

# The Actuarial "Watt"?

## EDITOR'S NOTE

Welcome back everyone! We hope you all had a great Winter Holiday and New Year.

First of all, I'd like to like remind everyone that the SAS Annual Conference is fast approaching. We have a wide range of speakers discussing important actuarial topics including Solvency II and Defined Benefit & Defined Contribution pension schemes. It's free entry for all actuarial students, so we'd like to see you all there. More information about the Conference can be found on page 7 of the newsletter.

We also have a diverse range of articles on topics affecting the insurance industry including the devastating floods down south and information for those of you interested in attaining actuarial qualifications overseas.

Also, the SAS website <http://hwsas.com/> has been redesigned and brought up-to-date. You can find more information about the responsibilities of Committee members and potentially useful information in our "Resources" section.

Once again I'd like to remind everyone that you can also get involved in the Current Affairs Sub-Committee and contribute to our newsletter at any time by once again dropping me an email at [jap12@hw.ac.uk](mailto:jap12@hw.ac.uk).

-Jack Paton-

## ARE SMOKERS GETTING A BETTER DEAL ON THEIR PENSION?

BY JOHN WATRET

Standard annuity rates have remained at an all-time low for the past few years in response to the low interest rates and increasing demand for gilts. Traditionally, pension providers have various ways of investing money and therefore various returns, depending on how risky the investment is. Most insurers buy government gilts to pay for their annuity payments but they generally have low yields, due in part to the recent economic climate of low inflation and low demand for Sterling. As such, all insurance companies need a balance of safe and risky investments to meet the demand of their customers' annuity payments.

A recent report from the Annuity Bureau (released on 03/01/2014) shows a massive rate increase of 6.28% for a smoker's single annuity from Scottish Widows. Although Legal and General still pay out more per month (see table 1), this jump represents the highest hike in rates seen over the past few months after a quiet October and November. Annuity rates for smokers are generally volatile as it is often difficult to predict their mortality rates but is this recent increase a trend for the future?

Table 1 - Annuity payments for a single life package, aged 60, based on a purchase price of £100,000 paid monthly in arrears.

Annuity provider	Non-smoker income per year (Male)	Smoker income per year (Male)
Legal and General	£5,645.40 (0.66% increase on last month)	£6,681.60 (0.86% increase on last month)
Scottish Widows	£4,920.18 (unchanged from last month)	£6,584.04 (6.28% increase on last month)

Payment rates for annuities are based on numerous factors, such as age of retirement, general health at time of retirement and even your postcode, which has caused numerous ‘tiers’ of income for pensioners. The biggest difference in annuities can be seen when comparing smokers and non-smokers as, on average, mortality rates for smokers increase most between the ages of 60 and 64, whereas non-smokers generally increase between 70 and 75. This has led to companies creating ‘enhanced’ annuities for those with a higher mortality at a younger age after retirement, based on health or lifestyle choices such as smoking.

Most companies nowadays request you complete a survey of your general health before taking out an annuity so they can best determine your allowance in accordance to mortality tables. As demonstrated above, the answer to the survey can affect your yearly income by as much as £1,000 based on whether you smoke or not. It is even estimated that about 70% of the UK population could qualify for an enhanced annuity, paying on average £1,400 more than a standard annuity. Table 2 below shows the typical enhancement rates for annuities in the UK based on retirement age, compiled by Hargreaves Lansdown:

Table 2 - Average annuity payments based on age of retirement and purchase price of £100,000 paid in monthly arrears.

Age of retirement	Non-smoker income per year (Male)	Smoker income per year (Male)
55	£5,039	£5,748 (14% increase)
60	£5,561	£6,452 (16% increase)
65	£6,184	£7,318 (18% increase)
70	£6,819	£8,221 (21% increase)
75	£8,028	£9,804 (22% increase)

Of course, rates change all the time and if more and more people become smokers their annuities might start to fall rather than increase. As the demographic of the UK steadily changes in the coming years, the number of pensions will increase and the rate of return will continue to decline. Although it appears smokers on enhanced rate annuities may be getting a better deal, they actually lose out as non-smokers live on average almost twice as long after retirement. However, everyone is unique and it is the job of an actuary to determine a personalised annuity rate for each individual and whether they should receive either the standard or enhanced rate.

