THE MAGAZINE OF THE ACTUARIES INSTITUTE

MARCH 2013 ISSUE 177

Actuaries

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Actuaries Institute

Contact **rebecca.moore@actuaries.asn.au** to find out more.

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Actuaries

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All contributions must conform to our submission guidelines which are available from the Communications and Marketing Team.

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Coming Up

March 2013

National CPD Tour
5 – 20 March: Melbourne 5, Adelaide 6, Perth 7, Canberra 13, Brisbane 19, Sydney 20

National Presidential Lunch and Dinners
5 – 19 March: Melbourne 5, Adelaide 6, Perth 7, Canberra 13, Brisbane 19

April

Retired Actuaries Group Sydney
Thursday 4 April, Sydney

ASIA CPD Tour & Asia Presidential Dinners
4 – 11 April: Singapore 4, Hong Kong 9, Beijing 10, Shanghai 11

Young Actuaries Program
Monday 8 April, Hong Kong

Young Actuaries Program - Better Public Speaking
Thursday 11 April, Sydney

Member Networking – Cultural Night: Archibald Prize 2013
Tuesday 16 April, Sydney

Actuaries Managing Risk
Thursday 18 April, Melbourne

May

Member Networking – New Members
Wednesday 15 May, Sydney

Actuaries Summit
Monday 20 – Tuesday 21 May, Sydney

June – Nov

Fellowship and Graduation Dinner
Tuesday 20 August, Melbourne

Fellowship and Graduation Dinner
Tuesday 8 October, Sydney

Accident Compensation Seminar
Sunday 10 – Tuesday 12 November, Gold Coast

NEW POLICY TEAM AT INSTITUTE HQ

Welcome to the new members of Institute HQ, **Elayne Grace**, Public Policy Actuary and **Elaine Collins**, Public Policy Strategist.

Elayne will be liaising with Practice Committees and working groups, assisting with the writing of submissions and monitoring and tracking of all our public policy efforts. Elaine will provide the Institute with high level strategic policy advice over the course of 2013.

Keri Lee
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Dear Reader

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It's a new year, a new opportunity, a new beginning. Jump up and down and get excited! Don't let the grads who've just started work beat you to it. They are probably jumping up and down right now at the thought of meeting Mr or Ms Bigwig, CEO of XYZ Insurance company. Valuation enthusiasts are rolling up their sleeves and getting down and dirty overhauling models and updating economic assumptions. Those who don't have their own models to get excited about can come to Sydney and take advantage of the absurdly HOT 46+ degree weather to prowl Bondi Beach. Wow! Just thinking of the hope and happiness a new year brings gets me excited!

Nevertheless, possibly because I'm an actuary or because I'm a deep, intelligent thinker (maybe even both), there's just something about the whole it's-a-new-year-so-life-is-going-to-be-rosy-starting-from-now-right-this-minute that bugs me just the tiniest bit. I mean, those who swore to make this year the one where they will lose fifty kilos must, by now, be either a) starving, or (more likely), b) regretting the great meat feast that was Australia Day. It doesn't matter if you had made up your mind to work harder and play harder, work harder and play less or work less and play harder – by now you've probably stuffed up at least a few times.

But does it really matter?

On closer reflection, I came to this conclusion: so what if we have moments of weakness or fall short of unrealistic New Year's resolution goals? As long as we are excited to be alive, we're doing better than the non-believers who live day in and day out the same way they have for the last million beats of their hearts. And since I love my fellow actuaries so much, you're more than welcome to borrow my New Year's resolution. It is simply to make this a year to remember.

After that completely actuarially-unrelated ramble, what I also really wanted to say is: Hello, my name is Keri, and I have been dragged kicking and screaming into the Editorial role for this wonderful magazine. Kicking and screaming out of excitement of course, and dragged the last few steps into air-conditioned comfort because I indulged so much over Christmas I find myself out of puff and hallucinating for refreshments walking the 800m from my office to the Institute.

Welcome to 2013. Welcome to *Actuaries* Magazine. Let's keep those fun-tastic ideas rolling in throughout the year. Let's all be a part of making Institute events lively and find joy in giving back to the profession. After all, what's the point of zooming on in our careers if we can't share it with those who got us there? And a word of advice for the year ahead – please, for all our sakes, don't take what I say in this column too seriously. 🅐

Yours truly
Keri Lee

The Year Ahead

Let me begin by thanking you for the opportunity to serve our profession as President of the Actuaries Institute. I feel honoured, and humbled, to be in this position, and am very much looking forward to the year.

I would also like to acknowledge and thank the immediate past president David Goodsall, who provided enthusiastic leadership and thoughtful stewardship of the profession in 2012.

Let me turn then to the year ahead.

The key strategic intent of the Institute is to sustain and develop the actuarial profession, and to enhance our reputation and the brand of "actuary".

In 2013 the Institute will of course continue its usual day to day activities that support this intent. These include delivery of services to members, including a range of members' events; support for established practice areas through the practice committees, professional standards, and related structures; and the education of the next generation of actuaries.

Council recently refreshed its commitment to the key objectives of sustaining and developing the actuarial profession, and enhancing our reputation and the brand of actuary. Achieving these is fundamental to the sound long term future of the profession.

Council specified the outcomes we are trying to achieve and articulated the key elements of the future we aspire to, in order to sharpen the focus.

The key outcomes we want include:

- that actuaries should be recognised for providing the highest quality and standard of professional services;
- that actuaries should be capable of, and recognised for, a broader contribution than is generally the case at the moment;
- that there should be increased demand for actuaries – by employers, by clients, by policy makers, and on Boards;
- that high calibre potential recruits should find it more attractive to pursue an actuarial career; and
- that people with actuarial training should identify with, and be advocates for, the profession.

Actuaries Institute – Strategy 2013 to 2015

Vision	To position the profession so that wherever there is uncertainty of future outcomes actuaries are sought after for their valued advice & authoritative comment		
Mission	Education & CPD, R&D and expansion to new fields, professional guidance & standards, represent profession & public policy, meet member services & needs		
Strategic Intent	Enhance the brand of actuary & the reputation of the Institute	Sustain & develop the actuarial profession	Sustain & develop the Institute's business
Strategic Outcomes	More members identify themselves as an actuary The actuarial qualification is attractive to current & potential future members The Institute is sought after for authoritative comment Increased demand for actuaries on boards, by employers, clients and government	Actuaries are in demand as trusted advisers & partners to business The profession has capitalised on future growth areas for jobs for actuaries Actuaries are recognised as valuable practitioners or experts in both traditional and wider fields of practice	More actuaries in whatever roles they are working, think the Institute adds value The Institute is attractive to current & potential future members, in Australia & O/S

Actuaries Institute

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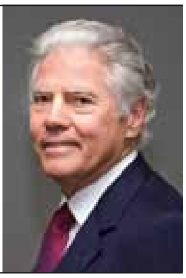

John Newman at the official handover with previous President, David Goodsall

Council identified two very significant streams of activity that will be required, in parallel, over the next few years to achieve these aspirations. We also discussed the need to consult more with you, the members, and involve you as this unfolds.

My focus and priority for my Presidential year is to launch and progress these initiatives.

One stream of activity is focused on what we actually do. The quality and standard of our services is not in doubt. Our very high standards are among the strengths of the actuarial profession, and we sustain these through our code of conduct and professional standards.

However to develop the profession and remain relevant we need to ensure our education and training, both pre and post qualification, enables actuaries to make a significant contribution in the modern commercial world.

The first version of a capabilities framework was recently made available to members on the website. This provides a framework of the core skills an actuary needs to do their job. It is the basis upon which we will build, modify and ensure the currency of our education system and our continuing professional development program. As it is refined it will help identify the capabilities that need to be developed to support our aspiration to be more rounded contributors to the business world.

Experienced members already have opportunities for further education and training through CPD events. To develop a comprehensive education strategy we will undertake a fundamental review of actuarial education, which is likely to lead to a very significant redesign of our pre-qualification educational syllabus.

The second stream of activity relates to the profession's reputation, and the brand of actuary. In order to sustain and develop the profession we want the world to know we have valuable insights to offer, not just technical skills. This is true both in the fields in which actuaries are already well known, and in other business areas.

We want the world to understand that actuaries do not just do calculations, we bring complex judgement to bear and help avoid the problems that follow from slavishly using models without understanding their limitations. We want to be in demand as trusted advisers and partners. And we want to capitalize on areas of future potential employment growth for actuaries.

With this in mind Council has recently engaged creative professionals to help us re-position the profession. The objective is to increase and expand the profile of actuaries – what we are known for – in the business community, among potential employers, in the universities, and among potential recruits to the profession.

As these ideas develop, and before anything is decided or implemented, you will be consulted.

We also recognise that we are often our own worst enemies. We are not good at telling the world how much we have to offer. Sometimes our focus on getting the numbers right means we don't give enough weight to the meaning of what we are working with, and even when we recognise that we are often diffident and find it difficult to promote what we can contribute.

The professionals we have engaged will therefore also help us with boosting our own pride in our profession.

I look forward to the support of my Council colleagues, as well as that of the very capable and dedicated team at the Institute HQ led by Melinda Howes. I also look forward to meeting with as many of you as possible over the year, and hearing your thoughts on how we can best take the actuarial profession into the future.

> My focus and priority for my Presidential year is to launch and progress two very significant streams of activity– one stream is focused on what we actually do. The second stream of activity relates to the profession's reputation, and the brand of actuary.

Going Beyond the Short-Term

Over half a million people undergo coronary-artery bypass surgery in the USA every year. But only 10% of these people make the necessary lifestyle changes to prevent further surgeries, chest pains and premature death. The vast majority of the people choose short-term pleasures at the expense of their health. This demonstrates the human tendency to reduce the importance of the future in decision-making[1].

Brain researcher Buonomano[2] explains this behaviour through humans having evolved with uncertainty about their survival and whether they would be alive to enjoy the future. Therefore near-term happiness feels more valuable to us than long-term happiness.

Consider this scenario: you have a short deadline and limited resources. You know you can build a comprehensive solution that will work now and comfortably keep on working well in the future. On the other hand, you can put something together quickly and cheaply to get the same results that may please your stakeholders now, but may most likely require duplication of efforts and further investment for upgrades in the future. What do you do? How do successful corporations approach such choices? What about governments?

When the M25 motorway around London was built, it was built to accommodate traffic at the start of construction: 88,000 vehicles per day. By the time it was completed in 1986, traffic levels had already exceeded the design capacity. By 1993, the motorway was carrying over twice its designed load: 200,000 vehicles per day. The road has since gone through several rounds of widening projects to add more lanes after more lanes to ease traffic – at significantly more cost now than had it been built to accommodate traffic growth and systematic expansion in the first place.

In contrast, Singapore roads and bridges built 20 years ago were constructed with deeper foundations than necessary just in case the subway rail system ever reached areas that were considered remote at the time of design. Today, underground tunnels are being built in these areas. Had it not been for the long-term planning 20 years ago, bridges would have needed to be torn down and rebuilt.[3]

These examples show how a decision made today can have widely different consequences in the long-term.

It seems that psychological factors and evolution are partly to blame for our, sometimes irrational, intertemporal decision-making. Thousands of years ago when life was short and unpredictable, there would have been little benefit in thinking too far into the future. But in the modern world the opposite is true, as Buonomano explains: the biggest threats to human beings arise from the lack of long-term thinking.

A commonly used expression 'short-termism' is used to describe choices that are best for the immediate needs or the short-term but suboptimal over the long-term[4].

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SHORT-TERMISM IN GOVERNMENT

All around the world, governments face a set of conflicts. In countries where leaders are elected by their people, governments have an incentive to make choices that improve their chances for re-election. It is not surprising therefore, to note these choices are often biased towards short-term objectives.

In recent times, many governments have accumulated large amounts of debt due to long-term changes in global economics. With an ageing population in much of the developed world increasing the costs of pension and healthcare, governments will be confronted with a mammoth challenge to contain debt. Due to short-termism effects, governments are often slow in addressing some of these challenges (e.g. finding ways to fund increasing pension liabilities). Nations either face the prospect of an economic boom saving their balance sheets or face eventual cut backs in government expenditure. Is this a fair risk to pass on to future generations?

Cost-benefit analysis is commonly used to help make decisions. Our behavioural biases can lead us to discount long-term benefits disproportionally more than near term benefits, resulting in short-term behaviour. This can sometimes lead to current generations imposing extremely high costs on future generations. Sunstein & Rowell[5] suggest a morally adequate response could be taken to ensure future generations receive compensation for any risks that are imposed on them by their predecessors. Doing this in an equitable way is difficult, but not impossible.

Take a sovereign wealth fund for example. Implemented properly, it appears a sensible option, particularly for resource rich nations, to prepare for future risks, e.g. depletion of natural resources. At the same time it compensates future generations, e.g. for the use of non-renewable resources. Implementing such long-term solutions often takes substantial time because of opposition from lobby groups and others who suffer in the short-term.

SHORT-TERMISM IN CORPORATIONS

Corporate managers face a different kind of conflict through frequency of reporting to the market and how their financial incentives are designed.

In a survey of more than 400 corporate managers, Graham, Harvey & Rajgopal[6] found "80% of survey participants report that they would decrease discretionary spending on R&D, advertising and maintenance to meet an earnings target. More than half state that they would delay starting a new project to meet an earnings target, even if such a delay entailed a small sacrifice in value." The reason for doing this is stated as "managers are willing to make small or moderate sacrifices in economic value to meet the earnings expectations of analysts and investors to avoid the severe market reaction for under-delivering."

Although the creation of long-term company value is widely accepted as management's primary responsibility, based on the above survey, a CFA paper[7] on short-termism mentions that an attitude of managing predominantly for short-term earnings expectations often impairs a manager's ability to deliver such value to shareholders.

> Cost-benefit analysis is commonly used to help make decisions. Our behavioural biases can lead us to discount long term benefits disproportionally more than near term benefits, resulting in short-term behaviour.

The search for a high stock price and avoiding surprises to the market has created a culture of short-term decision making. Sappideen[8] suggests that short-termism has become institutionalized in the US, UK and Australian business systems.

Salter[9] argues that short-termism invites institutional corruption in the form of "gaming society's laws, tolerating conflicts of interest, violating accepted norms of fairness and pursuing forms of cronyism". While not unlawful, this behaviour undermines a company's legitimate processes and core values. He has also found research supporting that we are susceptible to overestimating our ability to do what is right, and therefore sometimes act unethically without really meaning to do so.

Part of the problem, as explained by Jacobs[10], is that "shares are increasingly treated as a commodity, and shareholders have neither the interest nor the knowledge to wait for the long run." Investors are becoming more reactive to short-term information rather than long-term economic fundamentals. To keep investors satisfied, managers consequently have an incentive to make shortsighted decisions.

FOSTERING A CULTURE OF LONG-TERM VALUE CREATION

How do you change behaviour that has its roots in human evolution and now influences how we make day-to-day choices? Dealing with short-termism requires individual and collective effort through leadership, institutional support through advancements in corporate governance, supported by the right incentives and tools for aiding intertemporal decision making.

● Leadership

The role of leadership is critical when it comes to dealing with conflicting interests and choices.

In the case of government, citizens entrust their politicians to make the right decisions on their behalf, that is, with regard to intergenerational equity among other things. Governments need to have the political will to make the necessary tough decisions and demonstrate leadership in persuading their people. Leadership is also important for opposition and not opposing for the sake of opposition.

In a managerial context, we need to be aware of the traps of short-termism. As professionals, we can ask the question: are you simply following the norm, or is a particular decision indeed the best one for your client?

● Investors and corporate governance

The CFA notes that there exist some companies that attract long-term shareholders that allow these companies to make sound long-term decisions. The annual turnover rate for shares of the New York Stock Exchange in 2005 was 100 percent. In contrast, a group of companies recognised by the Fortune magazine in 2006 as most admired companies for long-term investment had an average turnover rate of only 60 percent.

There needs to be a cultural shift within the investment community to recognise long-term value creation. The CFA suggests

> We can make better decisions in light of our short-term bias and uncertainty about the future. Actuaries are at the forefront of making long-term decisions and are well suited to provide leadership in this area.

that as much as possible incentive pay for asset managers should be measured on long-term metrics. It further suggests that "asset managers should also be encouraged to commit a meaningful portion of their own wealth to funds they manage".

