Issue 153 September 2010

# Actuary Australia

**Home Lending Credit Quality – Fresh Insights**

**Dysfunctional Insurance Systems**

**A Cap to Cover Retirement Headaches**

**Riding the Waves of the Cycle... ERM**

## A Hung Actuary

With the election finally over and a resulting hung parliament, could the same predicament ever beset our beloved Institute Council? Well first we may need parties. Is it too farfetched to think we may one day have the Life Insurance Party, the General Insurance Party, and of course the smaller Superannuation Party, or alternatively could Parties come out of the corporations we work for, or parties out of states of origin?

What could transpire for the Institute's President, if Kerr's Kerr led to the overthrow of our PM, could Howes' Howler overthrow Bozenna?

Back to the current day, did anyone reference the potential impact of the election result in setting assumptions (e.g. the expense inflation, termination rates on the disability income business)? In this month's *Actuarial Pulse* we conducted a poll to find out whether the predictive powers of actuaries are transferrable to election results. (Note that the election result was unknown at the time of responding to the survey.)

Not only is the strategic direction of the country being decided, the strategic direction of the Institute has just been launched. All costings have, of course, been run by Treasury and we have a guarantee that WorkChoices will not be resurrected in any way.
– *JC* ▲

**James Collier**
editor@actuaries.asn.au

**Catherine Robertson-Hodder**
editor@actuaries.asn.au

## Actuary Australia

**Contributions**
Contributions should be sent to The Institute of Actuaries of Australia, marked to the attention of **Katrina McFadyen** (Publications Manager). When sending contributions please supply text in Microsoft® Word format. Illustrations and photos should be supplied as JPEG, TIFF, EPS or PDF files at a resolution of 300dpi. (Note: GIF files are generally unacceptable because of low resolutions). Prior to supply of material, please confirm supply specifications, copy limits and relevant details with Katrina McFadyen. Email: **katrina.mcfadyen@actuaries.asn.au**

**Magazine Design** Kirk Palmer Design 57 Griffin Street Surry Hills NSW 2010
Tel / Fax (02) 9332 1223 Email kpdesign@bigpond.net.au

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**The Institute of Actuaries of Australia**
ABN 69 000 423 656
Level 7, Challis House, 4 Martin Place
Sydney NSW 2000 Australia
Tel (02) 9233 3466
Fax (02) 9233 3446
Email actuaries@actuaries.asn.au
Web www.actuaries.asn.au

Institute of Actuaries of Australia

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## What's New on the Web – September

### CERA Designation update

Members are advised that the international CERA Treaty Board has unanimously granted the Institute of Actuaries of Australia the status of 'Award Signatory'. This represents a key milestone towards the awarding of the CERA designation (Chartered Enterprise Risk Actuary). The Institute is only the second actuarial association to be granted this status.

The remaining legal step relates to approval by the relevant authorities for the transfer of the ownership of the CERA certification mark to its new owner. The CERA Global Association is responsible for this step (both here in Australia and globally) and it may still take some time to complete. The timing is beyond the Institute's control.

Nonetheless, recent events represent a significant leap forward and the Institute is very pleased that the formal awarding of the CERA designation to successful applicants is on the horizon.

### Call for Nominations – Research Prizes 2010

The Institute offers a number of prizes recognising achievements in actuarial research. Four research prizes are available in 2010:

H M Jackson Prize
A M Parker Prize
Melville Practitioner's Prize
Melville Health Prize

Eligibility and selection criteria for each prize can be viewed at www.actuaries.asn.au

### Investigations of the financial condition of defined benefit superannuation funds

A revised Professional Standard 400 (Investigations of the Financial Condition of Defined Benefit Superannuation Funds) has been approved by Council. The Professional Standard applies to investigations with an effective date on or after 1 October 2010.

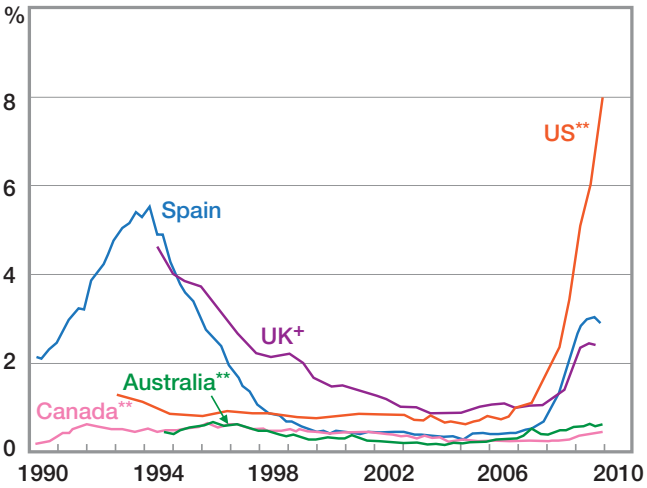
Copies of the Professional Standard and the Explanatory Memorandum can be downloaded from www.actuaries.asn.au

# contents


The recent collapse of the US housing market has demonstrated the broader economic damage that a severe 'blow up' in home lending credit quality can cause. Whilst it is clear that our $1.2 trillion domestic home lending system has held up remarkably well (Figure 1), it is nonetheless worthwhile having a closer look at our own backyard.

Figure 1

**Non-performing Housing Loans**
Per cent of loans*




* Per cent of loans by value. Includes 'impaired' loans unless otherwise stated. For Australia, only includes loans 90+ days in arrears prior to September 2003.
** Banks only.
\+ Per cent of loans by number that are 90+ days in arrears.
Sources: APRA; Bank of Spain; Canadian Bankers' Association; Council of Mortgage Lenders; FDIC; RBA

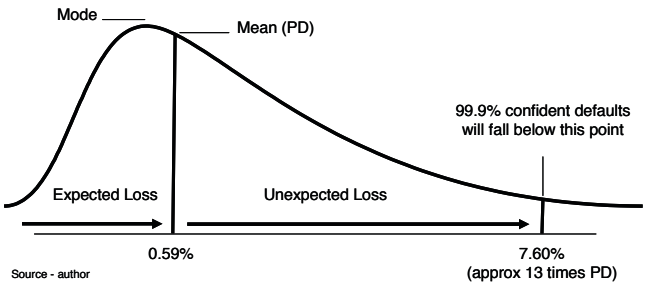
Since 2008, the four major Australian banks have regularly updated the market with detailed risk and capital reporting (APS330) on their Basel 2 (B2) requirements. This is part of their responsibility of being accredited as 'advanced' under the B2 regulation. This reporting provides the internal bank assumptions on their lending exposures (EAD – exposure at default), long term loan default probabilities (PD – probability of default) and assumed losses in the event of loan default (LGD – loss given default). With around 70% (and growing) of domestic home lending balances now being reported, this provides a good sample size on which to analyse credit risk across this important system.

## Modelling the system

Based on B2 capital rules, overall system home lending defaults can be broadly back fitted against a long tailed distribution with an assumed PD of around 60 bps (Figure 2). The PD is a key driver of both expected and unexpected loss capital requirements. It represents the probability that a currently non-defaulted borrower will either fall 90 days behind in their payments and / or become impaired over the next 12 months. It is set as a long run 'through the cycle' average, with observed default rates tending to naturally oscillate above and below the PD through a typical credit cycle.

Figure 2

**Implied Home Lending Credit Risk Loss Distribution**
(Mar 2010)



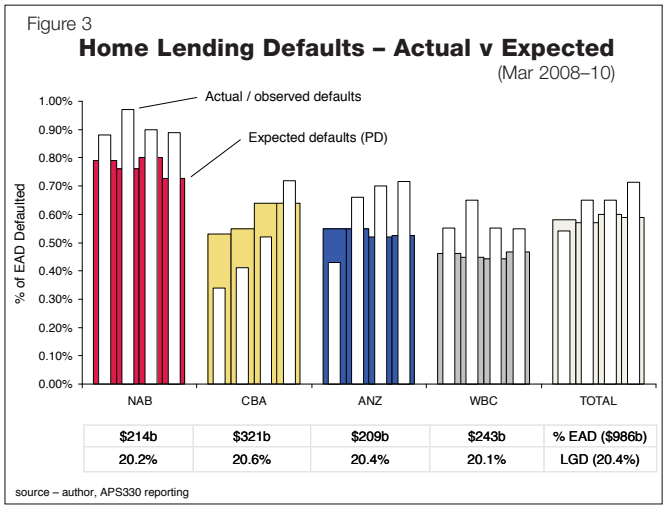

Source - author

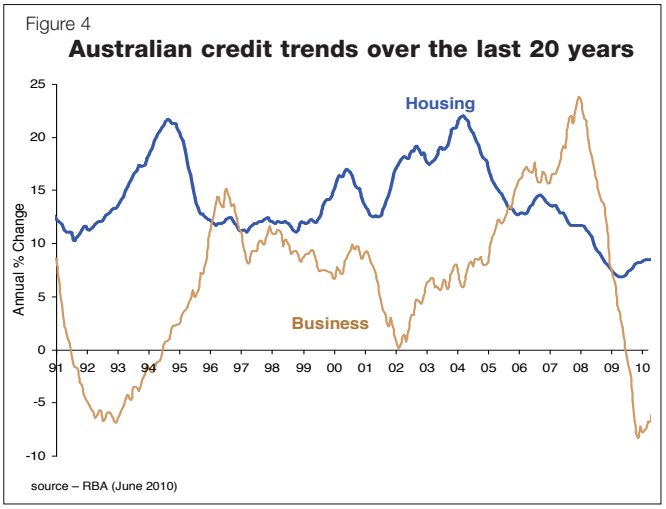
The overall home lending capital requirement is currently set at a level that will cover unexpected defaults of around 13 x the current PD (ie 7.6%). As seen in Figure 1, US non performing loans are currently passing through this level and continue to deteriorate, a sobering reminder that extreme home lending credit risk events can and do happen from time to time.

The other key driver of credit risk capital for a home loan is the assumed LGD. APRA currently require banks to set this assuming downturn conditions, with the added conservatism of a 20% floor. There is only limited evidence to date of this floor being exceeded by the banks own internal LGD calculations. Again a caution from the US experience is that an extreme property market downturn can result in an overhang of properties unable to be sold, quickly blowing out the potential LGD.

## Home lending default rates – peer comparisons

Figure 3 (opposite page) compares actual versus expected defaults. Relative to a couple of years ago, it can be seen that for the total system the most recent observed default rates have trended above the PD, indicating a slight trend towards growing stress in the system. It is also clear that much of this trend has been driven by deterioration in default rates observed within the CBA, and to a lesser extent the ANZ. The ability to undertake such analysis has only been available since the banks advanced B2 accreditation in 2008.




## Home lending 'Rivers of Gold'

For every $50 of home lending, banks are required to hold around $1 of credit risk capital. This is three to four times less capital needed than an equivalent amount of business lending, a gap that has widened since the introduction of the advanced B2 capital rules. The impact of this difference is that the current cost of capital required to be held against home lending is on average around 0.2% pa of balances, compared to around 0.8% pa for non home lending.

This relatively low home lending cost of capital requirement is one of several factors that contribute to the legendary 'Rivers of Gold' that is the Australian Retail Banking industry. Other factors include the growing economies of home lending scale enjoyed by the major banks, historically low home lending credit losses (<10 bps pa) particularly relative to other forms of lending, an ability to reprice over and above the RBA rate change cycle, an ability to fund home lending growth through profitable retail deposits, and an ability to cross sell other high return products like credit cards and insurance.

Whilst these attractive economics help to understand the banks growing bias towards home lending (Figure 4), there are other factors. Recent and prospective pressures on the cost and availability of funding are forcing banks to rethink where, and how much, they are willing to lend. On the demand side a trend for institutions to de-leverage by raising equity to repay debt, the Government first home buyer grant and an ongoing under-supply in housing stock also need to be acknowledged. Is this recent re-weight out of business and into housing the most productive use of the nations' increasingly scarce lending resource? This is an important subject that needs further research.

## Pro-cyclicality ... benign for now

I use the term 'adverse pro-cyclicality' to describe any tendency for the capital requirement to ramp up during a period of credit quality deterioration. Whilst a rise in observed defaults will result in higher capital, the most potent drivers are changes in the PD and / or LGD assumptions. As seen in Figure 3 above, the impact of pro-cyclicality on home lending capital has been relatively benign over the last 2 years, as evidenced by a relatively stable overall PD and LGD assumption.

Looking forward, the system seems susceptible to an upward shift in the long term expected default assumption. A tendency for the PD to lag rising observed default rates, the future impact of the recent surge in first home buyers, and a likely rethink by the banks on the extent to which 'tail risk' events are being reflected in their B2 model assumptions will all put upward pressure on home lending capital requirements. It should be noted that for Westpac and the CBA, any such impacts may in part be offset by the migration of St George and Bankwest respectively into the more capital favourable advanced B2 environment.

## Australian Banks ... safe as houses?

Finally, I have modelled a plausible credit risk downturn scenario as defaults rising 2.5 times to (say from 0.6% to 1.5%). Whilst such a scenario has not been observed domestically in the last couple of decades, it is quite plausible in the context of recent trends in global arrears rates (Figure 1).

To demonstrate my view that pro-cyclicality remains a risk going forward, I have also assumed the home lending PD would rise, but to a lesser extent (say from 0.6% to 0.9%). I have assumed the LGD would remain unchanged given the currently well secured nature of our domestic home lending portfolio.

The outcomes of such a scenario would be an extra $7b (or around a 40% uplift) in home lending capital required across the four major banks (ignoring any business credit impacts). At around 0.6% of risk weighted assets (RWA) this could be safely funded out of the banks' current T1 reserves of around 9%. More surprising is an estimated $30-35b increase in funding requirement as borrowers increasingly redraw on their mortgages to avoid default.

One lesson from 2008-09 was that a highly stressed credit environment will challenge the ability to quickly raise funds, particularly as credit becomes either unavailable or prohibitively expensive. ▲

**Tim Gorst**
tim.gorst@nab.com.au

The key challenges facing our profession were the subject of discussions at recent meetings with our New Zealand members. In July I visited Auckland and Wellington, for a chance to explain some of the major issues facing the profession, as well as co-host the President's dinners with the New Zealand Society of Actuaries (NZSA).