As such, an actuary will have to assess each individual’s response to the survey to see if their lifestyle or health suggests they would benefit from an enhanced rate annuity. The criteria are different for every provider and the type of annuity will depend entirely on the individual (as they can be staggered, increasing, decreasing or level). After determining the correct annuity package, an actuary will then have to consult the appropriate mortality table and calculate the income payments due to the annuitant. In addition, an actuary will have to determine how best to fund the payments as the initial capital paid for the annuity will, often enough, not be sufficient to pay the pension in its entirety. As mentioned before, a balance of risky and safe investments need to be sought to provide the capital.

With an ever aging society and various changes in our lifestyles, the ways of sourcing pensions are becoming increasingly difficult, possibly more so when solvency II is fully implemented. The bulk-buying of government gilts to fund current pensions has driven rates to an all-time low and, without riskier investments, we may see pension income payments drop below £5,000 a year by the end of 2014. Best advice is to shop around to get the best deal for your pension if you cannot qualify for an enhanced rate annuity and consider ‘open market’ options. It may be a riskier choice but you would get more money for your trouble.

## WILL NEW LEGISLATION WASH AWAY THE THREATS OF FLOODING?

BY STEPHEN JASINSKI & RYAN MACGREGOR

For two consecutive years, the heavy rainfall in England and Wales has led to major flooding; causing mass devastation to home and business owner. If you live near the coast, by a major river or on low lying land, there's a chance you could be in an area at risk of flooding. It is estimated that there are still around 5 million households at risk of flooding in England and Wales, an unbelievable number for 21<sup>st</sup> century Britain. With the massive damage and destruction flooding can cause it's vital to ensure your protected with adequate buildings and contents insurance. Flood insurance rates however, have slowly been climbing in recent years and with the existing Statement of Principles agreement due to expire on 31st July 2013, flood insurance prices looked set to sky rocket for high risk homeowners.

Homeowners who live in one of these areas face many challenges in gaining insurance cover. Flood insurance is normally included when you take out contents or building insurance, but for the people in these areas premiums are set at a much higher rate, due to the increased risk faced by these properties. If the household isn't insured, because of the high premiums, it could have implications on mortgages and result in difficulty selling the property. There are several organisations set up with the sole purpose of advising homeowners of their options when trying to obtain flood cover.

"The recent extreme weather has served to highlight the important role that the insurance industry plays in helping people to get back on their feet after flooding," Environment Minister Lord De Mauley told the House of Lords. It is the Government's plan to introduce a scheme known as Flood Re, which will make it easier for insurers to underwrite policies for homeowners at risk of flooding. The scheme aims to provide reinsurance for flood risk to all insurers who provide household insurance in the UK. If the bill is passed, it will extend competition in the water industry by allowing consumers to choose whom they want to be their supplier; plus Ofwat (the water and sewage regulator) will take on the duty of ensuring the long-term resilience of water supplies in the future. The new flood insurance deal aims to ensure homeowners and residents living in high flood risk areas of Britain can continue to find affordable flood insurance by placing a cap on the total cost.

Some at risk homes are being excluded. If you live in a property built after 2009 or if your home falls into council tax Band H you will not be protected by Flood Re. This means you could face unlimited flood insurance costs or be refused cover altogether. The flood insurance element of home insurance policies will be capped at an annual maximum. Existing council tax bands will be used to determine the maximum cost of flood insurance so it's more important than ever to make sure you are paying the right amount of council tax. The capped flood insurance premiums will start at £210 per annum for homes in Bands A and B rising to £540 pa for homes in band G. Business properties are also excluded from Flood Re, while "borderline" cases such as B&Bs will have to wait and see if they will be protected. To help fund this, all home insurers will collectively be subject to a levy. On average this works out at £10.50 a year on all home insurance policies. Homeowners already pay this, as some cross-subsidy has always existed between lower and higher flood risks.

The government has planned for Flood Re to be ready for launch in summer 2015.

Around 5 million people live in flood risk areas in England and Wales.  
(source: Environment agency.)

Percentage of residential addresses at potential risk from flooding (by postal town)



# QUALIFYING AS AN ACTUARY OVERSEAS

BY JIA-HUI LIANG

I am sure we are all familiar with the exams needed to pass to qualify as an actuary in the UK. However, the career opportunities of an actuary are not limited to the UK. In this article, I will explore what it takes to qualify as an actuary in other countries, specifically the US and Australia.

## United States

In the US, the two largest professional organizations are the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS). The SOA focuses on pensions, life insurance and investments, while the CAS focuses on general insurance.