The CFA recommends that companies improve communication and transparency about strategy and long-term value drivers so as to lessen the financial community's dependence on earnings guidance.

With share price becoming a substitute for corporate performance, how boards react to short-term volatility in share price and at the same time allow management to make long-term decisions, is also critical.

Incentives

Bonuses are typically linked to annual revenue and profitability. This leads to managers having to make decisions that have relatively faster paybacks. With each year measured separately to the previous, this also creates an environment of increased risk taking.

Performance measures should incorporate some form of long-term targets, for example, having a rolling 3 or 5-year profitability target. Balancing long-term performance measures with short-term measures would also encourage more responsible risk taking.

CFA recommends "stock ownership guidelines should require all executives and directors to hold a meaningful amount of equity in the company at which they serve. Meaningful in this context can be defined as an amount that makes it economically material to the individual that a company succeed in the long-term."

Navigating through uncertainty

How can we make better decisions in light of our short-term bias and uncertainty about the future? Actuaries are at the forefront of making long-term decisions and are well suited to provide leadership in this area.

When a benefit will not be enjoyed until sometime in the future, it would make sense to discount it in some way to make it comparable with benefits enjoyed today. There is debate on how this discounting should work particularly when benefits in question are non-financial, for example, environmental impacts or health risks.

Is the value of a human life worth the same now and in the future? In a survey of 3,000 householders, Cropper, Aydede & Portney[11] found that saving one life today is considered equivalent to saving six people in 25 years time. And saving one life today is considered equivalent to saving 45 people in 100 years time. They find that the discount rate for lives saved is almost as high as discount rate for money. What would happen if we kept going? Say 1,000 years?

How can we incorporate such wide-ranging considerations in cost-benefit analyses and compare intertemporal choices to make better decisions?

Decision makers can be better equipped to understand impacts of decisions today in an uncertain future. We need to go beyond the traditional models of decision making focusing on what is easily quantifiable and consider non-financial effects and long-term consequences. Actuaries' specialist skills in analysing risk and uncertainty can be naturally extended in this area to aid decision making and business planning, and in developing a culture of long-term value creation.

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[1] An effect commonly known as *hyperbolic discounting*. Example from Bellows, A. (2006, 5 13). Hyperbolic Discounting. Retrieved 12 29, 2012, from Damn Interesting: http://www.damninteresting.com/hyperbolic-discounting/

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Catherine Robertson-Hodder

Title... Director

Organisation... KPMG

Summarise yourself in one sentence... had to outsource this one, my mum says I don't suffer fools gladly, I think I've mellowed

My interesting/quirky hobbies... I sooo want to say something interesting here... I'm feeling lacking, but with 2 smallish children... do I really have time :-)

My favourite energetic pursuit... I did a couple of (mini) triathlons last year for the first time... now I just need to get back into it in 2013

The sport I most like to watch... basketball. Go the Breakers!

The last book I read (and when)... *The Twelve* by Justin Cronin. Just finished today. Mixed feelings about this vampire apocalypse one...

My favourite artist/album/film... *Queen Greatest Hits* (brings back great childhood memories). Film – saw *The Hobbit* recently and loved – although that was partly coloured by the fact it was my first Gold Class experience

The person I'd most like to cook for... my kids – my husband cooks when we have guests so that I don't poison anyone

I'm most passionate about... my family

What gets my goat... being pedantic – just another form of intolerance if you are not careful! Find the balance

I'd like to be brave enough to... do a triathlon in the open water (so far done them in a pool and the regatta centre)

In my life I'm planning to change... my fitness level

Not many people know this but I... I don't want to over-share, I'm pretty open. How about that I played Div 1 basketball (but mainly because I played Div 3 in NZ and Div 1, 2 and 3 were combined)

Four words that sum me up... Outgoing, logical, optimistic (not sticking to the rules)

What I wanted to be when I grew up... a lawyer – I loved arguing, but I missed my numbers too much

Why and how I became an actuary... it combined all the subjects I loved (Maths, Economics, Accounting, Finance, IT)

Where I studied to become an actuary and qualifications obtained... I did it the long way (bring out the violin). Did a finance/stats degree at Auckland Uni (after deciding law wasn't for me) followed by correspondence courses for sevenish years through the UK and Australia

My work history... three years in NZ (NZI Life) followed by a number of years in pricing/valuation roles at AC&L/AXA, Tower and MLC. Then moved into consulting with KPMG nearly five years ago

What I find most interesting about my current role... The variety both in the actual work and the people I deal with

My role's greatest challenges... It is not just about the numbers, it is about how I present them and myself. Fantastic learning ground

Who has been the biggest influence on my career (and why)... Eddie Jones – he gave me my first opportunity doing vacation work at NZI Life and was a great role model

My proudest career achievement to date is... given I did it the 'long' way (cue the violin again), it was qualifying. It took a lot of tenacity and support from my husband

When I retire, my legacy will be... I think our legacy is the people we've helped develop along the way, who take the profession forward. Also the people we've touched in other fields who then say "I'd really value your input into this"... so hopefully I've done some of that

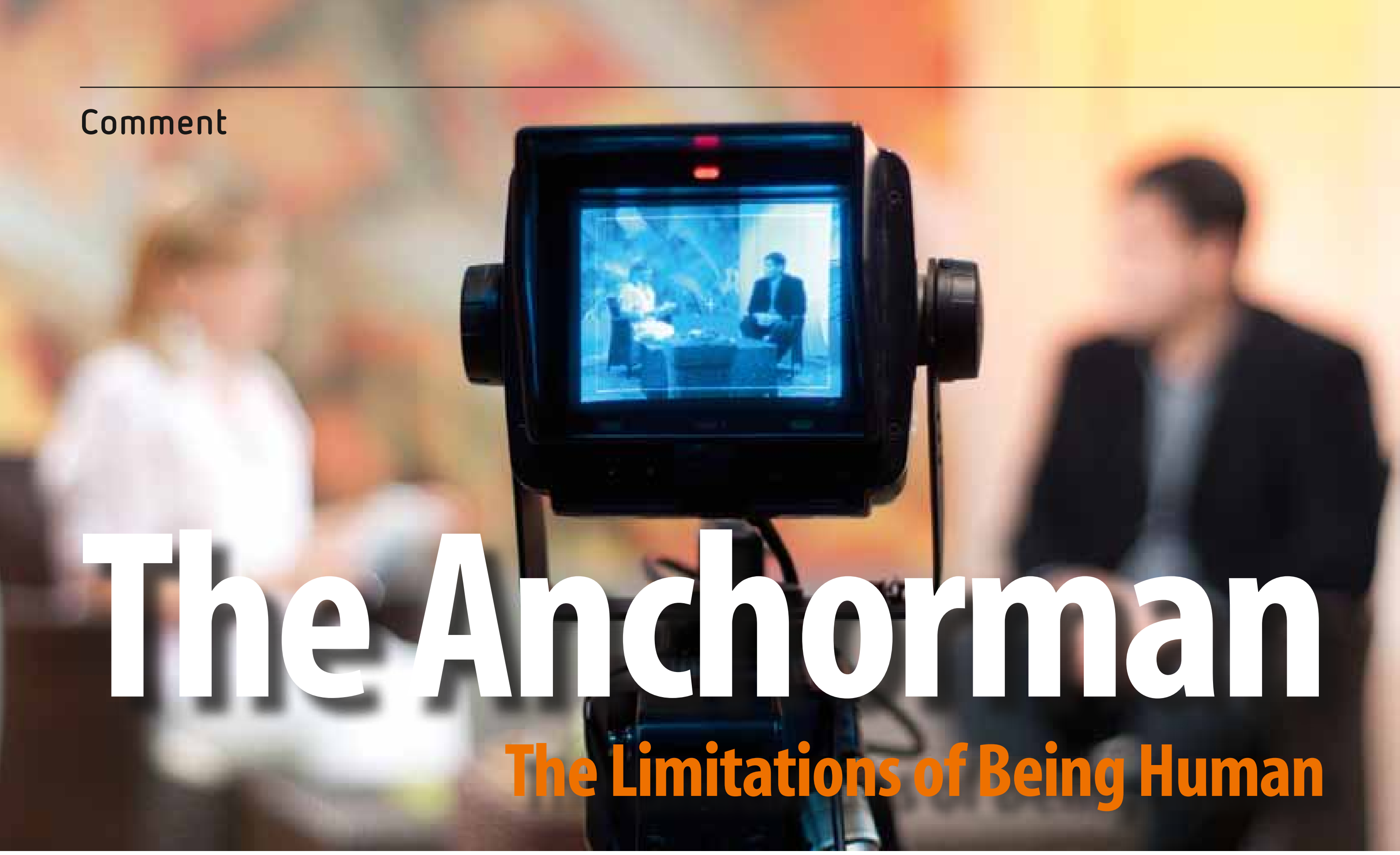
Why I'm proud to be an actuary... I love the skill set we bring to the table

The most valuable skill an actuary can possess is ... communication – being able to articulate well the value we bring to the discussion

At least once in their life, every actuary should... everyone is different – but I'd suggest going outside our comfort zone whether personally or professionally

My best advice for younger actuaries... find a good mentor

If I win the lottery, I would... send my children to the best schools (whatever that means) and travel the world (and put in air conditioning and a pool!) 🅰



The Anchorman

The Limitations of Being Human

An episode of *Selling Houses Australia* got my attention this week. The host, Andrew Winter and his team help people with unsellable properties to get the most for their sale. In the early stages of the episode, Andrew talks to a property owner about the value of his house in Ashbury – and it becomes clear that the two have very different views.

Andrew has over 25 years in the property industry. He has also done his research – he has talked to local real estate agents and he has viewed recent sales in the suburb for properties with similar features. He comes to the view that the property, with significant cleaning and minor renovations, is worth between $550,000 to $600,000.

The owner however, has lived in this property for 18 years. He has had the house on the market for some time, but has had very few potential buyers view the property. He has had a couple of offers to date, of around $350,000. Despite this, the owner believes that an offer above $700,000 would be fair.

It is odd how two people looking at the same property and seeing all of the features that detract from its value, can arrive at two very different viewpoints. But biased thinking is something that we are all very familiar with in our day-to-day lives. Whether we are talking about the football clubs we follow, our own children's intelligence or our own driving ability – in many cases our opinions are influenced by bias. However, bias can influence more than just how we view the world, as professionals it can also influence the way we make decisions.

HUMAN IRRATIONALITY

Rational decision making assumes that individuals use the information at hand to identify preferences. It also assumes that individuals prefer more to less. However, there is a significant amount of evidence which suggests that decision makers often prefer outcomes that are not entirely supported by rationality. Cognitive biases occur when there are imperfections in the way information is processed and result in decisions that are inconsistent with rationality.

The list of known and categorised cognitive biases is extensive, but most are very familiar such as:

- **Confirmation bias** – where individuals are selective in the evidence they collect and in the way they interpret that evidence in order to confirm their preconceptions.
- **The overconfidence effect** – the likelihood that people with knowledge or expertise in an area underestimate the uncertainty of an outcome.
- **Hindsight bias** – where individuals overstate the predictability of past trends.
- **Negativity bias** – the tendency of individuals to overstate negative experiences and understate positive ones.
- **The recency effect** – the likelihood of individuals putting greater weight on experiences that were more recent.

Actuaries deal with uncertainty on a daily basis. Our advice is sought when outcomes are uncertain and we rely on our professional judgement when providing this advice. It is in this type of situation where the limitations of human decision making are at their most vulnerable and cognitive biases are most influential.

At the 2012 General Insurance Semtinar, we submitted a paper that investigated how and to what extent, cognitive biases influence actuarial decision making. To do this, we asked a number of fellow actuaries to complete a survey with three tasks, each aimed at testing how our biases present in different professional situations. The next section highlights our findings from testing the prevalence of an anchoring bias – to what extent do actuaries anchor their reserving assumptions. Our examples are taken from the general insurance industry, but we feel the conclusions are relevant for other actuarial work.

OUR ANCHORING BIAS: YES ACTUARIES ARE HUMAN

Past papers have analysed the speed at which actuaries react to new information in claims reserving. A theory as to why actuaries may be slow to react to new information is that they are anchored by their own prior assumptions. Anchoring is also relevant in the context of formal and non-formal peer reviews and it is in this context that our study has been undertaken.

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While we would all like to consider a review to be independent of influence, anchoring suggests that the Peer Review Actuary's view on what constitutes a reasonable assumption is likely to be influenced once presented with the Primary Actuary's assumption. It is this aspect of anchoring that we tested in our study.

To do this, a number of fellow actuaries were provided with a survey with a task aimed at testing anchoring bias. A control group of respondents were provided with a history of the chain ladder factors observed over 11 accident and development quarters on an unknown insurance portfolio. A test group of respondents were also provided with the historical chain ladder factors, but were also given the chain ladder factors adopted by the Primary Actuary. We asked each respondent to suggest the upper and lower range of chain ladder factors they would consider reasonable on this portfolio. The survey tested whether the introduction of the Primary Actuary's assumption would create differences in what our two groups viewed as reasonable assumptions for the same data.

Figure 1 shows the results for a section of the chain ladders where the chain ladders assumed by the Primary Actuary were selected to be skewed towards conservatism.

Both groups have a high proportion of respondents (slightly less than 100%) who considered that a chain ladder factor assumption near the mean of the historical chain ladder factors would be in a reasonable range. As the chain ladder assumption becomes more optimistic or more conservative, the proportion of respondents who consider the assumption to be reasonable drops to zero.

However, despite the differences between the test and control groups being small, the graph does show some evidence of anchoring. While the control group shows a reasonably symmetrical distribution about the mean, the test group is slightly more skewed and more accepting of higher chain ladder factors.

The data available to the survey respondents for this particular section of chain ladder factors had over 11 points of data from which they could draw their conclusions. However, our survey also tested the influence of anchoring where very little data was available . To do this our respondents were asked to select a tail assumption – i.e. the rate at accident years would continue to develop beyond the development that is observable in the data. Figure 2 shows the chain ladder factors our test and control groups found to be within a reasonable range for the tail chain ladder factors. What we found was that the really interesting results happen where the data runs out, when uncertainty is highest and actuarial judgement is most crucial.

This graph shows that the test group, having been provided with the Primary Actuary's assumptions, had a narrower range of chain ladder factors that they considered to be reasonable. A high proportion (around 70%) agreed that the Primary Actuary's tail assumptions were in a reasonable range, whereas only a moderate proportion of the control group (around 40%) considered this to be reasonable. It also shows that by comparison, the test group is less likely to agree with materially higher tail assumptions than the Primary Actuary's.

The research and discussions we had in doing this study have strengthened our belief that cognitive biases are worthy of consideration by actuaries. Further, these particular results suggest that actuaries are susceptible to anchoring, and that the impacts are most pronounced when there is greater uncertainty. It is our belief that this has implications for the work we do, particularly in areas such as conducting a peer review.

BUT DON'T PANIC

Despite all of this, the actuarial profession already has a number of controls in place to mitigate the impacts of cognitive biases. The data intensive nature of our profession and our reliance on basing our assumptions on evidence in the data helps reduce our exposure to cognitive bias. Our work is often guided by professional or regulatory standards that force us to justify our assumptions and challenge our own internal biases. We also maintain a rigorous education pathway and continuous professional development standards that give us the experience to minimise sources of bias in our own work.

But as with all things in life, there's always room for improvement. The broader literature on cognitive biases recognises that while they often can't be completely mitigated, improving awareness is a step in the right direction.

This article is adapted from: "*The Limitations of Being Human: An Empirical Study of Actuarial Decision Making?*" by Joseph Valenti, Ben Edwards, Harry Haggith.