Auckland Members' Dinner

The central issue discussed was relevance. The following questions were raised:

- Will the actuarial profession continue to be relevant beyond our core statutory areas, which continue to shrink (apart from general insurance)?
- What can we as a profession offer school leavers as a career path that they might aspire to?
- Is the added burden of undertaking actuarial exams and having to abide by professional standards, worth the benefits of being part of a profession, with the associated prestige, collegiality and common interests and goals?

This is an issue that the profession must address and answer if we are to proceed as a growing relevant profession, rather than being limited to statutory roles in industries undergoing continual consolidation.

Change was another key theme. Change is already occurring on a number of fronts. In education, there is the new ERM course leading to the CERA designation, which also now counts as a Part III Course. Other new courses (such as in Banking and Health) are also being considered. Change is also occurring with the modified roles of Councillors and the President and changes in staff roles at the Secretariat. There is now a greater focus on supporting the extensive volunteer network. The website is also undergoing change. The Institute has embarked on a process to improve its electronic communications, with modern technologies to enable greater electronic provision of CPD. This will benefit all members, but particularly those in remote locations. There will be increased availability of podcasts of major events and there is a move towards supporting webinars.

Another issue discussed was value and whether the Institute is providing value in terms of members' fees paid and members' volunteer time spent. This is a matter that the Institute must continually balance, by spending member fees wisely and making the most effective use of volunteers' time.

Other topics of interest included what effect the new New Zealand capital standards will have on the local industry. The New Zealanders are facing change on a number of fronts – with tax changes, new capital standards and in the introduction of FCRs for general insurance companies.


Wellington Members' Dinner

Overall, about half of all the actuaries in New Zealand attended one of the meetings and dinners held, which was a great turnout. All the New Zealanders made me feel very welcome and were excellent hosts.

In Wellington, I visited the Reserve Bank of New Zealand, with members of the NZSA Linda Caradus, Paul Rhodes, Hamish Farrar and Richard Beauchamp. The Reserve Bank regulates the insurance industry and is increasing its capacity to deal with its expanded role.

I also met with members of the NZSA, to discuss ways in which we could work more closely together – from increasing links at the practice committee level, to sharing experience with media relations and collaborating to draft professional standards with a common base. In the long term it would be beneficial to move towards consistent standards, with an appendix covering specific Australian aspects and another appendix covering specific New Zealand aspects.

On completion of all the official functions I was fortunate to be given a tour of Wellington by NZSA member Andrea Gluyas, which was most enjoyable in spite of the rain. As well as a tour of the city and a trip on the cable car, we visited the Karori Sanctuary, a wildlife reserve in the heart of Wellington. We tried to find the local giant wetas, which are large, scary looking, cricket-like insects, but unfortunately for me they were all hiding. ▲

**Bozenna Hinton**
bozenna.hinton@actuaries.asn.au


Giant Weta


Andrea Gluyas in the Karori Sanctuary, Wellington

# Wilma Terblanche

**Title…**
Life Actuary

**Organisation...**
Suncorp Life

**My favourite energetic pursuit...**
Swimming with my children

**My favourite meal...**
Prawns

**The sport I most like to watch...**
Gymnastics

**The last book I read (and when)...**
*The Other Boleyn Girl* by Philippa Gregory – last month. I have recently started reading books by Brian Klemmer and have now started again with *The Seven Habits of Highly Effective People* by Stephen Covey

**My favourite CD...**
*Il Divo*

**My favourite film...**
*White Nights* with Mikhail Baryshnikov

**My interesting / quirky hobbies...**
I don't currently have much time for hobbies – but when I get a chance I like to work in the garden, planting herbs and a large variety of different and interesting plants, and cooking interesting new dishes

**My ideal weekend day...**
Breakfast outside with my family at my favourite garden centre, then take the children to ride and play in the park, have a picnic for lunch (made by someone else), go swimming, then perhaps baking with the children, and a quiet evening with my husband or friends

**If stranded on a desert island I'd take...**
My husband – he is very practical and good company

**The person I'd most like to meet...**
Can't think ... I'm happy to read their books, or listen to them talking or singing

**What gets my goat…**
People not waiting their turn and jumping the queue; unfairness or injustice

**What I wanted to be when I grew up...**
a doctor or scientific researcher

**Why I decided to become an actuary...**
it sounded like a challenge, and I liked the idea of being one of only a few

**Where I studied to become an actuary...**
I did a B.Comm and B.Comm Hons at the University of Stellenbosch in beautiful South Africa, then did my actuarial studies through the Faculty of Actuaries in Scotland

**Qualifications obtained...**
Wife, Mother, Actuary

**My work history...**
I started at Old Mutual Life Assurance Company in South Africa (Cape Town) working there for six years in Health Benefits and later in Product Development. I then worked for almost two years in the UK, working mainly on the pensions review, and continued this back in South Africa for a further year, working from home. I then went back to Old Mutual for four years, working in the Corporate Actuarial Department. We then moved to Pretoria to be closer to our families and I worked at Momentum Group, a life insurance company, in the Corporate Actuarial and Valuations department. In 2008 we moved to Australia, where I have been working at Suncorp Life in Brisbane

**What's most interesting about my role...**
The variety, new learning and new challenges almost every day

**My role's greatest challenges...**
The eternal search for balance

**Who has been the biggest influence on my career (and why)...**
When I was in grade eleven, my mother arranged for me to visit an actuary who told me what the profession was all about, and this has lead to my decision to go for it. Thereafter, the appointed actuaries I have worked with through the years have all inspired me with their drive and commitment, and ability to see and understand the big picture as well as the detail

**My most important decision…**
More than one: to become an actuary, to get married, and about eight years later, to start with a family

**My biggest regret…**
Can't think of any – or maybe I just don't want to

**I'm most passionate about…**
My children

**I'd like to be brave enough to…**
Do another research paper, or even to write a book

**My proudest moment…**
Perhaps rather 'grateful' moment(s): The births of my children

**The best party I've had…**
My 30th birthday party. We had just returned from the UK and all our family and friends got together at my dad's house in Johannesburg

**The Olympic sport I'd like to be in…**
Swimming

**If I were a car, I would be an…**
Porsche – an excellent sport car also suitable for day to day use!

**My earliest memory…**
When I was four, my dad came (either very late at night or early in the morning – we were sleeping) to whisper in my ears and my sister's ears that we had just got a little brother

**My most embarrassing moment…**
Telling someone they look older than how they sounded over the telephone (this was when I myself was very young and naive)

**In my life I'm planning to change…**
I am old enough to realise I can only change myself – there's still a lot of work

**The age I would like to stay…**
As I get older I realise there is the benefit of wisdom that comes with time and therefore age, and of caring less about what other people think. So I don't mind getting older

**At least once in their life, every actuary should…**
Try to have some fun

**My next holiday destination is…**
Fraser Island and hopefully soon after, somewhere in the Whitsunday Islands

**My best advice for my children…**
Start early with good habits and always do your best

**Four words that sum me up…**
A time for everything ▲

**Wilma Terblanche**
Wilma.Terblanche@Suncorp.com.au

# The Actuarial Pulse

**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.**

**Next Survey** New questions will be available in October 2010.

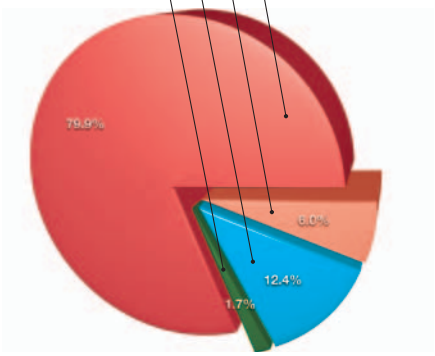
**What would you like to know?** If you have a question you would like to put to the membership, email it to editor@actuaries.asn.au

**Results** Report generated on 10 August 2010, 299 responses to the survey

## ELECTION

**Q1. What do you think will be the outcome of the Federal election on 21 August? [can select only one]**

| Response | Number | Percent |
|---|---|---|
| Labor win with reduced majority | 239 | 79.9% |
| Labor win with increased majority | 18 | 6.0% |
| Coalition win | 37 | 12.4% |
| Greens win | 5 | 1.7% |




The direction of the responses was pretty much as I expected, although I was surprised that so many – 86%, said that Labor would win. Most polls at the time of the survey had the two major parties pretty close.

I had thought about putting 'Hung Parliament' as an answer, but decided it was so unlikely, given the very small number of MPs that are typically not in one of the major parties. Well, it turned out that the mathematically possible has become a reality. As I write this, our country is being held to ransom by a small handful of independent MPs. Call another election now!!

**Q2. What impact do you think the replacing of Kevin Rudd with Julia Gillard will have on the Federal election on 21 August?**

The views on the impact on the Labor party's election prospects were varied. About half of all respondents thought that the impact of replacing Kevin was positive for Labor, a quarter negative and a quarter believed it would have no impact at all.

The major influences cited appear to be increased female vote (female leader), increased vote in WA (mining tax) offset by reduced vote in Queensland (where Kevin is from), and a negative influence from disillusionment with the Labor party due to the nature of the leadership change.

There were differing views on the influence this will have on the nature of the election campaign, ranging from "made the campaign even more boring" to "makes it more interesting (slightly)" and "make it more entertaining". Maybe 'entertainment' should have been an additional criteria for Q3?

When I wrote this question, Julia Gillard's popularity had pretty much plunged back to the level that Kevin Rudd's popularity was at just before he was ousted. I personally think that Labor would have done better in the election had Kevin remained.

**Q3. What issues are most likely to influence your vote at the Federal election on 21 August?**

| Response | Number | Percent |
|---|---|---|
| Climate change | 127 | 43.3% |
| Paid parental leave | 26 | 8.9% |
| Managing the economy | 211 | 72.0% |
| Tax on mining profits | 83 | 28.3% |
| Gender of the leader | 12 | 4.1% |
| Health funding | 87 | 29.7% |
| Education | 84 | 28.7% |
| Afghanistan/Iraq conflicts | 20 | 6.8% |
| Immigration | 79 | 27.0% |
| Other | 75 | 25.6% |

The most important issue for respondents was managing the economy, with almost three quarters of respondents citing that issue. Behind that was our favourite friend climate change, selected by just under half of all respondents. Around a third of respondents selected each of the mining profits tax, health funding, education and immigration.

The economy is a sluggish sloth of an animal and the impact of economic management policies can still be felt years later. Just how much credit Labor can take for Australia's impressive sail through the GFC is an interesting question! I think we should all feel very fortunate to be living in such a strong and resilient economy in the recent global environment.

Other mentioned voting influences included:

- Possible return of a son of Workchoices;
- Broadband network and internet filtering;
- Superannuation policy (including 12%/15% issue);
- Investment in infrastructure;
- Australia's supply of housing and associated affordability issues;
- Commitment to increasing overseas aid;
- Same-sex marriage;
- Euthanasia;
- Appropriate policies on dealing with people with disabilities;
- Policy towards Israel;
- Loss of animal habitat and banning of whaling;
- Competence, integrity and sincerity of the leader;
- Longer-term focused management (not just to win votes today);
- Abbott's views on abortion;
- Religious affiliation of leader (atheist vs Catholic);
- Benefits for actuaries!;
- Historical affiliation of a particular party; and
- Ability of local candidate.

**Q4. What do you think is a suitable level of employer compulsory superannuation contributions (currently 9% and being proposed by Labor to increase to 12%)?**
**And,**
**Q5. Please comment on your answer to Q4**

| Response | Number | Percent |
|---|---|---|
| 0% | 10 | 3.5% |
| 5% | 3 | 1.1% |
| 6% | 1 | 0.4% |
| 8% | 1 | 0.4% |
| 9% | 43 | 15.1% |
| 10% | 35 | 12.3% |
| 11% | 1 | 0.4% |
| 12% | 85 | 29.8% |
| 13% | 4 | 1.4% |
| 14% | 5 | 1.8% |
| 15% | 89 | 31.2% |
| 18% | 1 | 0.4% |
| 20% | 5 | 1.8% |
| 30% | 1 | 0.4% |
| 99% | 1 | 0.4% |

Respondents appear to be divided on this issue, with around a third saying 9/10%, a third 12% and a third 15%. One of the most popular, unhelpful, reasons given for the level suggested by respondents was "it's a nice round number." My favourite approach given was "based on a suitably overly complex projection."

Most respondents seem to agree that the total amount of contribution made (employer compulsory, employer discretionary and employee) should be at least 15%.

When I think back to the defined benefit plan I had when I started work 16 years ago in the UK, the employer used to pay 14%. When I moved to a new firm with a defined contribution plan, they paid just 3%!

Some of you suggested that there should be a 3% (or even 5%) compulsory employee contribution.

There were some differing views around the issue of the people requiring discipline vs freedom: "generally speaking, people aren't disciplined enough to save for retirement themselves"; "people should have freedom and responsibility to look after their own savings"; and "it is not the government's job to look out for your retirement, you should have some personal responsibility for your own future."

Many argued that the level of the SGC was pretty much irrelevant – any increase to this would be offset by lower salaries – it's just part of the total package. "Any increase in superannuation simply results in downward pressure on wage growth. Effectively, the current situation is 9% SGC with employee ability to sacrifice more. Labor's proposal forces the equivalent of 3% mandatory employee salary sacrifice due to the wage pressure argument, which means individuals have less choice to make decisions (i.e. wages vs salary sacrifice)." Another impact is that they would need to cut back on staff; "increasing SGC adds burden to employers and may adversely affect employers willingness to hire new and extra staff."

There was some interesting disagreement between how the levels should differ between low and high wage earners. "Really it should be tiered, with lower income earners contributing less. The excess contributed from higher income earners could then be used to fund pensions for the lower income earners" vs "I think 12% is OK for middle to high income earners but needs to be closer to 15% for low income earners."

A criteria to use to determine a suitable percentage was perhaps best described by "a nice round number, easy to calculate, easy to communicate, leaves scope for employee contributions / engagement, but still reasonable for those who don't want to contribute."

Despite all of this, maybe we have a situation of 'if it ain't broke, don't fix it' – "please leave super alone."

