

Society of Actuaries in Ireland

Newsletter



Fellowship Ceremony

The President, Paul O'Faherty, presented new qualifiers with their FSAI parchments at a ceremony in the Royal College of Physicians of Ireland on 11th October 2012.

From Back L - R

and Rachel Lynch

(Back Row) Ruaidhry McCaughey, Gerard Barry, Patrick Meghen, John Fennelly (Next Row) John Mulvihill, Aidan Redmond, Aidan Murphy, Conor O'Brien, David Kelly (Next Row) James Hannon, Catherine Curran, Eamon Comerford, Sarah Hyland, Marie Bradley, Dermot Mannion (Front Row) Donal Murphy, Adreanna Leonard, Paul O'Faherty, SAI President;

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The Society's New Image

Welcome to our new look (full colour!) Newsletter - with this and the re-launch of our website we have now completed the move to the Society's new image. I would like to thank all involved and, in particular, the Communications Committee for their enormous work in planning this change and getting everything in place in time for our 40th anniversary. I would like to thank Frances Kehoe who has edited this Newsletter for many years and welcome Kevin Manning as our new editorin-chief.

Photographs from our 40th Celebrations are on the next few pages and I hope you will enjoy "Reeling in the Years" which is posted on our website at www.actuaries.ie/Events/Past Events In the article on the next page, which is based on my speech at our 40th anniversary celebration on 8th November, I look back over the Society's first 40 years and look forward to the next 40!



Paul O'Faherty SAI President

Daichead Bliain ag Fás – Forty Years A-Growing

The stated aims of 17 men - and yes they were all men - who founded the Society of Actuaries in Ireland 40 years ago were:

"to act as a forum for matters of interest to the actuarial profession and to express the views of the profession on matters of more general interest"

If the past is a foreign country, then it's no surprise that the Ireland, into which the Society was born, did things very, very differently.

Back then, you could still drive your Ford Capri down Grafton Street. Drinking Black Tower was the zenith of continental sophistication. And curly wurlys were on their first incarnation.

On a more serious note, by 1972 inflation had already reached 9%, and in the years to follow would climb to 20%. As a nation, our income per head was just 60% of the European average. And it was only in 1972 that women no longer had to leave their jobs when they got married.

The pace of change – technological, political, social, and cultural – has been amazing over the years.

In 1972 the HP35 was cutting edge technology. This was the first pocket calculator that could do more than just add, subtract, multiply or divide. This was very important to any self respecting actuary - we have always loved hard sums! And it was a snip at only \$2,200 in current money terms. But the phone in your pocket or purse right now is nearly 1,000,000 times more powerful.

Thanks to advances in medical and pharmaceutical research, a child born in Ireland today can expect to live eight years longer than if she were born in 1972. And a person retiring today can expect to enjoy nearly five extra years of retirement.

As actuaries, we tend to focus on the challenges associated with people living longer. But we should never forget the blessing it truly is.

So how has our profession fared over the past 40 years? And how well have we realised the aims of the original founders? Ultimately, it is for others to judge how well we have delivered, and are delivering, on these aims.

But in making that judgment, the key role actuaries play in Irish financial and economic life should be taken fully into account. We have serious responsibilities which we have never taken lightly. We have, I believe, discharged our duties creditably. Though, as always, with the benefit of hindsight there are things we could have done better.

In any case, as we move forward managing risk is now at the core of national and corporate decision-making. Risk is the new black!

As the "risk professionals", actuaries are ready to play a major role in this brave, new, risk-aware world. Increasingly, we are being asked to play that role. And increasingly, we are ready to play it.

It is difficult to consider the role of actuaries as risk professionals without touching on two topics of particular current relevance – topics for which understanding and managing complex risks are key challenges.

Firstly, even in the midst of our immediate, short-term problems, we cannot afford to ignore the mediumterm retirement crisis that looms ahead. The recent Actuarial Review of the Social Insurance Fund has raised serious questions about the sustainability of the state pension. This compounds the already well-flagged concerns about occupational pension adequacy and coverage. Serious reform of both pillars is not just necessary, but essential. The debate must start now, while we still have time.

Secondly, the Solvency II project, which has dominated the insurance agenda for years, is uncertain. Political support has waned. Its scope is being questioned. There is no clear implementation timeline.

Coming after all the energy and resources Solvency II has already consumed, this is a huge disappointment. Few could argue convincingly that our existing Solvency I standard meets the needs of an increasingly

sophisticated market. If this uncertainty persists much longer it may be necessary for Ireland to contemplate an interim system that more accurately reflects underlying risks. Delivering on Solvency II would be far better.

Our profession has come a long way in 40 years. There are now 644 actuaries working in Ireland - that's a yearly growth rate of just over 9% -9.39% actually - sorry, I couldn't resist the two decimal places!

In fact Ireland now has the highest number of actuaries per capita in the world. I guess you can't have too much of a good thing! This is thanks in no small way to the vibrant international insurance presence in the IFSC.

Finally, I was delighted that 10 of the original founders of the Society joined us for the 40th birthday celebration. They were:

Joe Byrne, Adrian Daly, Peter Delany, Brian Duncan, David Kingston, Paddy Maher, Michael O'Mahony, Piers Segrave-Daly, John White and Bob Willis.

Gentlemen thank you again for your contribution to our profession.

Paul O'Faherty SAI President

SAI Celebrating 40 Years!

The Society was founded by 17 actuaries on 3rd May 1972 in the Russell Hotel, St. Stephen's Green, Dublin.

The 17 Founding Members were:

William A. Honohan - deceased

Robert P. Willis

Cecil Ross - deceased

Geoffrey Rowe - deceased

Brian S. Reddin - deceased

Bernard Harberd - deceased

Joseph Byrne

Patrick J. Maher

Michael Robinson - deceased

Piers Segrave-Daly

R. Peter Delany

T. David Kingston

Michael O'Mahony

Brian Duncan

John White

Adrian D. Daly

Brendan Hayes - deceased



Paul O'Faherty, SAI President, addressing members and guests at the 40th Anniversary Celebrations on 8th Nov. 2012

SAI Founding Members at the Society's 40th Celebration



Left to right: Bob Willis, John White, Joe Byrne, Brian Duncan, Piers Segrave-Daly, Paddy Maher, David Kingston, Adrian Daly, Michael O'Mahony and Peter Delany.