Figure 1 – Comparison of test and control group's views of reasonable chain ladders

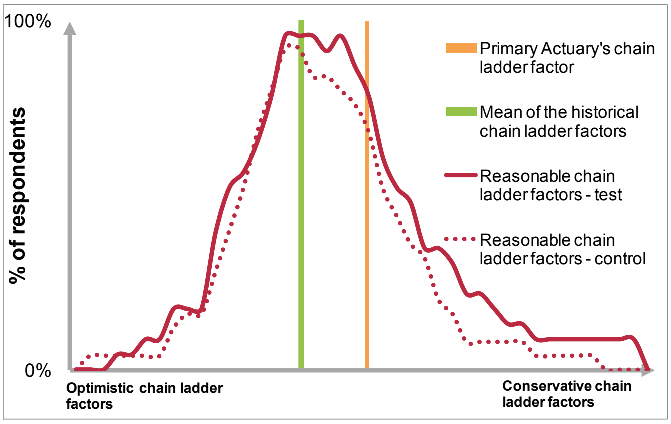
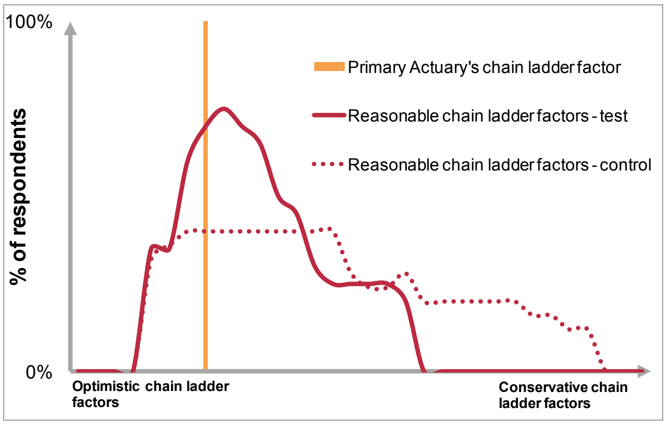


Figure 2 – Comparison of test and control group's views of reasonable tail chain ladders



How Good are your Basic Life Skills?

NEW SURVEY QUESTIONS WILL BE AVAILABLE IN APRIL 2013. WHAT WOULD YOU LIKE TO KNOW? IF YOU HAVE A QUESTION YOU WOULD LIKE TO PUT TO THE MEMBERSHIP, EMAIL IT TO EDITOR@ACTUARIES.ASN.AU

REPORT GENERATED ON 31 JANUARY 2013.
484 RESPONSES.

Can you change a flat tyre? Sew on a button? Iron a shirt? These are basic life skills, but in this day and age, when kids are taking longer and longer to move out of home and just about everything can be done for you, at a price, not all of us possess such skills. This month's *Pulse* survey looks at how the Actuarial profession fares, with regard to self-reliance, and determines which life skills the profession considers to be of most importance.

QUESTION 1: WHAT IS YOUR GENDER?

Response	%	Count
Female	31%	152
Male	69%	332

QUESTION 2: HOW OLD ARE YOU NOW?

Response	%	Count
Under 25	9%	42
25 – 34	37%	180
35 – 44	23%	112
45 – 54	18%	87
55 – 64	9%	41
65+	4%	21

The first two questions establish the demographic profile of the 484 survey respondents. These results are typical of other Pulse surveys and will be used to assist in analysing the results of the other survey questions.

QUESTION 3: HOW OLD WERE YOU WHEN YOU FIRST MOVED OUT OF HOME?

Response	%	Count
Under 18	20%	93
18 – 21	35%	169
22 – 25	30%	141
26 – 29	7%	35
30 +	2%	9
I am still living at home	6%	30

QUESTION 4: WHAT IS THE LONGEST STRETCH OF TIME THAT YOU HAVE LIVED ALONE OVER THE COURSE OF YOUR LIFE?

Response	%	Count
Less than 1 month	28%	132
1 – 6 months	15%	69
6 – 12 months	8%	38
1 – 2 years	12%	56
2 years +	38%	181

The purpose of Questions 3 and 4 is to gather information about the age at which respondents first moved out of home and how long they have lived alone over the course of their life. This will allow us to investigate the hypothesis that the earlier a respondent first moved out of home and the longer they have spent living alone over the

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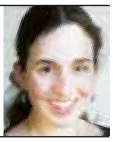


The Actuarial Pulse is an anonymous, web-based survey of Institute members, run on a monthly basis, giving members an opportunity to express their opinions on a mixture of serious and not-so-serious issues.

course of their lifetime, the more life skills they will have gathered.

Over half of all respondents (55%) first moved out of home before they were 22 and a further 30% had moved out by the time they were 25. Female respondents tended to have moved out of home earlier than males, with 24% of females having moved out before they turned 18, compared with 18% of males; and 62% of females having moved out before they turned 22, compared with 52% of males. Nevertheless, this statistic evens out by age 25, with 85% of females and males having moved out by this age.

Consistent with recent social trends, the older respondents tended to have moved out of home at an earlier age than the younger respondents, with 61% of the over 35s having moved out by age 21, compared with only 49% of under 35s; and 91% of over 35s having moved out by age 25, compared with 77% of under 35s.

The results of Question 4 show that survey respondents are split fairly evenly between those who have lived alone for only a short period of time (less than one year) over the course of their lives, and those who have lived alone for a significant time (greater than one year). Among those who have lived alone for less than one year in one stretch, the majority have lived alone for less than one month, while among those who have lived alone for more than one year at a time, the majority have lived alone for two years or more.

The results of this question are fairly consistent for males and females, but do differ by age band. Given recent media reports of the Generation Y "Boomerang Kids" who move out of home only to return again, not to mention the fact that younger respondents have had fewer opportunities to live alone for an extended period of time than their older counterparts, I expected that the group with the smallest proportion of respondents who had lived alone for two or more years would be those aged under 25.

Surprisingly, the smallest proportion was actually observed among respondents aged 55 or more, with only 28% of this group having lived alone for two years or more, compared with 34% of the under 25s and 59% of those aged 45–54 (the group with the highest proportion).

One possible explanation for this is that those aged 55 and over belong to a generation that tended to remain at home until they got married, while younger people today are getting married later after having first lived alone for a while.

QUESTION 5: WHICH OF THE FOLLOWING "BASIC" TASKS CAN YOU DO WITHOUT ASSISTANCE?

Response	%	Count
Iron a shirt	94%	457
Sew on a button	79%	384
Perform first aid	58%	282
Complete a basic tax return	91%	438
Set up techno-gadgets	73%	353
Fix a leaky tap	46%	224
Read a map	97%	471
Change a tyre	64%	310
Cook a meal from scratch	92%	446
Make a bed	98%	475
Wash your own clothes	97%	467
Mow a lawn	77%	371
Tie a necktie	83%	402
Drive a car	94%	453
Shuffle a deck of cards	96%	464
Read an analogue clock	94%	457

It is a relief to see that the vast majority of respondents possess most, if not all, of the basic life skills listed in Question 5, in particular those skills that are required on a daily basis, such as making a bed and cooking dinner.

The tasks that the fewest respondents were capable of performing were: sewing on a button, mowing a lawn, setting up techno-gadgets, changing a tyre, performing first aid and fixing a leaky tap, all tasks that are usually only required now and then, if at all.

Breaking these results down by age, gender, etc, the following insights were revealed:

- Ability to perform most of these tasks is independent of gender, with the exception of changing a tyre (30% of females, compared to 80% of males can perform this task), setting up techno-gadgets (57% vs 80%), tying a necktie (58% vs 95%), mowing a lawn (51% vs 89%) and changing a leaky tap (20% vs 58%), all of which significantly more males than females are capable of performing; and sewing on a button (93% vs 73%), which significantly more females than males are capable of.
- Similarly, the ability to perform most tasks is independent of age, with the exception of sewing on a button, changing a tyre, completing a tax return and fixing a leaky tap. In all of these cases, the proportion of respondents capable of performing the task increases with age. For example, in the case of fixing a leaky tap, only 26% of under 25s can perform this task, but 71% of 55–64 year olds and 62% of over 65s are capable of it.
- People who moved out of home at an earlier age are more capable when it comes to performing the majority of basic tasks than those who moved out at a later age, with those still living at home being the least capable.
- Time spent living alone has minimal impact on the ability to perform basic tasks.

Based on the comments received in response to this question, it's clear that some respondents were shocked at the thought that there are intelligent adults out there who can't perform all of these tasks.

Reasons given in the comments for why respondents might not be able to perform these tasks were generally along the lines of "I've never had the opportunity to try" and "I could do these tasks myself but prefer to delegate". For those who found themselves lacking in basic life skills and want to make a change, I'll leave you with this piece of advice given in the comment of one respondent: "with the help of Youtube, (you) could do any of these things and even more… bring it on!"

QUESTION 6: WHICH OF THE FOLLOWING "USEFUL" SKILLS DO YOU POSSESS?

Response	%	Count
Swim	86%	418
Ride a bike	90%	433
Play a musical instrument	48%	232
Drive a car	94%	453
Computer coding	61%	293
Speak more than one language	45%	218
Touch type	54%	259
Play poker	63%	307
Play chess	69%	333
Self-defence	20%	97
Do push-ups	66%	319
Dance a waltz (e.g. at a wedding)	31%	152

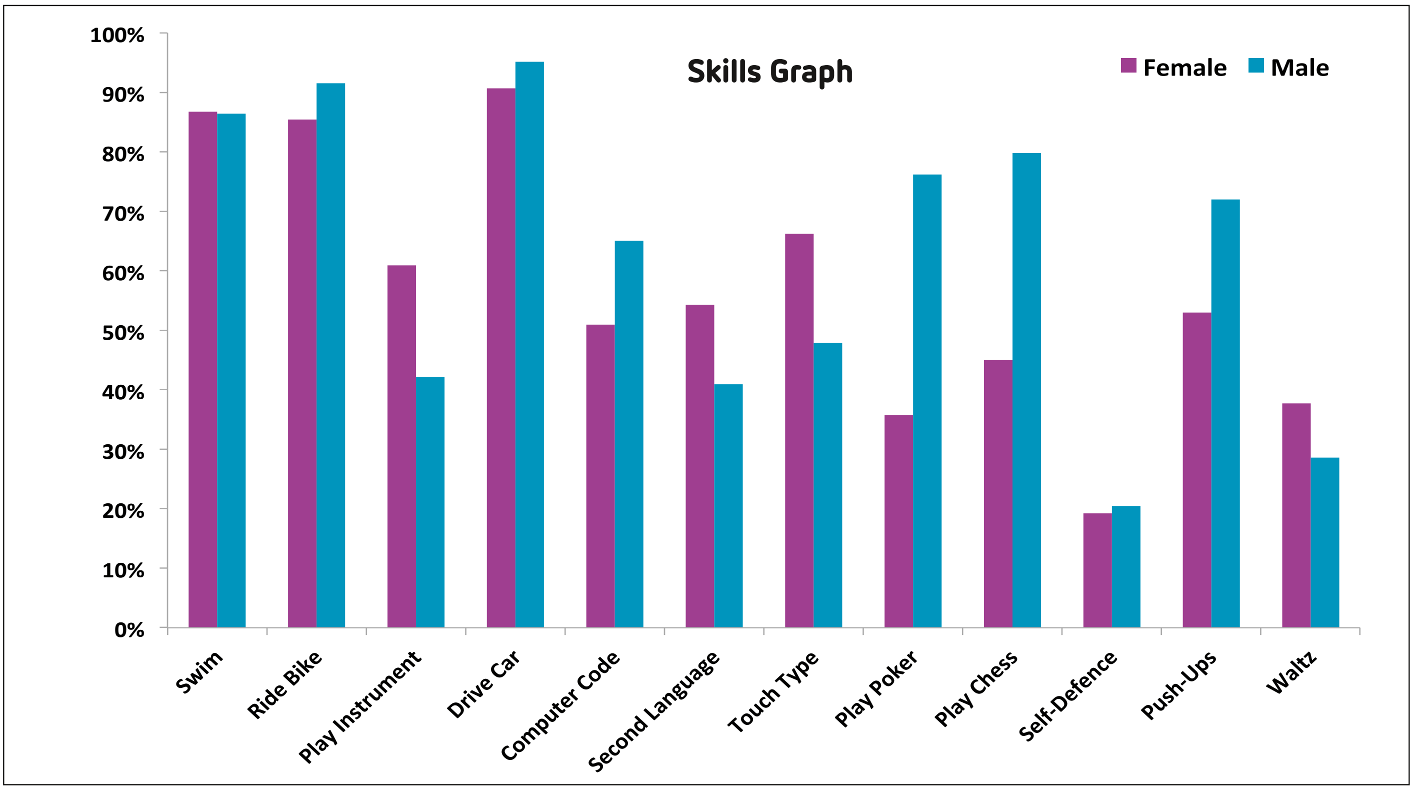
Most of the "useful" skills listed are not usually required on a daily basis and as such, far fewer people possess these skills than possess the basic life skills listed in Question 5.

Not surprisingly, the most commonly possessed of the listed skills was being able to drive a car, with almost 95% of all respondents being able to do this. The least common skills were self-defence, being able to dance a waltz, speaking more than one language and playing a musical instrument. None of these are "essential" skills for an actuary living and working in Australia (unless, of course, you happen to get into a fight with one of your co-workers), but all can be very useful under the right circumstances.

The following graph shows the proportion of respondents who possess each of the listed skills by gender. As can be seen, significantly more females than males are capable of playing a musical instrument, speaking a second language, touch typing and dancing a waltz. However, when it comes to writing computer code, playing poker or chess and doing push-ups, the males outdo the females.

With regard to age, for the majority of skills listed, the proportion of respondents who possess these skills decreases with age. This is possibly due to educational and cultural shifts over time resulting in different generations of people learning different skills as they grow up.

The ability to swim, ride a bike, drive and play chess is fairly constant



across all ages; while the only skill where the proportion of respondents who possess this skill increases with age is the ability to dance a waltz. 71% of over 65s can dance a waltz, compared with only 17% of under 25s.

QUESTION 7: WHAT WAS THE MOST VALUABLE SKILL YOU LEARNT GROWING UP?

The most common answers given in response to this question were: Reading, Cooking, Maths, Touch Typing, Social Skills and Computer Skills. Reading, cooking and social skills are basic life skills, and as one respondent pointed out, if you can read, "you can pick up almost any other skill".

Maths, touch typing and computer skills, on the other hand, are skills used in the workplace. For actuaries, maths and computer skills are what pay the mortgage, and although it isn't essential for an actuary to be able to type, it makes getting work done a whole lot faster.

Other answers given in response to this question include:

- How to drink beer;
- To be independent;
- Knowing when to keep my head down and my mouth shut;
- To compete fairly… and unfairly if the occasion calls for it;
- Acting busy when I'm actually not;
- Study, Study, Study;
- The ability to be alone without feeling lonely; and
- X-ray vision.

QUESTION 8: WHAT SKILL DO YOU WISH YOU HAD LEARNT GROWING UP BUT DIDN'T?

331 people responded to this question, and of their responses, around half fell into one of two categories: 86 respondents wished that they had learnt how to play the piano/another musical instrument, while 78 wished they had learnt to speak another language.

By comparing the responses to this question to those given in Question 6, it can be seen that only 17 out of the 86 who wished they had learnt how to play an instrument when they were younger, have learnt this skill in later life, and only 17 out of the 78 who wished they had learnt to speak another language.

Some of the answers given by the other half of the respondents to this question include:

- How to lie effectively;
- How to balance things (like chairs) on my chin or forehead;
- "Becoming fluent in left and right" (the respondent commented that she still has to "hold up the 'L' in her left hand for reference");
- Comedic skills;
- How to wrestle a bear;
- How to gut and clean a fish;
- Magic tricks; and
- "Getting beautiful girls to fall for me".

Even if you did not learn certain skills while growing up, it's never too late to learn. It's true some skills require years of study or practice, but fulfilling a goal can give you an incredible feeling of achievement, not to mention the fact that scientific studies have shown that lifelong learning boosts self-esteem, happiness and general well-being.

QUESTION 9: OTHER THAN THOSE MENTIONED ABOVE, WHAT OTHER BASIC SKILLS DO YOU THINK EVERYONE SHOULD POSSESS?