## VOLUNTEERING

**Q6. What volunteering have you done for the Institute? And,**
**Q7. What volunteering would you like to do for the Institute?**

| | Have Done | | Like to Do | |
|---|---|---|---|---|
| **Response** | **Number** | **Percent** | **Number** | **Percent** |
| Education (e.g. marking / board of examiners) | 159 | 73.6% | 91 | 45.0% |
| Council | 18 | 8.3% | 20 | 9.9% |
| Institute committee or taskforce | 105 | 48.6% | 92 | 45.5% |
| Writing / presenting papers at conventions | 77 | 35.6% | 74 | 36.6% |
| Publications (e.g. *Actuary Australia*) | 58 | 26.9% | 47 | 23.3% |
| Other | 29 | 13.4% | 33 | 16.3% |

Other volunteering activities performed or would like to perform included:

- Test new web site;
- Mentored a Step Up candidate;
- International work/International Actuarial Association;
- Present to high school students/More than Maths;
- Teaching at the Professionalism Course;
- Organising conferences;
- Research on microinsurance; and
- Doing the Actuarial Pulse!

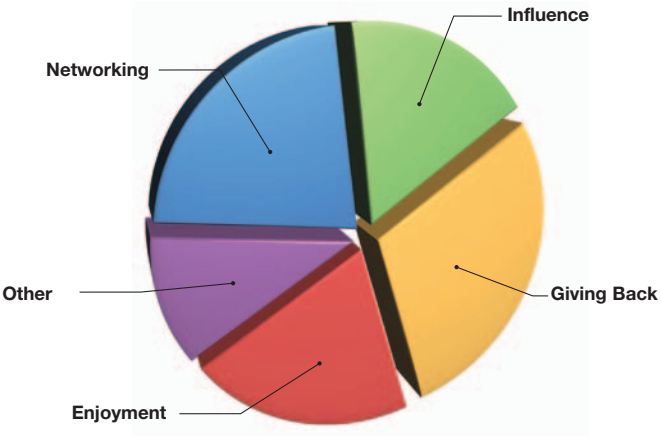
Excuses/Reasons given for not volunteering included:

- Busy with Part III's. Not enough time to eat and sleep nowadays;
- Paid a lot of money for very little in return;
- Let the younger members do more;
- Retired, not appropriate;
- Do other volunteer work now;
- Hard to do from overseas;
- Done my share already;
- Young family and job take all my time; and
- No more, please, already have enough on my plate!

It is interesting how younger members feel older members should be doing the work and vice versa. I wonder what the mean and optimum ages of volunteers are?

**Q8. Why would you/do you do volunteer work for the Institute?**

| Response | Number | Percent |
|---|---|---|
| Networking opportunities | 102 | 44.0% |
| Chance to influence the direction of the Institute | 82 | 35.3% |
| A feeling of giving something back | 144 | 62.1% |
| Enjoy doing it | 98 | 42.2% |
| Other | 52 | 22.4% |




I had originally intended for CPD to be an option – "Why isn't CPD an option? You seem to ignore the elephant in the room!" – but this is perhaps a given for all respondents. It would perhaps be interesting to know how many fewer volunteers we would have if there was no CPD requirement. Strictly speaking, CPD is more about developing ourselves and less about doing our bit for the Institute – it's what we get out of volunteering, not what the Institute gets out of it.

Other good reasons given for volunteering included:

- Because it's part of my job;
- Opportunity to undertake research, build reputation etc;
- Opportunity to learn from peers;
- Chance to produce conclusions of benefit to members and the community;
- Survival - the Institute will not survive if members don't volunteer a significant amount of time;
- To keep up to date with developments in the Institute's education system; and
- Good for the ego (makes you feel as though you belong to a group and feel important).

And a couple of not-so-good reasons:

- Roped into it by colleagues and now can't find anyone to pass it on to!;
- Feel forced to, resent every moment of it; and
- An inability to say 'No'.

The Institute continues to be short of volunteers and the numbers above, while encouraging, do highlight the large, unused pool of potential volunteers within our membership. I should have, perhaps, added the responses "never volunteered" and "would never like to volunteer", but I guess that, already, the pool of people who respond to *Pulse* surveys are going to be a more volunteer-like subset of the membership.

I personally get immense pleasure out of volunteering for the Institute – with education my main passion (I always wanted to be a teacher when I was a child). If you do not volunteer, I would encourage you to give it some consideration – you're never too old or too young! ▲

**Matthew Wood**
matthew.wood@zurich.com.au

REGISTER NOW!

# 17th General Insurance Seminar

# Risk and Reward

Institute of Actuaries of Australia

**7 – 10 November 2010 • Sheraton Mirage, Gold Coast**

## Plenary Speakers

### Plenary 1: Keynote Address and Market Update

- **Keynote Address – Ian Laughlin** *Member of APRA*
- **Siddharth Parameswaran** *Senior Insurance Research Analyst, JP Morgan Securities Australia*

### Plenary 2: Pathways to Market

- **Anthony Day** *CEO, Commercial Insurance, Suncorp*
- **Simon Lindsay** *Country Manager, Australia, Progressive Direct*
- *TBC*

### Plenary 3: Risk and Reward

**Panel One: What ERM Means in the GI Space**

- **Dan Tess** *Group Actuary, Wesfarmers Insurance*
- **Jason Brown** *Chief Risk Officer, QBE Australia*
- *TBC*

**Panel Two: Actuaries Working in Different Fields**

- **Adam Driussi** *Director, Quantium*
- **Rick Shaw** *Consulting Actuary*
- **Joyce Tong** *Senior Consultant, Ernst & Young*

### Plenary 4: Regulation – The Proposed Changes

- **Helen Rowell** *General Manager, Policy Development, APRA*

**Panel Session**

- **Helen Rowell** *General Manager, Policy Development, APRA*
- **Noeline Woof** *Senior Advisor, Policy Development, APRA*
- **Geoff Atkins** *Principal, Finity*
- **Blair Nicholls** *Chief Actuarial Officer, QBE*
- **James Goodchild** *Principal Actuary General Insurance, Suncorp*
- **Tim Spicer** *Associate Director, Ernst & Young*

## Program at a Glance

### Sunday 7 November 2010

| | |
|---|---|
| 3.00pm – 5.00pm | Registration opens |
| 6.30pm | **Welcome Dinner** – Join us for a casual dinner around the pool |

### Monday 8 November 2010

| | |
|---|---|
| 8.30am | **Plenary 1 – Keynote Address and Market Update** |
| 10.30am onwards | Concurrent sessions 1, 2 and 3 |
| 12.40pm | Lunch |
| 1.40pm onwards | Concurrent sessions 4 and 5 |
| 3.35pm | **Plenary 2 – Pathways to Market** |
| 6.30pm | **Sea World Dinner** |

### Tuesday 9 November 2010

| | |
|---|---|
| 8.30am | **Plenary 3 – Risk and Reward** |
| 10.35am onwards | Concurrent sessions 6, 7 and 8 |
| 12.45pm | Lunch |
| 1.00pm onwards | Optional Activities |
| 7.00pm | **Movie World Gala Dinner** – Remember to pack your dancing shoes for a fun filled evening of Rock and Roll |

### Wednesday 10 November 2010

| | |
|---|---|
| 9.30am onwards | Concurrent sessions 9 and 10 |
| 11.15am | **Plenary 4 – Regulation – Proposed Changes** |
| 1.00pm | Seminar Close |
| 1.00pm | Lunch |

**Don't miss out on this important biennial industry event. For more details or to register go to:**

**www.actuaries.asn.au/GIS2010**

# Professionalism Course

SEPTEMBER 2010

Friedrich Nietzsche once said "You have your way. I have my way. As for the right way, the correct way, and the only way, it does not exist." If there was one message a rag-tag group of 87 actuaries-to-be (little 'a' and big) were to take away from their crash course in being professional, it was this. There isn't, typically, a clear cut answer to professional matters. But I'll get to that.

So having spent the night before the course up watching football into the wee hours, I was pleased to see an engaging and enthusiastic facilitator, Martin Mulcare, to welcome us to the course. Otherwise it was looking like a long day ahead for me. Fortunately, Martin would continue to delight us with his clever quips, engaging style and friendly banter for the rest of the program. From valuable insight on serious matters to drawing attention to late comers (only in a humorous way, of course), Martin added a lot to the course, keeping us awake, thinking and absorbing – and generally keeping it interesting with his musical introductions for speakers and friendly banter.

Barry Rafe kicked off the formal sessions with a discussion on ethical thinking. Presented with a hypothetical ethical dilemma, we discussed the scenario around the tables. The fundamental question was how far you would go in the quest for a business deal. Interestingly, but unsurprisingly, responses ranged from the most conservative, conscientious paths all the way to those prepared to partake in 'light treason'. Well, perhaps I've exercised some dramatic licence there, but the range of responses illustrated clearly Barry's point – on matters ethical, your own view is just one of many that could reasonably be taken (although perhaps not cases of light treason).

As actuaries, we must recognise this fact of life and respond appropriately. Taking care to objectively (as far as possible) assess our actions. Being part of a profession carries certain responsibilities – to the public, among others – and the duty to act responsibly, and part of that is recognising that what we might personally consider responsible may not be perceived as responsible behaviour by others. Recognising this is a first and hugely important step in being and acting as a professional. That's what I learnt from Barry's session.

Barry's personal accounts made this session very relatable and relevant. It was fantastic, as it meant we were all interested and switched on right from that first session. The rest of the day moved onto the formal matters of understanding our professional and legal obligations, as well as CPD requirements, presented by Anne Peters. A mock disciplinary hearing was a sobering experience for all in the room, and a timely reminder (amongst the fun and wild times of the day) to always keep our obligations in mind.

David Goodsall got us up to speed on the Code of Professional Conduct – giving us a few things to think hard about before taking the plunge and putting our careers and reputations on the line through our advice. The day ended with the President, Bozenna Hinton, delivering an informative session on how the Institute brings members together.

Professionalism Course participants

It was then time for a quick drink before the QED sponsored dinner, a chance for the more fashion-conscious amongst us to change into their evening's best. Dinner was a fun time to chat, share experiences and jokes. A few brave souls continued onto the local pub after dinner for some post dinner banter, and the braver still to the hotel room mini bars once the pub closed (presumably, I was safely tucked up in bed).

The next morning started in darkness, with a blackout hitting the block (which may have worked out conveniently for those braver souls from the night before). All the same, our first speaker Wade Matterson persevered and talked to us about his pathway to becoming an actuary and shared some of his experiences with us.

With the lights back on, the Institute's CEO, Melinda Howes, talked about member services and the Institute's active role in administering and developing the profession. Melinda shared her ambitious vision for the profession with us and her enthusiasm for the future of actuaries was infectious.

After a glamour photo session and lunch we were all "Bulmerised" (his words, not mine) by Tony Bulmer. Or to the non-bulmerised - we were introduced to a simple, but useful framework we could incorporate into preparing for and delivering focused presentations.

Peter McCarthy then shared experiences from his times at FAI and the ensuing events. His story was a classic case of you have your way, I have mine. Running with the theme of the course, there was no prescriptive element to Peter's discussion. Throughout the course, we were given frameworks and others' experiences as a means to inform and teach us; but as intelligent professionals of tomorrow (fingers crossed), it was left to us to work out an answer (notably, not 'the answer').

Sadly, Mr McCarthy's account also highlighted the broader issues with misinformation through the media. In a society increasingly overloaded with information from various channels, it was a timely reminder to not accept things at face value.

The course was rounded out by the Presidential Dinner – a fun affair (there was a Mexican wave going at one stage!); a chance to share an important milestone in our lives with family and colleagues. Shannon Lin spoke wonderfully on behalf of the course attendees, proving actuaries can, after all, have a sense of humour.

Ultimately, the human stories of the professionals were what made these two days so valuable. While we're about to become 'professionals' (I say that because I think it's a journey, and not something that just happens one day), we must recognise ourselves as humans and understand the human qualities. The experiences, lessons and advice of others are invaluable sources of adding to our understanding – and that's exactly what the Professionalism Course gave us the chance to do. Hopefully, this group of newly admitted actuaries can go out and do justice to the brand that we are now a part of – and find our own way while we're at it! ▲

**Ashish Ahluwalia**
ash.ahluwalia@gmail.com

## Congratulations to our new Fellows and Actuaries – 1 September 2010

### Fellows

Ashish Ahluwalia
Nicole Appleton
Rosalind Calver
Kathryn Cannon
Rita Cham
Oi Suen Fiona Chau
Jessica Chen
Li Lian Chong
Neil Ch'ng
Corrin Collocott
Hadas Danziger
Kuong Diep
Kelvin Hii
Ting Hua
Adam Jupp
Nicholas Kennedy
Benjamin Ko
Tina Kong
Alexander Kwa
Stephen Lau
Daniel Lavender
Hyun Kyung Lee
Phichol Lee
Mei Liao
Khey Jun Lim
Ke Chris Lin
Shannon Lin
Joshua Ling
Michael Liu
Janice Lu
Bessy Ma
Vinko Matic
Mark McClenahan
David Millar
Yu Fan Ng
Adam Norman
Chin Soon Nyean
Xi Lianna Pan
Truc Pham
Brendan Pon
Ben Qin
Sonia Ramdev
Harry Rao
Cameron Sew Hoy
Nicholas Sutherland
Anne Taylor
Bryan Tong
Wendy Wang
Emily Watchorn
Andrew West
Victoria Xie
Jia Xue
Yinghua Vivian Yu

### Actuaries

Richard Carter
David Cartwright
Yim Chan
Christopher Chau
Chin Cheng
Ka Cheng
Gigi Cheung
Hsin Sandra Chou
Ashley Evans
Peter Fang
Joanne Goad
Pushpakumar Gunasekera
Michael Heffernan
Monica Ho
Jacky Ho
Justin Ho
Thuan Ho
Ting Hua
Henry Jin
Michael Kogan
Sue Fong Kong
Phoebe Kwan
Winnie Larsen
Joseph Lau
James Lee
Sarah Lin
Brian Man
Aaron McGovern
Aya Ozawa
Laam Pang
Andrew Parker
Heena Shah
Haoyuan Song
Joshua Tan
Ying Tang
Dennis Teoh
Alexandra Thorne
Kim Anh Tran
Benjamin Trollip
Anthony Vial
Kimberley Wang
Yi-Nan Wang
Irene Yiu
Simon Young
Shao Qing Zhang ▲

Institute of Actuaries of Australia

# Super Policy Forum

## Projecting the Future – How Much is My Super Really Worth?

**Wednesday 13 October 2010**

**Marriott Melbourne, Yarra Suite**
**Corner Exhibition and Lonsdale Streets, Melbourne**

The Institute's Super Policy Forums were established in 2008 to bring together experienced experts to discuss their views on significant and topical superannuation issues.