John White, Peter Delany, Jonathan Goold



Karel Goossens and Paul O'Faherty



Micheal Brennan, Anne Maher, Patrick Maher, Paul Kenny



Colm Guiry, Elena McIlroy De La Rosa, Padraic O'Malley



Patrick Burke and Rachel Ingle



Pol O'Briain, Siobhan Gaidiner, Rafay Khan, Dave Kavanagh



Liam Quigley, Sean O'Donovan, Kevin Reynolds



Karl Alexander and George McCutcheon



SAI 2012 Council



Catherine McBride and Tracy Gilbert



Gerry Hassett and Dermot Corry



Paul O'Faherty and John Corrigan



Sinead Clarke and Miriam Sweeney



Kate McEvoy, Greg Murphy, Annemarie Nestor, Bella Daniels



Antoinette O'Faherty, Micheál O'Briain, Maurice Whyms



Conor O'Neill and Jerry Moriarty



Caroline Barlow and Pat Healy



Members toasting their guests

Sovereign Annuities

The first CPD meeting after the summer break brought together a large gathering of actuaries and lawyers for a joint meeting between the SAI and the Association of Pension Lawyers in Ireland (APLI) to discuss sovereign annuities.

Keith Burns kicked off the meeting by providing some background on the topic. The concept of sovereign annuities was first proposed in late 2009 by the IAPF and SAI, the objective being to ensure fairer balance between pensioners and active/deferred members in defined benefit pension scheme and thereby improving scheme sustainability. Described as a "warts and all" solution, it was recognised that sovereign annuities were not a solution to long term pension policy issues.

Keith went on to explain that unlike guaranteed annuities, the payments under sovereign annuities are linked directly to payments of a specified bond. If payments from the bond are reduced or don't occur, payment of the sovereign annuity can stop.

Sovereign annuities can be on a "buy in" basis, where the sovereign annuity becomes an asset of the scheme; or a 'buy out" basis, where it is owned by the member and the member bears the credit risk. Keith then illustrated the impact of holding sovereign annuities on schemes through a couple of numerical examples. These highlighted the greater credit risk that the scheme takes on, the greater the cover is for active/deferred members.

The issue of valuing sovereign annuities only arises for those on a "buy in" basis where they must be valued for the Actuarial Funding Certificate or Annual Statement by the scheme actuary. The actuarial guidance from the Pensions Board either is to value both the sovereign annuity and pension in payment on current market basis which will be equal and matching, or alternatively, to omit pensions in payment and the annuity from both sides of the balance sheet.

Keith went on to describe how schemes can invest in sovereign bonds directly rather than sovereign annuities and still avail of the funding standard reduction. To do this, a scheme must formally resolve to purchase sovereign annuities on a wind up and review this decision

on an annual basis. Trustees also need to take advice on this strategy and communicate it to members and unions. The complex rules by which sovereign bonds are to be valued for schemes were described. This complexity may mean this option is not a popular one.

Keith concluded with some general issues including the difficult decisions facing trustees; the potential reputation risk for pension industry and actuaries as advisors; what we should assume bond yields will look like at the end of a typical funding proposal term and the suggestion that there may be better options available to address scheme sustainability and equity.

Sandra Rockett took the helm to discuss the investment case for sovereign annuities and highlighted some investment issues trustees may need to consider in the future. The investment decision is not one that can be made by just looking at risk and reward, as it is overlaid with responsibility to consider best interests of all scheme members. It is also likely that the decision will need to be made in conjunction with the employer. In each case there is no perfect solution and each solution needs to be assessed by reference to the specific details of the individual scheme.

The issue of what the return on Irish sovereign bonds would be for sovereign annuities was posed. The NTMA have said that future issues will reflect prevailing market conditions. Sandra suggested a yield pickup might be expected to incentivise allocation of capital to the state over a long period.

The price of sovereign annuities is unknown as they have yet to be launched but it is thought that this will be closely correlated with the underlying investment as the life company is not taking on investment risk. The definition of return was considered for both schemes in wind up and on-going schemes.

Sandra balanced the discussion on investment returns by highlighting the three key investment risks of sovereign annuities: default, concentration and liquidity. In assessing default risk, trustees need to consider the ability of a specific sovereign to meet its responsibilities. Sandra suggested that

this cannot be deciphered from yields alone as these can be distorted by risk premia that are more related to currency convertibility. In discussing concentration risk, she interestingly pointed out the fall in domestic debt from 78% to 21% in Irish pension funds from 1998 to 2011 has not been mirrored by other peripherals. The question of whether there is just one true counterparty for all sovereign debt in Europe was also posed.

Sandra also touched on factors to consider when determining an investment strategy for a scheme. These include the cost facing the scheme sponsor, the strength of the employer covenant and balancing benefit levels with benefit security. In deciding between sovereign annuities or bonds, trustees need to consider the funding position of the scheme; the future of the scheme; and the need for liquidity.

Philip Smith from Arthur Cox and the APLI opened his section of this evening with a bold statement that potentially no one would use sovereign annuities. Philip looked at sovereign annuities from a trustee's perspective including whether they should be used; if so, when; the duties of the trustees; and the risks. It was questioned whether a sovereign annuity was fit for purpose to provide a pension given pension is an income for life. The audience was also asked the difficult question whether any of them buy one for their mother.

Philip reminded trustees of their duties to act as a prudent business person and to act in the members' best financial interest. The risk was highlighted that members could potentially claim against trustees citing mal-administration, breach of trust or loss. The issue of if and when sovereign annuities should be used was explored with some interesting examples. These led to the conclusion that the decision was scheme and situation dependent. A cautionary note was added as history shows that courts are less likely to punish conservative decisions.

The evening concluded with a large number of questions and comments including some on Personal Insolvency Payment Schemes, risks faced by Trustees and potential changes to scheme priority rules.

Sinéad Carty

Round table discussion on Reserving for Solvency II

On Monday 10 September 2012, the Society was delighted to welcome Susan Dreksler, non-life actuary in PWC who also chairs the Solvency II Technical Provisions General Insurance Working Party, and Jerome Kirk, Head of Actuarial Services within Lloyd's Market Reserving & Capital department, to present on the topic of Solvency II Technical Provisions.

Susan Dreksler started with an introduction to the working party which she chairs and some of their main objectives which are around education, raising awareness and providing helpful insight into Solvency II Technical Provisions. At the moment the working party is focusing on bringing people together to talk about the areas where Solvency II is vague with the goal of building a consensus view.

