operate from Institute of Actuaries of India

j. Only 10% of the participants attended any training/ guidance session during the Calendar year 2012 arranged by Institute of Chartered Accountants of India, and not by any.

k. 85% of the participants desires to know more about the role of Actuaries and changing regulations in Accounting and Funding of Employee Benefits

Key Conclusions

Even from the small number of responses there are a few key takeaways:

a. Companies are keen to understand more about the actuarial profession, in particular, regarding regulatory and professional standards.

b. There are a number of companies that need to report under actuarial standards outside India

c. They are familiar with actuaries and their role in the area of accounting for employee benefits

Next steps and suggested actions

a. Institute to reach out to Companies in India more frequently to understand the accounting practises which essentially require actuarial services.

b. To suggest to consulting actuaries that their clients are made aware of the professional conduct standards they are bound by.

c. When conducting external seminars / client meetings then actuaries should present a little on the history of the profession and the standards they must follow. AGPSS should provide a standard short summary slide deck (3-4 slides) that actuaries may include in their presentations for this. These slides should be very high level and just to make the stakeholders aware of the main framework the profession operates within.

d. To enhance branding of consulting actuaries with clients and other stakeholders (e.g. auditors), specific to employee benefits.

e. To open a channel of communication with other professional institutes, particularly with the Institute of Chartered Accountants of India to reach out to companies in a better way.

f. Professions feedback on actuarial services used/ not used by companies in relation to AS 15 (R) to be known to the Institute of Chartered Accountants of India

g. Training/ discussion sessions on Accounting practises and its implications may be arranged jointly with the ICAI involving experts from both professions.

h. Key persons from the ICAI may be invited to attend Conference/s on current issues organised by the Advisory Group on Pensions and Employee Benefits and request for the same at their events

THE ORDER OF THE COUNCIL BEFORE THE COUNCIL OF INSTITUTE OF ACTUARIES OF INDIA (IAI)

Date: 3rd August, 201 3	**Time:** 2:30 pm to 3:15 pm
Venue: Hotel Sea Princes, Juhu, Mumbai	
Agenda B8: Suspected possession of IAI exam solution by Mr. Balakrishnan lyer, Candidate for subject CA1 - Core Application Concept Examination held in November 2012 exam diet.	

MEMBERS OF THE COUNCIL PRESENT:			
1. M Karunanidhi	President (in chair)	2. Rajesh Dalmia	Hon. Secretary
3. Liyaquat Khan	Member	4. Saket Singhal	Member
5. A R Prabhu	Member	6. Dr. K Sriram	Member
7. G L N Sarma	Member		
OFFICE STAFF PRESENT:			
1. Gururaj Nayak, Head - Operations		2. Yogesh Pandit, Compliance Officer	
CANDIDATE:			
Mr. Balakrishnan Iyer : (M. No 262) D-402, Rakhee, Vasant Utsav, Thakur Village Kandivali (East), Mumbai - 400 101, India.			

RECORDS AND DOCUMENTS BEFORE THE COUNCIL - Record and Documents submitted to the Council includes

1. All the relevant documents including note prepared on the case by Manager, Examination.
2. Communication to and fro Markers. Examiner, review examiner. Administration, IT Advisor and the candidate
3. Report of Enquiry Group constituted for the purpose
4. Minutes of Examination Advisory Group and Education Committee

FACTS OF THE CASE

1. The review examiner for subject CA1 paper had informed **the Institute's** Administration vide her email of 1st February, 2013 that markers of CA1 Paper 1 and Paper 2 had brought to her notice that answer booklet by candidate no 8442 and 8701 contains answers close to the model solution especially in questions requiring higher order skills/requiring application. Further, after going through the consolidated mark sheet for CA1 paper she finds that the candidate no 8441 and 8701 pertain to the same person.
2. Review Examiner further informs that there were two examiners assigned for Paper setting of subject CAl. On 12th November 2012, during the stage of paper setting, first examiner has sent a mail meant for review examiner and second examiner. Inadvertently the mail got marked to the candidate's office email id instead of second examiner. The mail contained draft model solutions for Paper 1 and Paper 2 of CA1 Examination. The documents contained only the solutions and not the questions; and were password protected. Review Examiner realized the error only when she replied on that mail on 15th November 2012 and got an "Out of Office" message from candidate's mail box. The first Examiner immediately spoke to the candidate and asked him to delete the emails from his mail box which the candidate confirmed to have done so. As there were only four days left for the examination and all the documents were password protected, the Institute has decided to go ahead with same question paper.
3. Considering all of the above Review Examiner requested that further investigation needs to be conducted into the high marks secured by the person (with candidate no 8442 in paper 1 and No 8701 in Paper 2) to ensure that no malpractice has actually taken place.
4. The Institute appointed one member from Examination Advisory Group (EAG) to further investigate the case and provide independent opinion on this case. The member submitted his report in EAG meeting held on 17th February 2013 informing that in his considerate opinion that the answer script resembled close to indicative solution.
5. In view of above, a show cause letter dated 28th February 2013 was sent to the candidate informing that his answer script appeared identical to indicative solution and why disciplinary action should not be taken against him within the provisions of section 8 (3) and 19 (2) (i) (p) of the Actuaries Act 2006 and the declaration signed by him during filling the examination form.
6. Candidate responded vide his letter dated 1st March, 2013 informing that he was surprised to find his exam script identical to indicative solution and further informed that he would not take this big risk when he is left with 2 subjects for qualification and with 20 years of experience.
7. Institute further took the advice of IAI IT Advisor on this case. IT Advisor informed that it was possible to crack the password through online softwares available and there are other means available to crack the password.
8. In the EAG meeting held on 29th March, 2013, EAG appointed Enquiry Group consisting of three EAG members to go through the documents available on record, take personal hearing from the candidate and submit a report with their recommendation to EAG.
9. Personal Hearing with the candidate was held on 4th May, 2013. During the personal hearing the **candidate accepted that he had opened the attachment by hacking the password.** In his defense the candidate offered that he opened the attachments to:

a. check whether it is difficult or not to access the password protected attachments in the email as he suspected some of his colleagues may have noticed the emails;

b. to check whether the Institute takes any corrective action after such a mistake happened;

c. 'get back to the Institute' in a sense as he said that he could have used the model solution to his advantage by playing around with words and managing to pass but he chose instead to reproduce the model solution as it is in the examination.

At the end of the hearing, the candidate offered an apology for his actions. He mentioned that as a senior member of the profession he should not have done this and that he was feeling guilty and unhappy about the same.

10. The recommendation of the Inquiry Group was discussed in the EAG meeting held on 13th June, 2013. The members further deliberated and discussed the report in detail and it was thought that the candidate has indulged into act which was unbecoming of a member. The members decided to recommend to Education Committee to suspend the membership of the candidate for two years (instead of **three** years as done in usual copying cases) from the date of the decision of the Council due to following reasons;

a. The candidate has accepted at the initial stages of the enquiry that he had copied from the Indicative Solution and was apologetic for his conduct.

b. The evidence which Institute had was very circumstantial and was not sufficient enough.

