INDIAN ACTUARIAL PROFESSION
Serving the Cause of Public Interest

Institute of Actuaries of India

www.actuariesindia.org

the Actuary INDIA

THE MAGAZINE OF THE INSTITUTE OF ACTUARIES OF INDIA

VOL. VII • ISSUE 5 | MAY 2015 ISSUE | Pages 28 • ₹ 20


EMPLOYMENT OPPORTUNITY
WE BELIEVE IN SUSTAINABLE GROWTH - FOR BUSINESS AND FOR YOU
At EY, the leading global professional services firm, our Actuarial Advisory services combine the best of global insight and local reach. We assist our financial services and insurance clients in developing sound strategies and decisions for the success of their enterprise.
We are looking for Actuarial Freshers with the right analytical and interpersonal skills and a truly global mindset to join us.
Job specification:
You will get to view complex issues from every angle for some of the world's leading financial services companies that are our clients. You will be tackling a variety of challenges with consulting projects such as Mergers & Acquisitions; Asset Liability Management; Model Validation and Financial Modeling for Pricing, Reporting, Business Planning; MCEV; Product Pricing and Development; Regulatory compliance and more
Selection criteria:
Freshers who have cleared a minimum of 3 papers
Location:
Mumbai
Apply today by sending your resume to careers.ey@in.ey.com mentioning <Actuarial Services> and <Mumbai> in the subject.
Visit us at www.ey.com/IN/en/Careers/Students
EY
Building a better working world
© 2015 Ernst & Young LLP. India. All Rights Reserved.

CONTENTS

Printed and Published monthly by Gururaj Nayak, Head - Operations, Institute of Actuaries of India at ACME PACKS AND PRINTS(INDIA) PRIVATE LIMITED, A Wing, Gala No. 55, Ground Floor, Virwani Industrial Estate, Vishweshwar Nagar Road, Goregaon (E), Mumbai-63. for Institute of Actuaries of India : 302, Indian Globe Chambers, 142, Fort Street, Off D N Road, Near CST (VT) Station, Mumbai 400 001. • Tel +91 22 6784 3325 / 6784 3333 Fax +91 22 6784 3330 • Email : library@actuariesindia.org • Webside : www.actuariesindia.org

FROM THE PRESIDENT'S DESK

MR. RAJESH DALMIA

Dear Members,

The last month I was taking a stock of the work that we have finished. It was already six months over from the first council meeting under my chairmanship and when I look back I can see that we did start quite a few things but we have not yet finished any of the major reforms. There are a lot of pending things on my list which has to be worked upon but due to resource constraints we are unable to progress upon the same. I would urge you to come-up for volunteering opportunities and take up these activities so that we can progress and the profession can be a leading profession in India. I was told by the past president that I have only time till next March as the election process after that takes over and it will be difficult to achieve anything during the election process. I would hate to follow Hari Narayan's footsteps to leave the things till the last moment.

A profession is recognized by its members as they only interact with public and have a significant impact on the brand image of the profession. Currently, we have a handful of members and almost all our members are working in the traditional domains of the Actuarial Science. We are fortunate that we had actuaries who were stalwarts and rose to the level of chairman/managing director at Life Insurance Corporation of India. They also contributed significantly to the profession too. One of the reasons why they rose to those levels is because they did not restrict themselves with a very narrow view of actuarial function or actuarial domains. They were ready to work in any functions as long as they were learning new things and kept on sharpening their overall knowledge/experience base. Many of our members today just do not want to work in any other areas other than the traditional domain even if they have interest in those areas. It is important to realize that at the level of Chairman the required skill sets are completely different and the core-actuarial skills may not contribute as much as softer skills and people skills. In fact, chairman can hire a very good actuary and get all the required inputs from him rather than he himself getting into any technical domains.

We have a very strange situation in India compared to any of the developed nations. We have a large number of students and a very few qualified actuaries. Consequently, it becomes difficult to generate large number of traditional jobs for the younger population. KPOs/BPOs have employed a large number of them but even then the job generation in traditional roles at the entry level is not as many as the number of aspirants. It is important that the younger generation branch out into other quantitative fields like analytics, finance, investment, risk management, forecasting, business-planning etc. rather than looking for a traditional role. It is important to understand that to reach to the level of chairman one need not necessarily work in the core technical area. I would urge our young members to take up any job irrespective of this being branded as "actuarial" or not. Please remember that any job is better than being without a job and if that any job has something to do with quantitative techniques than it is better as one would be able to apply some of the techniques that are covered in the course. There are large areas of business processes where probabilities are used and an actuary can add value in these areas. It does not matter if no actuary ever worked in that area as someone has to be the first and it is good that you are the first. Note that the tag of the first can never be taken away though other records can/will be broken in future. Hillary was the first to reach Mt. Everest and remains the first though many have scaled the peak and with better time/efficiency than Hillary.

Institute is here to help the members. So, please write to us/me in case of any difficulties faced by you while charting a new career path. In case, you want a new type of CPD/Workshop than Institute would be happy to arrange the same or if you need any material that needs to be sent to your new employer regarding the Actuaries/Actuarial Science then that can be arranged etc. Please note that the new council is working out a path where any quantitative work experience can be recognized as Actuarial work experience. This would be announced by the council as soon as the contours of the same are finalized.

Institute would actively get into the education of our future actuaries. Fundamentally, the course remains a distance and self-learning course. However, some of our members find it very difficult to clear the examinations through self-learning. To help such students, Institute would start some class room based coaching. These are currently getting designed and very soon you will find such programs getting launched.

Institute does not have study material at SA level. For lower levels, it does not matter as we leverage on the BPB Publications and they have very good material for lower levels. However, for SA levels, we have India based contents and that creates a huge difference. For the purpose of this, I would request Senior Actuaries to form a team to write the material for SA2 and SA4 as a beginning. Institute would float a request for proposal on the same very soon and I would urge senior actuaries to bid for the same.

I believe that future of the profession is bright as I can see a lot of bright students taking up this course seriously. As I said earlier, the fate of the profession depends on the members of the profession and bright people entering the profession mean better profession in future.

FROM THE EDITOR'S DESK

MR. SUNIL SHARMA

It's very refreshing to catch up with readers through this column after closing of the Financial Year 2014-15. So far the Life Insurance Industry growth is concerned, this year has been much better for majority of the Private Life insurance companies. The Private Life insurance Industry has grown by over 15% however, de-growth of public sector insurer lead to overall industry growth at about minus 10%. Most of the Insurers had their products in place to meet the variety of needs of the customers. This clearly demonstrate the strengths and the resilience of the Life insurance Industry in India. The passage of Insurance amendment Bill has paved the way for entry of global insurers with larger stakes in insurance company which hopefully will bring more capital and skills into the Indian market to explore the huge untapped potential. I am expecting a large scale opportunities for actuaries to work in the area of valuation of existing Life insurance companies and setting of new insurance companies. It seems the industry is moving into"अच्छेदिन".

The Insurance Regulator has recently released an exposure draft of IRDAI (Registration of Corporate Agent), Regulations, 2015 which is open for the feedback from the insurance companies. The exposure draft requires a corporate agent to have arrangement with a max of 3 life insurers to solicit, procure and service their insurance products. At the moment, it is very difficult to ascertain the effect of these regulations, if it is released in current form. However, if it comes, it may change the bancassurance distribution landscape of the insurers significantly.

This dynamic landscape, resulting from economic and regulatory framework development, brings a significant amount of opportunities and challenges for the actuarial community to meet the resource needs for existing insurers and potential new insurers. I firmly believe that this change in the Insurance act is likely to lead to generate fairly good amount of employment for actuarial students and qualified actuaries.

I look forward to this and with this note I will like to sign off now.

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

FEATURE COLUMN

RETIRE WISE

The concept of survival probability is not complex, however, in reality its nature of beating predictions across geographies leads to issues and problems to sponsors of pension schemes and regulators Pension funds worldwide have been talking about longevity and the associated risks for more than a decade now. Longevity and funding post-retirement income is not a concern just for pension funds; One may need to take sufficient measures to ensure meeting at least minimum needs of retired life, irrespective of the extent of support from the employer and availability of any services from external agencies, including insurers and the state . Defined benefit schemes ceased to exist for the work force in India and its high time for every employee to think loudly as to how a minimum life standard can be maintained after retirement by keeping in view of the expected structural changes in the society of protecting elderly people during their old age

Demographic outlook

According to a report by Department of Social and Economic Affairs (DESA) of United Nations (published in 2013[1], the number of older persons (aged 60 years or over) is expected to more than double from 841 million people in 2013 to more than 2 billion in 2050. Number of older persons is expected to exceed the number of children for the first time in 2047.

Globally, 40 per cent of older persons live independently (independent living is defined by DESA as living alone or with one's spouse only). As we are aware independent living is common in developed nations compared of older population start to live independently in developing nations as well due to urbanization and westernization. Population ageing combined with independent living is likely to create major social and economic challenges in the decades to come.

Old age dependency is a related issue and is measured with a ratio. **Old age dependency ratio is defined as size of population aged 70+ divided by size of population aged 20-69.** A snapshot of how this ratio is estimated to evolve over the next 75 years is given in Table 1 for selected developing nations in Asia. What does this ratio translate to? **The larger the ratio the greater the proportion of old people in a country.** It can be seen from the table, this ratio for India is expected to triple in the next 8 decades. In a more developed nation like Singapore, the ratio is expected to increase at an alarming pace from 9.4 to 73.6. Even with a short term outlook, (in the next thirty years), approximately one third of the adult population (above age 20) in Singapore is expected to be older than 70 years.

In this backdrop, we need to broaden our outlook and plan for an independent yet comfortable retired life. In the absence of long term care societies and organized social security systems to the extent we see in the western countries, how do we plan for a retired life? Below is an example.