The first topic was premium provision, which is probably one of the biggest changes for general insurers under Solvency II as it now requires companies to project future cashflows from the unexpired risk allowing for premiums, claim indemnity costs and expenses on a best estimate basis.

A lively debate was sparked on this topic by looking at the main challenges around:

- The claims liability (underwriting versus accident year, which loss ratio to use, payment patterns regarding reinsurance).
- Data granularity and allocation issues, noting that there is a potentially contentious issue of whether it is fair to allow for full investment management expenses when only crediting risk free rates of return.
- Expense Allocations, noting the challenges in understanding how expenses should be allocated and raising an even more fundamental question of whether expense allocations really fit into the actuarial function.

Jerome Kirk then moved onto the topic of validation and in particular what should be validated, when and by whom? He talked briefly about bootstrapping and how this could be used to support the assessment of back

testing results. However as with all methods there are some pitfalls. In particular, Jerome noted that bootstrapping is not a perfect method and may require validation itself, and that it normally results in shifting the mean to replicate the best estimate.

The topic was then open to the floor with some interesting points raised around data validation:

- Do insurers' current validation processes need to be improved under Solvency II?
- Where should the validation sit?
 For example, should it sit within the actuarial function (noting potential issues with a function validating itself), or within a different function such as risk management or internal audit?
- Is it possible to have a standard validation process for all companies?
- Do companies need to get better at documenting things?

Susan then presented the next topic on binary events, starting with the definition from Groupe Consultatif:

"Best Estimate is the average of all possible scenarios. Some weight has to be given to losses with low probability but high cost — we call these Binary Events. Examples of binary events include the occurrence of a new type of latent claims or a change in legislation impacting claims payment retrospectively or a high inflation environment."

Susan mentioned that binary events are probably the things you haven't seen before in your data and hence are difficult to allow for. She also noted that there is little or no reference anywhere in the Solvency II directive to binary events. In fact QIS5 was generous and assumed you were already allowing for them. It is clear that even though there are mixed views on how to allow for binary events that it is an issue that can't be ignored and that companies will have to justify what they've done.

Susan then invited comments from the floor which prompted an interesting discussion with a variety of opinions expressed. Part of the audience felt that binary events should be ignored in calculating technical provisions, as otherwise a best estiamte would not really be a "best estimate". An allowance for binary events could perhaps be made in the capital requirements instead. Others suggested that benchmarking was a good approach, however Susan warned that care was needed in choosing what to benchmark against.

Others felt that there should be more guidance on this topic suggesting that there should ultimately be consistency between insurers. For the final topic, reinsurance, Jerome moved on to say that under Solvency II there is a requirement for a separate calculation of gross and net of reinsurance technical provisions on a cashflow basis. He noted that, even though there are already a lot of hurdles to overcome on the gross calculation, the reinsurance calculation introduces even more uncertainty, with companies needing to allow for considerations such as possible settlement delays and disputes. A simple but widespread approach for calculating reinsurance separately would be to use net to gross ratios. Jerome then raised a challenging question: if you are not using a stochastic approach how good will the numbers be?

After a survey of the audience, Jerome found that no one is using stochastic models for reinsurance. Jerome then left the audience with the open question of whether the reason that stochastic models are not being widely used is that companies have not yet got to this topic under Solvency II or whether it felt that stochastic calculation were just not required for reinsurance.

After a very informative and thought provoking meeting I think it is fair to say that it was felt there was still a long way to go in achieving a consensus on some of the Solvency II topics.

Ger Bradley then closed the meeting on behalf of the Society by thanking Jerome and Susan for the excellent presentation and the audience for their significant feedback.

Sarah Byrne

Climate Change, Resource Depletion, Limits to Growth and the Financial System

Oliver Bettis from the UK Profession's Resource and Environment member interest group, gave an informative talk entitled 'Resource and Environmental Limits to Economic Growth' at lunchtime on Friday 21st September.

The presentation focused on economic growth, in particular the environmental impacts of the rapid growth over the last couple of hundred years. Along with the benefits of this growth for society, there has also been a downside, in particular the changes in our environment and depletion of resources. Oliver asked whether improved technology and the skills of actuaries can help to manage the downside of economic growth.

Oliver began by introducing the term "Anthropocene World" that describes the world we currently live in, where human actions have now influenced the earth's ecosystem. The world's population and GDP had remained relatively stable over the years until the Industrial Revolution began around 1750. Since then both population and GDP have significantly increased.

Oliver pointed out that as the world economy grew, there have been "bads" that have increased together with the benefits of economic growth.

Healthcare, education, sanitation, housing and technology are a few of the "goods" that have improved with the developing economy. While these "goods" have improved the lives of most people, there has also been an increase in the "bads" such as the high carbon dioxide levels in the atmosphere.

Some of our vital resources are being seriously depleted as the economy grows. We are still highly dependent on fossil fuels, with very little energy coming from renewable and hydroelectric sources but oil discoveries have decreased dramatically in the last couple of decades. Not only are fossil fuels appearing to reach a limit, Oliver outlined a number of areas in which scientists believe there is the potential for humanity to significant impact our environment. These are:

- Climate Change
- Ocean Acidification

- Stratosphere Ozone Depletion
- Nitrogen Cycle
- Phosphorus Cycle
- Global Freshwater Use
- Change in Land Use
- Biodiversity loss
- Atmospheric Aerosol loading
- Chemical Pollution

Of these, the earth has already reached hazardous levels for Climate Change, the Nitrogen Cycle and Biodiversity Loss. For example, carbon dioxide levels in the atmosphere have reached the highest level ever. The temperature in the atmosphere is highly correlated with the carbon dioxide level, leading to increased temperatures. Along with this, the ice caps are melting at an increased rate leading to a rising sea level.

Climate change, loss of biodiversity, oil depletion etc. can all be attributed to increased consumption by humans as a result of the exponential growth of the population and the global economy since the 1700s. Oliver pointed out growth may not always be for the best, whether on an individuals' waistline or in the global economy! There is a limit to growth and we need to consider what will happen when we reach that limit. Will technological progress facilitate an increase in the earth's capacity to sustain further economic growth? Will the economy grow beyond the earth's capability to sustain it and then fall to a 'steady state'? Will both the economy and the earth's capacity to sustain it collapse together? Will there be an energy/environmental crunch?

Some argue that technology can solve this problem for us. If so, we need to start developing that technology now with huge investment needed to develop new technologies.