The answers given in response to this question were many and varied. Some respondents believed that everyone should possess behavioural or emotional skills, such as kindness, patience, good manners, and compassion. Others suggested more practical skills, such as spelling, gardening, how to clean a toilet, budgeting, public speaking and how to use Google. Some of the more unusual answers given in response to this question include:

- How to detect sarcasm;
- How to grow and preserve your own food;
- Differential calculus and modelling of GI liabilities;
- How to plait hair (the respondent commented "when I went away on holidays, my husband could not plait my daughter's hair to keep it neat");
- Programming a VCR;
- How to screw in a light bulb (the respondent commented "one's always hearing how many people it seems to take to do this simple task");
- Secret ninja skills;
- Invisibility;
- How to flay a carcass;
- The phonetic alphabet (for spelling your name or email address and dealing with people over the phone); – and my personal favourite, given that I go through busy train stations twice a day at peak hour;
- Standing to the left on escalators!

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CONCLUSION

There is a Chinese proverb that says "the best time to plant a tree was 20 years ago; the next best time is now" and it presents a perfect analogy for basic life skills.

The best time to learn basic life skills and other useful skills is long before you ever want or need to use them. Fortunately, as this survey has demonstrated, most actuaries possess a wide array of skills that are likely to prove valuable in everyday life.

However, regardless of who you are, there is always at least one thing that you wished you knew how to do, but don't. Whatever that skill is, the best time to learn it is right now.

In some cases, this might prove difficult or embarrassing, but as actuaries are aware, none of us are getting any younger, and as this quote from inspirational author Karen Lamb states, "a year from now you will wish you had started today." **A**

Sandra Thompson

Sandra Thompson

Welcome to the first of the *Actuaries - Missing in Action* series for 2013. I am excited to be introducing you to Sandra Thompson who has a slightly different profile to her MIA associates from the 2012 series. Sandra changed her career direction before qualifying so we hear her perspective from a student's point of view. And we spend a little time in Tokyo where Sandra currently resides, having moved there two weeks before the 2011 earthquake.

Sandra in a traditional yukata (Summer kimono)

SOUNDS GOOD

Growing up Sandra always dreamt of becoming a doctor. Her dreams were dashed however when she discovered, during Year 10 work experience at a hospital, that she didn't like looking at blood and felt depressed by seeing people in pain. The search for a new career choice began.

How does this sound? Great pay, lots of respect, reasonable working hours, opportunity for travel AND based on a satisfaction survey – be in the number one profession. This was the actuarial profession. Sandra loved maths and had dreams of working in a trendy office so it sounded like the perfect choice. Take two for the work experience – this time at an actuarial general insurance department. She was sold and subsequently enrolled in actuarial and computer studies at Macquarie University. The degree was challenging and stimulating and whilst Sandra thought the professional exams were daunting, she felt satisfied with her choice.

During her second year of university, Sandra received a scholarship to travel to Canberra to attend a forum for young statisticians. It was at this forum where she became familiar with the work in drug development by biostatisticians in the pharmaceutical industry. Using statistics to design clinical trials and develop new medicine was a fascinating temptation. The forum provided an opportunity for Sandra to meet a well-respected and influential biostatistician in the industry from whom she gained the inspiration to change her degree to actuarial studies and statistics.

YEAH – BUT NO

During the holidays of her third and fourth years of university, Sandra completed two actuarial internships in superannuation, and general insurance, as well as an internship in the biostatistics department of a pharmaceutical company. All three experiences were rewarding. The actuarial internships provided challenging quantitative work in a business environment with intelligent, motivated team members, but it was the career as a biostatistician that held her gaze. For Sandra this was a career that combined most of the elements that had attracted her to the actuarial profession but also allowed her to return to her childhood love of medicine.

Following the completion of an honors degree in biostatistics, Sandra worked for five years in Australia as a biostatistician and had the opportunity of working on many ground breaking drugs fighting diseases such as hepatitis B and C, non-small cell lung cancer, gastric cancer, anaemia, and colorectal cancer.

Although based in Australia, she enjoyed working in diverse global teams. Clinical trial teams include medical scientists, data managers, programmers, medical writers and operations staff who are located

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Sandra embracing the culture

in various countries across the world. There is a distinct feeling of excitement that surrounds the availability of the first results of a trial and a high level of satisfaction associated with knowing a little bit more about medical science at the end of every project.

TIME WELL SPENT

Sandra's passion for her current career is clear. Although her short to medium term plans do not include returning to the actuarial profession, she doesn't rule it out. The statistics and computer programming subjects which she studied as part of the actuarial degree are extremely relevant to her current profession. The other subjects such as accounting, economics, finance, and actuarial studies are less relevant however they give her a better understanding of the company's business objectives.

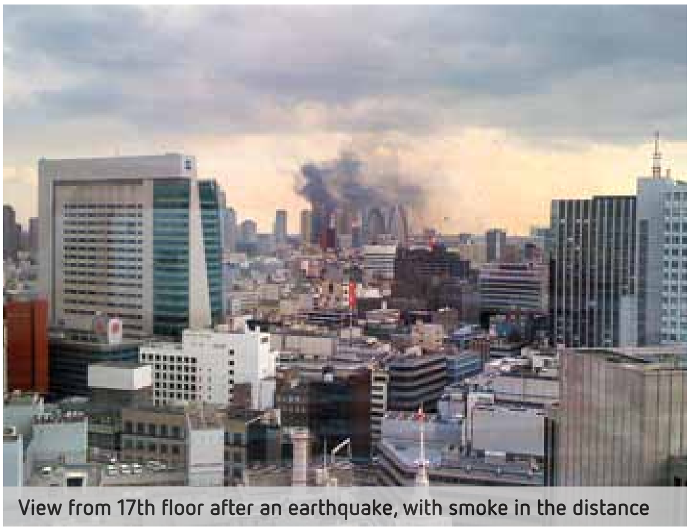
If she were to venture back to the fold it would be perhaps to a non-traditional field. The skills she acquired throughout her degree and during her internships could enable her to branch out into other areas of the pharmaceutical industry, for example into health economics which uses actuarial and economic models to analyse the costs and benefits of pharmaceuticals.

Sandra has no regrets about the path she took and recommends the actuarial profession for those who enjoy mathematics and problem solving and have an interest in insurance, economics, and finance. To this however she adds a recommendation that students appreciate and understand the extra investment in time and effort required to gain professional accreditation after graduation from university so that they can make an informed decision about their career path.

SHAKEN – BUT NOT STIRRED

In March 2011 Sandra moved to Tokyo to work as a statistician for another pharmaceutical company. An exciting opportunity to work on global drug development projects, learn Japanese and explore Tokyo!

Two weeks after her arrival, Japan was struck by its strongest earthquake on record. Now two years later, Sandra reflects on that day.



View from 17th floor after an earthquake, with smoke in the distance

"'This is the early earthquake warning system. An earthquake is coming in five seconds. Please prepare and stay calm.'

The announcement and siren interrupted the quiet environment of the 17th floor of my new office in central Tokyo. It was only my second week in Japan.

Terrified, I dived under my desk where I kept my company supplied earthquake emergency kit. As I put on my protective hard hat and waited for the earthquake to strike, a million terrified thoughts flashed through my mind.

I knew that the early earthquake warning system only goes off when an earthquake is dangerously big. In my head I saw images of the Christchurch earthquake, and my own office tower toppling with me crushed inside.

A few seconds later our building started to sway. It was like being on a ship in the rough seas. The motion was smooth, but very strong. The filing cabinet doors were sliding around and making a lot of noise. Our building leaned over so much that I was sure it would topple. Luckily it didn't.

After the worst of it was over, I crawled out from under my desk. Everyone was laughing nervously but I could tell that people were really shaken up. For the rest of the afternoon there were huge aftershocks – many of them were above magnitude 6.0 and they were enough to send us under our desks again. We were instructed to stay in our building for safety as it was earthquake proof. That night, everyone walked home since the trains weren't running. My house was only 2km away but many of my colleagues slept in the office or walked for hours. The streets were crowded with people walking home but everyone was eerily quiet and subdued.

That night I watched Japanese TV and saw images of the tsunami. I didn't have internet access and the TV was in Japanese so I didn't understand the extent of what had happened. I felt scared and isolated as it was difficult to get text messages through to my family and friends. I slept next to my hard hat and spent most of the night waking up as the aftershocks were rough. The next day I made my way to the airport and managed to get on one of the first flights out of Japan. When our plane took off, all of the passengers cheered and clapped.

After I returned to Australia my parents and I spent the next few days answering phone calls and emails as many people contacted us to check that I was ok. I felt touched by everyone's concern. I ended up staying in Australia for the next two months until the nuclear disaster was under better control.

Two years on, the whole experience seems like a surreal dream mixed in with all the other cultural shocks I was feeling at that time, having just moved to Japan. It took me a few months before I stopped freaking out every time there was a small earthquake or a siren. Now I hardly notice them!

I'm not really worried about radiation or future earthquakes and tsunamis. I feel like there is always something to worry about and my worrying won't help anything."

If you would like Sandra's full story, you can visit her Blog at http://sandrathompsonauthor.blogspot.com/.

Measuring Investment Risk

Most of the savings for retirement of Australian workers is locked up in superannuation funds. Some of these funds are retail, and others are self-managed. The retail fund managers place an emphasis on returns, as it serves their marketing interests to be close to the top of the short-term tables. There is less discussion on risks associated with a given investment portfolio, although some of them are labeled as "Growth", "Balanced" and "Capital Stable".

Good returns from long-term investment require careful planning. There has been some public disquiet over the investment performance of superannuation funds, especially the negative returns in some periods since 2008.

Consider a simple statistical model of an investment portfolio. Let X be a random variable denoting the annual force of return with mean μ, standard deviation σ, skewness γ, and (excess) kurtosis κ. Put

$$Z = (X - \mu)/\sigma$$

Then Z is a standardised random variable with mean 0 and standard deviation 1. Let

$$\zeta = \mu/\sigma$$

Now ζ is dimensionless, i.e. a number, since both the mean and standard deviation of X are measured in the same units as X. Here we call ζ the "index of stability" or "ios", based on the fact that it is the reciprocal of the "coefficient of variation". In the engineering literature it is known as the "signal to noise ratio". In the application to investments we will assume that the mean return $\mu > 0$. It follows in this case that $\zeta > 0$, since the standard deviation is always positive.

Denote the cumulative distribution of X by $F(x)$, so that

$$\Pr(X \leq x) = F(x)$$

Denote the cumulative standard Normal distribution by $\Phi(.)$, then

$$F(x) \approx \Phi(z) \text{ where } z = (x - \mu)/\sigma$$

This simple approximation usually works quite well within one standard deviation from the mean (i.e. $|z| \leq 1$) but it may fail in the tails of the distribution. Note in particular that

$$F(0) \approx \Phi(-\zeta) = 1 - \Phi(\zeta)$$

since the standard Normal distribution is symmetrical about a zero mean.

Members of a superannuation fund have an aversion to negative returns. One way for the investment manager to take account of this aversion in the design of the investment portfolio is to set the value of the index of stability. Then the Normal approximation can be used to obtain a first approximation to the probability of negative returns. This probability can easily be converted, as required by ASFA's "Standard Risk Measure", to the expected number of negative annual returns each 20 years.

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TABLE 1: PROBABILITY OF NEGATIVE RETURNS USING NORMAL APPROXIMATION

Index of stability	0.5	1.0	1.5	2.0
Probability of negative returns	41%	16%	7%	2%
No. of negative returns in 20 years	8.2	3.2	1.4	0.4

To avoid most negative returns, we might set $\zeta > 1$. This criterion, on its own, may be too weak to avoid a rash of negative outliers. A refinement of the first approximation is to consider the skewness and kurtosis of the returns. Skewness and kurtosis are both dimensionless measures of risk. If we set $\gamma > 0$, then the negative outliers are outweighed by the positive outliers. If we set $\gamma = 0$ then the upside and downside outliers are balanced. This may be a suitable definition of "Balanced". Small values of excess kurtosis (say $\kappa < 1$) imply that the outliers are not extremely dangerous.

The Normal Power approximation uses information about the skewness and kurtosis to improve on the Normal approximation over a wider range of values. It can be written as (Pesonen, 1975)

$$F(x) \approx \Phi(y)$$

with

$$y = z - \gamma(z^2 - 1)/6 - \kappa(z^3 - 3z)/24 + \gamma^2 (4z^3 - 7z)/36 + \ldots$$

The design of the investment portfolio is often expressed as a mixture of sectors. The following table of investment statistics by sector is based on data for the annual forces of return for the period September 1965 to September 2012 from Grenfell (2012).

The high value of the kurtosis for the Property and Property Trust sectors in Table 2, together with a significant negative skewness, indicate that disastrous negative annual returns have occurred at least once in the period of observation for each of these sectors.

Denote the mean force of return of an individual sector by μ_i, then the mean force of return for the whole portfolio is given by

$$\mu = \Sigma_{i=1}^{n} \; p_i \, \mu_i$$

where p_i is the proportion of the i^{th} sector in the portfolio mix.

It is not straight forward to obtain the standard deviation of the whole portfolio from sector statistics, as in Table 2, because the correlation of the returns between sectors are important and should not be ignored. These correlations also affect the skewness and kurtosis. To obtain reliable estimates of the returns for a portfolio mix it is necessary to collect time series data for each sector over an extended period. Even with such data on hand, there remains a hidden trap for the unwary. From time to time various investments fail, and the historical time series may not give adequate weight to the occurrence of such events.

The highest mean return is for the Australian Shares sector, but this shows up with an $ios < 1$, a negative skewness and a positive excess kurtosis. On the other hand the lowest mean return is for the Cash sector with an $ios > 2$, a strong positive skewness, and a negative excess kurtosis. Portfolio mixtures will exhibit values between these extremes.

New regulations for superannuation funds provide Australian actuaries with a fine opportunity to act in the public interest. The public needs to be educated on the use of the index of stability, skewness and kurtosis as measures of risk. The concept of standardisation is already in the mathematics syllabus at secondary schools.

The beneficiaries of superannuation funds should come to expect reports from their trustees on investment risks using these measures, so that they can make informed decisions on their choice of investment portfolio. The new regulation SPS 220 on Risk Management of Superannuation funds requires the trustees to articulate statements on risk appetite and risk tolerance taking into account the interests of the beneficiaries. Greater involvement by actuaries and a better informed general public will hopefully lead to effective risk disclosures in superannuation products. 🅰

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> **New regulations for superannuation funds provide Australian actuaries with a fine opportunity to act in the public interest.**

TABLE 2: INVESTMENT FORCE OF RETURN BY SECTOR BEFORE TAX AND FEES [AUSTMOD, SEPT 1965 - SEPT 2012] (H – HEDGED, UH – UNHEDGED)

Sectors	Int'l Shares (UH)	Int'l Shares (H)	Aust'n Shares	Prop Trust	Fixed Int.	Property	Int'l Bonds (H)	Infl'n Linked	Semi Govt. (0-3yrs)	Loans/ Credit	Cash
Mean	6.4%	9.1%	11.2%	9.0%	8.2%	9.0%	8.1%	9.4%	9.0%	9.5%	8.3%
St. dev.	19.5%	19.1%	21.4%	16.3%	8.3%	8.4%	6.8%	7.9%	5.0%	4.3%	3.8%
Skewness	-0.30	-0.79	-0.10	-1.40	-0.70	-1.69	-0.75	-0.67	0.31	0.75	0.92
Kurtosis	0.49	1.49	0.72	4.11	3.13	4.28	2.85	1.35	0.35	0.41	-0.33
Ios	0.33	0.48	0.52	0.55	0.98	1.07	1.19	1.19	1.79	2.20	2.20

Personal Mastery –

Identifying your Life's Task

> "We spend a substantial part of our waking life at work. If we experience this time as something to get through on the way to real pleasure, then our hours at work represent a tragic waste of the short time we have to live." – ROBERT GREENE

Over summer, I came across a cracking book by Robert Greene called *Mastery*. Greene's book identifies a common three-stage pattern on how people attain mastery in their field.

STAGE 1 – Connect in with your own sense of uniqueness. Greene's perspective is that through the evolutionary process, we are hard wired for making a unique contribution; "Our evolution as a species has depended on the creation of tremendous diversity of skills and ways of thinking… your uniqueness at birth is a marker of this necessary diversity. To the degree you cultivate it and express it you are fulfilling a vital role."

