

Actuarial Association of Europe

Why would an airline need actuaries?

Daniel Smith

22 April 2016

Conference theme ...

The Actuarial Profession spreading its Wings

Could you get a better fit than an actuarial firm being 51% owned by an airline?

Overview

- What brings me here?
- A bit about Qantas
- What do actuaries offer an airline?
- Actuaries and Analytics in Australia
- Challenges for actuaries in the “new world”
- A challenge for the actuarial leaders ...

What brings me here?

- Actuary at Taylor Fry – an Australian general insurance and analytics consultancy founded in 1999
- I was President of the Institute of Actuaries of Australia in 2014
- In March 2015 Qantas Loyalty took a 51% stake in Taylor Fry
- Data analytics is an area where actuaries play a reasonably significant role in Australia and it is growing rapidly
- Market conditions in Australia have meant that Actuaries have needed to “spread their wings”.

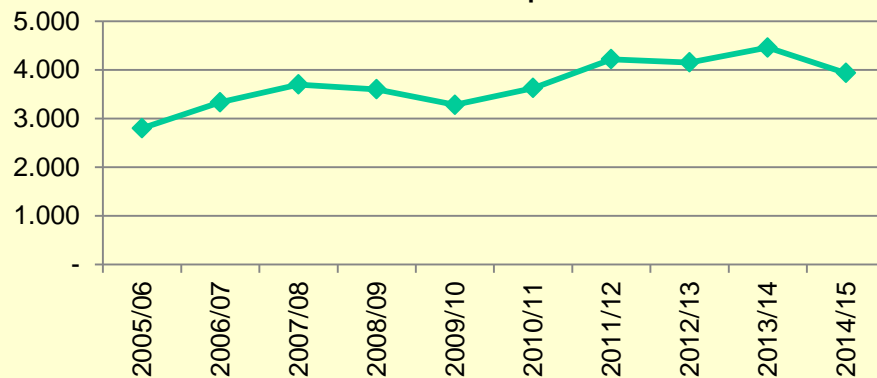
A bit about Qantas

- In 2014/15 Qantas had revenue of almost \$16 billion. That is of the order of half of the whole of the Australian general insurance industry and more than any single Australian general insurance group;
- Qantas has approximately 30,000 FTE's, runs approximately 1,000 flights per day with something like 130,000 passengers per day
- Qantas, like insurance companies, is highly exposed to catastrophic events and economic conditions
- Qantas Loyalty has annual revenue of around \$1.5 billion and EBIT of around \$325 million
- With over 10 million frequent flyer members, almost 1 in 2 Australians are members. That means there is a lot of data!
- Loyalty members include frequent flyers, frequent shoppers, banking, and, as of a few weeks ago, health insurance

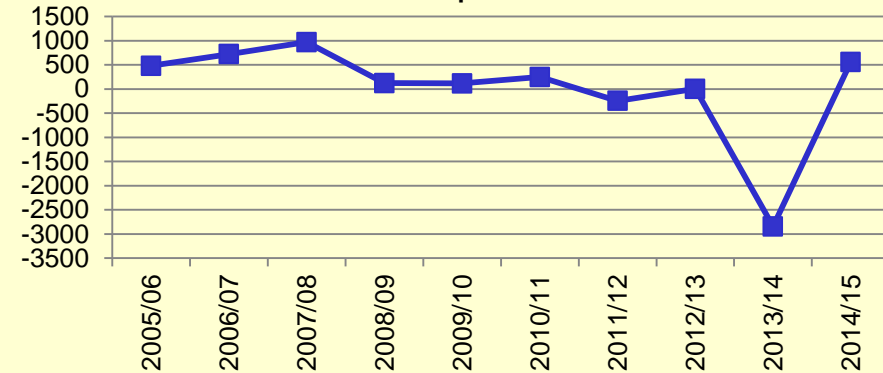
A bit about Qantas (cont.)