Oliver also discussed the concept of Gross Domestic Product as an economic growth indicator. We have seen rich countries grow enormously in GDP terms while poorer countries struggle to improve healthcare, education, sanitation and housing. Once these basic material needs are met, increased GDP has little effect on life satisfaction. Should governments aim for a stable level of GDP and focus on people's happiness rather than continued growth?

Actuaries' skills in understanding risk and uncertainty, exponential growth, scientific methodology and our ability to base decisions on data, all while maintaining a prudential overview mean that actuaries could be an important factor in helping to resolve many of these issues. In light of this there has been a "Wider Fields" member interest group set up by the Society to discuss such topics.

On the Discussion Forum on the Society's website members can keep up to date with developments and contribute their views at:

www.actuaries.ie/discussion forums/
General Discussion-SAI Members

Shauna McHugh

How to Make your Money last all of your Life and how Policymakers can Help

Paul O'Faherty chaired our recent Pensions Conference which was scheduled as part of the Society's 40th anniversary celebrations. The speakers were selected to tackle the increasingly individualised challenge that is retirement savings. The certainty of defined benefit is fading fast to be replaced by a world where we all have to take individual responsibility for our lifetime financial planning. It is a considerable challenge.

The key themes to emerge from the morning were as follows:

Study after study has shown that most people have very little awareness of their retirement benefits, even those within 10 years of their expected retirement age. Alan Barrett's recent findings from the TILDA participants were a stark reminder that no amount of communication or financial literacy interventions will enable the average participant to engage with and understand the issues. The concepts of long term savings are simply beyond the complexity threshold of most people leading busy lives in other fields.

This means that policymakers and employers cannot just hand responsibility over to members and expect reasonable outcomes. Some guard rails are required to ensure a minimum level of future provision and sound investment choices.



L to R: Robin Webster, Aisling Kennedy, John Deely, Paul O'Flaherty, Niall O'Callaghan and Patrick Cosgrave

Auto enrolment at a minimum is an essential design feature of any national savings framework.

Patrick Cosgrave went on to review the incentives inherent in the current Irish pension system. Using a Financial Incentives Index (FII) methodology, he illustrated the progressive nature of the Irish system, especially for Pillar 1 pensions where benefits are capped but contributions apply on all income. He highlighted the danger of standard rating current tax reliefs and showed international comparisons where even mandatory savings systems such as

Australia and Singapore are supported by a strong framework of individual incentives. The decision to defer consumption for 30 years or more is a serious act of faith in the future and is only realistically possible within the context of positive incentives.

Niall O'Callaghan reminded us all of the Marshmallow Test used with 4 year olds to assess their capacity to delay gratification. This has proved highly predictive of later academic and business success and highlights again that the need for incentives is hard coded into our DNA. Niall outlined a fascinating example of the lifetime wealth difference between a "BMW family" and a "Volkswagen family" which amounted to €860,000 for the car purchasing decisions over our lives. Not many of us understand the long term wealth impact of our routine consumption choices. Everything needs to be simplified into tangible examples like this one to make the complexity of lifetime financial planning accessible to the average worker.

Aisling Kennedy talked about the challenges and opportunities presented by longer working lives. Most people remain in denial that current retirement expectations are totally misaligned with current lifestyles and savings rates. Aisling produced a simple model which showed age 73 as the retirement age which matches those current lifestyles



Minister for Social Protection, Joan Burton T.D., addressing the Conference.

"Longer lives are only valuable to the extent we have the capacity to enjoy them."

and savings rates. She made the strong point that we should be focusing as much on healthy ageing as the financial aspects. Longer lives are only valuable to the extent we have the health capacity to enjoy them. Aisling finished with the provocative suggestion that, given the uncertainty inherent in long term savings, we might indeed be better off investing in our health and capability rather than saving for the future.

Investing in our own capability led neatly to the career transition talk by John Deely. Longer working lives will almost certainly depend on successful career transitions. It was very useful to hear John outline the underlying process and habits he has observed in successful transitions. Busy lives can lead to a reflection deficit and our career satisfaction should always remain under review. We don't want to spend retirement haunted by "should have" regrets. Once aware of the need for transition, we need to appreciate that it is typically a three to five year journey. Networking is a critical part of finding new horizons and we need to continuously nurture our personal and business networks. Financial resources also matter as transitions are rarely possible without short term income reductions. Change is always difficult but John helped to demystify the process with clear examples from his own client experience.

We were then joined by Minister Joan Burton, who freed herself from Leader's questions in the Dail (and a media scrum around the Roisin Shortall resignation) to join the Conference. She reassured the audience that despite the grave fiscal backdrop, the Government was keenly aware of the long term importance of the retirement savings framework. She emphasised the need for widespread confidence in the system for citizens to willingly commit



L to R: Patrick Cosgrave, Minister Joan Burton T.D., Paul O'Flaherty, and Alan Barrett

to the long term savings process. She expressed the clear desire on the part of Government for more investment in Ireland by the pensions industry, assuming the right risk and reward opportunities can be made available. Her presence added significantly to the event.

Time deprived us of an extensive panel discussion but we did have a valuable contribution from **Robin Webster**, CEO of Age Action Ireland. He reminded us that age - discrimination is increasingly pervasive with all of us falling prey to "elderly" stereotypes. Age is merely a label and we need new language around the later phases in life. We may lose some of our physical capability as we get older but this can be ably compensated by increasing experience, wisdom and insight.

All in all, it was a stimulating morning and a timely reminder of the eclectic contribution actuaries can make to this central issue facing every developed society. Defined Benefit may indeed be in decline but the capacity of actuaries to make financial sense of the future will enable us to remain at the centre of the lifetime savings challenge.

Donal Casey

Health Care – At What Cost?



L to R: Oliver O'Connor, David Costello, Paul O'Faherty, Piet Stam and Jo Buckle

It may have been a sign of new and exciting career opportunities to see more than 50 actuaries attend the health care conference in the Conrad Hotel on 17th October. The seminar also provided an opportunity for actuaries to showcase our expertise in this challenging area, to the attendees from outside the profession.

Our chairman for the day, Paul O'Faherty, opened the conference with a collage of the many column inches occupied by the health care sector within the past week, but reminded us of the successful features of our health care system. He questioned whether general perceptions regarding our health care system are fair, considering enviable advances made in life expectancy and disease management.