Recently, the report of the Super System ("Cooper") Review was released by the government and it recommended various changes to improve the awareness and engagement of individuals with the retirement income system.

The Institute believes that mandatory benefit projections and online calculators will, over time, make a significant contribution to achieving this aim. The timing of this Forum couldn't be better. Who better to hear from than the Australian Government Actuary's Office, ASIC, ASFA and leading actuarial and web practitioners in this field?

**REGISTER NOW** – www.actuaries.asn.au\SPF2010

**SEMINAR PROGRAM**

1.00 pm **Registration and Coffee**
1.30 pm **Welcome and Opening Remarks**
**Andrew Boal, Convenor, SEBPC, Institute of Actuaries of Australia**

**SESSION 1: The Current Regulatory Landscape on Member Disclosure**
A detailed examination of the assumptions and modelling that lead to differing views on retirement adequacy.

1.50 pm The latest from ASIC and the *Cooper Review* on member disclosure
**Philip Russell, Senior Specialist, Superannuation, ASIC**
2.15 pm Fee disclosure – separating investment costs, superannuation (management and administration) costs, and advice costs
**Bill Buttler, Principal, Rice Warner Actuaries**
2.40 pm **Q&A**
3.00 pm Afternoon Tea

**SESSION 2: Mandatory Member Projection Statements**
ASIC and the *Cooper Review* both support the provision of annual benefit projections to better engage members with their super.

3.20 pm Assumptions for compulsory projections
**Peter Martin, Australian Government Actuary**
3.45 pm The Age Pension – in or out?
**Jules Gribble, Senior Advisor, Policy Strategy, ASFA**
4.10 pm **Q&A**

**SESSION 3: The Latest Developments in Online Projection Tools**
If you are planning to build projection tools for your members, what do they really need and what will they find useful?

4.30 pm Tailoring calculators to your audience
**John Burnett, Senior Consultant, Towers Watson**
4.55 pm Online developments to better engage your members
**Samantha Benecke, Principal Consultant, AHC Pacific**
5.20 pm **Q&A**
5.40pm **Closing remarks from Melinda Howes, Chief Executive, Institute of Actuaries of Australia, followed by drinks from 5.45pm**

NB: The program is subject to change

# Dysfunctional INSURANCE SYSTEMS

Last year, I spent some time reading up on the history of insurance. In the early days, more than 150 years ago, the insurance industry was quite dysfunctional. Insurers wrestled with problems such as moral hazard, imperfect disclosure, information costs, conflicts of interest, agency risks, underwriting cycles and adverse selection spirals. Over time, the insurance industry found workable solutions to these problems and developed more efficient markets for transferring risk. About the same time, I was also reading through a heap of books about the Global Financial Crisis. It turns out that credit risk markets were plagued by moral hazard, imperfect disclosure, information costs, conflicts of interest, agency risks, underwriting cycles and adverse selection spirals. Given these similarities, I wondered if some of the measures adopted in the insurance markets 150 years ago might be helpful in ameliorating problems in modern-day credit risk markets. Would it be possible to build a simple model to understand the mechanics of a dysfunctional insurance system? Would this aid in the development of some solutions? The following is a summary of a paper presented at the Financial Services Forum in 2010. The full paper, with more details of the model, is available on the Institute website www.actuaries.asn.au

## Background: Marine Insurance Markets

Theoretically, insurance is a good thing. Even in Elizabethan times (1601), there was a recognition that risk-sharing is normally beneficial to society: *"...by means of which policies of assurance it comethe to passé, upon the loss or perishing of any shippe there followeth not the undoing of any man, but the losse lighteth rather easily upon many that heavily upon fewe."* However, sometimes an insurance system can become dysfunctional. Under certain circumstances, insurance can lead to an increase in systemic risk, with disastrous consequences for both individuals and the wider community. The marine insurance market, circa 1860, provides one example of a dysfunctional system.

Samuel Plimsoll wrote a stinging critique of the insurance industry. Ho pointed out that, as a result of the flaws in the insurance system, ship owners could make higher profits by taking on more and more risk. For example, by grossly overloading their ships and then passing on the risk to others by buying under-priced insurance. Over time, an adverse selection spiral created an increase in the overall level of risk taking.

The result was a sharp increase in the number of shipwrecks and the deaths of thousands of sailors in so-called 'coffin ships'. Ultimately, several insurers became insolvent and those who remained in the market doubled their premiums. The increased costs were passed on to the general public by way of price increases of imported goods.

## Background : Credit Risk Markets

Theoretically, the development of credit risk markets was a good thing. A Federal Reserve Bank economist claimed that the new financial instruments for securitising loans would *"enable risk to be divided and priced to better meet the needs of borrowers and lenders"*. This would create a more flexible and resilient financial system and promote economic growth.[1] However, over the last few years it has become clear that the credit risk markets were dysfunctional. This led to a huge build-up of systemic risk, which ultimately led to the global financial crisis (GFC). The GFC has had disastrous consequences for many individuals and for the wider global economy.

As a result of mispricing of risk, mortgage brokers could make higher profits by making higher risk loans and then passing on the default risk to the investors who bought mortgage-backed securities. Over time, the level of systemic risk gradually increased, as the proportion of subprime debts increased and the quality of loans decreased

The result was a sharp increase in default rates and foreclosures, such that many borrowers became homeless. Ultimately, many of those who had invested in mortgage-backed securities suffered severe losses. In the aftermath of the GFC, the cost of borrowing has increased for many borrowers, with flow on effects on the economy.

1 In Fed we Trust by David Wessel, page 103, quoting Don Kohn, member of the Federal Reserve Board.

So what went wrong?

## Problem 1: The Element of Control

Many types of insurance involve a moderate amount of moral hazard: at the simplest level, a person with household insurance might be careless about locking his back door or a person with disability income insurance might take a bit longer to return to work. However, moral hazard increases sharply when the insured's actions can double, triple or quadruple the risk.

### Marine Insurance Example:

In the 1860s, ship owners had a great deal of control over the risk of shipwreck:

- The ship-owners controlled the **design and construction** of the ship. Many ship owners deliberately chose to construct longer, narrower vessels, which could hold more cargo and travel faster but were highly unstable in rough weather. The ship owners skimped on construction costs, using cheaper materials and fewer structural supports.
- The ship owners controlled the **maintenance and manning of the ships** and many ship owners decided to cut costs by sending ships to sea with poor equipment and insufficient numbers of sailors.
- The ship owners controlled the **level of loading**. Every extra pound of cargo would increase the profits for the voyage but an overloaded ship had a much greater risk of capsizing.

Of course, poorly-designed, under-manned, overloaded ships were much more likely to be lost at sea.

### Credit Risk Example:

In the subprime debt markets, the loan originators had a great deal of control over the level of default risk:

- The loan originators designed the loan products. They chose to promote adjustable rate mortgages with very low teaser interest rates, which were very likely to default if interest rates increased. They chose to offer loans with negative amortisation, so that the balance of the loan soon exceeded the value of the home, creating a greater loss on default.
- The loan originators controlled the underwriting process. They cut costs by offering low-doc or even no-doc loans, dispensing with any verification of income, and skimping on the valuation of the collateral property.
- The loan originators controlled the level of financial load. They could increase the total amount of lending (and hence increase profits) by offering high loan-to-value ratios (often exceeding 100%) and allowing people to borrow far more than they could ever afford to repay.

At present, subprime loans have default and foreclosure rates which are about four times higher than the default rates on prime loans.

## Problem 2: The Profit Motive

Moral hazard exists when the customer controls the risk, but the problem is exacerbated when the insured has a strong financial incentive to take on more risk. This is especially likely to be a problem when the insured is highly leveraged, so that a small additional load leads to a significant increase in profits.

### Marine Insurance Example:

As Plimsoll pointed out, ship owners could make enormous profits by overloading their ships – a situation which was exacerbated by leverage.

*"When you consider how small an addition to the fair load of a ship will augment the profits of a trip 25, and even 50 per cent, you will easily see how great was the temptation, especially in settled weather, to add the extra weight."*

*When freights run low, the margin for profit over expenses is small; it may take nine-tenths of the cargo to pay the costs; an addition, then of only 10 per cent to the weight of the cargo will double the profit, and 20 per cent. which will still leave the ship in trim difficult to find fault with, will treble the earnings; and when we consider the enormous advantage this gave to the reckless, and the temptation to even those who disapproved of the practice to follow it in self-defence, it is really wonderful to me that the practice should now be, as it undoubtedly is, confined to only a section of the trade."*

### Credit Risk Example:

Of course, banks are also able to earn a higher expected return on capital by taking on more risk.

Suppose that a bank has capital of $10. It can take in $100 of deposits at 3% p.a. interest, and lend the money out in low risk loans at 4% p.a. This provides shareholders with $1 in profits on $10 of capital (10%). Alternatively, it can take on just a bit more risk, making higher-risk loans at 4.5%, and hence, increase profits by 50%. Obviously, some banks will be tempted by the opportunity.

The ability to leverage profits depends on the capital requirements. If banks are required to maintain higher levels of capital to support higher-risk loans, there is less incentive to take on additional risk. However, if risk-based capital requirements are relaxed, allowing greater leverage, there is a temptation to take on more risk.

### A Model for Risk Taking Behaviour

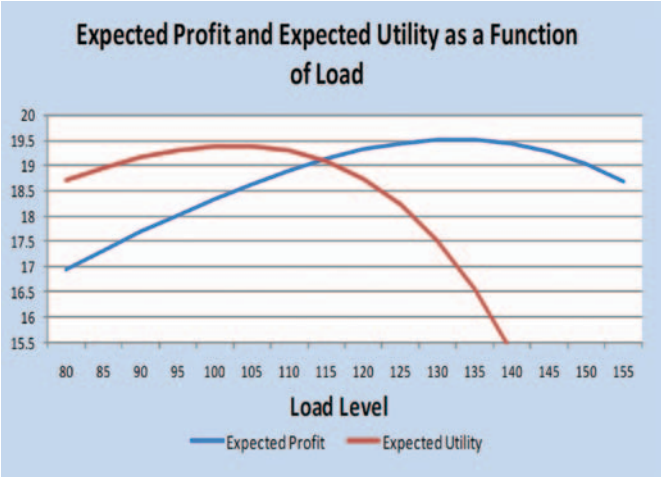
To build our model, we will need:

(a) A Risk Function, which defines the relationship between the load and the risk. The load is a vector of those risk factors that are under the control of the insured.

(b) A Profit Function, which defines the relationship between profits and the load.

(c) A Utility Function, which defines the risk-return preferences of market participants.

In the following hypothetical example, a ship owner who simply wanted to maximise expected profits would choose a load of 133, but this would produce an unacceptably high risk of shipwreck. A risk-averse ship owner would aim to maximise the expected utility, and hence, might choose a load of about 100.




## Problem 3: Diversification and Correlation

Diversification might be used to manage risks, providing a new set of risk-return alternatives which will alter risk-taking behaviour. However, the benefits of diversification are limited by the correlations between risks. When there are interactions between risk factors, it is possible that the extent of correlation between risks will be underestimated. Hence, the benefits of diversification may be overestimated. This would lead to a counter-productive increase in risk taking.

### Marine Insurance Example

In the shipping industry, there was an interaction between the load and weather conditions. A well maintained ship with a moderate load would have a low risk of shipwreck, even in bad weather. An overladen vessel would have a good chance of making a successful voyage, but only if the weather was fair. In stormy weather, an overladen ship would have a much higher risk of shipwreck.

If we adopt the terminology of the CAPM, an overloaded ship would have a high level of systematic risk, i.e. it would be a 'high beta' investment. Diversification would be of limited value in reducing the risks of overladen ships.

### Credit Risk Example

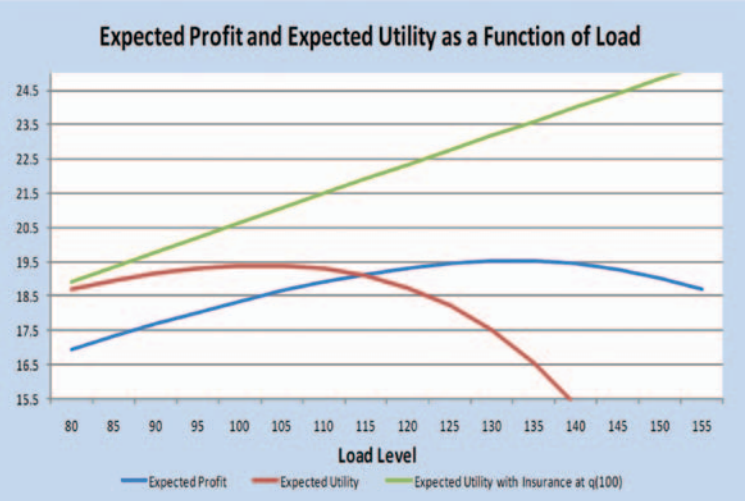
In the credit risk market, there is an interaction between the individual loan risks and economic conditions. A prime loan with a low LTV has a low risk of default, even when interest rates rise. A subprime loan will also have a low risk of default, but only if interest rates remain low, unemployment rates remain low and house prices keep rising. As soon as economic conditions deteriorate, default rates on subprime loans increase sharply.

The evidence suggests that the CDO valuation models used by rating agencies in recent years tended to underestimate the correlations between risks, and hence, overstate the benefits of diversification.

## Problem 4: Mispriced Insurance

Insurance changes the set of risk-return alternatives. If the premium is simply equal to the risk premium without any risk margins, this creates an immediate incentive for more risk-taking. Incorporating different types of risk margins will have different effects on risk-taking behaviour.

Unfortunately, for the reasons explained below, dysfunctional insurance systems often have poor risk classification. Suppose that insurers are unable to distinguish between good and bad risks such that the same premium rate is applied to all risks. This creates an immediate incentive for greater risk taking. Under certain conditions, the optimal load level goes right off the scale (see graph opposite).




Since the risk takers earn higher profits, they will gradually push the others out of business. The result will be a classic adverse selection spiral, with increasing average levels of risk in the market. Given the interaction effects described above, this will inevitably increase systemic risk as well. Insurers who fail to adapt to the changing market will suffer large losses in the short term – some will even become insolvent. In the longer term, premium rates will increase for all.

### Marine insurance Example

During the 1860s, many ships were sent to sea fully insured and grossly overloaded. The ships were loaded to their maximum physical limit - sometimes the deck was only a few inches above the waterline, so that waves would wash over the deck whenever the seas were rough. After all, the ship owners had nothing to lose if the ship sank. Over the 1860s, the number of shipwrecks increased. This pushed up marine insurance premiums, which more than doubled over a 20-year period.