## SOA and CAS Associateship Requirements

SOA Exam	CAS Exam	Exam Title
P	1	Probability
FM	2	Financial Mathematics
MFE	3F	Financial Economics
MLC	LC	Life Contingencies
C	4	Construction and Evaluation of Actuarial Models
	ST	Stochastic Processes/Statistics

To qualify as an Associate of the SOA or CAS, a candidate also needs to have Validation of Educational Experiences (VEE). This simply means the subject has been sufficiently covered in university. These include:

- VEE - Economics
- VEE - Applied Statistics
- VEE - Corporate Finance

Besides that, a SOA candidate has to complete a Fundamentals of Actuarial Practice (FAP) e-Learning Course and an Associateship Professionalism Course (APC). A CAS candidate has to pass two more exams and complete two online courses and a course on professionalism, detailed below:

- Exam 5 - Basic Techniques for Ratemaking and Estimating Claim Liabilities
- Exam 6 - Regulation and Financial Reporting
- Online Course 1 - Risk Management and Insurance Operations
- Online Course 2 - Insurance Accounting, Coverage Analysis, Insurance Law, and Insurance Regulation

Now, to qualify as a Fellow of the CAS a candidate requires qualification as an associate plus passes in the following exams:

- Exam 7 - Estimation of Policy Liabilities, Insurance Company Valuation, and Enterprise Risk Management
- Exam 8 - Advanced Ratemaking
- Exam 9 - Financial Risk & Rate of Return
- Online Course 2 - Insurance Accounting, Coverage Analysis, Insurance Law, and Insurance Regulation

## The Actuarial “Watt”? February 2014

An Associate of the SOA can then be promoted to become a Fellow by choosing a specialty track:

- Corporate Finance and ERM (CFE)
- Quantitative Finance and Investment (QFI)
- Individual Life and Annuities
- Retirement Benefits
- Group and Health
- General Insurance

### Exemptions

Those of you who have passed the exams for the Institute and Faculty of Actuaries (in the UK) are also eligible for exemptions from the SOA & the CAS:

Exams of the Institute & Faculty of Actuaries (UK)	Exemptions for SOA (US)	Exemptions for CAS (US)
CT1	Exam FM	Exam 2
CT2	VEE Corporate Finance	VEE Corporate Finance
CT3	Exam P	Exam 1
CT4	Exam MLC	Exams ST & 4 & VEE Applied Statistical Methods
CT5	Exam MLC	Exam LC
CT6	Exam C and VEE Applied Statistics	Exams ST & 4 & VEE Applied Statistical Methods
CT7	VEE Economics	VEE Economics
CT8	Exam MFE	Exam 3F

### Career Prospects

CareerCast.com has ranked the actuarial profession as 2013's best job in the US. According to the US Bureau of Labor Statistics, the median annual wage for actuaries was \$93,680 in May 2012. The number of jobs is projected to grow by 26% from 2012 to 2022. There will be increasing demand for actuaries in the health insurance, property and casualty insurance, as well as enterprise risk management. Therefore, there are plenty of opportunities in the US for overseas actuarial students.

### Australia

To qualify as an actuary in Australia, a candidate has to fulfil the requirements of the [Institute of Actuaries of Australia \(IAA\)](#).

To become an Associate of the IAA, candidates have to complete:

- Part I
- Part II, comprising:
  - Part IIA – The Actuarial Control Cycle
  - Part IIB – Investment & Asset Modelling
- A three-year Practical Experience Requirement (PER)
- A Professionalism Course

To become a Fellow of the IAA, candidates have to then complete:

- Part II, comprising:
  - Part IIA - The Actuarial Control Cycle, and
  - Part IIB - Investment and Asset Modelling;

Part I consists of eight core technical (CT) subjects, similar to the UK:

- CT1 - Financial Mathematics
- CT2 - Finance and Financial Reporting
- CT3 - Probability and Mathematical Statistics
- CT4 - Models
- CT5 - Contingencies
- CT6 - Statistical Methods
- CT7 - Business Economics
- CT8 - Financial Economics

The important point here is that candidates who have passed the CT1 to CT8 exams of the Institute and Faculty of Actuaries (in the UK) are eligible for exemptions from Part I of the IAA requirements.

### Career Prospects

Based on [www.actuaries.asn.au](http://www.actuaries.asn.au), a newly qualified Fellow can expect to earn around \$100,000 per year. The career opportunities for actuaries are not only restricted to the insurance and financial industries, more actuaries are working in non-traditional areas such as the environment, genetics, information technology, e-commerce, telecommunications and public infrastructure.