The first speaker of the day was Jo Buckle, an actuary with Milliman, based in London. She has a wealth of experience working with health care providers across several continents. She shared with the audience her global experiences of successes and failures in managing medical cost inflation. She introduced us to a formula to predict medical inflation (formulas are always popular with actuaries!) based on price inflation, GDP growth and technology trends. She emphasised that medical inflation is not always bad – higher spending on health care can be justified as valid social policy with a good return on investment, if the additional spend results in better quality and outcomes, not just higher utilisation. Her case study on the enhanced recovery programme used within the NHS was

described as nirvana by one audience member, combining pre-op assessment, post op early mobilisation and daily patient specific care plans from a multi-disciplinary team.

David Costello is head of actuarial with Allianz Worldwide Care. He began by highlighting the wide variation in utilisation and claim costs around the world, even between neighbouring countries. He commented on the opportunity this provides for medical tourism. He highlighted the stark difference in typical health care costs by age and drew a comparison with the pensions crisis before giving us a very helpful summary of Obamacare. Finally, he shared with us some ideas on containing health care costs, including some entertaining stories in medical insurance fraud.

Piet Stam is an econometrician with a doctorate in risk equalisation. The audience was very interested in hearing about the much lauded Dutch health care system and Piet's views on our government's direction toward universal health insurance. He described the enviable features of the Dutch system: mandatory private health insurance for every citizen with subsidies for low and middle income people, yearly free choice of insurer, community rating, standardised benefit packages, all underpinned by a comprehensive risk equalisation system. He described the aim of risk equalisation to achieve solidarity in a competitive market, but discussed the difficulty of ensuring that only factors that reflect underlying health status are equalised.

Despite intensive regulation, Dutch health care expenditure has increased dramatically from 10% to 13% of GDP in the last 10 years and this trend is expected to continue. He predicted that more out of pocket payments, benefit restrictions and improvements to the financing system will be required to address inflation. He left us with the sobering thought that the design of the health care system itself is not the driver of quality and efficiency – the success of any health care system depends on how it is managed.

Oliver O'Connor is an independent business consultant, specialising in health finance, innovation and public policy. From 2001 to 2010, he was a senior Special Adviser in the Government, working for Mary Harney. He started by giving us a fascinating insight into the day to day politics of health care in Ireland. He discussed the trend of medical inflation but reassured us that no country has ever gone bankrupt due to medical costs! He drew comparisons with Finland in the early 1990s and wondered if it will also take Ireland 20 years to restore previous levels of health care spend. He provided a useful breakdown of medical inflation, showing that ageing contributes a small proportion, with the biggest drivers being income growth and technology. He discussed the imperfect but highly effective tool of budget caps to contain inflation. He highlighted the difficulties of high fixed costs. He gave comparisons of Irish and international medical costs to demonstrate that Ireland is expensive. even compared to countries with a similar social profile. There was a gasp at the low starting salary of a medical consultant in Spain! He took us through a breakdown of the HSE's spend and commended the recent deal on pharmaceutical costs.

A lively discussion followed, with many questions for the speakers, particularly exploring lessons that could be learned from other countries and applied to Ireland. Anyone who came looking for a silver bullet may not have found it, but will have found the content of the seminar to be comprehensive and thought-provoking. In particular the seminar emphasised the valuable role that the Society can play in facilitating and shaping debate and analysis of these complex issues.

Joyce Brennan

Embedding Stress Testing as part of an Integrated Risk Management Framework

On the 24th October 2012, the ERM committee of the Society hosted an evening meeting on the topic of 'Embedding Stress Testing as part of an Integrated Risk Management Framework'. The speakers, Alistair Clarkson and David Hare, were both working for Standard Life when their paper was first presented at the Actuarial Profession's Life Conference in November 2011 – Alistair in the risk function and David in the actuarial function.

The presentation got off to a lively start with pictures of items such as motorbikes, airplanes and pencils being stress tested in different ways. Alistair's message was that we should look for a business benefit in carrying out the stress tests. He described the ERM framework within his company where risk appetite setting is part of the business planning process. In general, risk should be at the heart of this process, or as Alistair remarked 'What is the point of making a profit if it is not sustainable?'

The two key metrics he uses are excess working capital and shareholder value, which can sometimes be in conflict with each other. In this situation. judgement is required to decide which is the more important in the circumstances. He noted that shareholder value at risk is similar to the Standard Capital Requirement under Solvency II. He recommended expressing the risk appetite in terms of pre-defined stresses. A statement like 'we want to be able to survive a 30% market value fall' is one that a company's board can understand. It is more accessible than saying 'we want to be able to withstand a 30% fall in shareholder value.'

A picture of a flying cow was used to introduce the idea of an emerging risk a new or increasing risk that has a low probability and an uncertain outcome but could have a significant impact on the company's ability to deliver its strategy or on its key risk exposures. Consideration of emerging risks can encourage the use of creative thinking to come up with scenarios for 'reverse stress testing' or extreme scenario testing. It is important to consider

'What can we do now to improve our position in the light of these extreme scenario test results?' and not just 'What would we do in the event of these scenarios coming to pass?' David then took over and began to tease out some of the tensions that can arise in the Actuarial Function Holder (AFH) role. The AFH is required to advise on both the statutory valuation and on risks. There is some overlap with the systems and controls function (an FSA controlled function referred to as CF28) which is also concerned with risk. The FSA stopped short of requiring a separate risk function although that was initially proposed in 2010. Instead, CF28 allows for the possibility of a separate risk assessment function which forms part of the systems and controls function. However, under Solvency II separate actuarial and risk functions will be required.

David emphasised the need for collaboration between the risk and actuarial functions to avoid any difficulties or stand offs. He also emphasised the need to get the numbers done with enough time to consider them, interpret them and provide insights to the Board. Stress testing should then be used to help the Board and management to understand the possible evolution of the Company's balance sheet over time.

David noted that as part of their ratings analysis work S&P check to see if an ERM framework is really at a 'Group' level. The thinking here is that the framework and initial scenarios should be group wide with the flexibility to select additional local vulnerabilities at the business unit level.

David's successful interaction with the risk function had enabled him turn his Financial Condition Report into a holistic document with emphasis on operational risks as well as financial risks it had become an ORSA style report that gave a 'complete picture'.

Alistair then came back in to sum up. He noted that the key to using stress tests in running the business is buy-in from executives and also from people whose primary focus is not risk. Risk is, after all, about human behaviour.