### Credit Risk Example

During the period from 2005 to 2009, there was a steady decline in underwriting standards in the home loan market. It was highly profitable to originate and sell subprime loans. The proportion of subprime loans increased sharply; the average loan-to-value ratio increased; there were more home equity loans and second mortgages. The loan originators had incentive to maximise the volume of loans, but little incentive to minimise the credit risk.

## Problem 5: Asymmetric Information

Why was it so difficult to price risks accurately? Dysfunctional markets suffer from information asymmetry. Asymmetric information is a common problem in many types of insurance, but it is even more likely to cause problems when the insured has both a great deal of control over the risk and a strong financial incentive to conceal information about the risk. Although the insurer is theoretically protected by 'utmost good faith' disclosure requirements, in practice these laws may be unenforceable.

### Marine Insurance

Ship builders were often tempted to cut costs. Instead of using copper bolts, they would sometimes use cheaper 'devils', which were made of iron with an inch of copper at the head. Once the construction of the ship was complete, no external examination could identify the substandard materials hidden within. Of course, the iron bolts were much more likely to rust, so the ship would come apart at the seams in severe storms. The insurers could sue the ship owners, but this was a very expensive proceeding with little chance of success. After all, the evidence was usually at the bottom of the sea (along with the witnesses).

### Credit Risk Markets

According to the SEC, Countrywide misled the market. It claimed that it was selling high-quality mortgages but it repeatedly relaxed its underwriting standards; changed the definition of prime loans so that subprime loans would be classified as prime loans; increased loan-to-value ratios; and regularly allowed 'exceptions' to its own, already lax underwriting standards. Naturally, these practices were not readily apparent to those who bought the mortgages. Many of the companies that originated and sold subprime loans are now being sued for disclosure fraud. Yet, even if the misrepresentation is proven, it might be difficult to collect compensation from an insolvent defendant.

## Problem 6 : Rating Agencies

Insurance markets allow diversification of risk, but diversification can also create problems. Suppose that one risk is divided into many small parcels, such that each insurer bears just a small proportion of any loss and suppose that it is costly to evaluate each risk accurately. Clearly, the cost-benefit equation makes it uneconomic for each insurer to assess each risk. The only sensible solution is collective risk assessment, for example, by rating agencies, but can these agencies be trusted to provide reliable risk assessments?

### Marine Insurance Example

During the 1800s, Lloyds' underwriters relied on classifications provided by Lloyds' Register of Shipping. However, in 1862, Liverpool underwriters set up their own Register, the Red Book, and started competing for business by offering more lenient ratings. This led to a downward spiral in standards. *"Lloyd's attenuated to compete with the Red Book, reduced their requirements for strength, and the opposition followed suit, until the consequences of this deteriorating rivalry attracted the attention of the world."*

### Credit Rating Agencies

An SEC investigation into credit rating agencies found a number of defects with their rating process. In particular, they found evidence that the CRAs would sometimes relax their criteria for CDO ratings in order to avoid losing business and/or to increase their market share.

## Solutions?

Of course, the marine insurance industry eventually found workable solutions to all of the problems described above. There were improvements in risk classification standards; the ratings agencies eliminated ruinous competition and conflicts of interest; and minimum safety standards were imposed (e.g. maximum loadlines). Samuel Plimsoll also advocated 'skin in the game' requirements – i.e. he believed that each ship owner should be required to retain some proportion of the risk on each voyage, so that moral hazard would be reduced. 'Skin in the game' proposals are currently under consideration in the US credit risk markets. The Wall Street Reform and Consumer Protection Act would require companies that sell mortgage backed securities to retain at least 5% of the risk. The model developed above can be used to assess the probable impact of such requirements (see the full paper on the IAAust website for more details). It is interesting to note that there was strong political opposition to many of Plimsoll's reforms – the wealthy ship owners effectively lobbied Parliament to oppose any measure that might adversely affect their profits. Ultimately, after many years of agitation, Plimsoll's party managed to push through some reforms. Not long afterwards, the ship owners began a long campaign to water down the new rules and return to the laissez faire system that had already caused so many social problems. Plus ça change? ▲

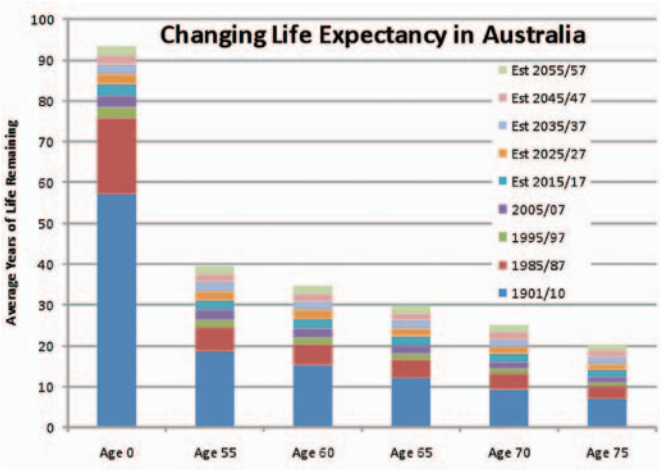
**Shauna Ferris**
shauna.ferris@mq.edu.au


# A Cap to Cover Retirement Headaches

Last month's article posed questions about the design of superannuation contributions caps. This month's article looks at the other retirement related risks that are not related to investment risks. It suggests how the conceptual design of a baseball cap might be adapted for use in superannuation.

## Mortality Risk

On July 1 1909 the Commonwealth Government old age pension was introduced. Average life expectancy at birth was 56 years for males and 59 years for females. At 65 it was 11 years for males and 13 years for females. By 1988 average life expectancy at birth had increased to 73 years for males and 79 years for females. At age 65 it had increased to 15 years for males and 19 years for females. By 2010 average life expectancy at birth is 80 years for males and 85 years for females and at age 65 it is 19.5 years for males and 22.5 years for females. The first chart shows life expectancy improvements with successive mortality tables including anticipation of the next 50 years changes.



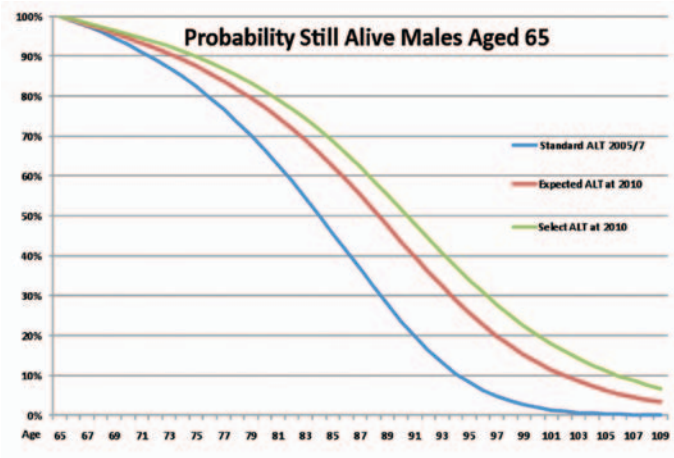

Proportionately mortality improvements from 1909 to 1988 were far greater in the younger ages than in older ages but between 1988 and 2010 mortality improvements in older ages were proportionately greater. It would appear that this trend will continue. If we allow for future mortality improvements to the life expectancy calculations in 2010 then this adds several years to current average life expectancy at age 65. So the average retirement period that really has to be funded at age 65 is some 25 years for males and 28 years for females. By the time someone currently aged 50 reaches 65 the period that has to be funded will, on average, have increased by almost another 5 years to just on 30 years for males and 32 years for females.

There are arguments against allowing for future mortality improvements. These are invalid as they assume well established trends will cease. For these trends to cease then the huge resources currently being invested in medical technology will be wasted and the benefits of previous environmental and lifestyle improvements will not continue. For example, there should be decades of older age mortality reductions to occur from recent reductions in smoking, the reduction in the use of asbestos and changes in meat handling. The Australian Bureau of Statistics includes future mortality improvements in its population projections.

If some semblance of intergenerational equity is to be maintained then mortality improvements will have to be allowed for by adjusting the retirement age so that there is a constant average life expectancy at the commencement of retirement. This will never happen if we rely on politicians to amend legislation every 3 to 5 years as such legislation will be universally unpopular. So a sensible way to achieve this would be to convince society that the concept of equity in retirement should change from being based on actual age at retirement to being based on average longevity at retirement. Automatic changes based on the government actuary's latest mortality tables could then occur. The actuarial profession needs to be involved in convincing society of the equity in continuously adjusting retirement ages so as to keep the average life expectancy at retirement relatively constant. If there is advocacy for a change in the maximum average life expectancy when retirement benefits may first be paid then the intergenerational inequity of the change should be specifically debated.

## Longevity Risk

Currently each individual contributing to a defined contribution scheme is responsible for his longevity risk so sufficient funds have to be accumulated to not just last for 25 to 30 years but more like 35 to 40 years if there is not going to be too high a probability of




individuals outliving their retirement pension. If someone now aged 50 is going to be responsible for his longevity risk then he or she will have to set aside enough funds to provide for nearly 40 years of pension payments if planning on retiring at age 65 or nearly 30 years of retirement if planning on retiring at age 75.

If individuals are not going to take on their own longevity risk then they will have to lay off the risk. Laying off the risk would involve insurance but as the selection risk would be high the premiums would be correspondingly unattractive. Also, the healthier you are the more you will pay for this insurance. On the other hand, some form of mandatory longevity insurance would eliminate the selection risk but this would generally be seen as an unjust confiscation of individuals' superannuation guarantee (SG) entitlements.

The second chart shows the probability of a male now aged 65 being alive at each age in the future according to:

- Standard ALT 2005/7.
- ALT 2005/7 adjusted to 2010 and then allowing for continuing mortality improvements as he gets older.
- ALT 2005/7 less 20% mortality, adjusted to 2010 and then allowing for continuing mortality improvements as he gets older.

Actuaries should consider the red and green lines on this graph when providing advice on longevity risk, not the blue line. Also note these projections assume that a small percentage of men currently aged 65 will still be alive at age 109. Given the breakthroughs that are currently occurring in medicine these percentages may well be understated.

## Indexation

In the long term, government old age pensions are effectively indexed by Average Weekly Earnings (AWE) so shouldn't private pension benefits also be indexed by AWE? Anything less and projections of comparisons of private pensions against government old age pensions create questions about the worth of the superannuation system. For example, an unindexed pension of $50,000 per annum now compares favourably to a couple's current old age pension of $27,482. But how will it compare in 15 years time when the couple's old age pension will have increased to around $53,000? Even a CPI indexed pension of $50,000 p.a now could well be less than a couple's old age pension within about 30 years.

## Conceptual Design of a Better Cap

A baseball cap is designed to have an adjustable strap. This enables it to fit the heads of almost everyone. Many people wear it to protect their heads from the sun. This is particularly important for older, bald people like me as the sun quickly gives me a headache if the top of my head is not covered. Superannuation is designed to ensure we don't have financial headaches when we are old (and bald?). But why make the contributions cap so ridiculously small and tight that it can't provide its basic function?

If Australia is to be a place where international businesses want to set up then why do we have a superannuation contributions cap that doesn't even allow a full 12% SG contribution to be paid in respect of a person who is currently earning above 3.2 times the average weekly ordinary time earnings? The people that make the decisions about where to locate businesses in the world earn very large multiples of average weekly earnings.

Some simple assumptions have been taken into account in the design of a better contributions cap. Gross investment returns are assumed to be either 6.5% or 7.0% per annum and AWE is assumed to increase by 4.5% per annum. Contributions are assumed to start at age 20 and continue for 25 years at the SG rate of 12% and for either 25 or 30 years at an alternate suggested percentage cap rate. The pension is assumed to be 66.67% of final salary and therefore starts at either age 70 or 75. To get this pension to last just over 30 years with 50 years of contributions the contribution rate for the latter 25 years has to be 40% with a 7% investment return or 50% with a 6.5% investment return. With 55 years of contributions and a retirement age of 75, the contribution rate for the latter 25 years has to be 27% with a 7% investment return or 34% with a 6.5% investment return.

So what should a superannuation cap look like? It should have an adjustable contributions strap just like a baseball cap. This strap should be expressed in terms of percent of salary so as to keep it relevant to everyone and therefore conform to the original conceptual design of the SG contribution system. To allow for lower incomes in the final few years of employment it could be expressed in terms of a percentage of the average tax paid salaries for the five highest income years.

So what should the contributions strap adjust to? If 12% is going to be the small size then would perhaps 36% or three times the small size be a more reasonable maximum? If, on the other hand, the minimum is now going to be kept at 9% then the maximum will have to be increased to around 40% to achieve a similar outcome. ▲

**Brent Walker**
bwas@bigpond.com


## Magic in the Air (AA151 – Solution)

*Complete the following magic square:*

| | | | |
|---|---|---|---|
| | 3 | | 13 |
| | | | 8 |
| | | | |
| | 15 | 14 | |

**Solution:** The missing numbers are, from left to right, top to bottom, 16, 2, 5, 10, 11, 9, 6, 7, 12, 4, 1. The source of this magic square is an engraving entitled *Melencolia I* by Renaissance sculptor-artist Albrecht Dürer. The engraving was produced in 1514, and Dürer was able to incorporate the year into his work by including it in the bottom row of the magic square.

19 correct entries were submitted for this month's puzzle. The winner of this month's *In the Margin* prize, selected randomly from among the correct entries, was **Julie McMahon**, who will receive a $50 book voucher.

## Myth-busting Monkeys

There is a theory that, if you put an infinite number of monkeys in front of typewriters for a long enough period of time, then they will eventually produce the complete works of William Shakespeare. Known as 'the infinite monkey theorem', this theory has been widely referenced in pop culture, including *The Hitchhikers' Guide to the Galaxy*, *The Simpsons* and the *Dilbert* comic strip. However, the theory, in fact, dates back to a 1913 article by French mathematician Émile Borel, who used monkeys typing "all the books of the richest libraries of the world" as an example of a highly improbable but statistically possible event.