11. The matter was further discussed in Education Committee Meeting held on 27th July 2013. The Education Committee reviewed the enquiry group report and deliberated on the matter. The Committee observed that the candidate who was the unintended recipient of the email should have behaved professionally and contacted the sender immediately. It further noted that there was no deliberate attempt by the candidate to access the solution but rather the solution landed in his email box and sort of induced him to resort to breaking the password and access the solutions. Considering all the available records, facts and circumstances, the Committee endorsed the enquiry group report and agreed with the view of the Examination AG that the candidate deserves punishment. It further noted that there is no further investigation required and the matter is ready to go to the Council for a final decision.

12. Council in its meeting held on 3rd August 2013 considered all the documents and evidence on record and agreed with EAG and Education Committee that the candidate has indulged into act which was unbecoming of a member and held him guilty of Misconduct related to Examination.

CONCLUSION:

1) To suspend the membership of the candidate with immediate effect for the period of 2 years within the provisions of section 8 (3) and 19 (2) (i) (p) of the Actuaries Act 2006.

2) The suspension period of two years to start 4th August, 2013 i. e.

immediately following the day of the Council meeting.

By Order,

Gururaj Nayak
Head - Operations

Place: Mumbai
Date: 21st August, 2013

CAREER CORNER

RGA Actuarial Vacancies

Reinsurance Group of America, Incorporated (NYSE: RGA) is a leader in the global life reinsurance industry with approximately $2.9 trillion of life reinsurance in force and assets of $40.4 billion. We are one of the largest life reinsurance companies in the world. We are the only global reinsurance company to focus primarily on life and health-related reinsurance solutions.

Chief Manager – Actuarial Services

Position reports to: Director – Actuarial Services.

Department: Actuarial Services.

Location: Mumbai, India.

Grade: P2

PRIMARY FUNCTIONS: This role will be responsible for identifying product development opportunities and work with various stakeholders to design and price new products and services to support clients. The focus for this person will be predominantly on setting the stage for medium- to long-term business growth and less on immediately visible business opportunities.

KEY RESPONSIBILITIES:

- Identifying product development opportunities created by:
  - Change in distribution methods
  - Regulatory changes
  - Demographic changes
  - International trends
- Analyze the opportunities appropriately and develop concept notes and product outline in consultation with all the stakeholders concerned
- Build relations with client product development teams, consult with them on ideas and gather feedback
- Work with the clients directly on product development, product filing and regulatory approval
- Assist the pricing team in setting pricing bases for new products by collecting and analyzing data and information
- Liaise with RGA regional and international product development and research specialists to learn from changes in international markets and how they can be implemented locally
- Enhance the market perception of RGA's expertise by presenting or otherwise sharing the results of relevant research with clients
- Maintain inventory of research information

REQUIREMENTS:

- Newly or nearly qualified Actuary
- 7+ years' experience with at least 5 years in the life insurance industry
- Excellent communication and presentation skills
- Ability to work independently and take initiative
- Previous product development and/or research experience would be an advantage

SALARY INFORMATION:

Commensurate with experience

APPLICATION SUBMISSIONS:

Qualified applicants can apply by submitting a resume/CV to:

Manasi Sabnis
RGA Services India Pvt Ltd
302, Akruti Centre Point
MIDC Central Road
Andheri East, Mumbai 400093
msabnis@rgare.com

RGA
The security of experience. The power of innovation.

www.rgare.com

TELEMATICS & USAGE BASED INSURANCE (UBI)

By Akanksha Jain & Yash Bhatia

Abstract : Telematics driven Usage Based Insurance is revolutionizing the motor insurance market around the world. This paper intends to introduce the usage based auto-insurance through telematics and gives some insight into related developments taking place in India and other major markets.

Our world is changing ever so rapidly today; both demographics and technology play an important role in this. Its deep impact has affected individuals as well as businesses. One such technology that can prove to be a big game changer in the auto insurance industry is Usage Based Insurance through Telematics.

In this highly competitive auto insurance industry, every insurer seeks to capture and use each bit of information available to get itself ahead of other players. Telematics, with its ability to capture and analyze detailed driving information can allow early movers to take advantage of pricing power and strengthen relationships with customers.

Telematics driven Usage Based Insurance is an integrated use of telecommunication, informatics and analytics in auto-insurance, to gather real-time driving and environmental information to monitor actual behavioral risk. A telecommunication device is generally installed in the vehicle, which records ***How, When*** and ***Where*** you drive using a Global Positioning System (GPS) receiver and sends it via wireless communication to the insurer (or their service provider) which with the help of data analytics, extracts meaningful information for effective motor pricing.

Telematics driven UBI has immense potential to significantly improve the conventional method for pricing auto insurance. The detailed ***real time*** per second information relating to individual's driving behavior by location, speed, distance, road type, time of the day, harsh braking and accelerations will help the insurer to assess the riskiness and price the coverage more effectively than the existing proxy data, like occupation, use of the vehicle, geographical zone, driver's details, which is currently being used by majority of the Indian insurers. In India, the analysis of this granular data will create a deeper knowledge of the individuals driving behavior, where policies are issued based on the vehicle insured rather than the driver. This additional information is likely to make segmentation better by enhancing the understanding of likelihood of claims and hence help in reduction of fraudulent claims.

The policies under telematics based insurance are generally constructed in two ways: ***Pay-As-You-Drive (PAYD)*** and ***Pay How You Drive (PHYD)***. PAYD allows companies to calculate the insurance premium for drivers based on the distance they drive and on their driving pattern. This would primarily benefit drivers belonging to the so-called high-risk groups, such as young and elderly drivers, who are often charged hefty premiums, despite using their cars infrequently. PHYD is more sophisticated as compared to PAYD plan as it tracks multitude of factors. In addition to miles driven, it captures date, time, location, speed, acceleration, harsh braking and even frequent lane changes. Feedback of individual's driving behavior would help them monitor and improve their driving styles in order to avail maximum premium discounts.

There are a few variants of devices that can be used for the purpose of recording data, but the most commonly used is a ***'blackbox'***. It is called so because it is wired to the car electronics and placed somewhere in the car. It is the most reliable and effective alternative, and hence costliest as well. Other variants can be a self-installed device which is generally plugged into the vehicle's On-Diagnostic port or a Smartphone. These are relatively easy on the pocket; however they lack in collecting more granular data and are more prone to tampering and frauds. The insurers need to weigh the costs and benefits of each alternative to decide the one that serves their long-term goals the best.