As the global economy recovers, the future will look bright for those who are considering a career as an actuary. Most importantly, aside from passing the exams, an actuary needs to acquire and develop a range of skills regardless of where he/she will end up working. Analytical, problem solving and communication skills (just to name a few) are essential in order to stand out in the job market. Qualifying as an actuary overseas opens doors to diverse opportunities. The world is your oyster!

## SOCIAL SECTION



Above are a few photographs from one of our social events, the SAS Mystery Bus Tour. This year the tour finished up in Liverpool. Be on the lookout for more fun SAS social events this semester!

# **SAS CONFERENCE 2014**



**When? Wednesday 12<sup>th</sup> February**

**Time? 3.15pm – 5.45pm**

**Where? James-Watt Centre**

**This is one of the biggest events that SAS have this year with a number of distinguished guest speakers discussing intriguing and topical issues affecting the 'Actuarial World' today.**

**This year we have four main topics:**

- *'A Medical Science Based Approach To Longevity Modelling'* - presented by **Dr Gordon Woo** of **Risk Management Solutions Inc.**
- *'Solvency II'* - presented by **Kris Hristakev** of **Swiss Re.**
- *'The Consequences of Choosing the Wrong Model'* - presented by **Andrew Smith** of **Deloitte.**
- *'The Transition from DB to DC Schemes'* – presented by **John Gordon** of **Punter Southall.**

**Light refreshments shall be provided, with an opportunity to liaise with guests. Hope to see you there!**

## CROSSWORD TEASER

**Across**

- 2 Endowment \_\_\_\_ (9)
- 5 Male (17 across) is \_\_\_\_ compared to females (4)
- 8 Responsible for running 20 across 9 down (8)
- 11 see 26 down
- 12 Interest \_\_\_\_ (4)
- 13  $I_x =$  \_\_\_\_ age  $x$  (4)
- 14 Sit 15 \_\_\_\_ to become a fully qualified \_\_\_\_ (4,7)
- 16 Financial Mathematics CT\_\_, (3)
- 17 Yellow Tables contain expected \_\_\_\_ rates (9)
- 19 To trade or exchange (4)
- 20 Receivable in retirement (7)
- 21 Sum of bets (3)
- 22 Pay insurance \_\_\_\_ (8)
- 24 Analyze current \_\_\_\_ (5)
- 27 Companies assets exceeds liabilities (8)
- 30 Amount paid (4)
- 31 Supply and demand (6)
- 32 Set aside funds (7)
- 33 Nominal \_\_\_\_ (5)

**Down**

- 1 Wise to save for \_\_\_\_ (10)
- 2 see 14 across
- 3 Series of require payments (7)
- 4 pay annual \_\_\_\_ towards pension (13)
- 6 Minimize Investment Risk (5)
- 7 Search for cheapest insurance \_\_\_\_ (5)
- 9 Members of a Pension \_\_ (6)
- 10 Global, voluntary regulatory standard (5)
- 11 Contractual Payout Agreed (7)
- 15 Liquidation to convert all \_\_\_\_ to cash (6)
- 18 Used to pass risk to other party (9)
- 21 \_\_\_\_ holder (7)
- 23 UK GILTS possess low \_\_\_\_ (4)
- 25 State precise meaning (7)
- 26 Stock Market, \_\_- \_\_ Spread (3,3)
- 28 Present \_\_\_\_ (5)
- 29 Make a \_\_\_\_ (5)

Solve the hidden message by using the 13 letters in the grey squares for the chance to win a £10 iTunes voucher! Submit your answer to [jap12@hw.ac.uk](mailto:jap12@hw.ac.uk). We'll select one lucky winner from all the correct submissions and will inform you via email if you have won. Contest ends 21st February 2014.

### Chocolatiers Conundrum:

Cadburys have just received a complaint from a picky customer stating that the chocolate bar they purchased was 1g lighter than the advertised weight. Cadburys know that only one machine is producing the lighter chocolate bars and want to rectify the issue immediately. However, it is too costly to shut down and analyze every machine, so instead, they decided to take one sample of their chocolate bars from every machine and weigh the whole sample on the scales once.

**How could they choose one sample so with only one weigh-in they know exactly which machine to fix?**

Email your solution to [jap12@hw.ac.uk](mailto:jap12@hw.ac.uk) for your chance to win a copy of "50 Mathematical Ideas you really need to know" by Tony Crilly.