STAGE 2 – Choose a career path or career direction in service of this inclination. When people are clear on their inclination, the career paths that can develop this into a field of mastery become much clearer.

STAGE 3 – See your career or vocational path as a journey with twists and turns rather than a straight line. There will be parts of this career journey that will be even more exhilarating than you could have imagined and other parts that will feel bland and uninteresting. Ultimately, you will continue to evolve your career towards what gives you the greatest sense of achievement, connection and contribution.

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From my experiences in career coaching, many people find identifying their life's task is highly elusive. While they experience personal achievement from promotions or delivering challenging projects, a feeling of deeper contribution is often lacking. Sometimes after achieving a major goal they feel a so what, what has all the pain or dedication been for?

My sense is that while there are many actuaries who are passionate about their work and making a contribution, there will be others grappling with this challenge.

However, there are also many examples of actuarial professionals who are deeply passionate about their work and a sense of making a significant contribution to their wider communities. Moreover, for a person with actuarial skills, there is a tremendous breadth of possible career paths and industries.

The following are five strategies that Greene identified that have helped people to get a deeper sense of their life's vocation:

1. RETURN TO YOUR ORIGINS – THE PRIMAL INCLINATION STRATEGY

Often a very strong inclination emerges early in our lives. Reflecting on what was particularly joyful to us in childhood or early adolescence can provide some clues.

Einstein was five when his father gave him a compass. The idea that the compass was guided by an invisible magnetic field significantly influenced Einstein's work in exploring hidden forces and fields.

Early inclinations can often get buried beneath our formal education and early work experiences. To reconnect with these, the following questions may be useful:

- Do you recall activities that you undertook in your early years that you never tired of?
- What were things you were doing when time just seemed to disappear and you were completely in the moment?
- What was it that gave you a greater sense of power or certainty?
- What gave you a greater sense of curiosity, and piqued your imagination?

2. OCCUPY THE PERFECT NICHE – THE DARWINIAN STRATEGY

A career can be like an ecological system – people occupy particular fields within which they compete for scarce resources. To grow and to thrive can be very difficult when competing directly against other similar resources. To find a career niche can be much more rewarding and can also provide more space and opportunity to pursue what is truly important to you. Some questions to consider on how to develop a career niche include:

- What fields correspond to your interests?
- How in that field can you narrow further to take on a specialisation?
- What other interests do you have that you could combine with this discipline to make this a unique field?
- How can you use this to express your goal?

3. AVOID THE FALSE PATH – THE REBELLION STRATEGY

The false path is the lure of attractive rewards, which may take you further away from your goal. The lure of money, power or social status can be intoxicating. Yet many people who have pursued this path often find the journey meaningless and hollow. The rebellion strategy is sticking to what is truly important to you rather than following the "false path". Some questions to consider in helping to explore this further:

- What has influenced you to follow the career path chosen to date?
- Do you find your current career path meaningful and rewarding? If not, what is not rewarding?
- If you were to suspend the need for money, power or social status, what kind of work would you be drawn towards?

4. LET GO OF THE PAST – THE ADAPTATION STRATEGY

Having invested enormous time and energy in their careers, people can feel like they are throwing away a large part of their investment if they change career direction. An adaptation strategy is a way to bring the relevant skills and capabilities you have developed along your current path, and apply these to move you towards your vocation.

Some questions to consider if you are feeling "stuck":

- What may you be holding on to from the past that is no longer serving a purpose?
- What or who may you be loyal to that stops you from seeking your goal?
- What are the skills and capabilities you have developed that will serve you in either finding or moving towards your goal?

5. FIND YOUR WAY BACK – THE LIFE OR DEATH STRATEGY

Many people will deviate so far from their goal that the experience will be extremely painful. They will experience unhappiness and a sense of meaningless that will erode their long-term health and well-being if left unattended. The way back is to heed this pain as a call to action; as a way to redirect their journey. Questions to consider if you are experiencing this:

- If you continue along this current path, how will this play out for your health and well-being?
- What actions do you need to take now to redirect your career?
- What are some key milestones along the way that will help you to navigate your journey?

Careers truly are a journey, and an opportunity to express what is of value to us, and what we can contribute. A core aspect of self-leadership is personal mastery – identifying your goal. 🅰

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KEYNOTE ADDRESS

Ita Buttrose* AO OBE – 2013 Australian of the Year, Legendary Media Editor, Businesswoman, Best-Selling Author and President of Alzheimer's Australia

FACILITATOR

Annabel Crabb* Journalist, Author and Political Commentator

PLENARY SPEAKERS

Monica Barone	Chief Executive Officer, City of Sydney
Meredith Brooks	Independent Director
Greg Cooper	CEO, Schroders
Josh Corrigan	Principal and Consultant, Milliman
Adam Driussi	Director, Quantium
Sophie Dyson	Director, Three Rivers Consulting
Diana Eilert	Non Executive Director - AMP Life, Queensland Urban Utilities, and "onthehouse"
Nick Green* OAM	Olympic Gold Medallist, Chef de Mission, 2012 Australian Olympic Team
Richard Howes	Chief Executive, Challenger Life
Ian Laughlin	Member, APRA
Jim Minto	Managing Director, TAL
Narelle Pyne	Group Head, Risk Policy and Governance, Origin Energy
Barry Rafe	Rafe Consulting
Lawrence Tsui	Global Products Actuary - Risk Products, Swiss Re
Donna Walker	General Manager of Claims and Chief Actuary, CGU Insurance
Brett Ward	Group General Manager, Strategy, IAG

* Ita Buttrose, Annabel Crabb and Nick Green appear by arrangement with Saxton Speakers Bureau.

David May in Profile

David May is one of New Zealand's most prominent actuaries and has held a number of senior board roles, including the high profile Chairmanship of the Guardians of the New Zealand Superannuation Fund. Andrea Gluyas asked him a few questions about how he came to these roles, the value of his actuarial training, and advice to actuaries looking to develop their careers into governance.

What qualifications did you start with?

BSc in Maths at Manchester University in England – a highly academic and social place – and FIA, again in England.

How did your career progress?

I'm an actuary by profession but I've been in management rather than specialist positions most of my working life, which was all spent with one employer, Colonial Mutual or CML, who were taken over by CBA in 2000.

I worked in London from 1968 to 1979, initially in actuarial and later superannuation management roles and then transferred to Melbourne for one year and Perth, where I managed about 150 indoor and sales staff in the WA branch for one year, en route to NZ.

I arrived in NZ in 1982 and was Deputy CEO, Actuary and Superannuation Manager for three years before setting up and running Jacques Martin which became a successful superannuation administration company and consultancy.

Then in 1991 I was off to Hong Kong for four years, where I managed the regional life assurance joint venture with Jardines, the big conglomerate of James Clavell's *Taipan* fame. I oversaw life operations in Hong Kong, Thailand, Malaysia, Indonesia and the Phillipines and in fact we set up the operations in three of those countries.

Then it was back to NZ as MD, where Colonial successfully demutualised, moved its agents to a largely renewal (rather than front end) commission income (way ahead of its time) and took over Prudential.

I was offered a job in Sydney following the CBA takeover but with kids still at secondary school decided I'd done enough moving – so "retired" at the tender age of 53.

After driving land rovers from India to Siberia for a few months I returned home and was offered three board jobs: Southern Cross, Government Superannuation Fund and as Chair of the NZ Superannuation Fund.

The first is largely Health Insurance and Hospitals and the last two are investment

Andrea Gluyas
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funds. I steered clear of life assurance just because I was too close to it at that stage but last year I joined the board of Sovereign, CBA's life business in NZ.

I retired from Southern Cross in 2011 and from the other two last year – 10 years on one board is enough. Currently my time is being filled with a temporary role as acting chief executive of the Accident Compensation Corporation.

Other than that, I have also advised the government on the oversight of the KiwiSaver default Funds and the ASB Community Trust Investment Committee on investment matters.

What do you enjoy most about your current role?

Board work is demanding – you really do need to put in a lot of time fully understanding the business and its key drivers and probing deeply on occasions to get to the crux of the performance and risk issues. It's also frustrating in that you don't exercise the same direct influence over resources as you do as CEO and like a soccer player you don't get the ball that often, so you need to speak briefly and to the point, without covering all the angles and qualifications you might as an actuary.

But it's also a lot of fun and very rewarding. You really do get to understand what drives business and success and what is going on in the economy and marketplace without having to do the hard yards in constructing complex reports yourself. You soon get a different perspective on what really matters and get to push hard on difficult initiatives without having to then go and do the job. Nothing is impossible to the man or woman who doesn't have to do it themselves.

It is collegial by nature – assisted by robust debate and probing by a highly able group of people with a wide range of expertise –and greatly assisted by occasional doses of humour. And it is satisfying if you feel you can exercise a positive influence on the strategy and control of a business that matters and enormously satisfying if you give an able management team the confidence to go for it.

What prompted you to make the move outside a traditional actuarial role?

I haven't really moved outside the traditional actuarial field. For the first 15 years of my working life I moved backwards and forwards between management and actuarial roles. While the latter used my expertise the former was more fun in that you mixed with a lot of people and got things done. I eventually got a bit fed up with writing reports that someone else then made a decision on.

What benefits does your actuarial training bring to your roles outside the profession?

Enormous. The ability to see what trends and KPIs matter from a complex set of numbers – usually presented in a way that buries the key ones inside a complex array of matrices of ones that don't matter that much. Deducing stuff from scant information. Taking the long term view on value add and having an inherent feel for what is short term noise and which often over influences the management accounting view. The world is bedevilled with a focus on short term performance at the expense of the long.

These are skills badly needed in executive teams and around the board table and for me anyway were skills I developed – to the extent I have them – from my training as an actuary.

What skills do you think the profession needs to work harder at developing? Can they be taught, or should they be sought at the recruitment stage?

I don't really know – it is a long time since I looked at any actuarial training. But we shouldn't throw the baby out with the bathwater. I personally have tremendous respect for and confidence in the actuaries I work with as the one source of reliable views on the long term financial health of insurance or other long term contractual businesses. And we need that more than ever.

There was a time when a high percentage of CEOs and CFOs were actuaries but our influence seems to have diminished over the last 30 years. I think we need more again.

There was a time when a high percentage of CEOs and CFOs were actuaries but our influence seems to have diminished over the last 30 years. I think we need more again – but I'm not sure it is a professional training issue – more pushing of actuaries to obtain wider experience. But I'd like to see more strong articulate actuaries at senior levels. And being articulate and decisive are important skills we should all try and develop.

How important is it for you to stay in touch with the actuarial profession? What would change this?

I still like to stay in touch but I think that is more from a personal view than a work need and I'm too old now to dust off the various MOS type cobwebs.

What is your advice for young actuaries wishing to emulate your success?

I'm not sure I've been that successful. But I'd say always take up whatever management or other opportunities come up outside your comfort zones. You'll be amazed at your own adaptability and how much your actuarial or financial skills can be brought to bear. And you'll have a few more laughs along the way.

Islands of Opportunity

New Zealand Society of Actuaries Biennial Conference 2012

The biennial conference of the New Zealand Society of Actuaries took place at Waitangi in the Bay of Islands from 18 – 21 November last year. The theme for the Conference was 'Islands of Opportunity'. This reflected the opportunity to share new ideas and techniques, potential business applications and to network with fellow actuaries.

It was also the occasion to hear from several speakers from outside the profession who had messages of direct relevance to our professional lives.

105 delegates attended the conference in total, slightly in excess of expectations. We were especially pleased to welcome actuaries from as far away as Germany and to see a solid representation from Australia. Equally pleasing was a surprisingly good showing from younger actuaries, including part-qualified members.

KEYNOTE SPEAKERS

We were privileged to be able to welcome the following external speakers to the conference, who addressed delegates in plenary sessions:

- Shane Jones, the local Member of Parliament, shared his views on financial challenges for the nation with insights on the history of the region and how actuaries could more effectively influence policymaking.
- Natalie Jackson provided us with insights on demographic trends in New Zealand and highlighted the challenges we may face with the advent of regional depopulation.
- Len Cook delved in to the problems of policy formulation connected to the ever-increasing dependency ratio. He drew the strands of longevity, retirement provision, workforce and home ownership trends and many others together.
- Bernard Hickey drew the conference to a close with an entertaining and wide-ranging exposé of the macroeconomic outworkings of the global financial crisis. His conclusion that an alien invasion is all we need to spur much needed growth was no doubt memorable for us all!

OTHER PLENARY SESSIONS

Andrea Gluyas and Charmaine Green presented an update on their 2002 presentation on Actuaries of the New Millennium. This provided insights on qualification times, professional progress (both titular and pecuniary) and family life: conjugal bliss was quite the theme!


Powhiri


Waka lesson

Daniel Mussett
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Joe Benbow, Martyn Gilling, Bronwyn Lusby and Gary Chadwick

Ineke Fergusson, Ross Simmonds, Jenn Bonnett and Catherine Johnston

Ben Coulter, Linda Caradus and Charles Hett

The conference would not have been complete without a focused discussion on earthquake risk, a topic at the forefront of many actuarial minds at present. Accordingly, Janet Locket, Clinton Freeman and Richard Beauchamp led a comprehensive and fruitful discussion on the future of disaster insurance in New Zealand.

BREAK-OUT SESSIONS

We must extend our thanks to the many speakers who volunteered their time and effort to present in our six concurrent sessions. While insurance themes featured strongly, the topics ranged from valuing the New Zealand social welfare system to stochastic interest rate modelling and from the applications of chaos theory to a demystification of enterprise risk management – variety enough to keep actuaries of all callings happy.

SOCIAL AND RECREATIONAL ACTIVITIES

The opportunity to enjoy the beauty of the natural surrounds was part of the program. On the first night, our delegates were welcomed on to the historic treaty grounds at Waitangi by local Maori hosts. They provided personal insights into the cultural backdrop to New Zealand's political foundation.

Unfortunately, the late spring weather was hardly clement but that didn't stop us from getting on to the water to weave among the Bay's islands, enjoying some fishing and dolphin spotting, going horse-riding, mountain biking or playing a round of golf.

The conference dinner at the Duke of Marlborough restaurant in romantic Russell was a culinary and musical delight. We once again debunked the myth that actuaries are a shy and tight-lipped bunch: the conversations were many and varied and the neighbours may well have had trouble getting to sleep!

UNTIL NEXT TIME…

Planning for the next conference in 2014 has already begun and rumour has it that a southern Gaelic theme may be prevalent. Watch this space for further details! We look forward to seeing you there.

Genevieve Hayes
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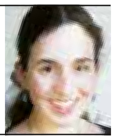
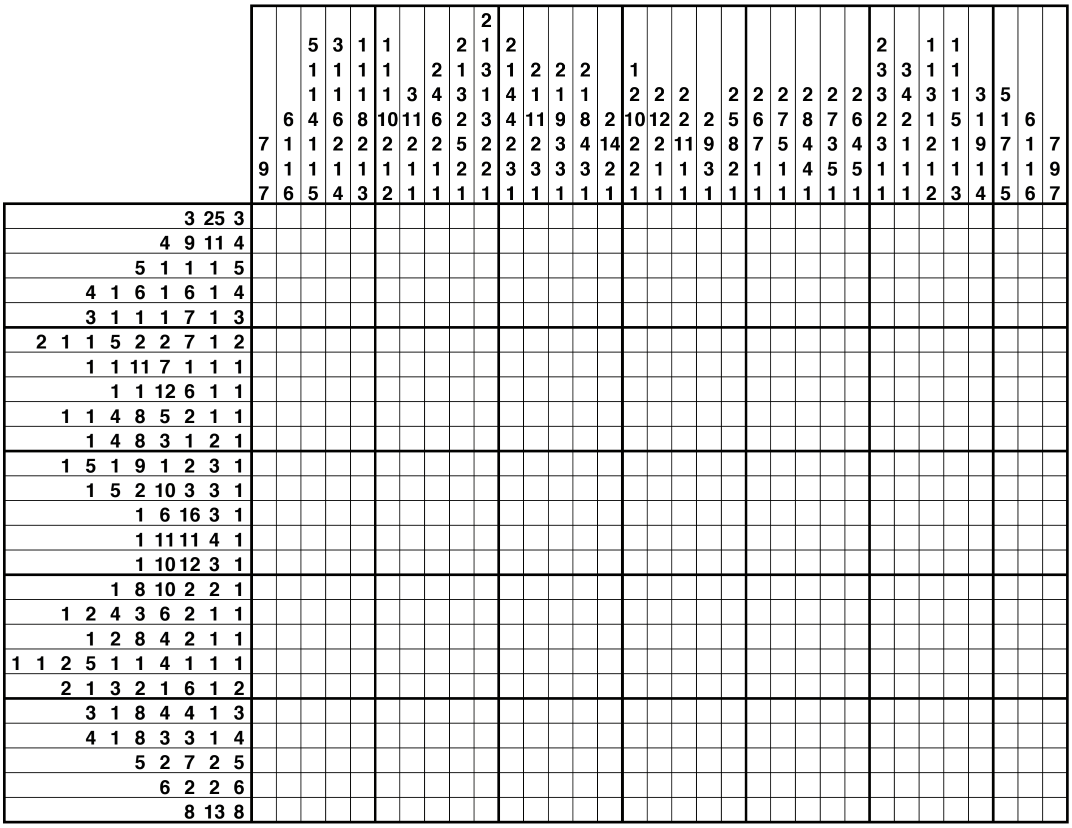


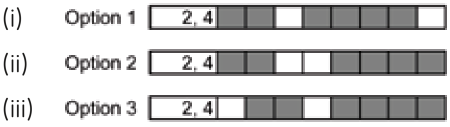
"I have discovered a truly marvellous proof of this, which this margin is too narrow to contain" – Fermat.