The Indian market is just starting off to adopt telematics as a technology with many automotive providers gearing up to implement it to better track vehicle movement, fleet management and to offer value-added services, including infotainment. Automotive telematics is now seeing a shift with ODB-II (On-Board diagnostics) becoming mandatory in India in all passenger and commercial vehicles. There has been a thrust from various government organizations to use vehicle-telematics in public distribution

About the Authors

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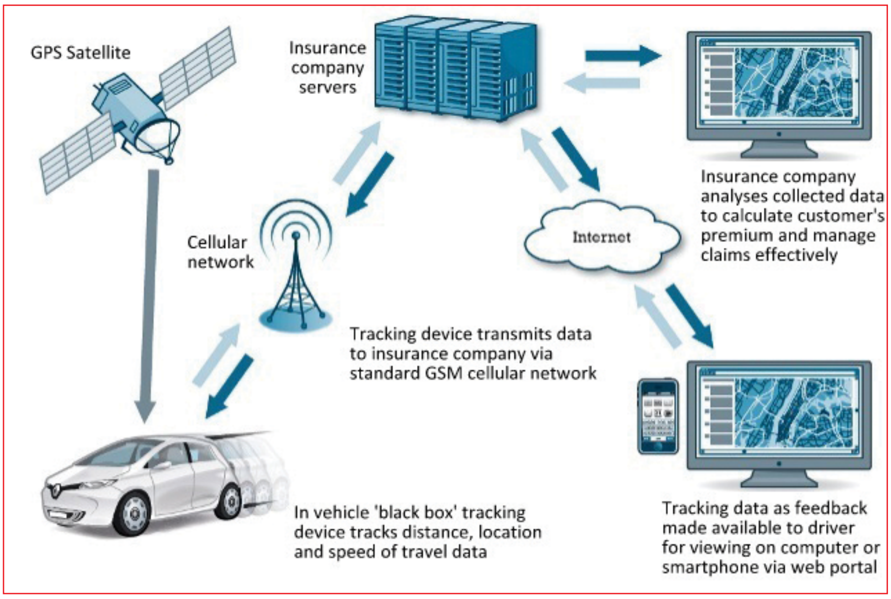
Telematics driven usage based insurance - Process flow



Source: http://eandt.theiet.org/magazine/2013/06/premium-binds.cfm

system and civil supplies, wherein the central government is mandating an extensive use of tracking system. Similarly, oil & gas PSUs like ***Coal India and State Transport Corporation*** have already carried out pilot projects of installing vehicle-tracking device in their transport vehicles.

While telematics based insurance in India is yet to commence its long journey, some insurers like Liberty Videocon General Insurance Company, have taken a step forward and announced the experiment of this technology in Mumbai and Ahmedabad on 1000 cars. In addition, Vodafone, which is globally active in automotive telematics, is just beginning to make its presence felt in India as well. It released a vehicle-tracking device in the recent ***National Telematics Conference*** in Pune, which it promises to be cost effective and robust.

Emerging auto-insurance markets like India have many lessons to learn from mature markets like North America and Europe where such products are well known. Talking about the U.S., telematics based insurance has grabbed a significant market share of the private auto-insurance market, with all major insurers already having or actively pursuing such a programme. ***Progressive,*** the longest established company in UBI market and one of the biggest insurers in the U.S., began its work on telematics based insurance in the mid-90s and its program ***'Snapshot'*** is based on a plug-in device.

Majority of the initiatives outside the U.S., have targeted relatively small and specific segments such as young drivers, but that is changing progressively especially in Europe. The U.K. is beginning to provide proof of the ability of telematics based insurance products to grab mass market outside the U.S. One example is ***Insure the box,*** launched in 2010, which claims to be the UK's leading telematics insurance provider. By the end of 2012, it had already attracted approximately 125,000 policyholders.

The recent collaboration of ***Towers Watson*** and ***Vodafone*** to offer telematics driven UBI in the UK has been a major step forward. The combination of Vodafone ***Vehicle Connect***, the company's telematics proposition, and Towers Watson's ***DriveAbility*** programme, to assist insurers deliver telematics based consumer services, is expected to accelerate the pace at which insurers bring in new services to the market at a competitive cost. The companies have launched a pilot with the UK based insurance company AIG Europe Limited (which is a part of international group AIG).

Insurers and consumers have been showing increasing interest in telematics and usage based services across Europe, with the European Union gender regulation helping to boost early adoption. The regulation passed by the European Court of Justice in December 2012, prohibits insurers to use gender as a factor in pricing of policies.

Telematics based insurance is highly rewarding for insurance companies as well as their customers. In addition to effective pricing, there are several other economic, social and environmental benefits to it. Insurers will benefit from better customer segmentation leading to increased acquisition and improved retention. Accurate pricing would reduce the premium cost for good drivers. Certain insurers believe that reduction in premiums due to improved pricing could be as high as 50%. Customers will get to interact with insurers more frequently and would help in early settlement of claims. Along with the premium cost reduction, regular in-car feedback of driving behavior would encourage drivers to act more sensibly on road, which in turn could lead to a significant dip in claims volume and claims processing cost. Using the real time information available, insurers can weed out fraudulent claims. Insurers can identify 'hot spots' on various busy routes for their customers to avoid, integrate the programme with roadside assistance, undertake medical evacuation of victims of road accidents, and many similar value adds to customers. Vehicle tracking could reduce theft related claims and improve vehicle recovery after theft. It also provides opportunities for wireless carriers to build and maintain better relationships with customers. It is also considered environmental friendly – it would provide an ncentive to consumers to use public transport if their insurance premium varies directly with miles driven. This is expected to be looked upon favorably by the regulators and government as this has the potential to save lives, to improve road safety and reduce theft crimes.

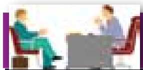
Although telematics based insurance is mutually advantageous for insurers as also policyholders, it comes with some challenges. Even though there are initial costs of devices and their installation, as well as the costs involved in analyzing the data, the long-term benefits of telematics based insurance overshadow its startup costs, and offers insurers an opportunity to segment the market. Conventional mass-market auto insurance and niche UBI can mutually co-exist.

India is perhaps ready for planned introduction of telematics driven UBI. The passenger car market has been growing although it is now faced with a slowdown due to weakness in the overall economy. Demographic changes have led to gradual lowering of the average age of car owners / users. India's telecom business and infrastructure has grown tremendously. Insurers need to find ways to differentiate themselves from their competitors. The relationship between automakers and telecoms is still somewhat fractious. Big data is beginning to make its presence felt in the market. In spite of all these positives, there are many issues that insurers in India need to overcome before UBI becomes a reality.