Modelling financial needs of retirement – An Example

Some of the assumptions made here may sound very conservative, but being prudent in an uncertain situation is quite natural among us. The analysis here is done keeping in mind an individual who is in a private sector employment with no provision of retirement benefits in the form of life- long pension. So the onus is on the individual to plan during his/her working life for a comfortable retired life. **While we try to achieve a comfortable, self sufficient and independent retired life, we should also ensure to have a good standard of living at present. That is, we should be able to strike a balance between current consumption and savings for the retirement life.**

Let us assume a middle income salaried professional currently aged 35. Normal

	2015	2020	2030	2040	2050	2060	2070	2080	2090	2100
Eastern Asia										
China	8.3	9.7	15.0	23.1	28.2	36.7	39.2	39.1	44.7	45.4
China, Hong Kong SAR	13.8	16.7	29.1	43.1	53.8	63.2	70.7	69.6	79.7	91.0
Japan	29.9	36.2	41.8	47.5	59.1	65.6	68.1	71.9	76.6	80.4
Republic of Korea	12.5	14.7	24.5	39.2	52.9	62.6	76.2	79.3	83.8	91.6
Southern Asia										
Afghanistan	3.1	3.3	3.4	3.5	3.5	3.6	4.1	4.2	4.3	4.6
Bangladesh	5.3	5.5	6.9	10.8	15.3	20.5	24.6	25.7	27.1	28.5
India	5.6	5.9	7.8	9.6	11.6	14.0	15.7	16.4	17.6	19.0
Nepal	6.1	6.2	7.3	8.9	10.4	12.3	15.1	16.2	17.2	18.5
Pakistan	5.1	5.0	5.6	6.6	7.6	9.4	10.4	9.7	10.5	11.2
Sri Lanka	8.8	10.6	15.1	19.7	23.1	25.6	25.4	27.1	28.9	29.2
South-Eastern Asia										
Indonesia	5.5	5.9	8.4	12.1	15.4	17.0	18.1	20.6	21.8	23.1
Malaysia	5.3	6.3	9.3	12.6	15.6	22.2	26.8	27.4	29.9	33.7
Myanmar	5.1	5.3	8.0	10.7	13.8	16.9	17.8	17.6	19.0	20.4
Philippines	4.4	4.7	6.5	7.8	8.8	10.2	11.5	11.9	12.6	13.7
Singapore	9.4	12.2	21.3	30.3	37.5	44.0	54.5	58.3	64.3	73.6
Thailand	9.7	11.5	18.9	28.9	38.0	43.5	48.0	51.4	54.4	57.3
Viet Nam	7.3	7.5	12.3	18.4	24.6	32.7	37.0	37.3	40.3	41.9

Table 1: Old age dependency ratio for select nations in Asia

Source: United Nations - Population Division - Department of Economic and Social Affairs 2013

Retirement age is 60 years. So he has duration of 25 years to retirement. Assume that the individual has an expected life span of 20 years after retirement. That is, he lives up to the age of 80. Now we need to work out what should be his retirement fund to maintain the same standard of living as he does during his work life. Let the current level of income be Rs.10 lakhs per annum. Salary is assumed to increase at a rate of 6% over the entire work life. Note that wages do not increase at a constant rate in reality. However, since we consider remaining work life of 25 years, it is reasonable to take a long term view. So the income level may go up to approximately Rs. 43 lakhs (Rs.42,91,871) per annum at the retirement age 60. Similarly, let us assume inflation at the rate of 6% per annum throughout the retirement period and that the professional saves 30% of his salary during his work life. Savings for accumulation are assumed to be at the end of the year and the drawdown of the fund is assumed to be at the beginning of the year. Financial assumptions are summarized in Table 2.

Table 2: Financial Assumptions	
Consumption growth	6%
Salary Growth	6%
Discount rate (interest on investment)	9%
Savings rate (of income)	30%

If the savings rate is 30%, then the accumulation of savings made from year 0 to year 25 would be approximately Rs.485 lakhs (Rs. 4,84,97,750) at a constant investment rate of 9% (we are additionally assuming that there are no taxes on the income received on the savings).

Now we need to assess if this accumulation of savings is sufficient to maintain a comparable level of income after retrirement to maintain the same standard of living. So we make an assumption required of consumption levels from age 61 to age 80. This consumption also would be subject to inflation. We call it as post retirement inflation. If the current level of consumption is 70% of the wages and consumption grows at a constant rate, at the end of 25 years, consumption would be 70% of Rs. 10,00,000 $*(1+6\%)^{25}$ = 30,04,310 in the first year of retirement. Is it not alarming? Approximately, one needs Rs. 2, 50, 000 per month after 25 years, to maintain the same level of consumption. The figures may sound to be an over estimate. However, the past inflation data would suggest that it is not so. In addition, some of the post retirement expenditure related to medical expenses may be subject to higher inflation than assumed. So we are normalizing the inflation assumption without splitting to different categories. The investment rate and discount rate of 9% is an optimistic estimate taking into consideration that we are looking at long term.

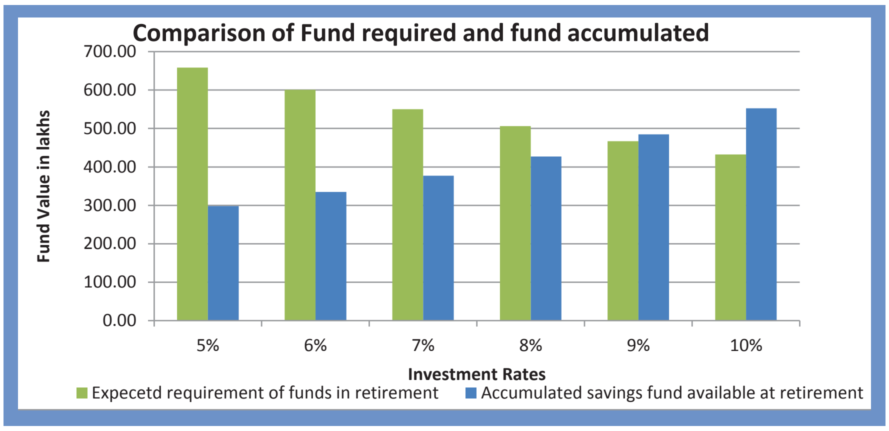
Recall that we are looking at a post retirement life of 20 years. Consumption expenditure during retirement would also be subject to inflation. However, the investment return from the accumulated fund may be fixed. If we assume that income from the fund is constant and consumption expenditure increases at a rate of 6%, the discounted value (at 9%) of consumption for 20 years from age 61 to age 80 works out to Rs. 4,66,91,504. So we have a surplus of funds with all our foregoing assumptions. If the investment rate comes down to 8.5%, it is observed that there is a deficit of Rs. 30,97,297. This would mean that a fund shortage would arise between age 79 and 80. Or alternatively to live within the available fund a compromise may be required on the consumption level during retirement. Needless to say results are sensitive to assumptions. For example, the accumulation of funds at different interest rates and different savings rates is shown in Table 3. **The key driver here is the need for prudent financial planning with some assumptions about future path of the economic variables based on the past data.** Actual outcome may be more or less favorable than the expected outcome. Figure 1 shows the deviation of accumulation of savings from the fund required to be spent in years during retirement at different investment returns. (Constant savings rate of 30% during the savings period).

Practical issues

The above example is an attempt to highlight the issues and bring forth the need for better and adequate and timely planning for retirement. There are uncertainties around longevity after retirement, investment income, price inflation, health care costs, etc. However, it is possible to plan fairly well taking into account the past experience on financial factors and assuming the experience will more or less continue, while providing for unforeseen additional contingencies. From the example, we can understand that current provisions made under compulsory provident funds and optional pension funds are not sufficient to meet the future requirements in the absence of any guaranteed or inflation protected

Investment	10%	15%	20%	25%	30%
5%	9937103	14905654	19874205	24842757	29811308
6%	11158864	16738296	22317728	27897160	33476592
7%	12579700	18869549	25159399	31449249	37739099
8%	14234851	21352277	28469702	35587128	42704554
9%	16165917	24248875	32331833	40414791	48497750
10%	18421984	27632976	36843968	46054960	55265952

Table 3 : Accumulation of funds for different savings and investment rates



returns from these investments. While we are in the earning phase of life, coping with uncertainties mentioned above may not pose a big challenge. However, some real and secure investments become essential to meet the challenges of retirement life. So every individual needs to understand and plan to make a judicious choice of investments in their mid career when all basic needs are already taken care of. . In our example, though a constant savings rate is assumed for simplicity and as an approximation for long term, an individual can make varying contributions to build up the retirement fund. The most important point to be borne in mind is a nominal contribution rate towards savings for retirement would not be adequate to meet the escalating living costs in the long run, in the post retirement phase in particular.

Conclusion

From the foregoing discussion and assessment, it is evident that with increasing longevity and expected longer retirement life , a careful and an intensive, yet timely planning for retirement is inevitable. To address this impending need of the situation, financial services industry and the associated professionals are making efforts to equip themselves to provide the right mix and choice of funds, appropriate savings rate, and the acceptable level of risk to build the required retirement fund based on individual needs. Though most investors understand the importance of savings and investments, it is also equally important for them to appreciate the quantum of funds needed and how these funds should be built over their working life to meet their financial needs during the retired life. Therefore, it is not only required for the states but also individuals to take appropriate and timely steps to encounter the financial challenges posed by the demographic changes that are happening all over the world both in developed and

References

1 World Population Ageing 2013, Department of Economic and Social Affairs United Nations.

2 United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, DVD Edition.

ABOUT THE AUTHOR

Ms. Subbulakshmi V

is a Fellow member of the Institute of Actuaries of India, specializing in Pensions and Investments.

viji_s_lakshmi09@yahoo.com

Funny Actuary

An actuary, two accountants and a hippie were flying in a four seat plane when the actuary calculated it was highly probable they would run out of gas and crash over the sea if they did not parachute to safety over land soon. The accountants found the parachutes and after several minutes of calculations came back together to announce there were only three parachutes, but four people. One of the accountants sarcastically looked at the actuary and said, "You actuaries are supposed to be so smart – why don't you figure out how 3 can equal 4?" The actuary seriously replied, "The proof would be a waste of time; the most logical way to decide this is to have the person with the smallest remaining life expectancy stay on the plane." When the actuary did the calculations, he decided that the 54 year old smoking hippie was the one who had to stay. With this decided, the actuary promptly grabbed a parachute and jumped out. The accountants looked at the hippie with a great deal of guilt since they hadn't comprehended the calculations or the logic behind the decision. The hippie looked at them and said, "Man, that really sucks! I wish I could have gotten my pot out of my backpack before that actuary jumped out with it."

- Submitted by Damon Ogden

FEATURE COLUMN

LET US BE MODERN, WE ARE ACTUARIES!

Technology has made tremendous progress in the past 50 years and has in turn made a profound impact on the society.People from varied professions and all walks of life have become highly receptive to latest technological advancements and attempt to adopt the same in their respective line of work.Among them, actuaries are considered to be the most newfangled with respect to developments in the math related spheres of knowledge. Can we justify this faith that the society has in Actuaries?