Paint by Sudoku

Happy New Year to all readers and welcome back to *In the Margin* for 2013. This year, the first puzzle is a Japanese picture logic puzzle known as a nonogram. Nonograms were invented in the 1980s by Non Ishida, a Japanese graphics editor and amateur astronomer who was inspired by the idea that intelligent extra terrestrial beings might not think like us and it may only be possible to communicate with them using mathematics and logic. Today, nonograms have spread throughout the world and are known by many other names, including paint by numbers, griddlers and picross.

The aim of a nonogram is to colour in cells in the puzzle grid, according to the number clues at the side and top of the grid, in order to reveal a hidden picture. The number clues tell you how many squares in a row or column need to be filled in. For example, a number clue of "2, 4" at the end of a row means that in that row there is a set of two consecutive filled squares, followed by one or more blank squares, followed by a set of four consecutive filled squares, *in that order*. There may or may not be one or more blank squares before or after this sequence of filled and unfilled squares, and the number of blank squares between the two sets of filled squares is unknown, beyond the fact that there is at least one blank square. To illustrate this, here are three possible interpretations of the clue "2, 4" in an eight cell row:





For your chance to win a $50 book voucher, solve the nonogram above and email your solution to: **inthemargin@actuaries.asn.au.**

NEW MATHS

ACTUARIES 175 SOLUTION

Given the information on the tablet in *Actuaries* 175, deduce the mathematical rule defined by each of the four operators (+, -, x, and ÷) and then use these rules to calculate the following:

[(((8 ÷ 6) ÷ 24) ÷ (35 x 79)) + (57 + (13 – (10 x 2)))] x [(4 – (65 – (7 x 89))) x ((98 + 67) ÷ (5 + (43 x 12)))]

Solution:

The four mathematical operations used in the puzzle are defined as follows:

Addition: y + z = the sum of y and z with the digits reversed.

Subtraction: y – z = | y – z | in quaternary.

Multiplication: y x z = y x z mod 99.

Division: y ÷ z = $(y – z)^2$

Therefore,

[(((8 ÷ 6) ÷ 24) ÷ (35 x 79)) + (57 + (13 – (10 x 2)))]
x [(4 – (65 – (7 x 89))) x ((98 + 67) ÷ (5 + (43 x 12)))]
= [((4 ÷ 24) ÷ 92) + (57 + (13 – 20))] x [(4 – (65 – 29)) x (165 ÷ (5 + 21))]
= [(400 ÷ 92) + (57 + 13)] x [(4 – 210) x (165 ÷ 17)]
= [94864 + 106] x [3032 x 21904] = 47450 x 65 = 4.

11 correct answers were submitted. The winner of this month's prize, selected randomly from among the correct entries, was **Minh Phan**, who has received a $50 book voucher.

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Gae Robinson
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Gae answers serious and not-so-serious questions about life in the office, career, study and coping as an actuary in the real world

Project Control

CAN I MANAGE BETTER?

At my last performance review I was told I needed to be a better project manager. I find it really hard, as I'm often not the most senior member of the project team. Help, please!

Let go of the idea that you're 'in charge'. You can manage a project effectively without directing the project's technical content. And you don't need to tell all the other team members what to do every day – you've probably already discovered this isn't effective (herding cats, anyone?). You can't direct a senior actuary's activity, but you can make sure they know what other people are expecting.

Position yourself as the coordinator. Your job is to look ahead. Know the deadlines, know the deliverables. Understand the steps that make up the project, and how much work each step will take (if you don't know, find out). Get the team to agree who's doing which task – and if, for example, this reveals that no one knows who's going to write the report, you've achieved something! Find out who'll be out of the office on which days (when's Easter this year?); if the report reviewer is flying to Ulan Bator two days before the report's due, you'll need to move the timetable forward or find another reviewer. A bit of calendar snooping can be informative.

The key is to help your team avoid the "oh, too late!" problem. The sorts of things to check:

- "Will we need any extra data compared to last time?" Your genius will be to ask this in Week 1, not Week 4.
- "The presentation is scheduled two days after the results are due. Can we write it in two days, or should we start it earlier?" You're a hero for noticing!
- "Didn't we have trouble with the Word document last time?" Your PA can fix it now rather than at 10pm on the day the report's due.

You can ask these questions at a project kick-off meeting – an opportunity to remind people they're on the project, make sure they know what's expected of them, discuss budget and timing. And you'll always learn something vital for your project management role.

If you're at a consultancy, the project fees will need attention. Run weekly reports, talk about them at project meetings (you did schedule regular meetings, didn't you?). It's possible that the fees for your project will end up well UNDER your quoted budget, and you won't need to worry about overruns – this may happen as frequently as once or twice in your working lifetime! At other times, you may identify a problem that can be nipped in the bud (20 hours already spent on analysis you didn't need!?).

Oh, and what about the client in all of this? Three words: talk to them! We can always find excuses not to ring, but...allow me to convince you with my favourite powerful analogy. You're building a new house for your family, in another city, and your architect Ms Palladio is managing the project:

- Ms P calls you every Thursday afternoon to let you know how things are going. Sometimes everything's going just fine, and she just lets you know what'll be happening in the next week. Do you wish she hadn't called you?
- One week she tells you that the marble for the fourth bathroom has been cut to the wrong size and they'll have to get it done again. This means that there'll be a delay of two weeks. Appreciate this call?
- She calls to ask whether you really need the built-in bookcase in the children's playroom, because it's going to be very expensive to construct, for technical reasons that she explains but you find difficult to understand. No, you don't need it, and thanks for checking – that's a $15,000 overrun avoided!
- Much later, you've moved into the house. Ms P rings to check whether you're happy with things. Yes you are, despite all the dramas along the way and the cost blowouts. You wonder if she might come back and talk to you about ideas for your weekender in the mountains...

Still finding the call to your client scary? In my vast experience of being nervous about ringing a client, and then just ringing them anyway, no one has ever shouted at me, hung up on me, or failed to accept my apology. For some reason, they seem to get friendlier with every call!

Don't let project management slide. When the work is intense and everyone's doing long hours, it's easy to decide there isn't enough time for a project meeting or to make a call to the client. But these are the times you need to talk, to make sure everyone's on the right track and to avoid slip-ups. A 10 minute catch-up can be a very leveraged investment.

Last tip: have a project review. It'll be valuable. 🅰

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Young Actuaries Program in Hong Kong – Looking Beyond our Traditional Fields

When considering the topic of 'Looking Beyond our Traditional Fields', I can't help but make an analogy to Tolkien's The Hobbit (having just recently watched the film). The wider field may take you out of your comfort zone, introduce you to interesting characters and experiences along the way (hopefully no trolls!) and offer you a chance to make a lasting contribution to a cause while staying true to your actuarial training.

Following the success of the inaugural Young Actuaries Program (YAP) event in Hong Kong last year, it was a pleasure to have two guest speakers from contrasting fields for our second event: Andrew Alexander, Managing Director and Senior Portfolio Manager at Macquarie Funds Management and Kirsten Armstrong, Director at Three Rivers, a consulting firm that advises governments, insurers and health care providers on health policy and practice.

Andrew spoke about his passion for equity investing, his experiences during market crises and making a point of differentiating the way he runs his fund at Macquarie from his peers. In the investment world, many may exceed benchmarks in the short run but few can claim to do it consistently and outperform on a risk adjusted basis. Markets are driven to extremes by fear and greed. Yet actuarial analysis, thinking about the most probable move and disciplined execution may give you that much needed edge in investment management.

There are few more pressing needs in public policy than to address the health funding gap. Kirsten highlighted how spending on health care issues is growing rapidly across the world and require much needed analysis of different funding structures and alignment of incentives to achieve better outcomes. The right piece of analysis and communication can shift the focus towards early prevention of cost pressures and ultimately save lives and contribute to a better standard of living for all. Lively anecdotes from her time in Russia and Eastern Europe plus the challenge of learning the public health lingo and system, demonstrates the breadth of her experiences gained while seeking a cause she felt a strong connection with.

Yu Kobayashi and Andrew Alexander

Kirsten Armstrong presenting

Mingling at the YAP HK session

Overall, it was a successful event that gave food for thought to anyone seeking examples of actuaries who have pursued interests in wider fields and excelled. The Hong Kong YAP forum has been and will continue to be a great venue to inspire and seek talent across all practice areas.

If you are curious about non-traditional fields, you will find that technical skill sets, methodologies and actuarial ways of thinking can be readily applied to new contexts. A common piece of advice is to understand what motivates you to serve in a particular field and it is through this process you discover how best to differentiate yourself by taking the extra step, asking how this analysis can be improved or communicated more effectively.

So grab your actuarial toolkit and venture down a path less travelled but possibly more rewarding! A

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Group of Retired Actuaries in Melbourne (GRAM)

In July 2012 the President, CEO and Edward Jones attended a meeting of the Melbourne Actuaries Luncheon Club (MALC). MALC was formed 30 years ago for Melbourne actuaries who have been or are on the Institute's Council. It meets five times a year to discuss matters of current actuarial interest and, if a standing Council member is present, some of the more important items under discussion at Council.

At the meeting Edward described how RAGS (Retired Actuaries Group, Sydney) operates. Formed in 2007, the group meets most months in the Institute's offices to discuss topics which are "thought-provoking and 'actuarial' in nature". It was also explained that the Institute is very supportive of a similar group being established in Melbourne.

Following this, a meeting was held to test whether there would be enough interest to form a Melbourne group and last October, 20 retired and part-retired actuaries met at the offices of KPMG. Over lunch it was enthusiastically decided to go ahead and form 'GRAM'. The group then went on to discuss vigorously its first topic, 'Climate Change'.

Future GRAM meetings will initially be held four times a year in alternative months to the MALC meetings, with the first meeting on Monday 15 April 2013. Eligible actuaries will receive an invitation from the Institute a week or so beforehand. Although the new group will be similar to RAGS it is expected that in a time-honoured way it will develop its own southern-state personality! A

Inaugural members of GRAM

Meeting in progress

Catching-up during refreshments

Philip Latham Head of Education
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Latest Results

PART III RESULTS SEMESTER 2 2012

Semester 2 2012 saw the introduction of the new computer based exams in the Life Insurance subjects. The pass rate for Course 2A Life Insurance remained the same at 33% and the pass rate for Course 2B Life Insurance increased from 25% in the previous semester to 40%.

Semester 2 2012 was also the final semester of the delivery of Part III investments courses by Access Macquarie. Course 1 Investments has now been discontinued (though continues to be recognised) and Course 5A and 5B Investment Management and Finance will continue to be delivered by the Institute from 2013.

The Part III pass rate for Semester 2 2012 increased to 39% (including non-Fellows only for C7A ERM and the UK ST1 Health and Care subject), which is a 2% increase on the previous semester. The Part III pass rate excluding the C7A ERM course and UK ST1 exam was 40%, a reduction of 1% on the previous semester caused by a drop in the C7A ERM pass rate.

The pass rates over the last 10 semesters (including C7A for non-Fellows since 2010) are as follows:

2012 (2)	2012 (1)	2011 (2)	2011 (1)	2010 (2)	2010 (1)	2009 (2)	2009 (1)	2008 (2)	2008 (1)
39%	37%	33%	36%	40%	40%	40%	44%	49%	44%

It was pleasing to see that the pass rates improved on the previous semester in three subjects: Course 1 Investments, Course 2B Life Insurance and Course 3A General Insurance. The pass rate remained the same as the previous semester or only fell by 1% in four subjects: Course 2A Life Insurance, Course 3B General Insurance, the UK ST1 Health and Care exam and Course 10 Commercial Actuarial Practice. It was disappointing to see the very low pass rate of 21% on the GRIS 6B course.

Below are the pass rates for each course in Semester 2 2012 compared with the last four semesters:

Course	2012 (2)	2012 (1)	2011 (2)	2011 (1)	2010 (2)
Course 1 Investments	42%	30%	31%	33%	31%
Course 2A Life Insurance	33%	33%	20%	30%	31%
Course 2B Life Insurance	40%	25%	15%	39%	41%
Course 3A General Insurance	30%	28%	23%	33%	36%
Course 3B General Insurance	38%	38%	31%	34%	40%
Course 5A Investment Management and Finance	57%	n/a	62%	n/a	53%
Course 5B Investment Management and Finance	n/a	59%	n/a	38%	n/a
Course 6A Global Retirement Income Systems	n/a	31%	n/a	50%	n/a
Course 6B Global Retirement Income Systems	21%	n/a	63%	n/a	54%
Course 7A Enterprise Risk Management*	33%	37%	26%	21%	34%
UK ST1 Health and Care	38%	38%	n/a	n/a	n/a
Course 10 Commercial Actuarial Practice	56%	57%	55%	59%	55%

*pass rates for C7A ERM above are for non-Fellows only. The pass rates for Fellows in the C7A ERM subject have been as follows:
Semester 2 2010: 10 sat, 8 passed, (80%). Pass rate for all members (40%).
Semester 1 2011: 3 sat, 0 passed, (0%). Pass rate for all members (20%).
Semester 2 2011: 7 sat, 2 passed, (29%). Pass rate for all members (26%).
Semester 1 2012: 6 sat, 4 passed (67%). Pass rate for all members (39%).
Semester 2 2012: 4 sat 2 passed (50%). Pass rate for all members (33%).

PASS RATES AND EXAM CENTRES

The pass rates by exam centre for Semester 2 2012 compared with the last four semesters are as follows:

Location	2012 (2)	2012 (1)	2011 (2)	2011 (1)	2010 (2)
Sydney	37%	34%	35%	35%	42%
Melbourne	38%	45%	36%	40%	45%
Other Australian	59%	29%	24%	52%	26%
Overseas	36%	30%	21%	33%	31%

It is pleasing to see that the pass rate in the Other Australian category was the highest ever at 59%. It was also pleasing to see that the Overseas category pass rate was almost the same as the pass rates in Sydney and Melbourne with 36%. This is the highest that the Overseas category pass rate has been since Semester 1 2010, when it was 37%.

Sue Wetherbee CPD Consultant
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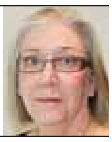


2013 CPD Offerings and Opportunities

CPD SURVEY DATA

Late in 2012 you were invited to participate in the Annual CPD Survey to let us know what your top CPD priorities were for 2013.