Several experiments have been conducted over recent years to determine what would happen if monkeys were given access to typewriters (or computers). In 2003, a group of researchers at Plymouth University in the UK conducted an experiment where a computer was left in a zoo enclosure containing six Sulawesi crested macaques. After one month, the researchers found that the monkeys were more interested in destroying the machine or using it as a toilet than in using it to write literature. Only five pages of text were produced, mostly consisting of the letter 's'. That same year, British computer programmer Nick Hoggard produced *The Monkey Shakespeare Simulator*. Based on a random number generator, the program was designed to determine "the number of lines of Shakespeare a group of hypothetical simians could come up with if given a limitless amount of time." After many billion monkey years, Hoggard's 'monkeys' managed to match only 24 characters from *Henry IV, Part Two*.

Of course, some lateral thinking would have been enough to render these experiments redundant. As Scott Adams wrote in his book, *The Dilbert Principle*, "if you put a thousand monkeys in a room with a thousand typewriters and wait long enough, eventually you'll have a room full of dead monkeys. (Tip: it's a good idea to feed the monkeys)."

## Monkey Business

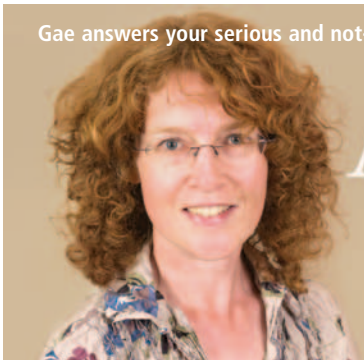
Suppose one million monkeys each sat at a typewriter and hit keys at random at a rate of one key per second. What is the expected amount of time it would take the monkeys to type the following (including spaces)?

`to be or not to be`

You may assume that the monkeys never stop typing and that they have infinite life spans.

For your chance to win a $50 book voucher, email your solution to this problem (including working and stating any additional assumptions you make) to: inthemargin@actuaries.asn.au ▲

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



# Ask Gae with Gae Robinson

gae.robinson@finity.com.au

## Trappings of Office

***My friend, who would like to remain anonymous, is going to be president of the Institute next year. What's your view on the presidential medallion – should he be wearing it?***

You know, that presidential medallion has always bothered me. In so many ways. For a start, to me it is a relic of more formal times when ceremony was important. Then there's the aesthetics. I find it unattractive – the shape too elongated, the colours uninspiring. And the medallion's look is not improved by being hung around someone's neck on a daggy blue ribbon.

But the thing I like least is its pompousness, and the hierarchical message it sends: "Respect me! I'm important!" There's an implication that the president needs the medallion in order to be treated with the respect they deserve – that we won't behave in a suitable manner without the medallion to remind us who we're with. Don't interpret these comments as a criticism of any *presidents* past, present or possible. It's the trapping not the office I have a problem with.

But does the medallion itself have anything going for it? Well, yeah – look at it, it's a picture of the **grim reaper!** That gruesome, nightmare-inspiring symbol of death itself was chosen to symbolise the actuaries of this fair land. That's really bizarre and worth celebrating. On this note, I understand that presidential medallions are often worn at international actuarial events – and all the others are really boring compared to the reaper! (As is the Institute's current anodyne symbol, the 'delta sigma with a swoosh' which replaced the reaper some years ago).

So should the medallion be worn? In my view, only if it is being done with obvious post-modern irony – which is difficult when you are a middle aged person in a sombre suit. If I were president – and there will be sighs of relief in many quarters when I assure you I have no ambitions – I would be commissioning a smaller, bejewelled version set in a tiara-style headband. It would then also serve a useful purpose in controlling the seventh messiest hair in our profession.*

And who knows, the wearing of the reaper might catch on. Rings, brooches, earrings, tattoos – the possibilities are many!

* *With thanks to those who provided photographic evidence invalidating my earlier claim to the second messiest hair.*

## Exam Dates

***After sitting my last actuarial exam I told my colleagues that if I passed I'd run around the office with my shirt off. Some people didn't seem too comfortable with me doing it – was my suggestion beyond the pale?***

The image of a bare torso racing around among the workstations may be confronting to some, but I think the occasional appearance of something out of the ordinary can only enliven most workplaces.

At my company we have a long tradition of dares being performed by successful exam candidates. The Exam Dare Committee ensures that each candidate nominates their dare in advance of results day. Dare selection is subject to the committee approving the level of 'dare factor'- which is expected to increase with exam difficulty (Part 3 vs Part 2 etc). On qualification in particular a significant loss of dignity is expected. If an individual is reluctant to nominate a dare, or offers something that is not acceptably embarrassing, the committee allocates something from its own catalogue of dares.

The standard of dares is consistently high. They have included many 'dressing up for the day' options (elves, superheroes, gorillas, etc). Quite a few have involved a performance element – an aerobics class on the Opera House steps, singing Christmas carols in the lift in our building, and at the extreme a lunchtime dance performance to a Kylie Minogue song in Melbourne's Bourke St Mall (he was wearing an undersized pink sequinned outfit, and yes it did attract an audience – and a little too much attention from one over-enthusiastic member of the crowd). Flesh has been bared in many dares.

The dares are a seasonal highlight of our company's annual calendar, like some crazy actuarial Running of the Bulls. And the more outrageous dares only enhance the reputation of those who perform them.

So get out there and entertain your workmates. You haven't mentioned whether you expect your torso to scare or delight, but the state of the torso is irrelevant. ▲

*Remember to send me your questions! – the more controversial, the better.*

# MθrΣ Tϕαη mΛτhs

Is there someone in your life who is difficult to deal with? Don't worry, you have plenty of company. All of my clients can think of at least one person with whom they have a strained relationship or who simply "rubs them up the wrong way". This is not surprising when you think about the wide variety of character types that inhabit this planet. You may be able to choose your friends but what happens when the relationship is not of your choice and is important for business or other reasons?

The differences between you and your "difficult person" are likely to be quite deep – perhaps very different values and beliefs – and they are likely to manifest themselves in unsuccessful communication experiences. The premises for this column are:

- the relationship with your difficult person has some significance for you;
- you are not happy with the current state of your relationship; and
- your difficult person is not going to change their communication style.

Hence, perhaps sadly for you, the conclusion from these premises is that if there is going to be an improvement it will be up to you to change, at least something, in your personal interaction.

Let's start with your mindset towards this person and from this point on I will refer to your difficult person as your "different person". You see, I don't think that they set out to be difficult. I think it is more likely that they are just different. So, let's be specific about the differences in their communication style (and I will leave differences in values for another day). Think about each of the following aspects and assess your style relative to theirs:

- the use of gestures and body movement, including personal space;
- the pace of words and frequency (and duration) of pauses;
- the volume of speech and the range of pitch as well as volume;
- the use of eye contact;
- the type of language and the articulation of words; and
- the energy employed in the communication.

Now identify the aspects for which the contrast is greatest. I suggest that a subtle modification to your style to better match their personal style will, consciously or sub-consciously, appeal to them and improve your communication. For example, if they speak slowly and carefully, pausing often, then this could be frustrating and annoying for quick thinking or quick speaking people. If you accept that this is their (legitimate) personal style then you might experiment with slowing down your speech and insert a few pauses. Please don't overdo it lest it appears to be mimicry or worse. However, a subtle modification may reduce the chances that they are thinking that you are always in a hurry and talking without thinking. Am I suggesting that you should change the real you? Of course not! I am simply suggesting that your communication, and your relationships, may benefit from some flexibility around your natural style.

This principle extends to email communication. If their emails seem curt and unfriendly (eg no "dear", no sign-off, little punctuation) maybe they value brevity and task-focus more than you. If so, it probably annoys them that you are wasting key-strokes typing "kind regards". Perhaps you can modify your next email (to this person!), cut back on your people-focus and see what happens…

I would like to wrap up with two potentially disturbing thoughts:

Number one, if your different person bothers you it may provide a hint that there is something about you that you are not satisfied with. For example, if their planning and attention to detail annoys you and seems "anal", maybe you are, consciously or not, worried about your own frequent state of disorganisation.

Alternatively, if their ideas seem way out and unrealistic and you think that they are "off with the fairies", maybe you are, consciously or not, concerned with your lack of creativity.

Number two, for whom are you a difficult person?

If you really would like to improve the relationship with your difficult (I mean different) person it will be up to you to make the first move. One way is to identify what is different about your communication styles and subtly modify yours. It takes more than maths to be flexible in your communication and rectify strained relationships. ▲

**Martin Mulcare**
mulcare@optusnet.com.au

# Riding the Waves of the Cycle...

In 'We're Going to Need a Bigger Boat', we introduced four different perspectives on risk and argued that Enterprise Risk Management must make room for each of the four. In part that's because a restrictive definition of ERM – limited to only one of the four perspectives – would alienate the other three types of firms.

But there's another reason to consider as well: the waves of economic cycles refuse to stand still.

## Changing Risk Environments

Those holding the Pragmatist risk perspective see the waves of the risk environment as choppy and chaotic, while the Risk Reward Managers believe that patterns can be discerned. Both groups are able to observe the same data – why do they form such different interpretations?

One reason is that, over time, the risk environment changes. A simplistic model of changes in the risk environment might posit that either things are 'normal' or they are 'broken'. But an observer who holds the Conservation perspective on risk might say that extreme hazard and danger are the 'normal' state of affairs, while a Profit Maximizer would be more likely to argue that profitability is 'normal' and hazardous conditions prevail only when the market is 'broken'. The Pragmatist considers chaos the normal state, interrupted by brief periods of apparent order – while the Risk Reward Manager expects results to be reasonably predictable most of the time.

Expanding the model to allow more than two states allows for the possibility that all four views can make sense. Consider a model with four risk regimes:

1. **Boom Times.** Risk is low and profits are going up.
2. **Recession.** Risk is high and profits are going down.
3. **Uncertain.** Risk is very unpredictable; profits might go up or down.
4. **Moderate.** Both risk and profit fall within a predictable range.

As the cycle moves through these four different states, external conditions match the worldview of each of the four different risk perspectives. Each perspective has been right part of the time – and will be again, at some point in the future. But none of the risk perspectives is perfectly adapted to external conditions all of the time.

Risk Reward Manager purists may object that their view takes into account the full range of the cycle. But economic cycles are not sine curves; the period and amplitude are irregular, unexpected 'black swan' events do occur, and there are always 'unknown unknowns'.

Model risk can never be eliminated, and narrowly restricting ERM obscures this important fact.

Risk Reward Management based ERM works especially well in the Moderate risk environment when risks are fairly predictable. But in Boom Times, firms following such an ERM program will unduly restrict their business – not as much as Conservation firms, but certainly more than Profit Maximization firms – and more aggressive competitors will be much more successful.

In the Recession environment, Risk Reward Management ERM again advocates a middle path; this may mean the firm sustains too much damage to take full advantage of the market when it turns. When times are Uncertain, a firm following ERM based solely on Risk Reward Management will be frustrated by frequent surprises and a world that does not quite fit the model. Competitors not tied to a particular view of risk will fare better, making decisions in the moment with maximum flexibility.

In any given risk environment, companies holding a risk perspective and following an ERM program aligned with external circumstances will fare best:

**Table 1**

| Risk Environment | Boom | Recession | Uncertain | Moderate |
|---|---|---|---|---|
| Risk Attitude | Profit Maximiser | Conservator | Pragmatist | Risk Reward Manager |
| Risk Management Strategy | Risk Trading | Loss Controlling | Diversification | Risk Steering |

Some companies following strategies that are poorly aligned with the environment muddle along with indifferent results and survive until their preferred environment returns.

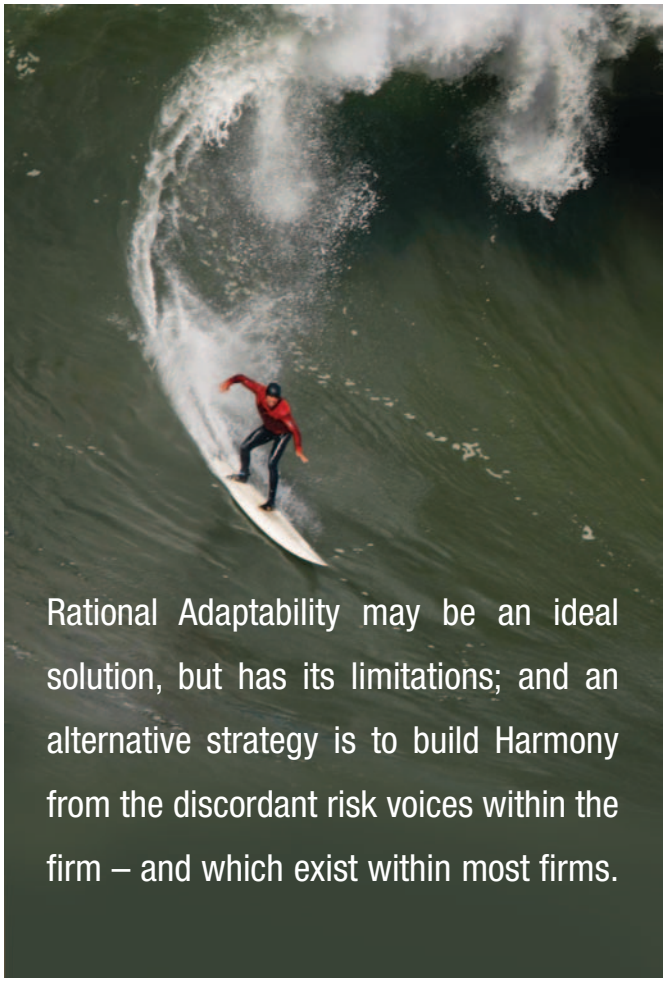
Others sustain enough damage that they do not survive. A few change their risk perspective and ERM program to suit the new environment. Meanwhile, new firms enter the market with risk perspectives and ERM programs that are aligned with the current environment.

Since many of the poorly-aligned firms shrink, die out, or change perspective – and since new firms tend to be well-aligned with the current risk regime – the market as a whole adjusts to greater alignment with the risk environment via a process of 'natural selection'.

## Rational Adaptability

To thrive under all risk regimes, a firm ideally would follow a strategy of Rational Adaptability:

1. **Identification of changes in risk regime**
2. **Willingness to shift risk perspective**
3. **Ability to modify ERM program**




The difference between Rational Adaptability and the process of 'natural selection' described above is conscious recognition of the validity of differing risk perspectives and proactive implementation of changes in strategy.