A few developments have happened as we passed through phases of computational eras. We used logarithm tables for several years to multiply, divide and to find roots or powers. As scientific calculators became handy, we gave up logarithm tables. (Thank God, they are not included in Actuarial Tables!)

Today easily accessible calculators (at least for a decade now) provide cumulative probabilities of Standard Normal distribution. Can we drop the respective table from Actuarial Tables? And before we do that, can we permit use of those calculator models in the examination? Don't we use those calculators in day-to-day life? (Nope! I use only spreadsheets and other software!) So, why not in the examination?

I appreciate development of Acceptance Rejection Method for Simulation. It was very useful when we did not have aids to compute. Today, we can solve inverse transform method equation using calculators and spreadsheets. Let Acceptance Rejection Method find its place in the history, but not in the learning objectives and/or Core Reading of the Study Material for Actuarial curriculum. May we also have the same generosity with Box Muller's algorithm, Polar algorithm and the so called Approximate Method?

Accepting these suggestions will help us save a few pages in the actuarial tables and thus a few trees in the process.

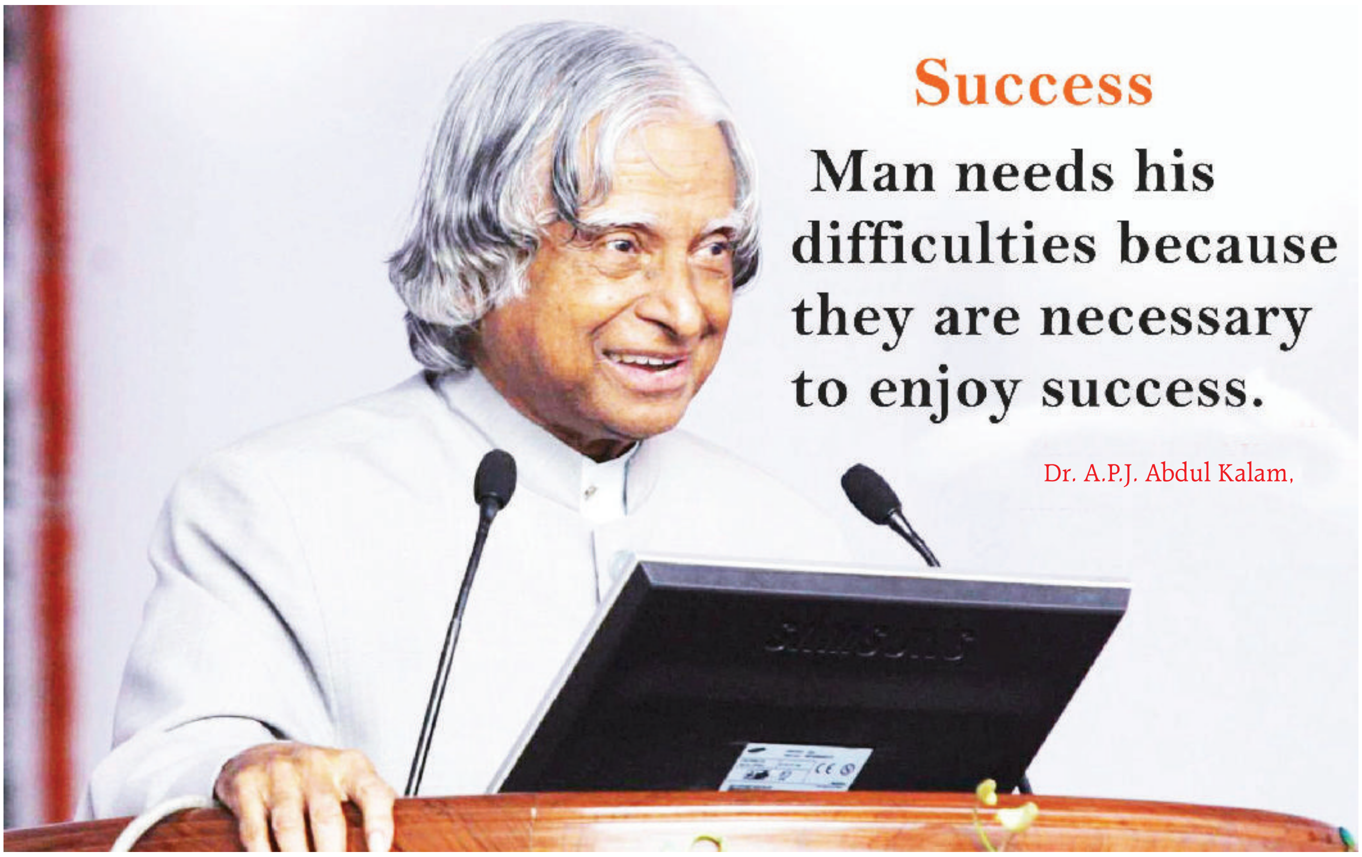
Let us adopt these new technologies at the earliest and justify the faith the society has in us!

ABOUT THE AUTHOR

Prof. Rajendra Shah

had been Chairman of Board of Studies in Statistics and a Member of Academic Council, University of Mumbai, India. He has delivered lectures in Sri Lanka and Bangladesh as Actuaries Without Border (AWB) Volunteer. He is a Founder and Managing Director of DS Actuarial Education Services.

prof.rajendra.shah@gmail.com



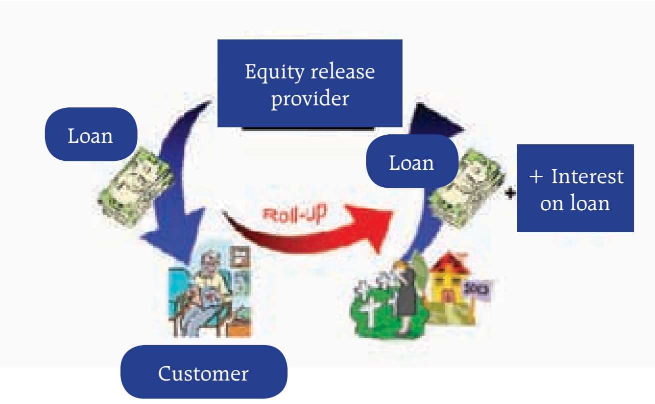
STUDENT COLUMN

EQUITY RELEASE – VALUATION PART 1: FEATURES AND VALUATION MODEL

Equity Release valuation depends upon choice of valuation model, appropriate assumptions and policyholder data. This article is first in the series of articles on actuarial valuation of Equity Release. This article covers introduction to the product, valuation model and overview of assumptions required in Equity Release valuation.

Introductions:

Equity release is a financial contract that allows elderly people, who may not have enough liquid cash to access the equity in their home. Equity release is also known as reverse mortgage or home equity conversion loan. Equity release is a means of retaining use of house (or other object which has capital value), along with obtaining a lump sum or a steady stream of cash inflow, from the value of such house. The equity release provider must be repaid later with interest, usually when policyholder dies or goes in for long term care from sale proceeds of home. Equity release is particularly useful for seniors who do not intend or are not able to leave a large estate for their heirs when they die. Such elderly persons must be of a minimum age (which is country-specific, For US 62, UK 55) and live in their own home to sign equity release contract.



Type of products:

There are broadly two types of equity release plan available:

- Mortgage
- Property sales

Mortgage:

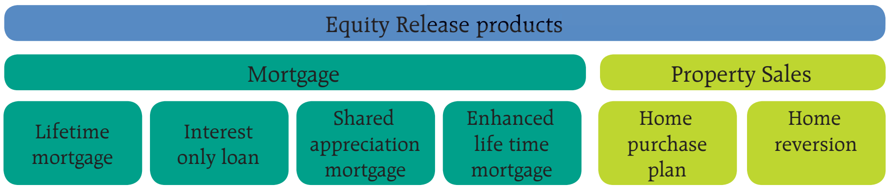
1. **Lifetime mortgage:** This is a loan secured on the borrower's home (a mortgage loan). Compound interest is added to the capital throughout the term of the loan, which is then repaid by selling the property when the borrower (or borrowing couple) dies or moves out (into a long care home). The borrower retains legal title to the home whilst living in it, and also retains the responsibilities to repair and maintain and costs of ownership. In the UK, more than 85% of Equity Release market is dominated by this product. For most lump-sum deals, interest rates are fixed at the outset. This product is comparatively expensive than other options because larger initial amount is given to the policyholder.
2. **Interest only loan:** A mortgage is made, on which the capital is repaid on death. Interest payments are paid whilst the borrowers remain in the property. Stonehaven and More2Life both offer this option.
3. **Shared appreciation mortgage:** The lender loans the borrower a capital sum in return for a share of the future increases or in the growth of the property value. The borrowers retain the right to live in the property until death. The older the client is the smaller the share required by lender. For example, on a property valued at £100,000 an immediate interest free mortgage of £25,000 could be granted. If the property value rises to £180,000 before the client's death, then the total repayment to the lender would be £25,000 capital plus 3/4 of the £80,000 gain in value = £25,000 + £60,000 = £85,000 of the total £180,000 proceeds.
4. **Enhanced lifetime mortgages:** Some providers offer more money to those with lower-than-average life expectancies. Aviva, More2Life and Partnership all offer these mortgages.

Property sales:

1. **Home income plan:** A lifetime mortgage where the capital is used to provide an income by purchasing an **annuity** often provided by the lender, which is generally an **Insurance Company.**
2. **Home reversion:** Policyholder sells a share in his or her house at lesser than market value and retains the right to stay in

home for rest of his or her life. When policyholder dies or moves into long-term care and the property is sold, the provider gets the same share of whatever policyholder's home sells for as repayment. For example, if contract is for 50% of property to the provider, it would get 50% of the sale price.

- One can take out some lifetime mortgages from the age of 55 (provided house worth is at least £70,000), but home reversions are available only to people aged 65 or older. As per Equity Release Council's report 87% of the equity release market share is dominated by lifetime mortgages and remaining 13% is with home reversion plans.
- Average lending rates have fallen, from 7.23% in 2007 to 6.64% at the end of 2012, but equity release is still very expensive compared with a conventional mortgage.