- **Priority Topics requested for 2013**
  - Soft Skills
  - Leadership
  - Risk Management
  - Basel II, Solvency Standards & LAGIC
  - International Developments
  - Investments
  - Life Insurance, Superannuation & Retirement

CAPABILITY ASSESSMENT TOOL (CAT) DATA

The data accumulated from the completed Capability Assessments was also compiled and analysed relative to:

- **Function Capability**
  - Capability Gaps across the Membership sample
  - Capability Gaps across Member locations
  - Capability Gaps across Member Types

The analysis revealed the following:

- **Capability Functions with the largest gaps (needs) are:**
  - Contributing to Business Strategy
  - Leadership
  - Actuarial Approach to Problem Solving
  - Risk Management
  - Product Development, Management and Pricing

- **Capability Function needs most align with the following CPD Survey topic requests:**
  - Soft Skills
  - Leadership
  - Risk Management
  - Product & Pricing Issues

- **Areas of priority in the CPD Survey that DO NOT align with Capability Function needs found in the assessment data are: (these Functions reported skills above requirements)**
  - Investment Advice & Governance
  - Valuing Uncertain Future Cash Flows
  - Professional Governance

The data was compared to the data received from the CPD Survey with the intent of aligning Capability needs with CPD requests from the Survey.

The data from the CPD Survey and CAT identified Capability Functions and a range of topics which are now reflected through a varied and strong program of Insights sessions and CPD events worldwide.

HOW HQ HAS RESPONDED TO MEMBER REQUESTS AND CAPABILITY DEVELOPMENT NEEDS IN 2013

Planned 2013 CPD Events	CPD Survey Topic Alignment	Actuarial Capability Function
Managing Risk	Risk Management	RM CB
Super Policy Forums	Life Insurance, Superannuation, Retirement	VF PG PD
Leadership and Strategy	Leadership	L CB
Social Media for Actuaries — Should we care?	Soft Skills	L CB PG
Operational Risk	Risk Management	RM PS VF
Leadership Through Personal Courage	Leadership, Soft Skills	L

New Events are being added to the 2013 Calendar each week.
To check out our Upcoming Events visit www.actuaries.asn.au/EventsandNetworking/UpcomingEvents.aspx

Note to Self: Complete the Capability Assessment and start planning for your 2013 CPD today!

Sydney Fellowship and Graduation Dinner

On Tuesday 26 February 2013, the Institute held the Sydney Fellowship and Graduation Dinner at Establishment Ballroom.

The night began with an official welcome by Institute CEO Melinda Howes, followed by an Address from the 2013 Institute President John Newman. The night ended with the presentation of Institute Awards and certificates and a Vote of Thanks given by Chao Qiao.

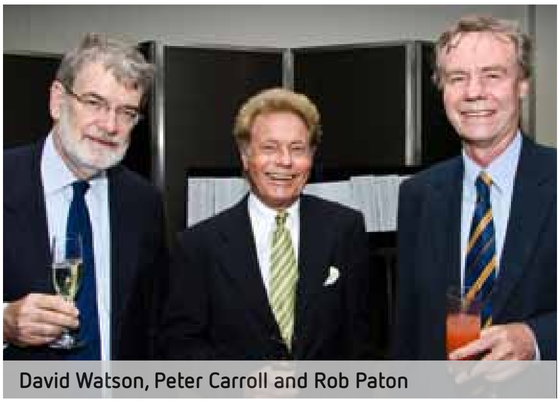
A memorable night was had by all.

John Newman and Andrew Gale

Andrew MacKessack, John Newman and Andrew Ngai

John Newman and Melinda Howes compare adornments

John Newman



David Watson, Peter Carroll and Rob Paton

Mingling at the Dinner

Melinda Howes

Chao Qiao giving Vote of Thanks

Trio was the entertainment on the night

Stephen Lau

Congratulations to our 2012 Prize Winners

RESEARCH PRIZE

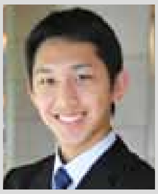
A M PARKER MEMORIAL PRIZE

Andrew Gale for his paper *Growing Pains – Selection Effects in Private Health Insurance* presented at the 2011 Biennial Convention

EDUCATION PRIZES

ANDREW PRESCOTT MEMORIAL PRIZES

Major Prize for best overall performance in the Fellowship examinations jointly awarded to **Andrew MacKessack** and **Andrew Ngai**



Meritorious Performance 2012 Investments Examination
Wenjing Liu

Meritorious Performance 2012 Life Insurance Examination
Junxia Su

Meritorious Performance 2012 Investment Management and Finance Examination
Shu Su

Meritorious Performance 2012 Commercial Actuarial Practice Examination
Stephen Edwards

KATHERINE ROBERTSON MEMORIAL PRIZE 2012

Best performance 2012 General Insurance Examination
Hugh Miller

Welcome to New Members

FEBRUARY 2013

NEW MEMBERS – AUSTRALIA

Kasun Thilina AMARASURIYA	VIC
Kang Jung Won ANDREW	NSW
Alex Michael ARTINIAN	NSW
Aram ASATRYAN	NSW
Teagan Maree BARENTS	VIC
Akshay BASRUR	VIC
Danny BECHARA	NSW
Shaneel BISSONAUTH	WA
Julian Mario BRAGANZA	NSW
Jinqian CAI	NSW
Martin CHAU	NSW
Weixiang CHEN	NSW
Zheng CHEN	NSW
Ben CHERIAN	ACT
Stephanie Tze Ling CHOW	NSW
Nathan COLBERT	NSW
Terence Joseph DONNELLY	NSW
Peter DOUEIHI	NSW
Wenda DUAN	ACT
U.Jayanika Srimali FERNANDO	VIC
Ian James FRYER	NSW
Han Young GAN	NSW
Chong GU	NSW
Yue GUAN	VIC
Xing Han HAO	NSW
John HENRY-BOCHAN	QLD
Zheng HUANG	NSW
Arun Gunaratnam ISAAC	WA
Beini JI	NSW
Lucy Lu JING	NSW
Young-Wook Alexander KIM	NSW
Christopher Imantaka KOESNO	VIC
Crystal Wen Sing KOH	NSW
Isaac KONSTAS	QLD
Mariya KUZNETSOVA	VIC
Stephanie Hoi Yan LEE	NSW
Tony (Chung Gu) LEE	NSW
Yuan-Shiuan LEE	QLD
Martin Ka-Hin LI	VIC
Christopher Bai-Rong LIEW	VIC
Alvin LIU	NSW
Wei Ling Abigail-Joy LOW	VIC
Shuhong LUO	VIC
Yi Hua MAO	NSW
Yiheng MAO	ACT
Angeline MUNDUMBWILA	WA
Niranjan NEELAKANTAN	VIC
XiaoYang NING	NSW
Atorina NISSAN	NSW
Corey Akwasi OWUSU-ANSAH	NSW
Wye Ken PANG	NSW
Xinyue QIAN	ACT
Sook Fui SEE	VIC
Kenrick SETIOBUDI	NSW
Vaibhav SHARMA	NSW
Wen SHI	VIC
Wu Jia SHI	NSW
David Zoltan SHUVALOV	NSW
Lekha Maheshbhai SOLANI	NSW
Andrew Phan SURIJA	NSW
Daniel Wei TAI	VIC
Melissa Chui Yi TAM	VIC
Deepti TAMMAREDDI	NSW
Paulina Bo Wang TING	NSW
Tony Xuan Tung VO	NSW
Qiyao WAN	QLD
Luya WANG	VIC
Steven Shi Xin WANG	VIC
Zhu WANG	VIC
Stephen WILLIAMS	NSW
Leah WONGSODIRDJO	NSW
Johnathan Bernard WONGSOSAPUTRO	NSW
Yee Ting WU	NSW
Yixin XU	NSW
Bijun YANG	VIC
Jo Wen YEE	WA
Rocky Shek Lun YIP	QLD
Man ZHAI	NSW
Cheng ZHANG	ACT
Chenran ZHANG	ACT
Jin ZHANG	ACT
Jing ZHANG	NSW
Rongju ZHANG	VIC
Shun Quan ZHANG	NSW
Yi ZHAO	NSW
Jia ZHENG	NSW
Jiebo ZHENG	NSW
Yiwei ZHENG	NSW
Qiao ZHOU	ACT
Runhang ZHOU	VIC
Dan ZHU	VIC

NEW MEMBERS – OVERSEAS

Min Gih CHOI	NEW ZEALAND
How Ting Cherry CHU	HONG KONG
Matthew Peter CLERE	NEW ZEALAND
Samuel COSGRIFF	NEW ZEALAND
Rosanna May EDE	NEW ZEALAND
Zhengxun FANG	CHINA
Xiaohang GU	CHINA
Chin Fai HO	HONG KONG
Qing HUANG	CHINA
Farhaad Asgar KACHWALLA	NEW ZEALAND
Kin Sam LAU	MACAO
Wei Kee LEE	MALAYSIA
Mengyi LI	CHINA
Kar Choon LIEW	MALAYSIA
Zhetao LIN	CHINA
Anisa Mary LURTHANATHAN	MALAYSIA
Tsz Kin MAK	HONG KONG
Bing SHEN	CHINA
Su Xin Jessica SUN	HONG KONG
Sharifah Farah ALHABSHI	MALAYSIA
Wing-Yee TAM	NEW ZEALAND
Bing Yuan TAN	MALAYSIA
Khai Sheng TEOH	MALAYSIA
Thomas Zhe An TEY	MALAYSIA
Nina Shahirah TUAN	MALAYSIA
Chi Chung WONG	HONG KONG
Ran XU	CHINA
Guang Qu YU	CANADA
Randong YUAN	SINGAPORE
Chenchao ZHU	SINGAPORE

Actuaries Institute

Lawrence Julius Cohn

(1919-2012)

Lawrence Cohn was born in Geelong on 19 June 1919. At the age of three he moved with his family to Kew and lived in Melbourne for the rest of his life. He died on 23rd December 2012, aged 93, after a long and fruitful life.

Lawrence was educated at Trinity Grammar School in Kew. Throughout his school years he achieved exceptional academic results, particularly in mathematical disciplines, and was dux of his class every year. On leaving school Lawrence joined the National Mutual Life Association as an actuarial clerk in 1936, and commenced actuarial studies by correspondence with the Faculty of Actuaries of Scotland.

When war appeared to be imminent, Lawrence joined the Royal Naval Reserve. He served at HMS Cerberus in Victoria, then was posted to the Harman Naval Wireless Station outside Canberra (later designated HMAS Harman), and was at sea for over a year aboard the HMAS Hobart. His duties were sending and receiving messages in code, and decoding messages sent by the Japanese and their allies in the Pacific. He was part of the occupying forces in Tokyo harbour at the end of the war. After being demobilised he resumed his career with the National Mutual completing his Actuarial studies qualifying as a Fellow of the Faculty of Actuaries of Scotland in 1953.

Apart from brief spells as acting Manager for Victoria and New South Wales branches respectively, Lawrence remained in actuarial related roles until his retirement. He steadily moved up the Actuarial ladder and inevitably reached the top when he was appointed National Mutual's Chief Actuary in 1970. In 1974 he was appointed Deputy General Manager and in 1979 joined the National Mutual Board as a Director – positions he held until retirement in 1982.

In his position as Head Office Actuary in 1961 he was also Manager of the fledgling Data Processing and Systems Division. This responsibility followed the pioneering work he did researching and subsequently introducing computers to National Mutual. During that time Lawrence wrote the first computer program to be used by an Australian life insurance company. His interest in, and knowledge of, the use of computers in business resulted in him joining the Australian National Committee on Computation and Automatic Control (a forerunner of the present Australian Computer Society). He was Chairman of that committee from 1963-1969.

Outside National Mutual Lawrence took a leading role in the profession for many years. He was a member of the Council of the Actuarial Society of Australia (the predecessor to the Actuaries Institute) from 1956 – 1967 and was its President in 1966. From 1973 – 1985 he represented the profession as a Council member of the International Actuarial Association. This position led naturally to his chairmanship of the Organizing Committee of the 22nd International Congress of Actuaries in Sydney in 1984. The Congress, led by Lawrence and ably assisted by his wife Joan (who hosted the delegates' spouses), was an outstanding success.

Following the Congress, Lawrence was elected a Life Member of the Institute. From 1982-1985 he served as a Vice-President of the Faculty of Actuaries in Scotland. He was the first Australian to have been elected to the Faculty Council.

Lawrence also occupied many important positions outside the Institute. These included chairmanship of the Executive Committee of the Life Offices Association of Australia and membership of the Life Insurance Consultative Committee established by the Whitlam Government. From 1977 to 1982 he was an honorary consultant to the Law Reform Commission during its enquiry into the law relating to insurance contracts. He was a member of the Council of the Australian Insurance Institute for several years serving at various times in the positions of Treasurer, Deputy President and, in 1979, President. In retirement he was appointed as a General Member of the Commonwealth Administrative Appeals Tribunal (AAT) and to the Victorian Construction Industry Long Service Leave Board.

On first impressions Lawrence could appear serious and aloof. On closer acquaintance one found that he was very approachable, a great people person and had a keen sense of humour. Lawrence's insistence on the proper use of English was legendary throughout National Mutual. Woe betide anyone who mangled the language. He did not suffer fools gladly and could get annoyed with incompetence.

Lawrence had a deep Christian faith, although he was not one to talk about it openly. He preferred to let his actions speak more loudly than his words when it came to living out his beliefs. These were always very important to him. He was a long-standing member of the Kew Presbyterian Church, later amalgamated into the Kew Uniting Church, and was an elder and Treasurer of the church for many years. He played a key role in sorting out superannuation and other financial matters for ministers when the Uniting Church in Australia came into being. After moving to Doncaster, Lawrence joined the congregation at the Pilgrim Uniting Church where he was a keen and active member for the rest of his life, becoming a member of the Parish Council and later Treasurer. He retired from these offices in 2003, at the age of 84, and continued to lend a hand to the succeeding Treasurer.

Lawrence was also an active community volunteer, giving his time and expertise to many organisations, some of them for very long periods of time. These included:

- the Friends of the Museum of Victoria;
- the Friends of the Royal Botanic Gardens Melbourne and its Trust Fund;
- the Association of Friends of Botanic Gardens;
- the Melbourne Musicians Society; and
- a project at the National Herbarium of Victoria to publish correspondence of Victoria's first Government botanist.

Lawrence's wife Joan predeceased him. He is survived by five children Brien, Bruce, Helen, Frances and Alison and their families including seven children and nine grandchildren. A

CLARIFICATION

In my CEO column in the December 2012 edition of *Actuaries* I made a number of comments about members of organisations who are ill-informed detractors. My remarks were made in good faith in response to some issues concerning the performance of the Institute in a range of areas which were raised during the recent election campaign for members of Council. It was certainly not my intention to cause any offence or to unjustly criticise anyone, and if my comments have been construed as having done so I sincerely apologise.

Are we Data Dinosaurs?

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When our Sydney Volunteers Cocktail Party was held in the Science Museum last July amongst dinosaur skeletons, I was asked whether this was a comment on the state of the profession. At the time I said no. However I have been thinking about new trends and how the profession is positioned to take advantage of them, and I fear the answer is actually "maybe, if we don't act".

According to my favourite reference source Wikipedia[1], the dinosaurs *"first appeared during the Triassic period, approximately 230 million years ago, and were the dominant terrestrial vertebrates for 135 million years… until the end of the Cretaceous (65.5 million years ago), when the Cretaceous–Paleogene extinction event led to the extinction of most dinosaur groups…"*. Their so-called "mass extinction" occurred in a relatively short time-frame (geologically speaking) and is thought to have been caused by an asteroid hit and/or increased volcanic activity leading to environmental changes that were not favourable to survival.

SURVIVAL CHALLENGES FOR ACTUARIES

Like the dinosaurs, we are experiencing rapid environmental change and I fear that some of it is not favourable to our ability to survive and thrive as a profession. Here's what I see:

- Young actuaries are competing in a job market place where there are very few roles "reserved" for actuaries. There is low awareness of actuaries and our skill sets outside our traditional playing fields. Even in areas where actuaries are well-known, we can be pigeon-holed into technical roles and not given the opportunity to work in (or with) the broader business.
- Actuaries tend to be somewhat self-effacing and modest. Even when we have very relevant skills to offer, we can be reluctant to put ourselves forward for new roles that may be different to those areas where we have been trained and feel comfortable.
- To succeed in the modern workplace one needs to be able to do more than just crunch the numbers. Employers want people with business skills, communication and presentation skills and even sales skills who can deal with internal and external customers to help them to solve their problems. They want people who can take the insights to the customer.
- Big data techniques for analysing large quantities of granular data have the potential to take over from traditional actuarial modelling techniques in areas such as insurance pricing (see Adam Driussi's data analytics article in the December issue). We are not teaching young actuaries these skills.
- New areas of practice for actuaries are emerging at an accelerating rate. Australia is at the bleeding edge internationally of actuaries working outside of insurance and pensions. Around 35% (and growing) of our members are now working outside these areas.