A company practicing Rational Adaptability recognizes that during Boom Times, risk really does present significant opportunities – and it is appropriate to empower the Profit Maximizers, focusing ERM efforts on Risk Trading to ensure that risks are correctly priced using a consistent firm-wide metric. When the environment is Moderate, the firm gives additional authority to its Risk Reward Managers, using modeling results to reevaluate long-term strategies. In times of Recession, the focus shifts to Conservation: tightening underwriting standards and placing special emphasis on firm-wide risk identification and risk control. And in Uncertain times, there is particular emphasis on diversification, keeping various options open.

## Crewing the Ship

Although Rational Adaptability may be an ideal solution, it requires the accomplishment of difficult tasks with precise timing, like a champion surfer judging the exact moment to catch the wave.

An alternative strategy is to build Harmony from the discordant risk voices within the firm – and all four voices do exist within most firms. This means risk committees must include not just the Risk Reward Managers who believe in the risk models and the Risk Steering programs that are based upon those models, but also those who distrust such models. All four perspectives should be represented and encouraged to speak out.

Every Harmonious firm will create its own unique compromises among the four views. Different firms will choose different times and ways to honor the inherent caution of the Conservators, to heed the Pragmatists' call for diversification, to follow the models of the Risk Reward Managers, or to give the Profit Maximizers greater scope to grow.

The resulting strategy will never seem perfectly 'right' to any of the four groups. But as the waves of the cycle rise and fall, a Harmonious crew – incorporating the strengths and insights of each of the four perspectives – will be able to prevent their boat from capsizing and keep it on course to continued success. ▲

**Dave Ingram**
Dave.Ingram@willis.com

**Alice Underwood**
Alice.Underwood@willis.com

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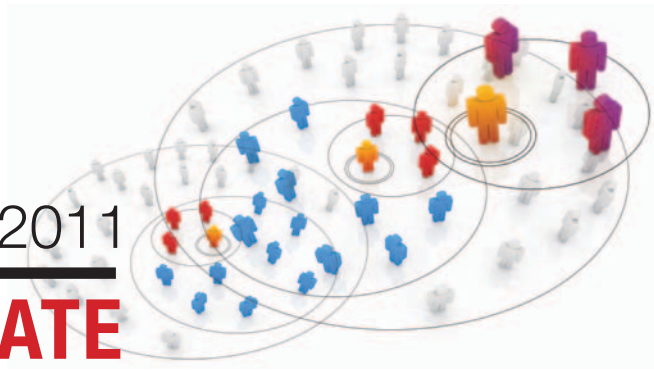
Institute of Actuaries of Australia

# BIENNIAL CONVENTION 2011

# BEYOND THE MANDATE



**10 –13 APRIL 2011 • HILTON SYDNEY**

## CALL FOR PAPERS

The Biennial Convention is your opportunity to; explore new directions, share ideas with peers, let others know what you have been working on and invite commentary and debate. Business professionals from banking, investment and finance, life, general and health insurance, superannuation, risk management and broader areas such as health financing and energy and the environment will all be in attendance.

The theme of the 2011 Biennial Convention is **Beyond the Mandate**. We will focus on exploring the breadth of the actuarial role in the broader business community.

The three days are themed as follows:

**Day One** **Risk, Regulation, Regions** – Global Regulation and the Impact on Industry

**Day Two** **Expanding the Mandate** – Social Policy and Public Issues

**Day Three** **Beyond the Mandate** – Are You Sitting on the Boundary?

## PLAN AHEAD

If you wish to present a paper at the 2011 Biennial Convention please email a synopsis using the Convention synopsis template, together with a completed Submission Form to events@actuaries.asn.au by close of business, **Friday 22 October 2010**.

For more information, visit **www.actuaries.asn.au/CON2011**

Contact the following members of the Convention Organising Committee if you wish to discuss the content of your paper.

**John Killick**
E: John@qedactuarial.com.au
T: +61 (0) 2 8235 7912

**Jo-Anne Morgan**
E: jo-anne.morgan@au.pwc.com
T: +61 (0) 8 9238 5310

### Melville Biennial Convention Prize

This prize may be awarded to the author of a paper considered to have either effected a significant advance in the profession's understanding or knowledge of a specific subject or sphere of knowledge or, collected or presented existing material in such a way as to raise the awareness of the profession regarding an important contemporary issue.

### Key Deadlines for Presenters

| | |
|---|---|
| Friday 22 October 2010 | Lodgement of **Synopsis and Submission Form** to the Institute |
| Friday 5 November 2010 | Authors advised if **paper** is accepted or not |
| Friday 28 January 2011 | **Draft paper** to Peer Reviewers |
| Friday 11 March 2011 | **Final paper** to the Institute |
| Friday 18 March 2011 | **Final PowerPoint Presentation** to the Institute |
| 10 – 13 April 2011 | Biennial Convention 2011 |

# CPD Opportunities in New Zealand

## NZSA

The New Zealand Society of Actuaries (NZSA) has a total of 282 members.

| | New Zealand | Overseas |
|---|---|---|
| Fellow | 113 | 46 |
| Ordinary | 3 | 3 |
| Student | 97 | 7 |
| Retired | 10 | 3 |

New Zealand based actuaries are split between Auckland (56%) and Wellington (36%), with a handful scattered in other centres. Of the overseas fellows, 34 are in Australia. All NZSA Fellows are also Fellows of an overseas actuarial body. Most are members of the Faculty and Institute of Actuaries in the UK (53) or the Institute of Actuaries of Australia (29) or both (19).

## NZSA CPD Requirements

The NZSA has its own CPD professional standard, PS7 – Continuing Professional Development, which is mandatory for all Fellow and Ordinary members of the NZSA. It is not dissimilar to the Australian CPD requirements. Members have to complete a minimum of 40 hours per annum, including a minimum of 20 hours specific to the roles and Practice Areas in which they work.

A Member who is residing and practising overseas (Australia, Canada or the United Kingdom) and who satisfies the CPD requirements of the overseas body is considered to be compliant with the NZSA CPD requirements.

There is mutual recognition of CPD between the Faculty and Institute of Actuaries and NZSA. The UK Institute recognises actuaries working in NZ who meet NZSA requirements as complying with the UK Institute requirement. The UK Institute CPD requirement is only 30 hours.

Members of the NZSA in NZ who are also members of the Institute of Actuaries of Australia must meet the requirements of both organisations as there is no mutual recognition CPD agreement between the NZSA and the Institute of Actuaries of Australia.

Photos depict various locations in Marlborough

## Opportunities

Over 50% of New Zealand Fellows gain CPD hours through volunteering back to the profession. The majority of these Fellows do this by necessity. The NZSA has 11 Committees plus Council, requiring 68 positions to be filled by members. A total of 56 Fellows and two students fill these positions, some obviously filling multiple positions. 49% of NZ Fellows currently volunteer on the committees/council. Other Fellows also volunteer through marking and scrutineering. The main CPD opportunities provided by the NZSA are:

- the Biennial NZSA Conference;
- the General Insurance Seminar; and
- the Financial Services Seminar.

The NZSA also organises occasional Sessional meetings. These tend to be run on a needs basis and include submission discussions, standards feedback, Presidential dinners and presentations of papers.

Some NZSA Fellows have the opportunity to attend IAA conferences/forums/seminars, but the bulk of actuaries in NZ are reliant on:

- On-line resources, such as papers, podcasts of events;
- Seminars run by consulting firms, reinsurers and regulators;
- Work related development, such as management/leadership courses and communication courses; and
- Further university study.

There are some very good on-line resources available. The NZSA have all of the papers from the 2002 – 2008 conferences on their website, and I am looking forward to the availability of podcasts on the IAA website.

## Conferences

The NZSA holds a biennial conference. Locations where the conference has previously been held include Wairakei, Queenstown, Napier, Rotorua, Christchurch and the Bay Of Islands.

Over the last four conferences, around 24% of delegates have come from overseas, 40% from Auckland and 34% from Wellington. There have been around 125 delegates and guest speakers. We are grateful for the support that we get from our Australian Fellows. Around 25% of the conference speakers are from Australia.

The structure of the conferences has tended to be two full days of CPD sessions, plus a half day of networking activities for one afternoon during the conference. The conference is a good source of CPD hours. For the 2010 conference, a total of 14 hours of CPD is available.

The conferences cater for all actuaries. The plenaries are structured to be of value to all, and delegates can attend concurrent sessions depending on their interests. There are usually 4 - 6 plenary sessions and 5-7 concurrent sessions.

## Seminars

Off conference year, the NZSA runs two seminars – the General Insurance Seminar and the Financial Services Seminar. These are one day seminars which alternate between Wellington and Auckland. These seminars are more specific and address what is topical in the respective practice areas. Attendance tends to be around 50-70 delegates and speakers, most from NZ, but we do get some of our Australian colleagues attending. At the last Financial Services Forum in 2009 we had the privelege of two Australian presenters.

## 2010 Conference

The New Zealand Society of Actuaries is holding its 17th biennial conference in the heart of the beautiful Marlborough region from Sunday 21 November through to Wednesday 24 November, 2010.

SOUND NAVIGATION
UNCHARTED WATERS
New Zealand Society of Actuaries Conference 2010
21 - 24 November • Blenheim

This year, the conference will focus on the role that actuaries can play in the sound navigation of companies through the identification, understanding and management of financial risk. As with any conference, this will be a great opportunity to network and keep informed of the latest developments in our industry.

With a wide range of social events including a dinner at Peter Jackson's Omaka Museum, it is an opportunity for our Australian cousins to get a feel for the kiwi industry, make some new friends and complete some CPD requirements

There is a talented collection of plenary session speakers including leading constitutional lawyer Mai Chen presenting on Professionalism and Actuaries; Allison Mooney, who was awarded NSANZ speaker of the year in 2009, presenting on communication; along with James Renwick and Graeme Smart from the National Institute of Water and Atmospheric Research presenting on climate change. There is sure to be something to interest everyone. For the first time we will be catering for retired actuaries with a reduced rate.

Whether you love wine or wildlife; sea-kayaking or cruising; native bush walks or formal garden rambles under clear sunny skies, Marlborough is a great place to unwind. We look forward to seeing you in November and encourage you to consider bringing your family to take advantage of all this region has to offer.

Registration details can be found on the conference website www.nzsa2010.co.nz ▲

**Charmaine Green**
NZSA Conference Convenor
Charmaine.Green@sovereign.co.nz

## Visit to Curtin University of Technology

Jennifer Burns, the Institute's new University Relationship Manager, and I visited Curtin University of Technology in Perth on the Sunday 9 and Monday 10 August 2010. Sunday 9 August was the Curtin University of Technology Open Day where our role was to be on the stand with Curtin's actuarial science staff in the School of Mathematics and Statistics. It was great sunny weather for the open day and as a result of this the attendance was very good. The open day was set on a large oval with each Faculty having its own marquee. There were also marquees on the future campus and university life and a fun zone. There was a real carnival atmosphere, particularly in the fun zone, which had a jumping castle, petting zoo and characters in fancy dress walking around on stilts to entertain the kids (and adults) as well as radio station Nova FM giving away prizes. It was interesting to see more than those in their last year of high school on the day; it was quite common to see one or both parents with not only the son or daughter in their last year of school, but with a few younger ones in tow. One Curtin staff member joked that parents preferred to take the whole family to the Curtin Open Day than the Perth Royal Show because it's bigger and cheaper! There were a lot of people who stopped by the Mathematics and Statistics stand to hear about actuarial studies.

The star attraction on the stand was the Smarties Challenge, where passers had to participate in a case of statistics in action by counting the number of smarties in a box. This information was then entered into a computer with a bar graph on the distribution being displayed to participants. This was especially popular with the younger kids who were enticed to participate by the prospect of eating the smarties after they had finished counting.

## University Subscriber Event

Monday 10 August was an event for University Subscribers at Curtin. Around 100 people were in attendance. The event began with Associate Professor Kevin Bowman introducing two recent Fellows, Kathryn Cannon and Adam Jupp, who both work for PricewaterhouseCoopers in Perth and had come through the actuarial science degree program at Curtin. Katherine and Adam spoke about their experiences on the long and hard but very rewarding road to becoming a Fellow. It was great for the actuarial science students at Curtin to hear from these role models. I presented to the group on the benefits of becoming a University Subscriber, situations where you need to become a member of the Institute, the exemptions process, studying Part I through the UK exams and the structure and pass criteria of the Part III education program. The event ended with a lunch for the University Subscribers provided by the Institute. ▲

**Philip Latham**
Education Manager
philip.latham@actuaries.asn.au


**Moving Forward** – A slogan stolen from us

2010 has brought about an exciting, refreshing year for the University of Melbourne's Actuarial Students' Society. It has been a year of innovation for our society, with our new committee having had taken the initiative to try out a whole range of new social and professional events contrasting to previous years. Ultimately, we believe we are well on our way to achieving our goals for the year; to cultivate a more knowledgeable and united actuarial student community at the University of Melbourne.

Over the past eight months, our society has sought to not only provide beneficial professional information and networks to our students, but has also focused upon creating greater networks within each year level, as well as between the differing year level classes.

After much consultation with members of our actuarial community, our society was able to organise and run our first 'All-You-Can-Eat Yum-Cha Lunch' at the Dragon Boat Palace on Lonsdale Street halfway through the first semester. With an incredible turnout of over 50 students on a weekday afternoon, we were treated to an endless amount of delicious dumplings, pastries and other Chinese delicacies. Highlighted by the restaurant struggling to fulfil our mango pudding dessert orders, and some inexperienced disgust at the thought (and view) of consuming chicken feet, the Yum-Cha event was an exciting and inspirational success (see photo above).

Our *Student versus Sponsor* events have also been a successful new initiative for 2010. Our first semester 'Billiards Night' went off with a bang, with over 25 students and sponsors in attendance. With matches being two against two, actuarial student teams were able to challenge sponsor teams in a fun, social, though always slightly competitive environment. The event provided a great night for socialising with fellow students, as well as networking and getting to know professionals already working in the actuarial field - some who had only recently graduated from our university.

This semester, our *Student versus Sponsor* team is bringing our community an exciting charity bowling night at Rockstar Bowling in Melbourne Central. Through an amazing community-support program run by one of our gold sponsors, Finity Consulting, we have been given the incredible opportunity to donate $500 to the winning team's charity of choice.

Another wonderful initiative of 2010 has been the creation of the Development Subcommittee, comprising of three enthusiastic first year students tasked throughout the year with the planning and execution of course-relevant and social events primarily targeted at their own cohort, our new first year actuarial studies student intake of 2010.