Asset Valuation:

There is no active market for trading outstanding loans of a provider, as a result outstanding loan (i.e. asset for provider) are less marketable and liquid. Market value of this asset is not readily available. Equity Release asset is Level 3 asset (See Appendix 2) requiring the provider to mark to model the asset on the IFRS and regulatory balance sheets (Pillar 1). Each provider must determine a mark to model methodology and assumptions for its valuation. This has led to a number of valuation approaches being adopted for:

1. **House Price assumptions** – choice of housing price index
2. **Decrement rates (fixed / dynamic)** – mortality (q_x), surrender/early redemption, Long term care
3. **Determination of rate to discount asset cash flows (risk-free / risk-free + risk premium)**
4. **Valuation of No Negative Equity Guarantee – NNEG:** Using stochastic Monte Carlo model or Black & Scholes model. NNEG is guarantee to the customer provided by the equity release provider. The amount recovered by the provider (including accrued interest, charges and all sale costs) will never be greater than the sale proceeds of house, no matter what happens to interest rates or house prices.
5. **Determination of liquidity premium**

   Expected present value method can be used to determine the value at which outstanding loans can be booked in the Balance Sheet of the provider. Future loan repayments are projected for each future year and are multiplied by decrement probability of the policyholder for that year and are discounted back to compute the expected present value of the outstanding loan. Escalations are applied on the loan at the rate of interest agreed at the time of entering contract.

Basic valuation model: The accumulated loan amount at the time of termination:

$$L_{T_x} = L_O * \exp\left(\sum_{t=1}^{K_x+1} (y_t^{12} + \Phi + \alpha)\right)$$

T_x = Termination time for age x which is uncertain
$K_x = [T_x]$ i.e. nearest integer age
L_0 = initial loan provided to the customer
y_t^{12} = Monthly risk free rate
Φ = Monthly lending margin
α = Risk premium

Some products come with feature of option with the policyholder to draw further loan in the future. For such product, based on insurer's past experience loan amount should be increased in the valuation model for future dates based on probability of future draws.

Expected present value of loan repayments to arrive at the assets value for Balance Sheet is derived from **expected present values** of its components =

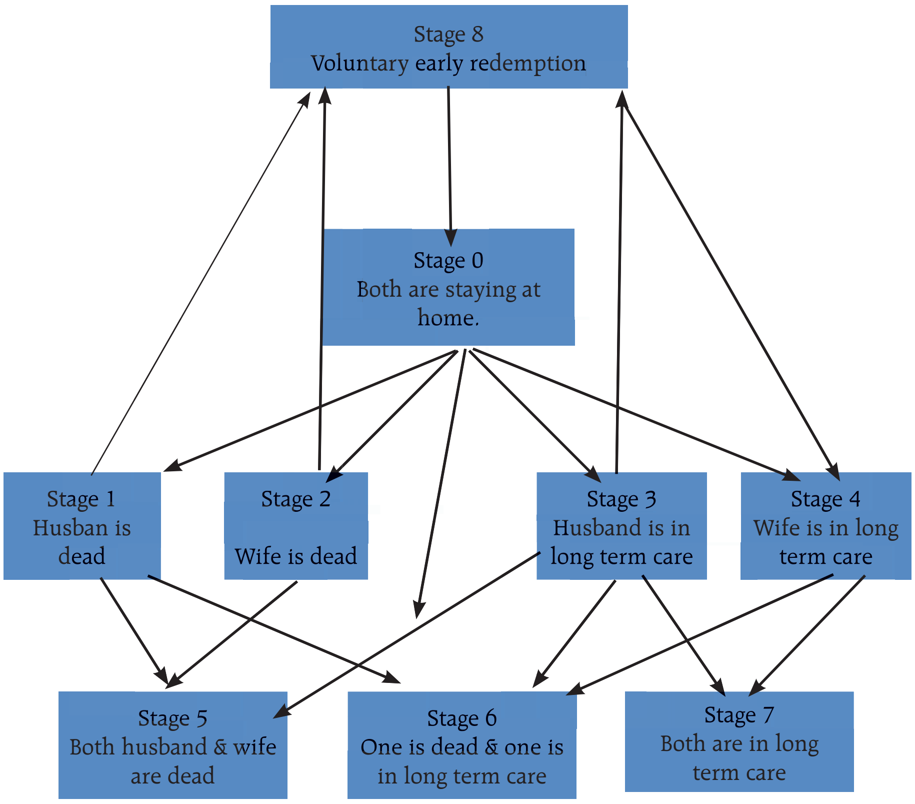
+	−
Repayment of mortgage + Initial fee charged to policy holder + Redemption penalties + Interest earned on regulatory capital	Initial expenses/commission + Administration expenses + Increase in regulatory capital + Taxation + Cost of mismatching risk + Cost of No negetive equity guarantee (NNEG)

Assumptions: For valuation purposes following major assumptions are required:

1. **Decrement assumptions** – Multiple state decrement model for joint life equity release model is diagrammatically depicted in Appendix 1
   A. Mortality
   B. Probability of policy holder going in for Long term care
   C. Surrender probability or pre-payment probability
2. **Future draw down amount for each projection year**
3. **Property valuation (Housing price index and its volatility)**
4. **Nominal Swap curve or gilt curve**
5. **Liquidity Premium**
6. **Expense inflation**
7. **Per policy administration expenses**
8. **Property selling costs**
9. **Haircuts and dilapidation**

This series of articles will cover above assumptions. Longevity assumption will be covered in the next part.

Appendix 1: Decrements can be due to (i) death of policyholder i.e. mortality, (ii) policyholder going in for long term care and (iii) policyholder redeeming loan earlier. Here is a multistate transition model for a joint life equity release policy. The arrows between the states represent the possible transitions, indicating how Equity Release contract can be terminated. Rate of transition from one state to another are normally determined using experience analysis and statistical methods.



Appendix 2:

Level 1, 2, and 3 assesses a company's assets based on the degree of certainty around the asset's underlying value. Level 1 asset can be valued with certainty because they are liquid and have clear market prices. At the other end of the spectrum, Level 3 assets are illiquid and estimating their value requires inputs that are unobservable and reflect management assumptions.

Level 1: Financial assets and liabilities whose values are based on unadjusted, quoted prices for **identical** assets or liabilities in an **active** market (examples include active exchange-traded equity securities, listed derivatives, most U.S. Government and agency securities, and certain other sovereign government obligations). If you can look up an up-to-date price on a major exchange it's a level 1 asset.

Level 2: Financial assets and liabilities whose values are based on their quoted prices in inactive markets, or whose values are based on models - but the inputs to those models are observable either directly or indirectly for substantially the full term of the asset or liability. Level 2 inputs include the following:

a) Quoted prices for **similar** assets or liabilities in **active** markets. For example, restricted stock

b) Quoted prices for **identical or similar** assets or liabilities in **non-active** markets. For example: Corporate and municipal bonds, which trade infrequently

c) Pricing models whose inputs are observable for substantially the full term of the asset or liability. For example: Most over-the-counter derivatives, including interest rate and currency swaps and

d) Pricing models whose inputs are derived principally from or corroborated by observable market data through correlation or other means for substantially the full term of the asset or liability. For example: Certain residential and commercial mortgage related assets, including loans, securities and derivatives.

Level 3: Financial assets and liabilities whose values are based on (i) prices or (ii) valuation techniques that are based on certain inputs. Such inputs are unobservable and significant to the overall fair value measurement. These inputs reflect management's own assumptions about the assumptions a market participant would use in pricing the asset or liability. For example: Certain private equity investments, certain residential and commercial mortgage related assets (including loans, securities and derivatives), and long-dated or complex derivatives including certain foreign stock exchanges, foreign options and long dated options on gas and power). Level 3 assets trade infrequently. As a result there are not many reliable market prices for them. Valuations of these assets are typically based on management assumptions or expectations. Equity release products fall in this category.

http://www.wikinvest.com/wiki/Level_1,_Level_2,_Level_3_Assets

ABOUT THE AUTHOR

Mr. Saket Vasisth

is involved in Asset Liability modeling for life insurance. He is a student member of IAI and works for AIG.

saket.vasisth@gmail.com

STUDENT COLUMN

HEALTH OF INDIAN HEALTH INSURANCE

The rise of a new India has to be built on the foundation of a healthy India. Despite some recent progress, the current state of India's healthcare outcome leaves much to be desired. It has glaring challenges around high out-of-pocket spending, inequality of services, and fragmented social and regulatory standards. Countries around the globe have kept health care at the core of their economic development whereas India with the highest population growth in the world is at a dismal 112th position out of 190 countries in WHO's ranking of health-care. This is supported by the fact that India spends just 4.2% of its GDP on healthcare of which public health spending is mere 1.2%.

Healthcare transformation must focus on the three key goals of **access, cost, and quality of services**. Product development, proximity to the consumer, and championing efficiency will be the critical success factors. A focused approach encompassing public and private sectors, and leveraging emerging technology will play a disruptive role in the healthcare transformation ahead!

Current state of Health Insurance

The nation of India with a population of 1.3 billion still experiences a vast inequity that exists in the healthcare industry with barely 3% of the population covered by some form of health insurance, either social or private. The principle of **'no individual should fail to secure adequate medical care because of inability to pay for it'** looks unreachable even after 65 years of Independence. India trails in health outcomes behind its South Asian neighbors like Sri Lanka and Bangladesh, which have comparable per capita income. Health Insurance in India is dominated by government schemes like Rashtriya Swasthya Bima Yojna (RSBY), Employee state Insurance scheme, Central Government Health Scheme etc. **RSBY Scheme** with an objective to provide affordable healthcare to poor below poverty line, has been a great success which has already provided heavily subsidized health insurance to more than 110 million people (almost 10 percent of India's population). The major public health insurer in India is the government-owned four insurance companies which have about 60% market share. Private Health Insurers (PHIs) expanded rapidly in tier-1 and tier-2 cities post 2005 with products centered around 'In-patient reimbursements' and 'Cashless payments'. While the urban population has witnessed an increase in the means of healthcare financing and delivery over the past decades, the rural population lacks basic healthcare delivery and financing.

Key Challenges in the Healthcare Ecosystem

- **Affordability and accessibility gaps**

  There is a large gap between healthcare delivery and financing in urban areas and rural areas. While a majority of the population resides in rural India (68.4 %), only 2% of qualified doctors are available to them. The rural population relies heavily on government-funded medical facilities. This gap is exacerbated because the private and public systems do not complement each other. Affordable care (government hospitals or community-based care) suffers from quality issues and is unable to cater to the basic healthcare needs of the population. While some private care delivery centers and professionals are accessible to the needy, they are not affordable for a majority of the population.

- **Medical health insurance penetration**

  Health insurance is a minor contributor in the healthcare ecosystem. Insurance payment structures are based on an almost retrospective arrangement of indemnity based payments. Indian insurance has been mainly limited to inpatient surgical procedures.