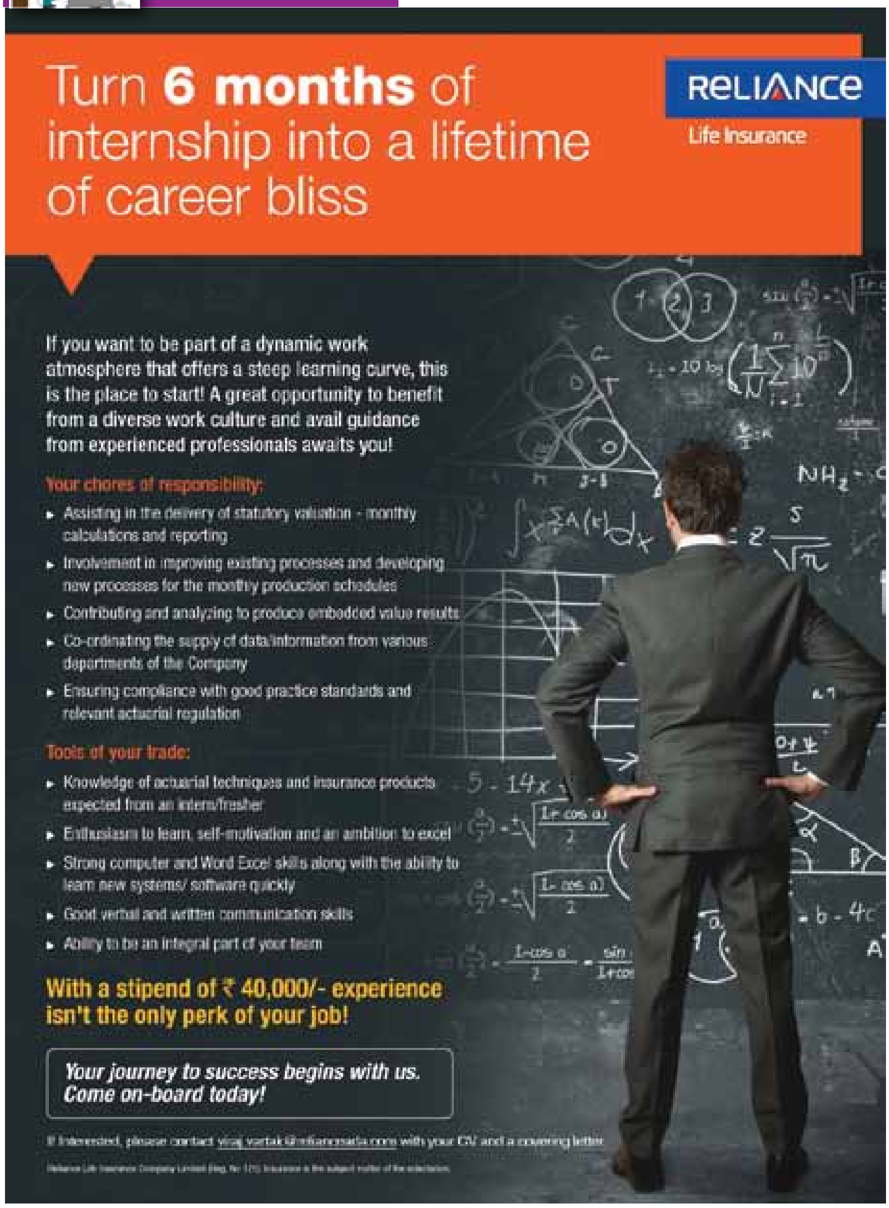
By far, the largest challenge will be overcoming the customer mindset and behaviour that may be a strong hindrance. The policy wordings will need to be suitably modified to align it with UBI. The resultant change in the product and basis of its pricing will need regulatory approval. Insurers will need to file the basis of premium. This will certainly require underwriting, claims and actuarial teams to work together extensively. Insurers need to research carefully before choosing the right partners to maximize the benefits out of it.

The success of telematics driven UBI will depend upon alignment of the four stakeholders – customers, insurers, wireless carriers and the data analytics team.

■■■



CAREER CORNER



BIRTHDAY

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 **October 2013**

SAMARAO L. CUDDALORE
J. R. JOSHI
N. LAKSHMANAN
S. R. MEHTA
N. K. SHINKAR
V. GOVINDAN
K. P. NARASIMHAN
D. K. PANDIT
R. RAMAKRISHNAN
M. L. SODHI

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

MEET MR. BARBER: MODELING GENDER EQUALIZATION FOR DEFERRED ANNUITIES – PART 1

(TO BE CONTINUED IN NOVEMBER ISSUE OF ACTURY INDIA.)

In the UK, prior to 17th May 1990, pension schemes discriminated between the normal retirement age (NRA) at which pension benefits would start for males and females. Males usually had a retirement age higher than that of females. Effect of this was that males were paid pension benefits for a smaller time and so they received lower benefits than those of females. Mr. Douglas Harvey Barber appealed against this discrimination in European Court of Justice.

On 17 May 1990, the European Court of Justice ruled equalisation of pension benefits for males and females and hence, the normal retirement age (NRA) in respect of the Barber Vs Guardian Royal Exchange Assurance case. Article 119 of the Treaty of Rome prohibits any discrimination with regard to pay between men and women, whatever the system which gives rise to such inequality. Accordingly, it is contrary to that provision to impose an age condition which differs according to sex for the purposes of entitlement to a pension under a private occupational scheme which operates in part as a substitute for the statutory scheme. It holds for national statutory scheme also.

European Court of Justice gave its judgement on the dispute related to the discrimination based on sex, between Douglas Harvey Barber and Guardian Royal Exchange Assurance. Under the Guardian's pension scheme, the normal pensionable age was fixed for the category of employees to which Mr Barber belonged at 62 for men and at 57 for women. The difference was equivalent to the one that existed under the State social security scheme, where the normal pensionable age is 65 for men and 60 for women. Members of the Guardian's pension fund were entitled to an immediate pension on attaining the normal pensionable age. Entitlement to a deferred pension payable at the normal pensionable age was also conferred on members of the fund who were at least 40 years old and had completed 10 years' service with the Guardian when the employment relationship was terminated.

The Guardian Royal Exchange Assurance Guide to Severance Terms, which formed part of Mr Barber' s contract of employment, provided that, in the event of redundancy, members of the pension fund were entitled to an immediate pension subject to having attained the age of 55 for men or 50 for women. Staff who did not fulfil those conditions received certain cash benefits calculated on the basis of their years of service and a deferred pension payable at the normal pensionable age i.e. 62 for man.

Mr Barber was made redundant with effect from 31 December 1980 when he was aged 52. The Guardian paid him (i) the cash benefits provided for in the Severance Terms, (ii) the statutory redundancy payment and (iii) an ex gratia payment. Also he was entitled to a retirement pension as from the date of his 62nd birthday i.e. deferred annuity. It was undisputed that a woman in the same position as Mr Barber would have received an immediate retirement pension as well as the statutory redundancy payment and that the total value of those benefits would have been greater than the amount paid to Mr Barber.

Taking the view that he was a victim of unlawful discrimination based on sex, Mr Barber instituted proceedings in the industrial relations tribunals.

Court considered following areas of The Guardian Royal Exchange Assurance Guide to Severance Terms:

(a) A man and a woman of the same age when made compulsorily redundant in the same circumstances, and in connection with that redundancy, the woman receives an immediate private pension but the man receives only a deferred private pension and

(b) The total value of the benefits received by the woman is greater than the total value of the benefits received by the man.