In conclusion, we were treated to a picture of a dead fish! The presenters encouraged us not to become one clearly the dead fish's stress testing programme was not effective.

A lively discussion followed. When responding to a question on competitor behaviour, the speakers were keen to point out that they would not take comfort from their competitors being equally affected by a particular risk. However, if their company was more affected than others by a particular risk then they would want to understand why.

There was some discussion about whether the actuarial function belonged in the first or second line of defence and whether or not it should be integrated with the finance or the risk function. There was also a question from the audience about including pension scheme risks in stress tests.

The speakers were asked about Solvency II. Based on his UK experience with Individual Capital Assessments (ICA), David felt it had been successful in providing a common currency for non-financial people to discuss risk. He was less convinced about the benefits of a market consistent approach across 27 countries where in some cases there is no market e.g. in very long term

A copy of the presentation slides and the podcast are available on the Society's website. These won't include the visual effects of flying cows and dead fish that we saw on the night but are still well worth a read or a listen.

Carmel Brennan

Test Achats: Impact on General Insurance

On a rainy September evening, James Grennan, Tony Culley and Karl Niemann presented and led an enthusiastic panel discussion of Test Achats and the practical implications of the EU Gender Directive for general insurance business.

James started the presentation by giving some history of Test Achats; some practical consequences of the Gender Directive; and discussing the issue of indirect discrimination, implications for advertising and the fallout from breaching the gender rules.

The Gender Directive enforces the equal treatment of men and women in access to goods and services. Article 5(1) of the Directive prohibits the use of gender as a factor in calculating premiums and benefits for new contracts sold after 21 December 2007, only if the use of gender in the calculation results in a difference in premiums or benefits between the sexes. One could understandably ask why gender is arising as an issue now in 2012, considering the ruling date above. Ireland availed of an exemption permitted under Article 5(2) of the Directive which stated that proportionate differences in individual premiums and benefits were permitted only if the difference was based on relevant and accurate actuarial and statistical data.

A number of years ago, Test Achats (a Belgian consumer association) took an action that the exemption was invalid under the terms of the Directive and on 1 March 2011 the European Court of Justice deemed that Article 5(2) would become invalid on 21 December 2012, due to it being contrary to the charter of fundamental rights.

James raised two practical issues that insurance companies would need to grapple with post 21 December, namely active selection by astute policyholders and indirect discrimination. There is a risk that an insurer could stray into the territory of indirect discrimination by attempting to use proxies for gender in setting the premiums and benefits of its policies. If a pricing factor puts one sex at a particular disadvantage and that factor cannot be objectively justified

by 'a legitimate aim and the means of achieving that aim are appropriate and necessary' then the company could be exposing itself to legitimate legal action from policyholders and consumer groups. In this event, the policyholder only needs to demonstrate that the factor puts one sex at a disadvantage, whereas the insurance company would need to demonstrate the factor's legitimacy and that it is not a potential proxy for gender. For example, whether higher premiums for high-performance cars related to a higher risk associated with driving those cars, or whether it is discrimination against men who are more likely to drive high performance cars?

James also highlighted historical precedent that the courts have, in the past, permitted and upheld gender cases when the arguments supporting the case have not been straightforward and required a lateral understanding of the wider circumstantial issues. So it seems the cards could potentially be stacked against the insurer in the event of a case coming to court.

Additionally, it was pointed out that the Equal Status Act would need to be considered when addressing advertising issues.

The Gender Directive will apply to new contracts from 21 December 2012, where new contracts include the amendment of existing contracts when the consent of all parties is required. However, the Directive will only apply to policies sold to insured individuals and will not apply to reserving practices within insurance companies, reinsurance rates, corporations or occupational pension schemes.

Tony took over the reins to give an underwriter's perspective of the practical implications of the Gender Directive for non-life insurance companies in the run up to 21 December 2012. Tony's overarching view was that the introduction of the gender directive was not a fundamental change to the industry – 'we've lost a factor, we need to get on with our lives and get another factor.' He pointed to developments such as a community rated market or telematics as being example of philosophical shifts within the industry.

Tony suggested that the ultimate arbitrators of the Gender Directive will be the courts, and that opinions currently held by actuaries and underwriters may very well prove to be wrong when viewed through a legal lens.

He highlighted that the introduction of the Gender Directive has led to significant costs for insurers particularly regarding their IT systems. He commented that the value of this investment may be lost if the use of telematics becomes more mainstream in the coming years.

Simply put, telematics is a method of monitoring a vehicle. Insurers could use telematic technology to determine the prices that an individual should pay for their motor insurance based on detailed data. For example, this could include the number of miles they drive, their average speed and the extent to which they drive on known hazardous roads. This could possibly eliminate the need for the gender factor crutch that has been heavily leaned on until now.

Tony touched briefly on the regulatory environment that may spring up around the gender neutral requirements. Consumer bodies, regulators and the Financial Ombudsman are all likely to become more active in this area due to the potential increase in scrutiny in the initial aftermath of the new legislation.

Karl discussed the impact of the introduction of community rating in private health insurance in Australia as an example of an industry where risk factors are significantly restricted. Like in Ireland, factors such as age, weight and smoker status cannot be used to set premiums in the Australian health insurance market. Naturally this leads to considerable challenges in setting premiums.

Karl identified the two main risks to insurers in a community rated market: getting assumptions about membership profile incorrect, and antiselection. Antiselection and a drifting membership profile can lead to a death spiral for insurance providers in a community rated market. Higher claims lead to higher premiums which can cause "good risks" to leave. This can further

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deteriorate the membership profile, leaving the insurance company with spiralling premiums and claims.

The presentations were followed by a well participated question-and-answer session covering loyalty discounts, the potential that age discrimination legislation is coming down the track, telematics and midterm adjustments.

Frank O' Regan

Professionalism Course for Experienced Students

A Professionalism Course, hosted by the Society, for Experienced Students took place on the 12th of September 2012 in the Stillorgan Park Hotel. The Society organised this course to facilitate SAI students who are required under the UK Profession's new professionalism training framework to attend a course. The introduction of this course recognises that these students hold important roles with a lot of responsibility and that professionalism issues can and do arise. The 27 participants represented all practice areas and a wide range of companies While the number of attendees was smaller than other Professionalism Courses run by the Society, this did not impact on the level of participation or active debate!