- **Associated social facilities**

  Inadequate social determinants of health such as nutrition, food security, water and sanitation is a major hindrance in the success of healthcare delivery and financing.

- **Absence of regulatory and standardized operating procedures**

  There is a need for a strong regulatory framework to organize and standardize healthcare delivery and financing. Providers are the dominant entities and influence the pricing and contract arrangement. What can really give a huge fillip to the health insurance sector is if the provider segment, the hospitals, is also regulated. There should be clear regulation and proper treatment protocols which are put in place. A lot really needs to be done at the provider end for the insurance to be effective.

- **Role of Government**

  Government policy has not been very successful in providing clear and consistent direction to the sector in terms of positioning of public, private, and PPP stakeholders. Delays and lack of consensus in legislating insurance reforms like increasing FDI limit for private insurers have not helped the cause.

- **Myths of health insurance**

  There are lots of myths that are core to the average Indian consumer:

- "I will not have to go for hospitalization, it won't happen to me" (unrealistic optimism with a sound backing of faith in the Gods and Goddesses)
- "I will buy Health Insurance when I need it" (unrealistic expectations from Health Insurance, rooting from low awareness about the purpose that it fulfills and the way it truly works)
- When told that a Health Insurance policy cannot be simply purchased on the occurrence of a disease, consumer says "I am smart enough to manage Health Insurance at a short notice" I have contacts and I will manage it" (self-confidence beyond practicality)

The main inferences one can draw from above statements are that an average Indian consumer is either living in denial or not sure of why he would need it before time or probably fears insurance companies (complicated policy wordings, poor claims settlement ratio, non-standard definitions etc.). Moreover constant paralleling with life insurance policies compels him to abandon the idea of possessing the health insurance on grounds that health insurance provides no returns at the end of the term as do several life insurance policies.

Gearing up for a major change:

Health Insurance is like a knife. In the surgeon's hand it can save the patient, while in the hands of the quack, it can kill. With over 70% 'out-of-pocket' expense burden on the consumers, the market is poised for growth for health insurance players. The industry is likely to undergo major reforms and changes to tap this potential.

- **Increasing use of technology in care delivery**

  Extensive use of internet and increased technology adoption rates will enable new avenues in delivery for broker channels, wellness, and self-health management. New business models of delivering care are evolving via the virtualization of processes (the "anywhere, anytime worker") and business models (Anything as a Service – AaaS) with consumer-centric mobility paradigms are gaining ground.

- **Participation of private players**

  Currently, PHIs accounts for about 5% of the covered population; this can increase to around 30% by 2020. The key is to devise products and services to cover out-of-pocket expenses and coverage gaps. With changes in FDI regulation and Indian healthcare insurance sector's strong growth prospects, PHIs can not only attract investments but also leverage best practices from other markets including processes and technology to get a jumpstart in a 1.3 billion market.

- **Integration of players and standardization of care delivery**

  The emerging healthcare models will see closer integration of players to penetrate the semi-urban and rural sectors. Health Insurance and pharma players are likely to drive the evolution of an integrated healthcare model with increased transparency and accountability.

- **Consumer awareness**

  In a survey conducted by NCAER for IRDA in 2012, most people link insurance with death and only 54% were aware of health insurance. Effective campaigns highlighting the differences between health and financial security are necessary to increase health insurance penetration.

- **IRDA regulatory changes**

  In an attempt to improve service standards in Health insurance sector, IRDA has standardized 46 most commonly used definition/ terminologies in health insurance policies. Apart from this regulation also allows the option of health insurance portability where a customer can shift to a new Insurer if they are unsatisfied with the existing one without having to begin the waiting period for existing diseases afresh.

Budget 2015- some hits and few miss

With a new government in place under the leadership of a dynamic and visionary prime minister, the expectations for the health sector were high. The allocation of Rs 33,150 crore for the sector is similar to the outlay in previous budgets and does not translate to the much anticipated increase from 1.2% of GDP spend to 2% spend, which has been the direction set by the government in the draft national health-care policy. Deduction benefits are for those paying higher premium whereas the Increase in service tax from 12.36% to 14% is for everybody which will result in the Health Insurance premiums to go up next year. The silver lining of the budget for the health-care sector resides in the announcement of setting up five additional AIIMS in Tamil Nadu, J&K, Punjab, Himachal Pradesh and Assam, and giving a boost to the health insurance sector through higher tax exemption limits. One is also hopeful that the tax exemption provided under the "Swachh Bharat Abhiyaan will help accelerate sanitation projects in the country, which eventually should lead towards the control of infectious diseases in the country. That is just an iota of what needs to be done towards creating a healthier India.

Unfortunately, the budget does not deliver to the expected transformation of the health-care sector in the country under the much hyped promise of the Universal Healthcare coverage or the Make in India initiative.

Indian Health Insurance sector is still an immature baby!

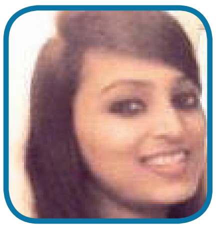
In recent year's lot of efforts towards improving and providing better

healthcare and insurance benefits to all has been unleashed but the Health Insurance is more complex than other segments of insurance business because of serious conflicts arising out of adverse selection, moral hazard, unavailability of data and information gap etc… Health sector policy formulation, assessment and implementation are an extremely complex task, especially, in changing epidemiological, institutional, technological and political scenario. Proper understanding of Indian Health situation and application of principles of insurance, keeping in view the social realities and national objectives, are important for the development of Indian Health sector!

References:

- Total health expenditure as percentage of G.D.P 2009 estimate from World Health Organization
- http://www.who.int/countryfocus/cooperation_strategy/ccsbrief_ind_en.pdf
- 2005 article from Ministry of health and family welfare Government of India "Financing and Delivery of Health Care Services in India". However, today, the percentage of India that is insured is closer to 15% according to a 2011 New York Times article.
- Ministry of Health and Family Welfare Government of India. "Financing and Delivery of Health Care Services in India." 2005. Web. 30 Apr. 2012.
- "History of Insurance in India." 12 July 2007. Web. 30 Apr. 2012.
- http://www.rsby.gov.in/about_rsby.aspx

ABOUT THE AUTHOR



Ms. Sonam Agarwal

is working as a Senior Actuarial Analyst, AXA Business Services, Pune.

Sonam.Agarwal@axa-abs.co.in

2ND CAPACITY BUILDING SEMINAR ON LIFE INSURANCE : USING ALM AND PREDICTIVE MODELLING FOR RISK MANAGEMENT

Date : 3rd June, 2015

Venue : The Plazzio Hotel, Gurgaon.

Timings : 09:00am – 05:00pm

Risk Management is a key element in the modern day governance of a Life Insurance Company, which has become more complex by the day.

It is critical for the actuarial professional to be able to identify, understand and quantify risks facing the company, to put in place proactive processes to contain or mitigate these so that the strategic objective of the company is met with the various risks contained within acceptable limits set by the shareholders.

Asset Liability Management and Predictive Modelling are two such modern tools, a good understanding of which would equip the actuary with the necessary wherewithal to undertake the best practices in the risk management area.

SPEAKERS:

- **Richard Xu,** PhD, FSA,VP, Global Research and Development, RGA
- **Sam Morgan,** Principal, Consulting Actuary, Hong Kong, Milliman

SEMINAR WILL COVER THE FOLLOWING:-

Sam Morgan will cover various issues involving the management of ALM risk in a life insurance company. This will include case studies using ALS modelling which will provide the much needed practical side of asset liability management in the life insurance context.

Richard Xu will cover the various usages of predictive modelling. He will cover in some detail, the theory and practice of predictive modelling in relevant areas as underwriting, experience analysis, pricing, fraud monitoring etc. The focus would be on statistical models, the technical core aspects of such modelling and will include a few case studies for the benefit of the participants so as to provide the necessary practical grounding on the subject.

WHO SHOULD ATTEND?

The seminar is only for **IAI members.**

GENERAL MATTERS

- Registration Fees : Rs.7500/- (+ 12.36% Service Tax)
- Registration Ends 25th May, 2015
- Register Now at: http://actuariesindia.org/subMenu.aspx?id=327&val=2nd_Capacity_Building_Seminar_in_Life_Insurance
- CPD Credit for IAI Members: 4 hrs (As per APS 9)
- Point of Contact for any query: Quintus Mendonca (quintus@actuariesindia.org)

NON-LUXURIZATION AND LUXURIZATION - A BRIEF INTRODUCTION

All organisms need certain conditions and commodities to function as ideally as they possibly can. The pursuit of the satisfaction of these needs is the sole lifelong quest of each organism. Humans, the self-proclaimed extraordinary organisms, have always considered such a pursuit too ordinary to be their sole purpose of living. It all started when a playful predecessor of ours discovered fire while fooling around with some rocks. Before that day, our ancestors would wake up every morning to search for an edible piece of matter and sleep at night, having survived the day successfully. That day, they would have experimented burning those pieces and obviously enjoyed the new taste and warmth which the fire had added to their daily meal. The next day, they wouldn't have woken up just for food but also for those special rocks (flint stones) so that they could produce fire and heat their food instead of consuming it raw, in spite of the extra troubles involved. This was the first time that humans dared to seek something beyond what was basically necessary to survive. There would be some for whom the extra effort wasn't worth the better taste and hence, they chose to eat their food raw and doze off those remaining hours which others took to search for the stones. With time, the luxury of cooked food became a necessity as fire was vastly used in other chores and was therefore, easily available. The abundance of fire saved the time needed in its production and using it to cook food became as basic as it was to eat it raw in the older days. This was one of the very first instances of 'Non-luxurization'.

In today's human civilization, choices are made not on the basis of the extra miles one has to walk in search of something but on the basis of a common medium of exchange called money. As some chose to rest instead of searching for flint stones, today, some choose not to spend a little extra on a superior means of fulfilling their needs and rather spend it on another means which is either more necessary or would provide more satisfaction. In both the eras, time was/is the ultimate limited medium of exchange, but since we aim to upgrade everything to reduce our efforts, time too, has been upgraded by being attributed a quantifiable aspect in the form of money. Time still is the ultimate medium but we have gotten over its raw appeal by cooking it into something whose exchange we can easily digest. Money has reduced uncertainties regarding valuation and has made transactions simpler and quicker. However, money is as efficient an equalizer as it is a non-equalizer.