Judgement by the court dated 17th May1990:

If a woman is entitled to an immediate retirement pension when she is made

About the Authors

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Saket Vasisth is student member of IAI and is working at WNS. He is involved in Solvency II and stochastic reporting.

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PS Durga Prasad is a student member of IAI. He is currently working with Gen Re. He has nearly 5 years of experience in UK pensions and reinsurance.

compulsorily redundant, but a man of the same age is entitled in similar circumstances only to a deferred pension, then the result is unequal pay as between those two categories of workers by considering the criteria laid down in Article 119.

It is contrary to Article 119 of the Treaty of Rome for a man made compulsorily redundant to be entitled to claim only a deferred pension payable at the normal retirement age when a woman in the same position is entitled to an immediate retirement pension as a result of the application of an age condition that varies according to sex in the same way as is provided for by the national statutory pension scheme. The application of the principle of equal pay must be ensured in respect of each element of remuneration and not only on the basis of a comprehensive assessment of the consideration paid to workers.

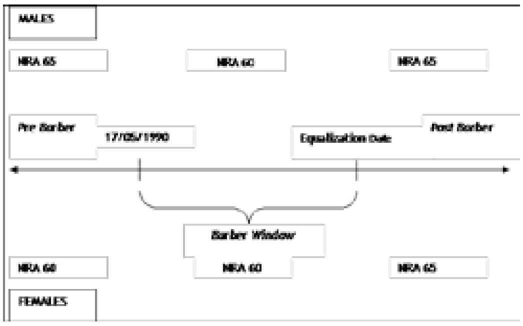
Court decided that Article 119 of the Treaty may be relied upon before the national courts. It was held that it is for those courts to safeguard the rights which that provision confers on individuals; in particular where a contracted-out pension scheme does not pay to a man on redundancy an immediate pension such as would be granted in a similar case to a woman.

Impact of the ruling on the UK pension schemes: On account of this ruling, most pension schemes operate a 'barber window' from 17th May 1990 to equalisation date (this date is set by the pension scheme and it is usually before 1997). During this barber window, the normal retirement age (NRA) for both males and females was set to the lower age for many pension schemes. After the window period (i.e. at equalisation date) NRA for both males and females was set at slightly higher age to save on pension costs. And this cost saving is the reason for closing Barber window.

Barber window example: A pension scheme can define the NRAs as:

Before 17 May 1990 (Pre Barber): Males-65 and Females-60

17 May 1990 to Equalisation Date (Barber Window): 60 for all members (i.e. the pre barber NRA of Females)



Post Equalisation date (Post Barber) : 65 for all members

In the barber window, benefits (hence normal retirement age to start giving pension benefits) for males and females should to be equal. Therefore, given the general principle that accrued benefits cannot be retrospectively worsened for any member, the lower NRA will apply for that period (usually the female NRA). As a result there is no change in the situation for females. However, for males they were given equal benefits which a female was entitled to.

The post barber NRA could be any age as long as it's the same for men and women. Thus as per the example in above diagram, it could be 64. Trustees of the pension scheme might do this if they wanted to improve benefits from the previous NRA of 65 as lesser NRA will mean higher benefits to the scheme members.

While valuing of liabilities of a pension fund (i.e. benefits to the scheme members) with barber equalization, it becomes imperative that the benefits get valued from the NRAs. In this article we are going to discuss how to split the pension amount for different NRAs. Role which NRA plays in valuation of benefits is discussed below.

Splitting pension data incorporating Barber adjustments:

Please note that the Barber adjustments only affect the valuation of deferred and active member's benefits as only in case of deferred and active members projection the benefits from NRA is required. This adjustment is not required for immediate members as they already have crossed the NRA in order to be termed as immediate members. And normally pension in payment cannot be reduced for current pensioners.

To value barber adjustments, the benefits accrued for each member are split into pre barber period, barber window period and post barber period. Pension payment (i.e. cash out flows) for each of these periods is projected from their respective NRAs to compute the present value of benefits. This is where the case of Barber becomes relevant, in a deferred annuity valuation model for all pension schemes in the UK.

Before proceeding further let us understand few UK pension specific terms:

Member: A person who has been admitted to the membership of a pension scheme and is entitled to benefits under the scheme.

Scheme Rules: These are the rules guiding the pension arrangement agreement between members of a pension scheme and the pension scheme.

Normal Retirement Age (NRA): This is the age at which a member of the pension scheme is expected to retire. Scheme rules define this age for every member of the pension scheme. After attainment of NRA member of a pension scheme can start to withdraw money from their private pension. Example: (i) It can be 60 for female members or 65 for male members of the pension scheme for a certain period; or (ii) It can be 65 for both male and female members of the pension scheme.

Why NRA is important for the increases in pension? Increases applicable to pensions before a member of the pension scheme attains NRA and increases thereafter are different. In pensions terminology they are called revaluations and escalations respectively. Any increases in pension which are to be given to a pension scheme member before a member attains NRA are to be "revalued" as per statutory requirements and as per scheme rules. Any increases in pension which are to be given to the scheme members after a member attains NRA are to be "escalated" as per statutory requirements and as per scheme rules.

Immediate members: Members currently in pension payment. These are the members who have crossed their NRA and have not opted for late retirement.

Deferred members: Members who are not currently in payment but their pension payments are due in future. These are the members who have not crossed their NRA and have not opted for early retirement.

Occupational pension scheme: This means a pension scheme established in the UK by an employer or a group of employers to provide benefits to or in respect of any or all of the employees of that employer or group of employers.

National Insurance: NI in the United Kingdom was initially a contributory system of insurance against illness and unemployment, and later also provided retirement pensions and other benefits. It was first introduced by the National Insurance Act 1911, and expanded by the government of Clement Attlee in 1946. The contributions component of the system consists of obligatory contributions, National Insurance Contributions (NIC), paid by employees and employers on earnings, and by employers on certain benefits-in-kind provided to employees.

Source: http://en.wikipedia.org/wiki/National_Insurance. Here you can find: Rates and allowances for different classes for national Insurance contribution: http://www.hmrc.gov.uk/rates/nic.htm.

Basic state pension (BSP): BSP is paid to all those who meet the minimum national insurance contribution requirements. BSP is a flat rate pension that is payable to any individual that has paid, or been credited as having paid, sufficient National Insurance contributions (NIC). To receive the full Basic State Pension an individual must have paid NI contributions for at least 90 % of their working life.

State second pension (S2P): This is a state pension which is paid in addition to basic state pension.

Contracted out scheme: A pension scheme is said to be contracted out where the scheme provides certain benefits in place of the State second pension and is approved by Her Majesty's Revenue & Customs (HMRC).

Protected rights: These are the lowest amount of benefits that a contracted out defined contribution scheme is required to provide to a member, calculated by using the defined contribution basis, and with the money paid in to the scheme as minimum contributions or minimum payments.