- It is a volatile business

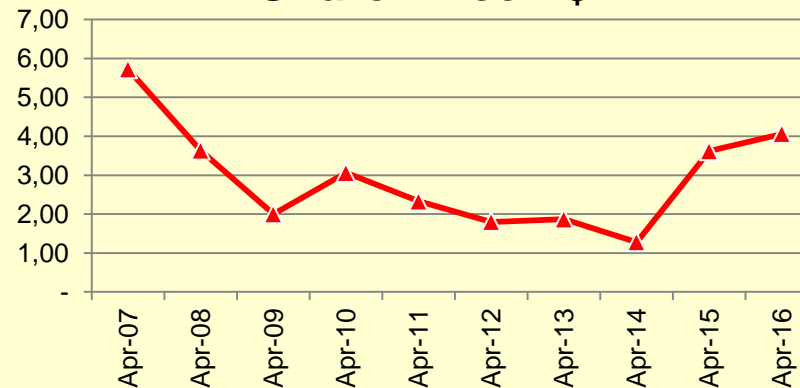
Cost of Fuel - \$ million



Profit - \$ million



Share Price - \$



A bit about Qantas (cont.)

- There are a lot of moving parts ...



What do actuaries offer an airline?

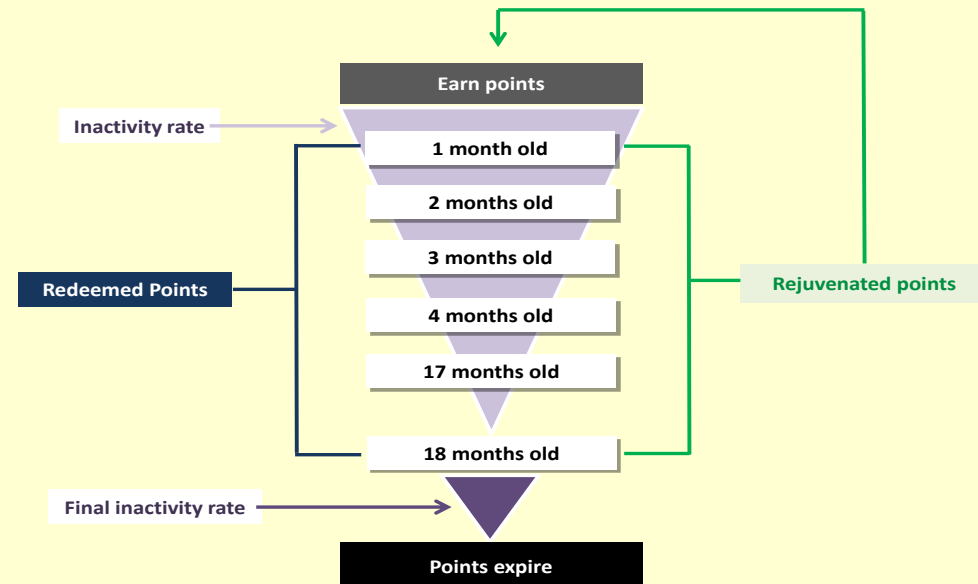
- Professionalism – through Code of Conduct and Professional Standards (differentiates actuaries from many other analytics professionals)
- Integrity – “actuary” is a very strong brand
- Actuaries have high entry standards and an education that provides broad financial and mathematical knowledge
- The ability to take a longer-term view
- A structured basis for problem solving
- A business solution

“Taylor Fry grasped our unique business model and airline vernacular with incredible speed. They have turned their actuarial knowledge into a language which our business executives can understand.”

Kimon Giannopoulos, Deputy CFO – Qantas Loyalty

What do actuaries offer an airline? (cont.)

- An example ... “breakage”
 - Qantas sell points to companies for their loyalty programs
 - Those points have an expiry date
 - Qantas have a liability ... but it is less than the value of points sold
 - This is the same as an actuarial reserving problem



What do actuaries offer an airline? (cont.)

- Similar to actuarial reserving, the breakage analysis leads to an assessment of the value of points
- Similar to actuarial reserving, patterns of usage and consumer expectations change over time and projections of future experience are required
- Similar to actuarial reserving, there is a considerable amount of uncertainty
- Similar to actuarial reserving, the client expects the right answer!

What do actuaries offer an airline? (cont.)