Limitedness of money is the reason a person has to make a choice. One chooses a good on the basis of the availability of one's funds as well as the importance of that good vis-à-vis other goods in satisfying one. The availability of funds is directly proportional to the price of the good whereas its importance is reflected by its price elasticity of demand. The price indicates how much money needs to be exhausted to avail it whereas the Price Elasticity of Demand (PED) represents the attitude of a consumer towards a change in its price. Some goods have high PED, which means a certain change in price leads to a greater change in its demand. These goods are usually the goods we buy because they make living easier unlike the goods with low PED which we usually buy because they make living possible in the first place. The goods whose demand is dependent a lot on their price are called luxury goods. These goods are what distinguish us from other organisms whose spend their limited medium of exchange (time) only on basic necessities. On the other hand, the goods whose demand is not much dependent on their price are called necessary goods. These goods are the progressed versions of the basic necessities that our ancestors once relished and the price-inelasticity appropriately proves that the advancements of technology and reason over the course of human history couldn't change the fact that we would still need these goods irrespective of their price levels since without them, we wouldn't be alive to buy luxury goods later.

Although both the types of goods usually follow their respective demand curves, sometimes their demand curves don't follow their respective types. We have and will always need basic necessities to survive but what constitute our basic necessities will not always be the same. Each era has a different lifestyle and each lifestyle has a different manner of survival. Just like the luxury of cooking food transformed into a necessity with time, there are many such transformations happening today which we don't habitually notice. The importance of a certain good is dependent on various factors such as our income, personal tastes, its no. of substitutes etc. If any of these factors vary, the importance of the good will directly be affected, thereby changing its demand curve. The PED of a good is obviously different for different market segments but in the long run, a shift in the general PED of the entire market is evident. One example of such a shift is in the case of telephone market. As 20th century began, owning a phone was similar to the additional endeavor of producing fire for cooking. Thereafter, science and population both flourished with time, and as the century ended, owning a phone became as necessary as it was to cook food. Science had made it cheaper and easily portable while the population growth had made it difficult to function without it. As a result, a good which was a technological miracle meant only for the fortunate members of the human race became a good necessary for being able to function in the human race at all. This is called 'Non-luxurization', which can be defined as the transformation of a luxury into a necessity.

Similarly, a necessity of today can be a luxury of tomorrow. If there is scope for a good to gain importance, there is scope for the good to lose it too. The transformation of a necessity into a luxury can be referred to as 'Luxurization'. This transformation normally happens as an aftermath of Non-luxurization. Consider the example of private transport which is in a delicate position today. Owning a car a few decades ago would have been an extravagant choice but today it is almost a necessity. It isn't a pure necessity because of the availability of public transport. However, given the introduction of more fuel-efficient cars and the population explosion affecting the maintenance of public transport, it will soon be a necessity. However, as the scarcity of fuel enters the picture due to this change in the demand patterns, the higher cost of private transport as a result of more expensive fuel will make it a luxury again in the future. In this way, the lowering of PED due to non-luxurization of private transport will lead to its luxurization in the long run. This is how luxurization tends to be the long run effect of non-luxurization as is projected by the life cycle of a particular product. These recurring changes in a good's demand curve continue throughout its life and are influenced by external factors (social, scientific, political etc.) along the way. If a necessity has the potential to be a luxury, it most likely was a luxury in the past. Any exception would be, well, an exception.

Change is the only constant, as the saying goes. Human civilization is constantly on the brink of a newer era. The things we spend our money on will change but the way we spend it won't. We will always aim to maximize our satisfaction, no matter how volatile the nature of the goods would be. Consumerism is a blend of necessities and luxuries. The balance between what we really need and what we also need is the driver of our lives. Non-luxurization and luxurization provide the evidence of the flexibility of this balance, and eventually, of our own lives. Our needs may be inconsistent but the pursuit of their fulfillment will always be consistent.

ABOUT THE AUTHOR

Mr. Harshil Gupta

is a student member of IAI and IFOA, UK. He is currently doing B.Sc. in Actuarial Science at DS Actuarial Education Services, Mumbai.

harshil.g.gupta@gmail.com

The Actuary India – Editorial Policy

Version 2.00/23rd Jan 2011

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

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

B: The Institute recognizes the fact that;

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

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

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

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

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

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

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

Visit us at: www.actuariesindia.org

FAREWELL MESSAGE FROM MR. RBL VAISH

-EXECUTIVE DIRECTOR, IAI

I had the privilege of becoming the first Executive Director of the Institute from 1 June 2008 to 10 April 2010 and then again in 16 August 2013 to 30 April 2015. I have no hesitation in accepting the fact that I got a lot of inspiration and encouragement from the enthusiasm shown by each and every one. This paved the way for few worth mentioning achievements.

- *Institute financial has improved. GCA income has doubled.*
- *LIC Leave and Licence agreement.*
- *IT Systems*
- *APS/GN and Compliance*
- *Improvement in Exam systems, Management of Funds and quality of accounts, Quality of Compliance, timely dispatch of study material and solving the grievances of the members, increase in number of seminars, conferences and Research activities was possible only because of co-operation of one and all. This is a continuous process and a lot is yet to be achieved.*

I worked as a facilitator and provided the opportunity to the concerned staff members for their skill development through Leadership Development program, IT training through NIIT and latest one in providing the chance in enhancing Excel knowledge which will be of great help in day to day affairs. I could instil a sense of self confidence, and bring out the hidden qualities through team building.

With these words, I say good bye officially and pray to Almighty for the welfare of every one. I thank all for giving me excellent co-operation which made my job easier. We shall remain in touch. It is very difficult for me to forget the wonderful time at IAI. It is a permanent memory for me.

With best wishes,

Yours sincerely,

R.B.L.Vaish

Comments from Staff Members

As a person, he is man of integrity, honest, helpful, Disciplined, Commitment, motivation, desire for excellence, paternalistic leadership, and true friend

Always helped us, guided us and involved us in every step.

He was virtually like a father to us.

I am blessed to meet a person like you.

I can say with confidence that because if you the institute has grown. You have shown all of us the path. A way of life.

We will miss your shubh pratah message. We will miss your masti majak. We will miss your scolding (love). However you will always remain in our heart forever. Your guidance, values, ethics & teachings will always remain with us.

Very joyful by nature

INDUSTRY UPDATE

GENERAL INSURANCE INDUSTRY

The keenly awaited piece of Legislation, Insurance Laws (Amendment) Act 2015, after a long delay was finally approved and notified by the Parliament in the current Budget Session. The Act, inter alia, raised the Foreign Direct Investment (FDI) limit in the insurance sector from 26% to 49%. The Act also allows foreign reinsurers including Lloyds' to establish foreign branch operations in India and listing of Public Sector Insurance companies. Further, in the Union Budget 2015-16, the Finance Minister launched Pradhan Mantri Suraksha Bima Yojana (PMSBY) that will cover accidental death risk of Rs 200,000 for a premium of just Rs 12 per year i.e. Re 1 per month. Also, service tax hike from 12.36% to 14% in the budget will increase insurance premiums for customers, among other services.

Meanwhile, the total gross written premium (GWP) during FY 2015 for the Non-Life Indian Insurance Industry was Rs 84, 715 crore as compared to Rs 77, 541 crore during FY 2014 registering a growth of 9.3%, a three-year low, according to provisional data. The low growth rate was primarily due to slump in auto and non-execution of infra projects during the year. In continuance with previous year trends, public sector companies have reported marginally higher growth rates at 10.3% as compared to private sector companies which have reported growth rate of 9.8%. This is an interesting trend given that public sector companies have higher base and also number of private players are also much higher than public sector companies.

The table gives growth rate for major the line of business. The major element of premium growth for the Motor class [redacted] third party premium during FY 2014 - 15. Specialized Health Insurer have reported a healthy growth rate of 30%.

Line of Business	Growth %
Motor	10.8%
Own Damage Portion	4.3%
Third Party Portion	18.8%
Health	15.6%
Fire	9.5%
Engineering	-5.7%
Marine	-4.2%
Cargo	1.6%
Hull	-14.7%
Aviation	-6.4%

The two major natural calamities, the Hudhud cyclone that hit the Andhra cost in October 2014 and Kashmir Valley floods in September 2014, would also have its impact on the bottom line for all the public sector companies and few private general insurance companies.

The IRDAI had proposed a steep hike of up to 100% in the mandatory motor third party premium rate in its exposure draft released in February 2015. However, the final notification from the regulator moderated the increase in premium rates at 30% in case of private cars, two wheelers with a engine capacity between 150 cc and not exceeding 350 cc, goods carrying vehicles and four-wheeled vehicles used for carrying passengers for hire, among others. Further, IRDAI also reduced the provisioning required to be made by general insurers for third party declined risk motor insurance for the FY 2013-14 at an ultimate loss ratio of 175 percent compared to 210 percent for the previous [redacted]

IRDAI's recent directives to all general insurers to determine pricing for fire, property and group health risk based on burning cost was implemented effective February 1, 2015 and industry anticipates an increase of 10% to 20% in premium rates across different occupancy codes. The overall impact of the new guidelines on the premium rates will only be known later in the year, however, it is expected to cause anchoring of the premium rates for the affected occupancy codes.

Unseasonal rains, hailstorm and strong winds that appeared in three phases beginning the end of February, 2015 have caused an extensive damage to the standing crops extending to over 181 lakh hectares in 14 States. According to preliminary estimates of the Ministry of Agriculture, Uttar Pradesh and Rajasthan have taken the maximum brunt, followed by Haryana, Madhya Pradesh, Maharashtra, Jammu & Kashmir, Punjab and Himachal Pradesh. The Agriculture Insurance Company (AIC) has already settled Rs 5,167.58 crore in claims for FY 2014 - 15 against an underwritten premium of Rs 2,750 crore.

Two new market entrants are expected in the Indian general insurance space, one a multiline general insurers promoted by Kotak Mahindra Bank, and another a standalone health insurer as a joint venture between Aditya Birla Financial Services and South Africa's MMI. Kohinoor Group, a conglomerate with presence in real estate, hospitality, power and healthcare sectors, has applied for a reinsurance licence with IRDAI and the application is in R1 stage. If granted, it will be the first non-government reinsurer in India.

Submitted by
Mr. Hiten Kothari, Secretary AGGI

When learning is purposeful, creativity blossoms. When creativity blossoms, thinking emanates. When thinking emanates, knowledge is fully lit. When knowledge is lit, economy flourishes.