Guaranteed Minimum Pension (GMP): This is the pension that (i) an occupational pension scheme must provide as one of the conditions of (ii) contracting out for pre 6th April 1997 service (unless it was contracted out through the provision of (iii) protected rights). (i) Occupational pension scheme means a pension scheme established in the UK by an employer or a group of employers to provide benefits to or in respect of any or all of the employees of that employer or group of employers. (ii) A pension scheme is said to be contracted out where it provides certain benefits in place of the State second pension and is approved by Her Majesty's Revenue & Customs (HMRC). State second pension is a state pension which is paid in addition to basic state pension. Basic state pension (BSP) is paid to all those who meet the minimum national insurance contribution requirements. BSP is a flat rate pension that is payable to any individual that has paid, or been credited as having paid, sufficient National Insurance contributions (NIC). To receive the full Basic State Pension an individual must have paid NI contributions for at least 90 % of their working life. (iii) Protected rights mean the lowest amount of benefits that a contracted out defined contribution scheme is required to provide to a member, calculated by using the defined contribution basis, and with the money paid in to the scheme as minimum contributions or minimum payments.

Retail Price Index (RPI): This is an inflation indicator that measures the change in the cost of a fixed basket of retail goods.

Limited Price Index (LPI): It is a measure of retail price inflation (RPI) with a cap and a floor. At the time of scheme design, benefit increases are normally linked to LPI. It can also be measured by a pension provider as RPI plus one long put with strike price as floor rate and one short call with strike price as cap rate.

Deferment period: This a period starting from the date on which member leaves his employment till the member reaches his NRA.

Date of leaving employment (DOL): It is the date on which member exits out of the pension scheme.

Date of valuation (DOV): It is the date on which liabilities are valued by the scheme trustees.

GMP Payment Age (GPA): This is the age at which GMP becomes payable to a scheme member of the pension scheme. Statutorily this is 60 for female members and 65 for male members. The date on which member of a pension scheme attains GPA is called GMP payment date (GPD).

(In the second part we will analyze an example of the barber calculation in detail)

References:

http://www.sharingpensions.co.uk/caselaw.htm

http://www.equalrightstrust.org/ertdocumentbank/Microsoft%20Word%20-%20Barber%20v%20Guardian.pdf

Vote of thanks: Our sincere thanks to Jyotsna Kaushik for her inputs.

Success is a lousy teacher. It seduces smart people into thinking they can't lose.

- Bill Gates

नेशनल इंश्योरेन्स कंपनी लिमिटेड
(भारत सरकार का उपक्रम)
पंजीकृत एवं प्रधान कार्यालय : 3, मिडिलटन स्ट्रीट, पो. बा. नं., 9229 कोलकाता-700 071

NATIONAL INSURANCE COMPANY LIMITED

(A Govt. of India undertaking)
Registered & Head Office : 3, Middleton Street,P.O Box No. 9229, Kolkata-700 071

REQUIRES

ACTUARY

National Insurance Company invites Applications from resident India Citizen for the post of 'Appointed Actuary' on Full time Basis.

Name of the Post	Appointed Actuary
No. of Post	1 Post
Age (as on 1/1/2013)	The candidate should be less than 65 years
Qualification	The candidate should be a "Fellow" of Actuarial Society of India/Institute of Actuaries of India and he/she should satisfy all the requirements specified in i n regulation No.3 sub regulation 2 of IRDA (Appointed Actuary) Regulation, 2013.
Experience	The candidate should have minimum 10 years relevant experience and at least 2 years of post-qualified (Fellowship in the Specialized subject) experience out of those 10 years of experience.
Emoluments and Benefits	Negotiable. Please Indicate your expectations.
Duties and Obligations	As per Regulation 8 of IRDA (Appointed Actuary) Regulation, 2000.
Service Conditions	Should be a resident of India. After appointment he is not expected to act as an Appointed Actuary of any other Insurance Company nor work in any other capacity in any General Insurance Company.
Selection Procedure	The selection procedure shall be by personal interview.
How to Apply	Complete application on foolscap paper typed in CAPITAL LETTERS, along with a recent photograph & copies of requisite certificate/documents should reach to the following mentioned address within one month from the publication of the advertisement. The envelope should be super-scribed on the top corner "NICL – Appointed Actuary". Sri Sukanta Mishra, Chief Manager, National Insurance Co.Ltd, 3 Middleton Street, Kolkata 700071 Softcopy of Resume should also be mailed to sukanta.mishra@nic.co.in

General Instruction:

1. Company reserves the right to restrict the number of candidates to be called for interview.
2. The decision of the company will be final and binding in all the matters.
3. In case it is found at any stage of recruitment that the candidate does not fulfil the eligibility criteria and/or he/she has furnished any incorrect/false/incomplete information or has supressed any material fact(s), the candidature will stand cancelled. If any of these shortcomings are noticed even after appointment his/her services are liable to be terminated forthwith. Before applying for any post, the candidate should ensure that he/she fulfils the eligibility and any other norms mentioned in this advertisement. The decision of the company in respect of the matters concerning eligibility of the candidate, the stages at which such scrutiny of eligibility is to be undertaken, the documents to be produced for the purpose of conduct of interview selection and other matters relating to recruitment will be final and binding on the candidate.
4. The company shall not entertain any correspondence or personal enquires. Canvassing in any form will disqualify the candidate.
5. For detailed advertisement, refer to recruitment section of our website: www.nationalinsuranceindia.com

HEALTH INSURANCE INDUSTRY UPDATE

Industry Statistics for first quarter of 2013-14:

The health insurance sector has shown a promising growth of 19% in the first quarter of the financial year 2013-14 with total booked premium of INR 4587 crores. Last year in the first quarter the health insurance industry was standing at a premium of INR 3854 crores with a growth of 6% over previous year. This shows that the year has started on a positive note. Private sector has shown a sturdy growth of 36% over last year forming 41% of the market whereas the public sector grew by 10% but still continue to dominate the market with 59% market share.

The standalone health insurance companies have contributed 9% of the total premium which shows their continued efforts towards establishing their irrepressible position in this niche area.

New India continues to be the leading player in this segment with 20% health insurance market share followed by United India with 17% share. In the private sector, ICICI Lombard leads with 9% market share. Other private players like HDFC Ergo, IFFCO Tokio and Reliance General have registered over 50% growth in their health insurance business in the first quarter of current year as compared to last year's first quarter figures. This clearly shows increased Industry focus in this sphere of business.

Latest Regulations:

The Insurance Regulatory Development Authority of India has recognised that health insurance cover is the necessity of Indian public and has acknowledged Health Insurance as a separate class of business. Under its latest banc assurance regulations, it has allowed Standalone Health Insurance Companies to avail services of Agents, Corporate Agents of other Life and /or Non-life Insurance companies to distribute their products.