The Development Subcommittee's inaugural event – a two-hour actuarial studies information session – included a detailed presentation by our current education officer, followed by an informal question and answer panel, with attendees able to ask almost anything from some of the most experienced third year, Honours year and PhD Actuarial Studies students. It was a huge success, with over 50 first and second year students attending to learn more about the educational


Student panel for our 1st Year Info Session

and professional side of our studies – such as exemptions, subject selection and Honours and PhD studies – as well as internships and extra-curricular involvement.

The subcommittee has recently organised a book sale event for senior year students to meet, greet and sell their pre-loved textbooks to those in lower year levels, and are currently working on organising a large social sports event for the near future as well as an integrated community-involvement program through the Actuarial Students' Society.

Our executive committee provides both guidance and networks to the subcommittee throughout their events, in the hope that they will further utilise these skills and create a stronger future for the University of Melbourne's Actuarial Students' Society.

Although 2010 is not yet over, with our current committee busy organising careers events and our annual Contact Night, we are reflectively thankful to each and every student, sponsor and organisation who has assisted us over the year, and continue to propel us forward through their support. ▲

**Brendan Hong**
Brendan.hong@melbourneactuary.com

# New Look Website

Members will have noticed a change to the look and feel of the Institute's website. The change occurred on 1 June and coincided with the switch-over to a new and versatile membership database.

The new website has some major advantages over the old site. The software used to maintain the old site was no longer supported by Microsoft. This meant that there would be no further upgrades and that any problems we encountered would not be fixed. Further, the old site was pulling information from a number of different data sources and these were inherently fragile. Introducing a major new member database provided the catalyst to develop the new website. The major benefit of the new website is that it has been built on a much more stable platform and is linked to a single database.

Over coming months, we are aiming to add a series of enhancements to the new website. These include:

- Enable on-line registrations for Insights and Young Actuaries Program events.
- Create a micro-site to promote the General Insurance Seminar in November.
- Enable students to track their progress along the education pathway to Fellowship including the ability to enrol for upcoming subjects on-line.
- Improve the member subscription renewal experience.

In 2011, further enhancements will be made.

- Establish a robust and easy to use search engine to access research papers, podcasts and webcasts of previous events.
- Create on-line forums for members with similar interests.
- Allow members to personalise their web page to suit their practice area and areas of interest.
- Maximise the use of e-newsletters.
- Introduce better networking functionality, particularly for remote members.
- Encourage member involvement in policy submission development on-line.

If there are other areas where we can support you better through the new website, or if there are initiatives you would like to see pursued, I would be very keen to hear from you. Please e-mail your comments to the address below. ▲

**Peter Jones** Director, Operations
peter.jones@actuaries.asn.au

# Actuary of the Year 2010

**Fred Rowley,** former President of the Institute and current Chair of the CERA Global Association has been named Actuary of the Year 2010.

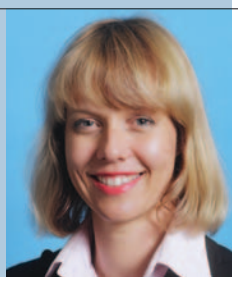
The Actuary of the Year award recognises an individual who has made a key contribution to business, the community, government or the profession. Fred was instrumental in unifying 14 International Actuarial Association (IAA) members in 12 countries to sign a global treaty to adopt a common syllabus and standards for the Chartered Enterprise Risk Actuary (CERA) qualification.

The CERA credential, developed in response to risk management issues highlighted by the global financial crisis, is the first globally recognised actuarial qualification. The designation requires candidates to meet stringent educational standards in Enterprise Risk Management (ERM), with a particular focus on technical skills and professional conduct standards.

Fred has served the Institute for more than 10 years including during his 2007 stint as President. In recent times, he has contributed valuable insights and thought leadership in the areas of enterprise risk management and climate change economics. His CERA-related efforts resulted in his election as the inaugural Chair of the CERA Global Association on 7 May 2010. About 15 additional actuarial associations globally are expected to sign the global CERA treaty over the next 18 months.

Institute President Bozenna Hinton described Fred as "an outstanding actuary who has selflessly dedicated himself to advancing the actuarial profession."

Upon receiving the award Fred commented "I am honoured to be receiving this award from my peers. The development of CERA highlights the thought leadership of the actuarial profession in enterprise risk management. My goal has always been to ensure the actuarial profession remains at the cutting edge of risk management expertise, not just in insurance but across a range of industries. With enterprise risk management opportunities emerging in many sectors, from banking through to climate change, CERA will equip actuaries to remain trusted risk advisers to business." ▲



## What makes an actuary... an actuary?

This is a question which has been playing on my mind since I started at the Institute in February. As someone who has worked for most of my career in the so-called 'wider fields' (mostly in wealth management), I have found it very interesting to work closely with a large number of actuaries for probably the first time in my career.

I must say I have found it on the whole greatly rewarding being able to deal with intelligent people all day, and it has certainly given me some understanding of some of my odd personal habits (like a love of correcting spelling and punctuation!) But there have also been some surprises and I find actuaries very different to business people I have dealt with in other contexts.

So here are my impressions, as a general business person, of the strengths and weaknesses of actuaries. Obviously these are broad generalisations.

| Strengths | Weaknesses |
|---|---|
| **1.** Highly intelligent | Think they are the smartest person in the room – can come across as arrogant |
| **2.** Expert at (and enjoy) getting the right answer to complex problems | Like to make things very complex – do not accept the 80/20 rule |
| **3.** Will carefully consider all issues before coming to an answer | Unwilling to give an initial gut feel answer to a time critical problem |
| **4.** Enjoy analysing all sides of a problem | Unwilling to make a decision – prefer to present all the data or arguments for both sides then let others make the call |
| **5.** Have high ethical standards | Can exhibit a lack of consideration of business reality – the 'ivory tower' syndrome |
| **6.** Can explain "what the numbers mean" – distil complex numerical analysis into layman's terms / show the key impacts for the business | Can have a lack of experience in or knowledge of the non-financial aspects of a business e.g. operational considerations and risks |
| **7.** Look at problems – especially those involving risk – from a different angle and over a longer time period than other professionals. This is extremely valuable. | Can be lop-sided in approach to risk – focus on reducing downside risk at expense of opportunities from taking on upside risk |
| **8.** Honest, direct and to the point | Brusque to the point of rudeness – especially via email |

This table shows strengths of great value, but you can also appreciate that there are number of traits in the "weaknesses" column that could explain why we can drive non-actuaries insane. Many of the skills on the right hand side (such as the ability to make fast decisions, give initial 'gut feel' calls and use the 80/20 rule) are prerequisites for success in senior management positions in any business. You will see many actuaries who are senior managers displaying these skills. But quite a number of actuaries do not. There are several possible reasons for this:

- perhaps our training biases us away from such an approach to problem solving;
- maybe those people who think this way are 'weeded out' during the exam process (we know for a fact that many very talented, highly intelligent people do not get through our exams); and
- it's possible that the type of work actuaries do in their early careers do not call for these types of skills and they are only gained when a person breaks out of the 'actuarial silo' later on – by which time other professionals are ahead of us in these skills.

In any case, if we can capitalise on the strengths on the left hand side of the table, whilst addressing any of the exhibited weaknesses on the right, there will be more actuaries being demanded by employers in senior management positions. In my view it's the responsibility of employers to ensure young actuaries get exposure to all aspects of a business, get to mix with other professionals, and be asked and expected to make decisions. This will make them stronger and more valuable employees.

We have recently launched a new CPD course developed by Dr Robert Kay of Incept Labs. You may remember Rob, his colleague Chris Goldspink and an actuary Sophie Dyson, wrote an article in the December 2009 edition of *Actuary Australia* called 'Do Actuaries Have a Larger Role to Play in Enterprise Risk Management?' The course is called 'How to Influence your Key Stakeholders' and aims to give actuaries who deal with CEOs and CFOs an insight into the way others think (compared to us) and how we can better communicate with them. The first course was held on 30 July 2010 and more are planned. They can also be run inhouse for corporates. I highly commend this course to you for yourself or any of your staff who are dealing with senior non-actuaries.

With 35% of our Fellows, Actuaries and Associates currently working outside the traditional actuarial areas (and I think we will reach the tipping point of >50% in this decade), the question of "what makes an actuary?" becomes even more relevant. Many actuaries working in general business roles have gained the skills on the right hand side of this table.

So then what makes them different to, and better than, other professionals? Well it's all the things on the left of the table. And that's a formidable list! ▲

**Melinda Howes**
melinda.howes@actuaries.asn.au

## Diary Dates

| | | |
|---|---|---|
| 21 September | Sydney | **Enterprise Risk Management** – It's All About Opportunity |
| 22 September | Sydney | **One Day CPD Course** – How to Influence your Key Shareholders |
| 23 September | Melbourne | **Insurance Capital Review Seminars with APRA** |
| 27 September | London | **Insights** – A Kindergarten Guide to Monetary Economics |
| 27 September | Sydney | **Insights** – Strategy Implementation |
| 11 October | Melbourne | **Insights** – A Kindergarten Guide to Monetary Economics |
| 13 October | Melbourne | **Super Policy Forum** – Projecting the Future – How Much is My Super Really Worth? |
| 25-26 October | Sydney | **Professionalism Course** |
| 26 October | Sydney | **Graduation Dinner** |
| 7-10 November | Gold Coast | **17th General Insurance Seminar** – Risk & Reward |
| 15 November | Melbourne | **Graduation Dinner** |
| 11-13 April 2011 | Sydney | **Biennial Convention** |

# Better membership fees in 2 minutes

Everyone loves to get the best fees available, so here's a tip you can take advantage of...

In the coming weeks we'll be asking you to renew your membership and we want to make sure the membership fee included on your tax invoice is correct.

**That's why we're asking you take two minutes to update your details on our website.**



By updating your details you'll help us make sure your membership fee, practice area and mailing address are correct so the most appropriate fee for you appears on your tax invoice.

Login at **www.actuaries.asn.au** to update your details.

DW SIMPSON
GLOBAL ACTUARIAL RECRUITMENT

# Strategically placing Actuaries around the globe.

## Sydney – Actuarial Analyst, General Insurance

One of Australia's largest organisations, with a recently established in house actuarial area, is now looking to increase the actuarial capability within the product management team. Working closely with the product managers you will give actuarial advice on pricing and product development for commercial lines business. You will be working extensively with non actuaries so you must have the ability to communicate effectively and explain technical issues.

- 1-2 years General Insurance actuarial experience
- Ideally SAS programming experience
- Strong communication skills are essential
- Extensive interaction with the business
- Possess flexible and independent thinking
- Comfortable working on own initiative with minimal data

***Contact Claire Street for more information.***

## Sydney – Senior Actuary, GI or Life Insurance

Niche Insurance provider is looking to hire a senior Actuary to be the in house Actuarial expert. The successful candidate will manage the relationship with the firm of external consultants that the company currently uses for the valuation and AA responsibilities. However, you will also have the opportunity to use your Actuarial skills in broader areas of the business for example Risk Management.

- A preference for GI experience, however as you will be dealing with non traditional, niche products, consideration will also be given to those from a Life background with the necessary commerciality and drive
- Minimum of 10 years Insurance Actuarial experience
- Opportunity to create your own role and expand in house Actuarial capabilities
- Strong communication skills, creativity and business acumen

***Contact James Lecoutre for more information.***

## Sydney – Senior Corporate Actuary Life Insurance

Leading wealth management company require an experienced Fellow to provide assistance to the Chief Actuary. You will have a strong corporate background and have the necessary experience and gravitas to be able to take over some of the CA's responsibilities.

- Provide Actuarial and technical guidance to the valuations team
- Manage, mentor and review work of junior team members
- Qualified Fellow with at least 10 years experience
- Strong analytical skills with the ability to communicate results effectively
- Develop and maintain strong relationships with all areas of the business
- Comfortable getting involved in technical valuation work

***Contact James Lecoutre for more information.***

## Hong Kong – Deputy Chief Actuary

A great opportunity to work very closely with the current Chief Actuary in this major international financial services organisation. This is a genuine opportunity to join this major global brand at a key point in the growth of their insurance business. You will work closely with senior management on all aspects of the Chief Actuary function, including team building, development and motivation, strategy, capital management, risk management, forecasting etc. The ideal candidate will have valuations/ reporting background gained in a Life insurance or wealth management company.

- Fellow with Life or Wealth management background
- Very strong people management experience
- Understanding of Asia based business model
- Good understanding of risk drivers
- Strategic and commercial focus

***Contact Lesley Traverso for more information.***

## Singapore – General Insurance, Reserving Actuary

This organisation is in a major growth phase and is keenly looking for a reserving Actuary following an internal promotion. Innovative, dynamic, flexible and exciting are the words that are used by current employees to describe their work culture. The role is working across all lines of business, with a strong emphasis on assessing emerging experience and communicating results to senior management. There are also opportunities to work on special projects eg. Risk Management, Pricing, IPO initiatives, Due Diligence, etc

- Fellow with 6-10 years of General Insurance experience
- Strong communication skills
- Asian language an advantage
- Desire to develop broader experience
- Understanding of Rating Agency drivers
- Strong report writing and presentation skills

***Contact Lesley Traverso for more information.***

## USA – Risk and Regulatory Practice Leader

An exclusive search assignment for D W Simpson, this is a rare opportunity for a very experienced Life Actuary with exceptional leadership skills to join this international Consulting practice as direct entry Senior Partner. The role is to establish and build a Risk and Regulatory practice to enable the Practice to take advantage of the developments to international regulatory reporting standards, including the future "Solvency II". A highly strategic role, the shape and design of the practice is "up to you".

- Relocation and visa assistance will be provided
- Fellow with Life Insurance background
- Extensive Consulting experience including Practice building
- Strong Risk and Regulatory experience, preferably with some exposure to Solvency II
- Exceptional rewards for the exceptional candidate
- Flexibility of city location

***Contact Lesley Traverso for more information.***


**Lesley Traverso**
T: +61 (0)2 9226 7459
M: +61 (0)433 129 390
lesley.traverso@dwsimpson.com

**James Lecoutre**
T: +61 (0)2 9226 7412
M: +61 (0)404 397 503
james.lecoutre@dwsimpson.com

**Claire Street**
T: +61 (0)2 9226 7418
M: +61 (0)401 606 171
claire.street@dwsimpson.com


**1300 22 88 279 (1300 ACTUARY) www.dwsimpson.com**

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