~~Dr~~. A.P.J. Abdul Kalam

The Advisory Group on General Insurance (AGGI) has been set up with objective of providing a forum for actuaries working in the General Insurance (GI) industry in India to address issues that directly affect their day-to-day functioning, as well as provide advice to the General Insurance Council on issues it deems appropriate. Additionally, the group also aim to provide relevant learning and training opportunities to young aspiring actuaries specialising in general insurance domain.

Based on the interaction and feedback from actuaries and the senior management of the GI industry in India, AGGI is of the opinion that in last few years the involvement of actuaries have increased in the GI Industry due to variety of factors such as regulatory changes, increased number of actuaries with GI specialisation, etc. At the same time it is felt that the full potential of value addition that a GI actuary may provide is not being currently utilized by the Industry. This is something that AGGI wants to address and improve over the next few years.

In December 2014, AGGI organized a two-day workshop on Financial Condition Assessment Report (FCAR) for General Insurance in Hyderabad.

The seminar was arranged to facilitate discussions between the regulator and members of the Indian actuarial profession on new format of FCAR applicable effective financial year 2014-15. The seminar emphasised enhancing the understanding on FCAR 2013-14 tables in excel format and difference between old and new formats. Ms. J Meenakumari, HOD - Actuarial IRDAI, delivered the key note address and the vote of thanks was offered by Mr. Debarshi Chatterjee.

The workshop's focus on FCAR details allowed members of the actuarial profession across different areas of general insurance to share their understanding and discuss any shortcomings, if any, in preparing such regulatory reports. The workshop also provided a window of opportunity to discuss the understanding of profession with members from IRDAI.

Besides this, the AGGI has been engaged in number of activities. The highlight of key activities is given below:

- Providing feedback on draft exposure published by the regulator
- Recommendations on the enhanced requirements for issuing the Certificate of Practice to actuaries working as or planning to work as Appointed Actuaries for Indian GI companies were finalized.
- The process of setting up a working group has been initiated for drafting a Guidance Note (GN) on reserving applicable for non-life actuarial professionals working in the Indian Insurance Industry taking into consideration better practices of professional bodies across the world and the Indian Regulatory framework.
- Similarly work has been initiated in preparing draft Guidance Note for establishing the practice of peer review process within the General Insurance domain.

In the next few months, AGGI plans to undertake the following activities:

- Conduct Capacity Building Seminar in General Insurance
- Conduct Current Issues Seminar in General Insurance
- Work on the Motor Third Party Liability reserves research project

On a longer term basis, the AGGI strives to work closely with the IRDAI, the General Insurance Council, GI actuaries and management of GI companies to enhance the actuarial contribution in the management of GI companies by providing support on robust reserving, pricing & capital modelling techniques, product innovation, compliance, and overall risk management. This will improve the profitability of the GI companies and help increase the penetration levels of the Industry.

Submitted by
Chairperson & Secretary of Advisory Group on General Insurance

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

- Bill Gates

EXAM UPDATE

TIMETABLE–OCTOBER 2015 EXAMINATION

Tuesday 27th October – Friday 06th November 2015

FORENOON			AFTERNOON	
Date & Day	**Subject**	**From To**	**Subject**	**From To**
27/10/2015 Tuesday	CT3 Probability & Mathematical Statistics	10.30 – 13.30 Hrs.	CA1 Actuarial Risk Management (Paper I)	14.45* - 18.00 Hrs.
28/10/2015 Wednesday	CT6 Statistical Methods	10.30 – 13.30 Hrs.	CA1 Actuarial Risk Management (Paper II)	14.45* - 18.00 Hrs.
29/10/2015 Thursday	CT4 Models	10.30 – 13.30 Hrs.	ST7 General Insurance : Reserving & Capital Modeling	14.45* - 18.00 Hrs.
30/10/2015 Friday	CT2 Finance and Financial Reporting	10.30 – 13.30 Hrs.	ST2 Life Insurance	14.45* - 18.00 Hrs.
02/11/2015 Monday	CT7 Business Economics	10.30 – 13.30 Hrs.	ST4 Pensions & Other Employee Benefits	14.45* - 18.00 Hrs.
03/11/2015 Tuesday	CT1 Financial Mathematics	10.30 – 13.30 Hrs.	SA1 Health and Care Insurance SA2 Life Insurance SA3 General Insurance SA4 Pensions & Other Employee Benefits SA5 Finance SA6 Investment	14.45* - 18.00 Hrs. 14.45* - 18.00 Hrs. 14.45* - 18.00 Hrs. 14.45* - 18.00 Hrs. 14.45* - 18.00 Hrs. 14.45* - 18.00 Hrs.
04/11/2015 Wednesday	CT5 General Insurance, Life and Health Contingencies	10.30 – 13.30 Hrs.	ST1 Health and Care Insurance	14.45* - 18.00 Hrs.
05/11/2015 Thursday	CT8 Financial Economics	10.30 – 13.30 Hrs.	ST5 Finance and Investment A	14.45* - 18.00 Hrs.
06/11/2015 Friday	ST6 Finance and Investment B	10.15* – 13.30 Hrs.	ST8 General Insurance : Pricing	14.45* - 18.00 Hrs.

CT9-BUSINESS AWARENESS MODULE

This is to inform all the candidates who have taken admission until the year 2011 would be required to register for CT9 – Business Awareness Module latest by March 2016. For more details please contact Mr. Sandeep Mahajan, Sr. Executive - Examination at sandeep@actuariesindia.org.

VOLUNTEERING OPPORTUNITIES

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

To express an interest or to find out more, please contact Mr. Gururaj Nayak, Head - Operations at gururaj@actuariesindia.org. When contacting him please indicate the area/areas which are of most interest to you. Please also provide a note of your experience and/or interest, together with your reasons for wishing to become involved.

EXAM ARTICLE

SA2 SUBJECT COUNSELLING

THE JOYS OF TRAVEL AND TEACHING

One February afternoon, while I was on my lunch break, I decided to check the IFoA website for the latest volunteer vacancies. Always on the lookout for opportunities which combine two of my favourite passions, travel and teaching, I immediately put myself forward for the opportunity to teach SA2 in India. A few days later, after discussions with both the IFoA and the IAI, the trip was confirmed and travel arrangements for my first ever visit to Mumbai were put in place.

After the initial excitement had died down, I quickly realised just how much preparation was required for the five day course. So I dusted down my old SA2 material and, drawing from my work experience, set to work. A few weeks later, armed with numerous slides, a mock examination and lots of examples I set off for Mumbai.

Arriving on a Friday afternoon, the first thing I noticed was the heat. Coming from freezing London, this was more than a welcome change. The second thing that struck me was the warmth of the people I encountered and this was to be recurring theme throughout my stay. Due to a severe case of jet lag, I spent the afternoon alternatively napping and preparing for the course which was starting on the Saturday morning.

My main objective for the five days was to equip the students with tools needed to pass SA2. The first session served to highlight areas students struggle with, identify common pitfalls and provide tips and strategies to overcome these. To summarise - one need to know the bookwork, develop examination technique and, once in the examination, ensure one reads the question and knows exactly what the examiner is asking for. While that sounds easier said than done, it can be achieved if one practices, practices and practices some more. Admittedly, this can be a challenge as most students simultaneously balance work, study and a family life.

The remaining sessions were a combination of theory revision and examination question practice. At the end of the course the students took a mock examination which was marked and individual feedback provided. Throughout the five days there was lots of discussion and healthy debates on various aspects. There was a lot of knowledge sharing on industry practices and regulatory requirements. As the course notes are predominantly written for the UK market, and some of the students were taking the IAI examination, we spent a lot of time understanding how the material translated into the Indian context which has a very different target market and is at a nascent stage. The five day course was challenging, but at the end the students knew where they needed to focus their efforts for the remaining study session.

Once the course was done, I had two days to explore Mumbai and see all the famous sites. I thoroughly enjoyed my stay in this vibrant, thriving and welcoming country and am grateful to everyone who went out of their way to make my stay as great as it was. As I boarded my plane back to London, part of me was sad to leave but I consoled myself with the thought of a return trip to India in the not too distant future.

ABOUT THE AUTHOR

Ms. Ngoni Munedzimwe

is a Qualified Actuary with extensive pricing experience. Over the last 8 years she has worked in a range of areas which include Protection, Retirement Income and Employee Benefits in both the UK and South African markets.

Originally from Zimbabwe, she has a keen interest in developing the profession in developing and emerging markets. During her time at the University of Cape Town, she was a tutor for the CT series subjects. In 2013, she was involved in the joint programme between the IFoA and a Ghanaian university. As part of this programme, she spent a week in Ghana lecturing MSc (Actuarial Science) students. As of March 2014, she has been providing study support to student members of the Actuarial Society of Zimbabwe (ASZ).

I Can't change the direction of the wind, but I can adjust my sails to always reach my destination.

-Jimmy Dean

SA3 SUBJECT COUNSELLING

SA3 TEACHING IN MUMBAI

In March 2015 I was offered the opportunity to teach SA3 in India. I have always enjoyed teaching, and I thought this was a great chance for me to pass on any tips or techniques I could to students who still had to pass their final exam. As I set about planning the lessons, I quickly realised how much material there was to cover!

I met three fantastic students whilst in Mumbai. Two had over ten years of experience, and the knowledge they showed was exceptional. One student was still at university, and was planning on taking a number of exams in May. This really highlighted the range of experiences of students taking this exam.

The course was conducted in a relaxed environment, which helped to facilitate discussion and knowledge sharing. I found the students eager and willing to learn. The level of knowledge on local markets was excellent, and I was able to supplement this with exam technique and my own knowledge on global issues. One exercise in particular that benefited the students was getting them to mark two scripts – a high scoring script and low scoring script. However, the students didn't necessarily differentiate when they marked independently. This exercise will hopefully help students identify the greater level of depth required to produce good SA3 answers, as well as assist them when marking their own past papers.

We covered the course in three and a half days, which included specific topics the students wanted to spend more time on. I set an exam for each student which I marked, and we went through the paper the next day. We finished on a poster design and presentation based around SA3 topics, and getting students to try and identify potential topics that will be tested in the next set of exams.

Employers should engage with their student actuaries, and give them sufficient time to study and revise for the exams, as well as the budget to purchase materials from ActEd for example. After all, a qualified actuary can add value to the organisation, and can command a higher charge out rate for consultancies. This requires a longer term view than simply meeting the upcoming deadline.