The one-day course started with a session on the Code of Professional Conduct, Disciplinary Scheme & Life-long learning by Yvonne Lynch, Director of Professional Affairs. While the Disciplinary Scheme structure and processes were presented in detail, the emphasis was on how professionalism can help you avoid coming in front of the Disciplinary Scheme altogether. Professionalism Case Studies were then examined and discussed in detail with Yvonne Lynch and Tracy Gilbert, Actuarial Manager for the Society.

Participants' knowledge of the Code of Professional Conduct was then put to

the test with a multiple choice quiz. The results were very good – it was clear that the participants had done their homework and were well prepared for the course! Areas that were not so straightforward were discussed between tables until agreement was reached on the right answers.

Mike Claffey kicked off a very lively and thought-provoking session on the Practice Area Case Studies and everybody present including the facilitators got new insights into the various issues and challenges that can arise when working as part and fully qualified actuaries.

President of the Society, Paul O'Faherty, presented the final session on the History & Role of the Society of Actuaries in Ireland followed by a Question and Answer session.

Paul was inundated with questions from participants. Interesting questions included whether the increase in the number of actuaries over recent years could be sustained. Paul explained that this question has been raised and explored many times in the past and that all recently qualified actuaries attending the Professionalism Course in March were employed and showing that the demand for actuaries has increased along with supply.

After the event, the Society circulated a survey to the participants to determine how the event was enjoyed and whether any improvements can be made going forward.

Some examples of the answers received to the following question are set out below:

Overall, how did you enjoy the Professionalism Course and what did you gain from attending the course?

"I thought it was well run and interesting. It can be hard to get people to ask questions in that environment, but once one or two questions had been asked people felt that they could ask anything. I think that it was sufficiently informal to make people comfortable asking questions/making points. It was an enjoyable and educational day."

"I quite enjoyed the course, particularly

the group work on case studies and the discussion on the Auditor in Court. The format worked well as there was a lot of participation and not too much time spent listening to a presentation. The speakers were very helpful and answered all questions."

"I found the course very beneficial and very relevant. I am pleased that this type of course is now available for students, as the areas covered have become increasingly relevant over recent years and I imagine this trend can only continue."

"I really enjoyed the course and found it very interesting, particularly learning about challenges faced in other practice areas such as pensions and the conflicts of interest they face."

What, if anything, do you think should be added to the Course?

"nothing"

"I found the pieces of insight we heard from Mike and Paul from their position (as Appointed Actuary and pensions expert) fascinating. I think it would be great to have an experienced Actuary from each practice area speak about what they do and how they got there."

We would like to thank everybody that took part in the survey. We appreciate your comments and your ideas on how to make future professionalism courses event better.

Please note that it is unlikely the Society will run a Professionalism Course for Experienced Students every year. However, the UK Actuarial Profession run an online version of their Professional Skills Course (PSC) – completing the online PSC will ensure that experienced students can meet the requirements of the UK Actuarial Professional Framework.

Some of the course participants were studying for the September exams – we really hope the exams went well!

Tracy Gilbert

SAI Golf Newsletter – November 2012



Summer Scramble

After an early summer of terrible weather we were all geared up to make it onto the golf course for the first outing of the year. However, while the morning of the event was bright the forecast promised some terrible downpours for the afternoon. After a democratic vote, the vast majority voted to postpone the event. As it turned out, the decision to cancel was well founded as that evening led to some of the worst weather of the summer.

Captain's Day

On 23rd August, Hollywood Lakes Golf Club hosted the Society's Captain's prize. The morning weather forecast wasn't good but the rain managed to stay away for once leading to one of the brighter days of the summer.

The course takes pride in its tough greens which make most members nervous when standing over the three-foot putts. However there were two players in particular who didn't appear to have any problems in this department. Playing in the same group Micheal O'Briain and Brian Fitzgerald matched each other score for score until it came down to the last hole with Micheal taking the prize with an excellent 39 points.

The scores on the day were excellent, Brian Fitzgerald came second with 38 points with Eamonn Heffernan pipping Steven Hardy for third on count-back with 37 points. All was not lost for Steven when he won the longest drive at the 14th to add to his matchplay victory (see Steven's commentary below). Neil Guinan won closest to the pin at the 17th and Thomas Farrell won the best back nine of 20 points after count-back.

Faculty Match

The final outing on the golfing calendar was the annual match against the Faculty, played this year on home turf at the Portmarnock Hotel and Golf Links.

The Society lost the Tom Ross Quaich for the first time in 2011 having previously won or retained it every year since the annual match started back in 2003. Some might say playing on a links course was handing the advantage to the Scottish. Others might say it was more of a ploy to lull them into a false sense of security with the Society team having been formed of members who had played very well in either the matchplay or the captain's day or in the case of Steven Hardy, both. All players played very well on the day with the Society winning 3 – 1 to take back the trophy. We will need to match this performance next year to retain it on Scottish soil.

Finally, I must say I enjoyed my year as Captain of the Golf Society and my thanks to all those who participated in making the golf year successful. I would especially like to thank Mary and Catherine in the office for keeping everything running smoothly and give my best wishes to next year's Captain, Thomas Farrell.

Brian Connaughton SAI Golf Captain 2012

The Piers Seagrave-Daly Matchplay Tropy

The Piers Segrave-Daly Matchplay trophy has once again proven to be a very popular competition, with 28 entrants battling it out since the beginning of May. As usual, this popular annual event was a great opportunity to meet fellow actuaries, play some new courses and get in a few sneaky games of golf along the way.

Matchplay is an ideal format for golfers of all abilities. The odd stray shot is merely a lost hole, not an unforgiving blot on the card, and each hole is an individual battle where you try to match your opponent shot for shot.

The weather seemed to play a big part in the summer's golfing calendar and it was credit to everyone involved that the competition was completed in time for the Captain's day dinner and prize giving. As usual, stories emerge over the summer of matches played - I heard that next year's captain, Thomas Farrell, didn't know his own strength in his first round match with Frank Downey as he kept over hitting the green with short irons and losing golf balls.