This would help to encourage penetration of health insurance and to spread the message of health insurance across the country. When a bank is allowed to sell health insurance product of multi-insurance companies, this would increase focus on product quality and customer service as these would be the main criteria to differentiate between companies selling class of products.

Industry Players Latest Moves:

Higher rates are in store for India's consumers as all four PSU general insurers - New India Assurance, United India Insurance, Oriental Insurance and National Insurance - received the green light from IRDA to hike premiums on retail health plans. The insurers have already filed their redesigned products in terms of price and features under the latest health insurance regulations and the industry could expect a price correction in the range of 25-30%. The new rates would come into effect from October this year.

ICICI Lombard has entered into partnership with "Healthspring", a healthcare chain, for group health insurance to help clients avail emergency care for patients and facilitate health services, providing comprehensive health insurance to corporate customers. This is an appreciative step to acknowledge changing lifestyle and medical needs of insured and servicing them accordingly.

Max Bupa is planning to infuse capital of INR100 crores in the current fiscal in order to support its business growth. It also plans to break-even in the next 3-4 years and add 12 more branches across the country.

Warren Buffett-controlled Berkshire India has decided to close down its online distribution portal —www. BerkshireInsurance.com — later this year. The decision to close down the online distribution portal is due to the lukewarm response from Indian consumers to buying insurance products online. The company has not been able to find as many customers as it would have liked in the last two years. This shows that still the agents and brokers are the preferred channels of purchasing insurance policies in our country.

New products launched:

CholaMS has recently launched Swasth Parivar Product which offers dual protection to the insured family of hospitalization cover on floater basis and personal accident coverage on individual basis. This product extends a single premium rate for single age band up to 70 years which is a distinctive policy feature.

Dena Bank has launched a medical insurance scheme for its customers holding Kissan Credit Card (KCC) jointly with United India Insurance Company. The bank will provide mediclaim cover for upto INR30, 000 to farmers holding KCC and their family members which would be launched on a web portal offering online entry and renewal of group insurance policies.

Star Health and Allied Insurance have launched Cardiac Care, a new product to provide cover to individuals who have undergone angioplasty or bypass surgery. The policy is about 20% more expensive than any normal health policies and will cover pre-existing cardiac ailments for all in the age group 10-65 years.

Reliance General has recently launched Health Insurance Product by the name Health Gain which offers special privileges for covering girl child and single woman along with free reinstatement of base sum insured. This product also offers claim and policy service guarantee where it promises to pay a certain percentage of sum insured as liability in the case it fails to respond within the stated time limit as per policy terms and conditions.

Allahabad Bank has signed an agreement with the Life Insurance Corporation of India for selling micro-insurance products. These products will be sold through the vast network of the Business Correspondent agents (BCAs) deployed all over the country by the bank. These insurance schemes are aimed at providing appropriate financial products and services to the weaker sections and low-income groups at an affordable cost.

■■■

About the Author

Raunak.Jha@towerswatson.com

Raunak is currently working as a Senior Consultant with Towers Watson and is playing an instrumental role in developing organization's Health Actuarial Consultancy practice in India.

Heartiest Congratualtion form IAI

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Abhishek Patodia

apatodia@live.com

Q. Tell us about yourself, your educational background and your hobbies

I am a graduate in B.Com. from Symbiosis College, Pune and also a qualified Chartered Accountant. It was at the time of studying for the CA course that I read about the Actuarial Profession through Accounting Standard 15. On enquiring further, I found the Actuarial curriculum extremely interesting as well as challenging. I decided to take it up and by God's grace and immense support from my parents; I am now qualified to be an Associate Actuary.

As for hobbies, I like spending time with my family and friends, watching movies, travelling, swimming and skating.

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

I was lucky to be in a work place which gave me a lot of exposure to similar work. My colleagues were very supportive and helped me out with few useful tips. I would especially like to thank my mentor, Mr. Subhrajit Mukhopadhyay (FIAI) who provided tremendous support and motivated me towards clearing the exams. It's needless to mention that my family always stood by me and would always be there to provide motivation and support.

Q. How many hours of study on average per day did you put in to top the CA2 result, where in only 17 candidates passed out?

For this exam, practice sessions are utmost important. I read the Core reading from the Institute and then practiced the assignments available on the website with few colleagues. On checking each other's solutions, we realized the mistakes and the scope for improvement. It also helped me to come with the best strategy to approach the exam in the limited time available.

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

It is important to understand what the examiners are looking for, as is the case with any exam. Then the more you practice, higher are the chances for a positive result.

Q. Did you face any difficulty while studying this subject?

It took me some time to get adjusted to the long duration of this exam. The practice sessions proved to be very helpful and I was able to overcome this minor challenge.

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

The practice sessions helped me understand the need for a strategy to cover all the requirements in the limited time frame. My strategy was to work on all sections simultaneously. As soon as I completed the model, I concentrated on the Summary and the Audit Trail section.

During the lunch break, I tried to relax and recollect the workings which helped me find the errors. I chose to be alone and made a mental note of all the errors and the way to rectify these in the most efficient manner. I also decided not to take any hints and help during the exam to save time which helped me gain five extra marks.

The training provided on the first day was also very helpful and helped me organize my thoughts.

Q. How this exam has helped you at professional level?

Keeping in mind the long and dynamic nature of the business in our profession, there is no doubt that the documentation part is extremely crucial. This exam has not only helped me to improve my skills but has also helped me to build up on my confidence level.

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

As the saying goes, "Knowledge is power." I believe that we should never stop learning. The more we learn, the more it strengthens us. I try to learn as much as I can and apply that to real business issues. It is important in our profession to think logically but it is equally important to think differently or unconventionally. I like to challenge existing practices and try to change them if I believe that those can be improved. Changes are very important as the environment in which we work is very dynamic. I would continue to give my best to this profession and I am confident that this profession would continue to play a great role in the Industry.

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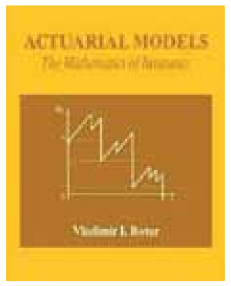
BOOK REVIEW

ACTUARIAL MODELS, THE MATHEMATICS OF INSURANCE



Author : Vladimir I. Rotar
Reviewed By : Sunil Kumar Dangi
Email : sunil.dangi@gmail.com

Status : Available at IAI Library
Book Accession No : B10460

Redistribution of risk is at the heart of most stabilization financial mechanisms, certainly, including insurance. The book starts with a very simple and interesting example on risk measure and how the phenomenon of redistribution of risk works.

This book examines standard as well as advanced topics such as modern utility theory, martingale technique, models with payments of dividends, reinsurance models, and classification of distributions. It provides practical skills in analysis of insurance processes. It is intended for a large audience: actuaries, students and mathematicians, and any one conducting research in area related to the subject of insurance processes.