I had a fantastic time in India, and even managed to meet some actuaries on a night out at a classy rooftop bar! The actuarial profession is thriving in India, and any student has a great opportunity to learn and benefit from it. I would really like to thank the IAI for being so accommodating, and for all their help in making this trip the amazing experience it was for me. I wish all students the best of luck in the upcoming exams.

ABOUT THE AUTHOR

Mr. Ramiz Mohamed

works in General Insurance at Catlin, UK. Teaching is something, he is very passionate about, and would love the opportunity to teach students who will be sitting their exams shortly. He has had the teaching experience when he was at university, having spent six weeks in South Africa teaching Maths to High School students. He has also tutored privately to students across London.

CA3 COMMUNICATIONS WORKSHOP

This is to inform all the candidates who will be appearing for CA3 examination in the next 12 months can register for the CA3 Workshop to be held in Mumbai conducted by **Neil Hilary** on **17th June 2015** latest by **05th June 2015**.

Neil Hilary has worked for the IFoA as an Education Actuary since 2002, where his responsibilities have included the approval of exam papers and exam counselling for CA3 Communication. Prior to 2002 he worked in life insurance, health reinsurance and general consultancy work in the UK.

For more details and registration, please visit our website at www.actuariesindia.org under the Examination tab.

EXAM REPORT

REPORT ON THE SUSPICIOUS ANSWER SCRIPTS FOUND FOR SUBJECT CT2 – FINANCE AND FINANCIAL REPORTING GIVEN DURING OCTOBER 2014 EXAM DIET

This matter is being published in the Actuary India magazine, the in-house publication of the Institute of Actuaries of India, in accordance with the decision of the Executive Committee (now Council) in its meeting held on 4th March, 2003 applicable to all such cases and keeping in view IAI's membership requirements of the International Actuarial Association.

Name of the member accused:

Mr. Tarun Grover (MID: 22756) and Ms Tripti Gulati (MID: 11211) who appeared for the October 2014 Examination diet from Gurgaon Centre.

The case:

While evaluating the CT2 answer scripts, one of the examiners brought to our notice that some of the answers of the two answer scripts have same answers to each other. The same answer scripts were then sent to other two associate examiners in order to get their opinion, who gave similar remarks as the first associate examiner.

Institute had then appointed a member from Examination Advisory Group (EAG) to further study the documents available on the record and provide us with the recommendation on this case. It was confirmed that both the cases are clear cases of cheating.

On the basis of feedback received from examiners and concerned EAG member, it was decided to send a show cause letter to both the candidates.

EAG meeting:

The response received from the candidates on the show cause letters was discussed in the EAG meeting dated 1st February 2015. Both the candidates had admitted that they were involved in copying with each other in CT2 subject of October 2014 examination.

Considering the fact that both the candidates have accepted their mistake and admit that they had committed a sin, it was decided to recommend to the Finance and Admin Committee (FAC) to debar both the candidates for a period of two years.

FAC Meeting:

The FAC in its meeting dated 18th March 2015 reviewed all the documents available on record and agreed with the recommendation of Examination Advisory Group.

Council Meeting:

The Council deliberated the matter in its meeting dated 28th March 2015 and reviewed all documents and correspondence available on record. Members agreed with the report of the FAC and decided to suspend Mr. Tarun Grover and Ms. Tripti Gulati from the examinations (for all the subjects) for next two years.

Penalty:

The Council has decided to suspend both the candidates' IAI membership for a period of two years with immediate effect starting from 28th March, 2015 till 27th March, 2017.

GOD, OUR CREATOR, HAS STORED WITHIN OUR MINDS AND PERSONALITIES, GREAT POTENTIAL STRENGTH AND ABILITY. PRAYER HELPS US TO TAP AND DEVELOP THESE POWERS.

- Dr. A.P.J. Abdul Kalam

COUNTRY REPORT

DEVELOPMENTS IN SOUTH AFRICA

INTRODUCTION

This article outlines the context and summarises the key activities of actuaries in South Africa in recent months

KEY ECONOMIC DEVELOPMENTS

South Africa's economic growth improved in the 4th quarter of 2014 and grew by 4.1% from 2.1% in the previous quarter. Mining growth jumped 15.2% in quarter 4 after a weak start to 2014 due to strikes. However, despite a strong end to the year, growth was only 1.5% for 2014, down from 2.2% in 2013.

National Treasury has forecast growth of 2.0% in 2015, 2.4% in 2016 and 3.0% in 2017. SA's current account deficit narrowed to 5.1% of GDP in quarter 4 of 2014, compared to 5.8% in quarter 3.

The Budget speech in February brought few surprises. Tax increases included a 50 cents per litre Road Accident Fund Levy, a 30.5 cents per litre fuel levy and a 1% increase in personal income tax for tax payers earning more than R181 900 p.a.

The electricity supply situation seems to have improved from the start of the year, but the unpredictable nature of load shedding is weighing on business confidence.

The All Share Index delivered a return of +5.9% over the first quarter of 2015. The return for the last 12 months was a respectable 12.5%. The annualised three-year and five-year returns of the All Share Index were 19.4% and 16.1% respectively. In the first quarter, Financials (+10.6%) outpaced Industrials (+6.0%) as Resources fell -0.3%.

The Rand started the quarter at R13.99 against the Euro and ended the quarter stronger to close at R13.14. The Euro weakened against all major currencies on the back of the ECB's stimulus package. The Rand started the quarter at R11.45 against the US$ and weakened by 5.9% to end the quarter at R12.13. The Rand touched a 13-year low of R12.52 in the middle of March before recovering somewhat. The strong US$ has also added to the sell-off in commodities.

Consumer price inflation slowed sharply to 3.9% in February from 4.4% the previous month.

RETIREMENT FUNDS

There has been a large scale consolidation within the Retirement Fund sector. Many of the smaller retirement funds are no longer set up on a free-standing basis, but rather belong to umbrella arrangements with an administrator. These arrangements are typically cheaper but also limit flexibility in terms of choice of risk underwriters, investment portfolios and also offer limited services.

Reform initiatives were previously announced by government but implementation dates are yet to be confirmed. The key reform initiatives are compulsory membership of retirement fund arrangements, compulsory preservation on exit and compulsory annuitisation at retirement. Some unions want workers to have access to monies on exit.

There has been some panic cashing in of retirement benefits where workers resigned to cash in their retirement benefits on the mistaken belief that Government was going to nationalise the pension fund industry. Government has since issued an appeal for workers to preserve their benefits and confirmed that they have no intention of nationalising the sector.

The Government Actuary has issued guidance on professional matters for retirement fund actuaries, including cautioning on the use of electronic signatures and taking too long to respond to queries. Penalties accrue where valuations reports are not submitted timeously. All recognised retirement fund valuators have had to submit an affidavit confirming that they are in good standing and have not been found guilty of any unethical or criminal conduct.

LIFE AND SHORT-TERM INSURANCE

Treating Customers Fairly

The local South African insurance regulator (the FSB) is implementing principles and rules regarding the fair treatment of clients of firms in the financial services sector. As part of the TCF initiative, the FSB has embarked on an industry-wide retail distribution review. A discussion paper on a range of matters, including remuneration of intermediaries, was published in November of 2014.

Solvency Assessment and Management (SAM)

The Financial Services Board (FSB) – with the assistance of stakeholders in the local life insurance industry – is working on a Solvency Assessment and Management (SAM) project. SAM is the South African equivalent of the Solvency II prudential regime being rolled out in Europe.

Final preparations for SAM are now underway, with full implementation scheduled for 2016. However, partial implementation - through a series of "Board Notices" published by the regulator - has already been effected. During 2015, insurers are required to (amongst others):

- formalise risk management policies, and roll out related risk management structures and systems
- perform quarterly solvency calculations on the proposed SAM basis;
- provide full annual parallel reporting (by reporting on the existing prudential

basis, as well as the proposed SAM basis); and

- implement an Own Risk and Solvency Assessment (ORSA) process - with a formal report to be submitted to the regulator.

Draft Insurance Bill

A key milestone in the SAM process was the publication of the Draft Insurance Bill in April 2015. The bill is due to be tabled in the South African Parliament during June 2015. In addition to SAM-related matters, it also:

- covers all insurance business (long-term and short-term insurance)in a single piece of legislation, and
- paves the way for the development of a separate micro-insurance "class".

It is envisaged that insurers only focusing on micro-insurance, will be subject to limited regulatory requirements. The ultimate goal is to improve access to insurance for the low-income sector.

OTHER MATTERS

Other matters involving South African actuaries are as follows:

- The Finance and Banking Committee is on track to launch its Fellowship Paper and the first such exam is expected later this year.
- The Health Care Committee has been monitoring the Competition Commission's inquiry into the Private Health Care Sector. Areas of scrutiny include health care financing and how delivery can function optimally within a market environment.
- The Compensation and Damages Committee held a sessional meeting and also discussed the structure and contents of the Guidance Note for actuaries practicing in this field.
- The Short Term Insurance Committee is reviewing Guidance Notes for actuaries practicing in this field. IFRS 9 has been finalised and issued.
- The CSI Committee is working on an analysis of Pensioner Mortality and will finalise this report by mid-2015.

ABOUT THE AUTHOR

Mr. Krishen Sukdev

is an actuary based in Johannesburg working for Independent Actuaries and Consultants (IAC).

krishen.sukdev@iac.co.za

MANY HAPPY RETURNS OF THE DAY

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

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

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

Submit your article at library@actuariesindia.org

We invite articles from the members and non members with subject area being issues related to actuarial field, developments in the field and other related topics which are beneficial for the students of the institute.

The font size of the article ought to be 9.5. Also request you **to mark one or two sentences that represents gist of the article.** We will place it as **'break-out' box** as it will improve readability. Also it will be great help if you can suggest some **pictures that can be used with the article, just to make it attractive.** Articles should be original and not previously published. All the articles published in the magazine are guided by **EDITORIAL POLICY of the Institute.** The guidelines for submitting the articles are available at **http://actuariesindia.org.in/subMenu.aspx?id=106&val=submit_article**

We will publish combined list of puzzle and soloution in the June issue of **the Actury India** Magazine.

SUDOKU

SUDOKU No. 32 for the month of May 2015

HARD SUDOKU

		4			8		3	
9					5		4	
1					7		2	
		7		2		4		
	9	6				7	1	
		8		1		9		
	4		3					1
	5		8					6
	7		9			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.31 published in the Month of April 2015

SOLUTION

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

RNI NO. - MAHENG/2009/28427
Published on 16th of every month

Postal Registration No. - MCS/057/2015-17
Posting Date: 21,22 & 23 of every month