In summary, I think that the ground is shifting under us. And like the changes that impacted the dinosaurs, it's happening quickly. Areas where actuaries are working are diversifying. There are many new job opportunities for actuaries outside the traditional areas, but we are on the whole not succeeding in grasping these. We are too small an organisation to be able to offer

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Part III courses in all the new areas actuaries are working. So how do we equip young actuaries with the skills they'll need?

Fortunately we are a fair bit smarter than dinosaurs, so we have a chance to save ourselves. But we'll have to act quickly.

DO WE NEED TO CHANGE?

In this issue, you will have seen John Newman's Presidential address. In it he talks of the strategy refresh undertaken by Council last year, and some of the streams of activity that will be coming out of that.

In order to sustain and develop the profession, it's becoming clear that we need to change the way we train young actuaries. Last year's President, David Goodsall, in a strategy brainstorm with Council, summed up the issue neatly when he said that in future we need to teach skills and not industry.

It is recognised that the actuary of the future needs a mix of skills beyond the pure technical skills that have been the core of our educational system at all levels since the inception of the profession. Our new capabilities framework[2] paints a picture of the skills our leading members think actuaries will need in the future. We are only teaching around half of these skills now.

So how do we ensure we can deliver an educational system that equips people with these skills? That's the question for much more work and thought in 2013.

In the mean time I thought I'd give you an update on what's already happening in education with a main focus on greater efficiency, a better student experience and reducing volunteer time commitment.

EDUCATION – WHAT HAVE WE BEEN DOING?

A series of reviews by professional educators in recent years has told us that our Part III exams are as much a test of speed as of skill. They also said that our multiple sets of pass criteria were complex and created too many hurdles for students to jump through, and recommended that we set a pass mark.

Over the last year or so we have embarked on a large scale change program for our Part III (or final Fellowship stage) exam system. Assignments have been replaced by assessments. We are in the process of changing to computer-based exams, with a multiple choice element, and relaxing the time constraints. The first such exams were sat in the second semester of 2012 in Life Insurance, and we are rolling it though to General Insurance and Investment and Finance in 2013. We need lots of volunteers to work with us to make this initial change happen[3].

We are also in the process of changing the superannuation (GRIS) course to add more defined contribution content.

We are in the early stages of working with the South African Society of Actuaries on a Banking course that they are writing, with a view to both countries being able to use the course.

We are mapping our Capabilities against the entire program of Parts I, II and III to see where the gaps are. This will feed into the strategic work being undertaken.

SUCCESS CRITERIA

Will we succeed? In a changing world, can we react fast enough? Our education system is not fleet of foot. How can we make it so? I think frankly that it's touch and go. However in my opinion there are some pre-cursors necessary for success:

- We have to be able to let go of the old way of doing things. Change is confronting, but change, and fast change, is absolutely necessary if we are to remain relevant as a profession. We cannot stick our heads in the sand on this one.
- We have to employ instructional designers and professional educators to help us, then listen to and act on what they tell us. In other words, we need to accept that as actuaries, we do not always know how to best structure educational courses for the best learning outcomes.
- We need to focus on teaching skills not industry. We need to focus on those skills that actuaries will need in future. Many of these have been identified in our capabilities matrix. But I have no doubt that others will emerge.
- We need to monitor and be able to react quickly to future changes – such as the emergence of big data.

As always, I'd welcome your thoughts. Please send me an email or submit a Letter to the Editor.

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[1] http://en.wikipedia.org/wiki/Dinosaur

[2] http://www.actuaries.asn.au/Library/Education/Other%20Education/2012/ActuarialCapabilitiesForTheFuture.pdf

[3] If you are interested in volunteering to assist with this process, please contact Rebecca Moore at rebecca.moore@actuaries.asn.au

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Letter

DEAR MELINDA,

Thank you for your article in the *Actuaries* magazine 'A few too many notes'. Music and mathematics have a lot in common indeed and mathematics is often used for analysing or composing music particularly in the 20th century. Bela Bartok, the famous Hungarian composer, used Fibonacci sequence in his music composition. The 12 tone music of the second Viennese school, founded by the Austrian composer Arnold Shoenberg, are musical compositions based on a sequence of notes arranged in a large number of permutations. To play this music is just like resolving a complicated mathematical equation. Aleatory music (or random music) is a music composition in which some element of the composition is left to change and therefore random etc.

I am very passionate about music (particularly classical music) and play a little piano as well. I am also very interested in Art in general so when I heard that we had an actuary function at the Fred William exhibition, I thought what a great idea (unfortunately I missed that)! I am always wondering if we could have a culture/lifestyle section in *Actuaries* magazine? There are so many talented people in our profession with in-depth knowledge in so many areas that ranges from extreme sport to Philosophy. It will be great if they can share their knowledge with the members of the Institute. What do you think?

Again, thank you for a very interesting article.

Chris Lin
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DISCIPLINARY PROCEEDINGS AGAINST MR ANTHONY RICHARD LEWIS
DETERMINATION OF TRIBUNAL 12.02

Investigating Sub-Committee 1003 ("ISC 1003") was appointed by the Convenor of the Professional Conduct Committee ("PCC") to assess a Complaint made by the Chief Executive Officer of the Institute against Mr Anthony Richard Lewis ("Respondent") relating to the Respondent having been made a bankrupt and failing to notify the Institute of such event. In the course of its investigation, other matters came to the attention of ISC 1003 and the Convenor of the PCC directed ISC 1003 to investigate those other matters.

On 6 February 2012, ISC 1003 determined that there was a *prima facie* case of Actionable Conduct (as defined in Rule 3.2(d) of the Scheme) having been committed by the Respondent and prepared a report pursuant to Rule 6.1(a) of the Scheme for the Tribunal. The Convenor of the PCC then provided a copy to the Convenor of the Tribunal Panel who, in turn, established Professional Conduct Tribunal 12.02 to determine the matter. The Tribunal issued its Final Report on 30 November 2012.

1. It is the determination of the Tribunal that:
   (a) The Respondent has engaged in Actionable Conduct in breach of Rule 3.2(a)(iii) of the Disciplinary Scheme, namely conduct likely to bring discredit upon the Institute or the profession of Actuary, in that he, whilst a Member of the Institute, became insolvent under administration as defined in the Corporations Act 2001 (Cth). Noting that, whilst it would have been an appropriate penalty that the Respondent be suspended (pursuant to Rule 6.4(a)(iv)(B) of the Disciplinary Scheme) from membership of the Institute for the period of his bankruptcy, the Respondent was no longer a bankrupt and accordingly the Tribunal determined not to impose a penalty in relation to this Charge.
   (b) The Respondent has engaged in Actionable Conduct in breach of Rule 3.3 of the Disciplinary Scheme, namely unsatisfactory professional conduct (being negligent and persistent misconduct under Rule 3.2(c)(ii) of the Disciplinary Scheme), in failing to notify the Institute of his becoming a bankrupt in accordance with Rule 3.3 of the Disciplinary Scheme. The Tribunal determined that the penalty for this breach is that the Respondent be reprimanded (pursuant to Rule 6.4(a)(iv)(A) of the Disciplinary Scheme).
   (c) The Respondent has engaged in Actionable Conduct in breach of Rule 3.2(a)(iii) of the Disciplinary Scheme, namely conduct likely to bring discredit on the Institute or the profession of Actuary, in that, as Managing Director and majority shareholder of Lewis Securities Ltd ("LSL"), he failed to act professionally in exercising his considerable control over LSL's investment portfolio and investment decisions which in turn materially contributed to the failure of the company. The Tribunal determined that the penalty for this breach is that the Respondent be reprimanded (pursuant to Rule 6.4(a)(iv)(A) of the Disciplinary Scheme).
   (d) The Respondent has engaged in Actionable Conduct in breach of Rule 3.2(c)(i) of the Disciplinary Scheme, namely unsatisfactory professional conduct (being conduct in connection with the provision of Professional Services that falls short of the standard of competence and diligence that a member of the public is entitled to reasonably expect of a Member or an Actuary) in that, in his dealings in his capacity as Executor of his deceased aunt's estate, he:
      (i) failed to manage a conflict of interest by investing funds held in trust, pending probate, in his own company (LSL);
      (ii) failed to consult or notify other beneficiaries of the estate before investing funds from the estate in his own company which, while possibly not illegal, was unethical; and
      (iii) placed his own interests ahead of the interests of the beneficiaries of the estate in investing funds from the estate in his own company.

      The Tribunal determined that the penalty for this breach is that the Respondent be suspended (pursuant to Rule 6.4(a)(iv)(B) of the Disciplinary Scheme) from membership of the Institute for a period of one year.
   (e) The Respondent has engaged in Actionable Conduct in breach of Rule 3.2(b)(i) of the Disciplinary Scheme, namely professional misconduct (being conduct occurring in connection with the provision of Professional Services that involves a substantial or persistent failure to reach or maintain a reasonable standard of competence or diligence) by:
      (i) causing or permitting LSL to make misleading representations to the effect that the company invested in fixed interest securities;
      (ii) without prior disclosure to all investors, causing or permitting the company to enter into a number of high risk and non-diversified investments which materially contributed to investors sustaining substantial losses; and
      (iii) failing to comply with disclosure requirements under the Corporations Act 2001 (Cth).

      The Tribunal determined that the penalty for this breach is that the Respondent be suspended (pursuant to Rule 6.4(a)(iv)(B) of the Disciplinary Scheme) from membership of the Institute for a period of three years.
   (f) The Respondent has engaged in Actionable Conduct in breach of Rule 3.2(c)(i) of the Disciplinary Scheme, namely unsatisfactory professional conduct (being conduct in connection with the provision of Professional Services that falls short of the standard of competence and diligence that a member of the public is entitled to reasonably expect of a Member or an Actuary) by failing to hold sufficient assets to cover personal guarantees given by him for loans made to LSL, the penalty for which is that the Respondent be suspended (pursuant to Rule 6.4(a)(iv)(B) of the Disciplinary Scheme) from membership of the Institute for a period of six months.
2. It is the determination of the Tribunal that the periods of suspension set out in paragraphs 1(d), 1(e) and 1(f) above are to run concurrently and, subject to any, if any, contrary operation of the Rules of the Disciplinary Scheme, are to commence 28 days after the date of its Final Report (namely, 28 days after 30 November 2012).

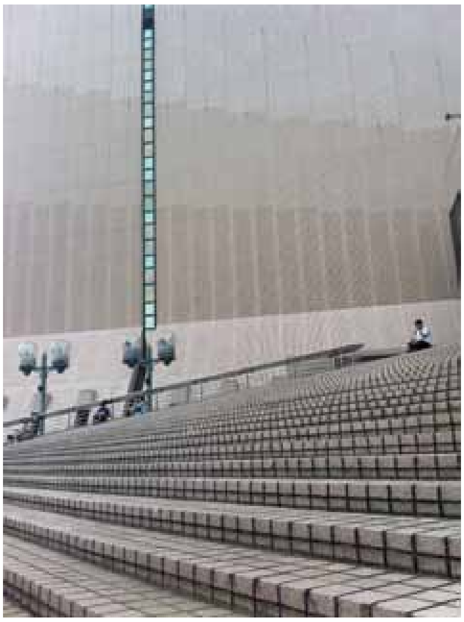
5 DECEMBER 2012

Arts Review

You may remember our photo competition in 2012, won by Dave Cornford whose 'ice cream delta' was reproduced on the September issue cover. Since then we've had numerous requests to show the other finalist entries, so here is a selection. We'll be running another competition in 2013, with details to be advised in a future issue of *Actuaries*; but to help you get motivated, the theme for this year will be 'Courage'. So get snapping.

Anthony Saliba

Andrea McDonnell



Brnic Van Wyk

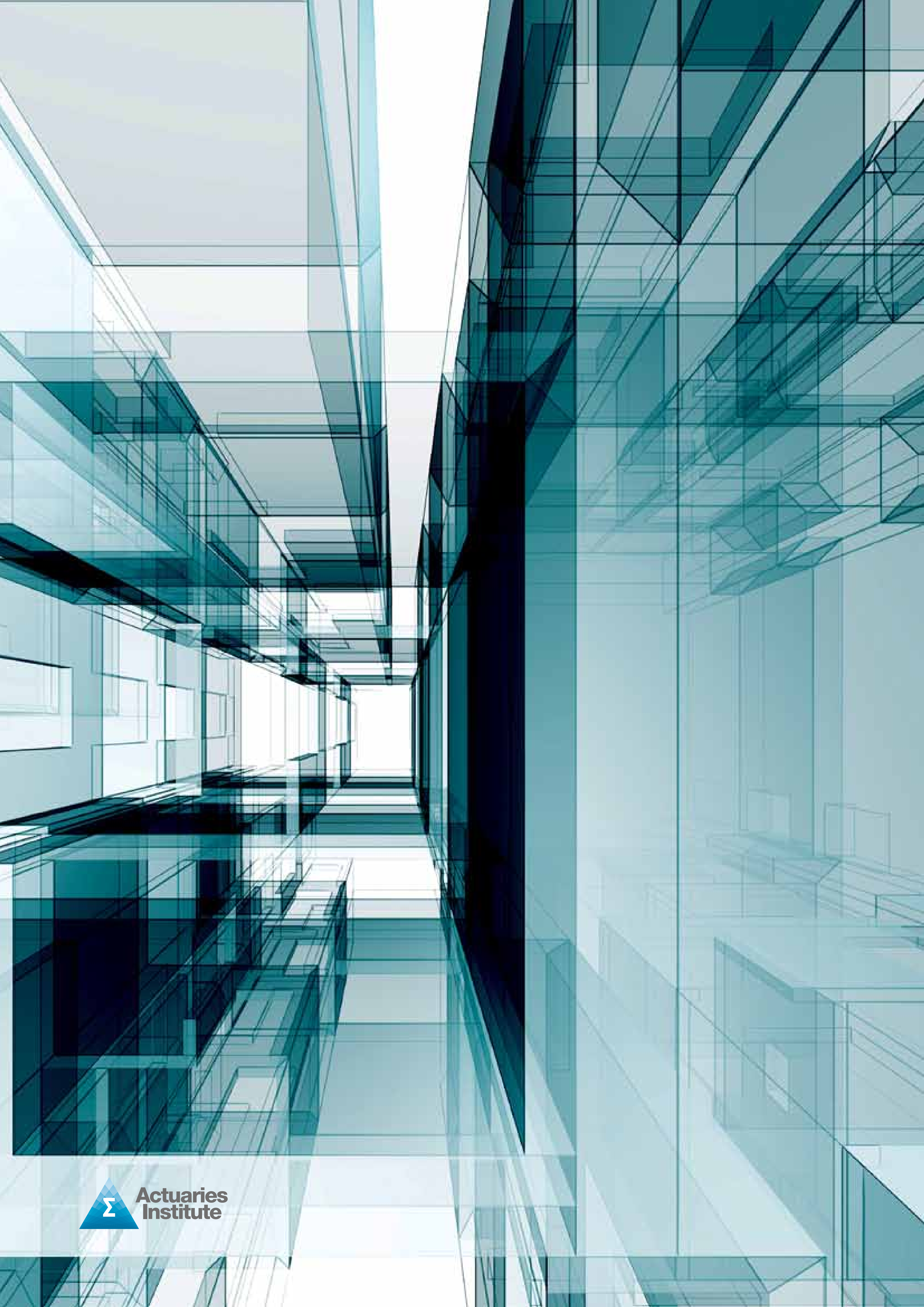
Dai Liu

Dennis Chan

Sam Tang

Jason Yu

Murray Staff



Actuaries Institute