The book is full of mathematics and lots of symbols are used which may be scary at first sight. This reminded me of my graduation days when I did courses on measure theory, functional analysis, abstract algebra (groups, rings) etc. I find this a very interesting book to understand the risk measures in the context of insurance business. As measurement of the risk is one of the key factors for actuaries to understand, I hope that actuaries will admire reading this book.

This cannot be read like a novel, high level of effort is required to understand the core concepts explained in the book. There will be lot of learning and that can give a broader perspective to our day-to-day work as an actuary. The concepts of risk measurement explained in the book can be applied (I think we should) to our daily work for better understanding/estimation of risk which is required for appropriate pricing and reserving.

Although the main text of the book is preceded by an introductory chapter containing a digest of basic facts from Probability Theory, Calculus and Theory of Interest, a good knowledge of calculus and probability theory (CT3 may not be sufficient for all the topics) are required to gain a deep understanding of the main text of the book. It is good to have a basic understanding of various life insurance products i.e. endowment, pure term. Students appearing for CT4, CT5, CT8 and ST6 will be definitely find this book useful. ■■■

INDONESIA

Country Overview

Warm greetings from Indonesia!In this article, I would like to give the latest market updates on Indonesia's life segment. Indonesia is an attractive destination for international players with a much higher upper limit for foreign ownership of Insurers – currently pegged at 80% (at the time of initial establishment) which is much higher than that of other countries in the region.

As mentioned in my previous article, the trends for life segment remain extremely favourable, despite the fact that as of mid 2013 the growth in life segment has slowed down a bit; but still firmly pegged in double digits at around 20%. As per market reports, most of the MNC life companies are experiencing strong profitable growth - in line with management expectations. Leading players in Indonesia have been roughly achieving growth in premiums in excess of 30% - not many life insurance markets in the world can showcase such a performance. In addition, the big size local life companies are also achieving strong growth benefitting from the trust placed by Indonesian households and businesses.

From economic standpoint, although the country's growth forecast has been revised down to ~5.9% in 2013, down from previous growth estimate of 6.2%, it still remains impressive. Indonesia's inflation rate had soared in July to 8.6% from 5.9% in June, mainly due to recent cut in fuel subsidies. Despite the high inflation rate in July, Central bank is confident that inflation will be brought under control and will return to its target range of 3.5% to 5.5% in 2014.

In addition, business risk perception is also becoming better. Life insurance along with other savings / wealth management products are playing a key role in speedy growth of organised savings (albeit from a small base) in Indonesia.

Insurance affordability of individual households is steadily improving and life companies are leaving no stone unturned to capitalise on this – by deploying additional resources in Indonesia and leveraging on existing and new distribution networks to dish out attractive (innovative) offerings. Life insurance players are making concerted efforts not only to improve products but also service, efficiency and agent productivity levels and it is expected that these initiatives will help achieve sustainable long term growth for these players.

Unit Linked products continue to remain the most popular product form amongst the Indonesians and increasingly there is a clear need and demand being seen for Takaful products.

Regulatory Overview

I. IFRS

As was mentioned in the last country update, Indonesia has adopted IFRS Phase I from 1 January 2012 and post consultation with the accounting board, the insurance industry has implemented this change effective from 31 December 2012 in order to align with the new GPV regulations.

Phase I continues to be in implementation stage and the key focus areas include assessment of technical liabilities and development of robust financial systems and IT infrastructure to meet the information requirement. Developments on this front are likely to increase demand for actuarial professionals in near future.

II. Gross Premium Valuation / New Risk Based Capital (called MMBR in Indonesia)

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

Indonesia's old RBC framework which had been in place for some time got further enhanced effective 1 January 2013 with the implementation of new RBC framework. As part of the new framework, the proposed step increases in the minimum required solvency capital in 2014 and 2015 are expected to result in more investment and consolidation opportunities for market players. However, the overall impact of these recent regulatory changes / enhancements is yet to be fully understood.

■■■

About the Author

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

PUZZLE

Puzzle No 201:

The answers to the first of these is " days in February in a leap year". Complete the rest.

29 D in F in a L Y

12 S of Z

7 W of the A W

54 C in a P (with the J)

32 D of F at which W F

18 H on a G C

4 Q in a G

11 P in a C T

5 V in the A

1001 A N

7 C of the R

12 M in a Y

9 L of a C

3 M in a B

Puzzle No 202:

Five men are stranded on a desert island whose only other resident is a single monkey. The only food on the island is coconuts. The five men collect all the coconuts they can find, and promise to divide them equally.

The night after they finish collecting the coconuts, the first man (fearing his companions are untrustworthy) decides to take his share while the other castaways are asleep. On dividing the coconuts into five equal piles, he finds there is one coconut left over, so he gives it to the monkey. He then hides his share and puts the rest of the coconuts back into one big pile and goes to sleep.

The second man, unaware that he had been beaten to the punch, then does the same thing. That is, he divides the coconuts into five equal piles, finds one left over that he gives to the monkey, hides what he thinks is his share, and puts the rest back into one big pile. After he goes to sleep, the third, fourth, and fifth men surreptitiously repeat the exercise. So, in all, there were five secret trips that night, and five coconuts for the monkey.

When the sun rose it was obvious to all that many of the coconuts were missing, but, as each man was guilty, none of them said anything about it. Instead, they peacefully divided the remaining coconuts equally, leaving one coconut left over which-you guessed it-they gave to the monkey.

What is the smallest number of coconuts that the fifth man could have ended up with?

Solutions to Puzzles

Puzzle No 197:

One of the set of values : p = 57, ROD = 812, q = 87, SOLVE = 01456 and MARSHALL = 37809744

Puzzle No 198:

The number of drops can be limited to no more than 17.

Suppose the first drop is from floor n. If the crystal breaks, the second crystal can be dropped from floor 1, then 2 and so on, up to floor (n-1) at most. This would ensure no more than n drops were required.

Now suppose the crystal does not break on its drop from floor n. If the second drop is from floor (2n-1), then if the crystal breaks we start dropping the second one from floor n + 1, up to floor (2n – 2) at most. Again this ensures no more than n drops in total.

If the first crystal does not break, we continue advancing up the building by one less floor each time, i.e. by (n-2), then (n-3) and so on till we get to the top. We therefore need to find the smallest value of n such that n + (n-1) + (n-2) + -------- + 1 >= 150 which is 17.

Correct solutions were received from:

Puzzle No 197:

1. Graham Lyons

Puzzle No 198:

1. Kajal Mittal

shilpa_vm@hotmail.com

SUDOKU

SUDOKU No. 15 for the month of October 2013

HARD

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

HOW TO PLAY

Fill in the grid so that every horizontal row, every vertical column and every 3x3 box contains the digits 1-9, without repeating the numbers in the same row, column or box.
You can't change the digits already given in the grid.

- Sudoku Puzzle by Vinod Kumar

Solution of Sudoku Puzzle No.14 published in the Month of September 2013

SOLUTION

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

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