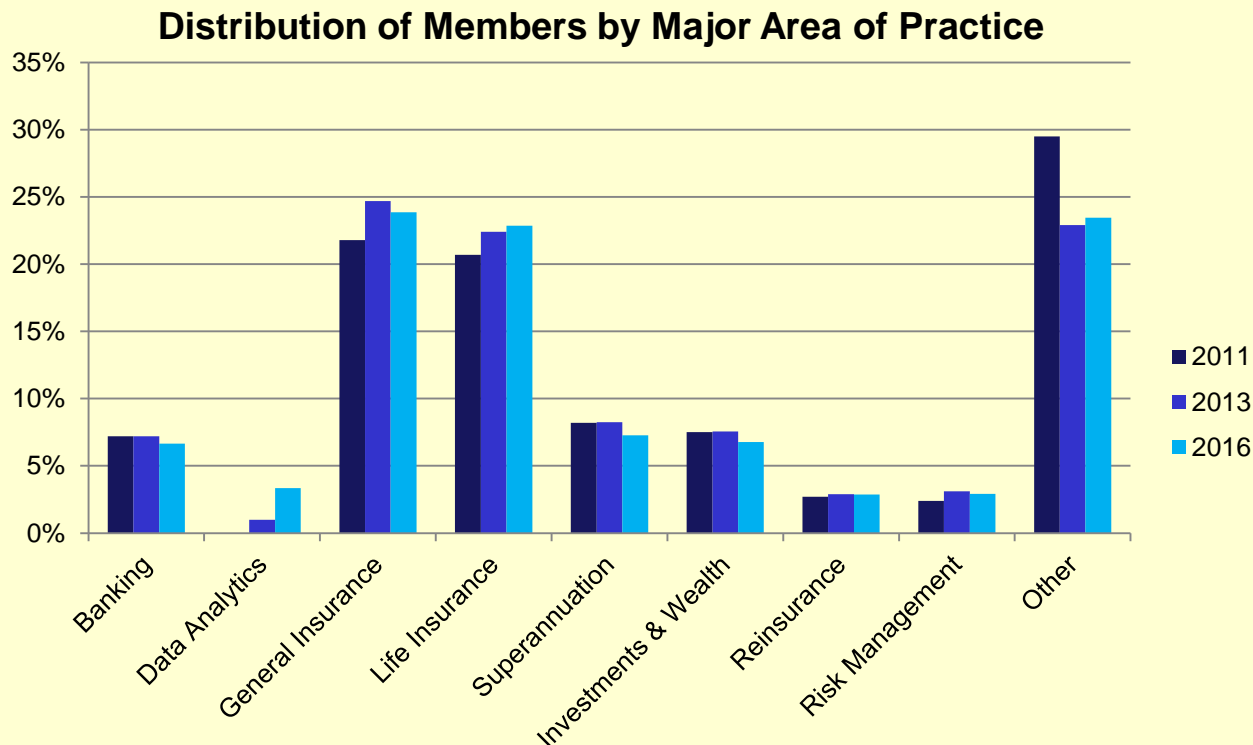
- The exciting part (for us) is that there is a lot more that can be done
 - Loyalty structure
 - Pricing – within Loyalty but also for the airline
 - Optimisation
 - Almost anything that the airline does (fuel, scheduling, staffing, ...)
- The sky's the limit ...

Actuaries and Analytics in Australia

- Australian actuaries have roles across a mix of areas though insurance is the key area at this stage
- Part of the push into other areas comes from a decline in traditional actuarial areas. E.g. our superannuation/pensions system is largely defined contribution (as opposed to defined benefit) meaning there are fewer roles for actuaries in pensions in Australia
- Australia has a relatively small insurance market – compared to many international markets – and consolidation and internationalisation have seen roles combined or moved offshore

Actuaries and Analytics in Australia (cont.)

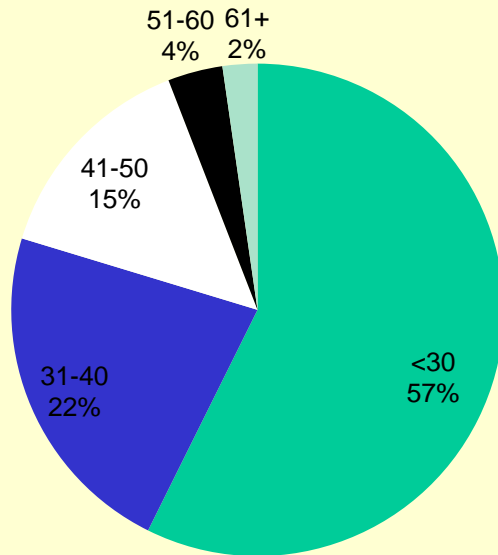
- GI and Life are the major areas. Data Analytics has come from nothing to 3.6% in 5 years
- A further 9% list analytics as a subsidiary practice area