I had the honour of winning the event this year after falling short in the semifinal to the eventual winner on my two previous occasions in the competition. All my matches were close and very enjoyable - although I wish the poor weather had not featured so heavily. My second round match against Eamonn Heffernan was suspended after nine holes with the match evenly poised at all-square as torrential rain closed St Margaret's – we returned the following week to complete the final nine. Finding a course open for the semi-final against Dermot O'Hara was a challenge with both our home courses closed. Portmarnock Hotel & Links was open for play but barely playable such was the strength of the wind! I was delighted to come through the match to meet Brian Connaughton in the

Brian was making his third final in a row and defeated me in last year's semi-final on the way to winning the competition so I knew that he was an opponent not to be taken lightly in matchplay. We played the final at Roganstown Golf Club which being roughly half-way between our home courses seemed the ideal neutral venue. Brian took a strong lead and was three up after seven but we were back to all-square after ten. From there on, we both played some of our best golf and it was a very close match with never more than one hole in it. Eventually I took a one hole lead down the 18th which I was able to hold on to by holing a putt on the final green in the rapidly dying daylight to end a very enjoyable match and a very enjoyable matchplay competition.

The Piers Segrave-Daly Competition is a fantastic part of the Society's annual golf diary since 1996, and is a credit to Piers' vision (himself a winner of his own trophy in 2001) that it is such a popular competition each year. It is testament to the challenge that there have been 16 different winners in the 17 times the Matchplay competition has been played. The role of honour can be seen in the golf section of the Society's website. I would encourage all golfers, male and female, to give it a go in 2013.

Steven Hardy

Captain's Day



Micheal O'Briain being presented by Brian Connaughton with the Captain's Prize



Steven Hardy – winner of the Matchplay Competition



Brian Connaughton presenting Neil Guinan with his prize for 'Closest to the Pin'



Eamonn Heffernan – receiving 3rd prize in Captain's Day



Brian Fitzgerald - receiving 2nd prize in Captain's Day

Student News

Annual Student Society BBQ

On the 19th July, the Student Society held the annual favourite event – the BBQ – in the beer garden of Harcourt Street's D2 Bar. There was a bumper turn out of 120 people. This gave the event a great atmosphere, despite the grey clouds in the sky – not exactly typical BBQ weather! The event was jointly hosted by the Student Society and Acumen Resources, who also kindly donated an iPad to be raffled.

People started arriving at 7pm and after that the flow of actuaries was fast and steady. On offer were a choice of main courses from the BBQ, as well as wedges and a selection of salads. We were all impressed with the food being freshly cooked from raw, however this did cause the queue to be rather long at points during the night. Everyone agreed the quality was high and the food was delicious.

After this came the event that everyone was waiting for. One lucky attendee would win an iPad. Everyone who registered on the special Acumen website was entered into a draw. Only those present on the night were able to take part, however. Five names were drawn by Jenny Johnson from Acumen but unfortunately one person was not present so a sixth name was picked.



Jenny Johnson of Acumen with iPad winner Ciarain Kelly

Four successive knock out rounds were then held, with questions on the Olympic Games. Each contestant wrote down their answer and the person with the answer furthest away from the correct answer was eliminated (in 'The Price is Right' style). Questions ranged from the year London first held the Olympics to how many gold medals the USA had won since the beginning of the modern games.

The final challenge was to guess the correct height in metres of London's new Olympic stadium. Ciarain Kelly

was declared the winner after his guess was out by just three metres, and was presented with a shiny new iPad by Acumen.

A great night was had by all, and it was great to see such a high turn out. The committee would like to thank the members for attending and for Acumen for helping us with this event.

Rachel Gow

Student Consultative Forum

The Student Consultative Forum is a forum that meets twice a year to discuss issues of concern to students. It includes representatives from the Institute and Faculty of Actuaries, the Exam Board, ActEd as well as student representatives from actuarial societies across the UK, Ireland and South Africa. Eamon Comerford is the Society's representative on this Forum. Eamon has written a report following the meeting of the Forum, held on 9th November last. His report covers topics of particular interest to SAI students. His report along with previous reports are available on the Society 's website at: www.actuaries.ie/students/consultative-forum - (member login is required)

Student News

SAI Student Society Wine Tasting Evening – 15th November

With exams all out of the way for the year, student actuaries enjoyed a wine tasting evening in D2 on Harcourt Street on Thursday, November 15th. They experienced and tasted some magical wines on a world tour of some of the most famous wine producing regions - visiting France, Spain, Italy, New Zealand, Australia and The USA. They learned about how wine is made, and tasted stunning wines.











SAI Christmas Drinks & Table Quiz

Monday 10th December, Davenport Hotel

Christmas Drinks hosted by the SAI President, Paul O'Faherty, from 6.00pm - 7.00pm

Table Quiz commences at 7.00pm

Come along and join fellow members for Christmas Drinks and participate in the traditional annual table quiz, with all proceeds going to a recognised charity, chosen by the winning team.



All SAI evening meetings and Forums are now recorded and are available on the Society's website under: **Events / Past Events**

On the Move

FELLOWS:

Carmel Brennan has moved from Hansard to Canada Life

Colin Murphy has moved from Aviva to Deloitte

Liam O'Keeffe has moved from Generali Pan Europe to Canada Life

Tanya Beattie has moved from Mercer to Central Bank of Ireland

Cormac O'Leary has moved from Mercer to Cuna Mutual Europe

Maurice Lyons has moved from Euro Insurances to Bearing Point Ireland Ltd

Tom Leahy has moved from Invesco to Allianz Worldwide Care

Marc Convery has moved from Aviva to SCOR International Reinsurance

Michael Bennett has moved from Hannover Re to Arch Mortgage Insurance Ltd

Gerry Jordan has moved from Hansard to ECCU Assurance Company Ltd

Eoghan O'Baoighill has moved from RSA to Liberty Insurance

Conor Gaffney has moved from PwC to Greenlight Reinsurance

Stuart Redmond has moved from Irish Life to Deloitte

Duncan Robertson has moved from Aviva to PricewaterhouseCoopers

Micheal Sharpe has moved from R+V International to Generali PanEurope Ltd.

Dermot Marron has moved from Central Bank of Ireland to Allied Risk Managment

STUDENTS:

Marie Bradley has moved from Towers Watson to Central Bank of Ireland

Owen Fallon has moved from CACI to Hansard Europe

Kevin O'Rourke has moved from AON Hewitt to Aviva Life International

Joseph Doran has moved from Aviva to St James Place International

Tomas Griffin has moved from AON Hewitt to Deloitte

Daniel Morosan has moved from Bank of Ireland to Euro Insurances

Marie Finn has moved from Mercer to Standard Life

Edward Roche has moved from Milliman to RSA Insurance

Shane Kennedy has moved from Aegon to Canada Life



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