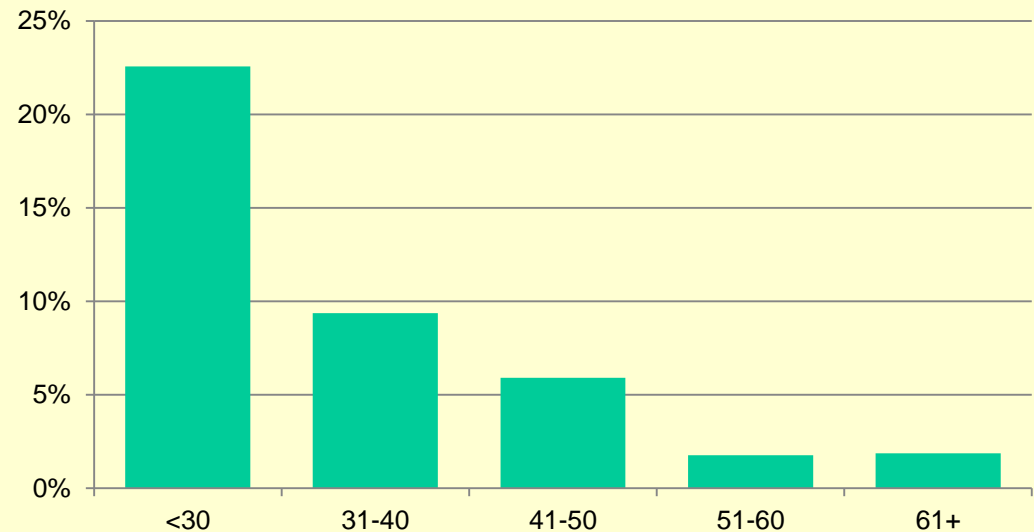
Actuaries and Analytics in Australia (cont.)

- Not surprisingly, Data Analytics growth is driven by young actuaries

Age of Members Working in Data Analytics



% within age group of Members Working in Data Analytics



Actuaries and Analytics in Australia (cont.)

- The Australian Institute has been actively providing CPD opportunities:
 - A data analytics conference in 2015 (which was sold out)
 - An Institute run kaggle competition in 2015/16
 - About 75 members are enrolled in a Massive Open Online Course (MOOC) which has been designed by Microsoft and we are running an actuarial specific study group alongside the course (commences in April)
 - A 2016 conference is currently in the planning stages with the intent to include a practical workshop
 - A microsite for members has been set up to enable the collation of resources and networks in data analytics
 - The structure of a data analytics CPD framework has been completed and will be populated during 2016.

Actuaries and Analytics in Australia (cont.)

- The Australian Institute is currently working on a business case for the introduction of a Data Analytics pathway to Fellowship
- Growth in GI has peaked and Life and Super/Pensions appear to be on the decline
- The largest employer of actuaries in Australia is a data analytics consultancy
- A working group has been established which is envisaged to ultimately become a practice committee

Challenges for actuaries in the “new world”

- Analytics means different things to different people
- The field is extremely broad and changing daily
- Actuaries do not have a defined role
 - Competing against cheaper providers
 - Competitors typically don't have professional standards to comply with
 - Stereotypes can be difficult to overcome
- The profession can be too rigid and too slow to move
 - Note – I am not an advocate of radical change but we need to keep pace with change
- How to blend entrepreneurship and maintaining standards?

Challenges for actuaries in the “new world” (cont.)

- Methods for analysing “big data” are ever-evolving
- Many consider that traditional statistical methods (such as GLMs) have passed their use-by date
- Machine learning methods and multiple models are standard – this is readily observed via kaggle competitions
- Actuaries need to be skilled in a broad range of modelling techniques and able to manipulate extremely large data sets with both structured and unstructured data
- Our current education does not meet the requirements of the future

A challenge for the actuarial leaders ...

- Actuarial associations need to grasp the opportunity
- Some entrepreneurial actuaries will succeed without help ...
- ... but will they take the profession with them?
- PwC has recently reported that half of Australia's professional jobs will be automated within 20 years
- The status quo **WILL NOT** guarantee survival of the profession

Let's not finish on a negative tone ...

- The opportunities for actuaries and the actuarial profession in data analytics are considerable
- With applications across any business there is an opportunity for actuaries to expand their footprint
- “Big data” is only going to get bigger! This is not a short-term flavour of the month
- Data analytics is attractive to graduates and a great way for the profession to attract the best talent
- Actuaries in traditional fields should benefit from a growth in data analytics with more people knowing about actuaries and, hopefully, breaking down the stereo type.