

IAA Colloquium in Hong Kong

6-9 May 2012

Living Until 120: The Implications for Absolutely Everything

Barry Rafe, FIAA

Melinda Howes, FIAA

Australia

Melinda and Barry are both Fellows of the Institute of Actuaries of Australia (Actuaries Institute)
Although both are currently working for the Actuaries Institute,
these opinions are their own and do not represent the views of the Institute.

Contents

Synopsis.....	3
Introduction.....	3
Longevity, good and bad	4
Longevity, the future.....	9
Longevity and some implications for financial services industry	12
The Financial Services business of the future	20
The Actuary.....	25

Synopsis

People are already living longer than they expected – and we will be living MUCH longer. And in better health.

We have ridden the IT boom over the last 40 years. What will be the next big thing? Where will new growth come from? What will drive improvements in productivity over the next 40 years?

What are the social and financial implications of this for Asia Pacific countries, for your industry, your organisation and you personally?

What is your competitive edge in this new world?

Predictions are that the financial services industry will mature and growth will level out over this period. We will provide a list of capabilities organisations will need to survive and prosper in this new world.

The actuarial profession is well placed to take a leadership position in understanding the drivers of change and to build new financial services businesses to take over from the old.

Introduction

The objective of this paper is to set the scene for a discussion on the forces for change that will affect the financial services (FS) industry over the foreseeable future. When we talk about the FS industry, we are also referring to not-for-profit type superannuation or pension funds. Whilst we concentrate primarily on issues around longevity and some of the social and political implications of people living longer, we also reflect on other social change such as the Global Financial Crisis (GFC).

People have become disillusioned by the financial promises made by corporations and governments. There have been few defaults in the Asia Pacific region, but consumers have seen what is happening in Europe and the US where many banks, superannuation funds and even governments have defaulted on financial obligations. We identify that this lack of confidence in financial promises will lead to people wanting to take control of their own finances. In particular, people will not want to commit to inflexible or long term products.

We will also discuss some of the implications of the technology revolution. We identify two broad themes. First, it is technology that is driving longevity; and second, technology will enable individuals to make financial decisions. It is easy to speculate that there will be a Robo Planner application for portable tablet type devices that will keep track of all spending and saving and monitor investment performance and ratings of various products. These Robo Planners will be able to select best of breed wholesale products and proactively prompt people into intelligent type default products.

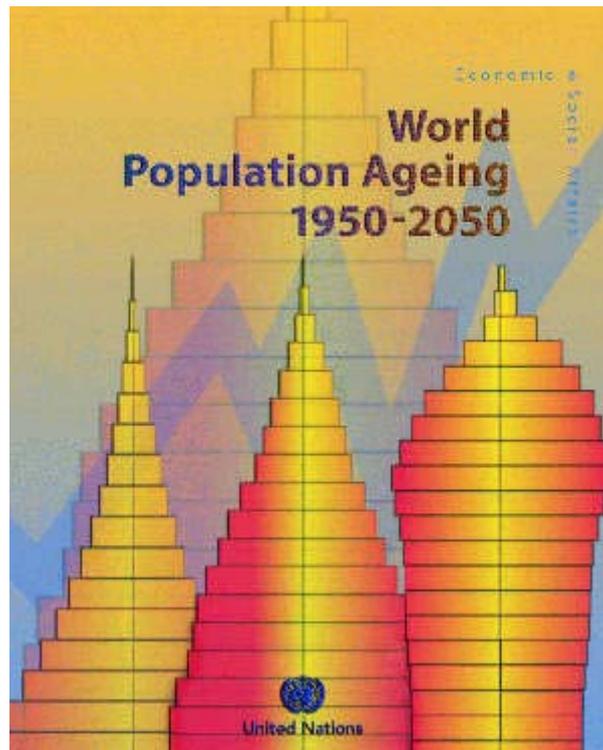
We complete our analysis by looking at a number of transformational FS businesses. We do this by looking through the eyes of innovative companies or people such as Pixar and Steve Jobs and establish how they might adapt the FS business to the new environment.

Some could argue that the actuarial skill base is ill suited to managing transformational change. We disagree! The actuary is the only professional who understands capital, profit and risk in the FS industry. Whilst many actuaries work behind the scenes in FS businesses monitoring and reporting on the financial position of the business, other actuaries are leading the way in transforming businesses. The actuary's ability to develop scenarios and understand some of the relevant financial drivers places the profession in a strong position to be able to be out front in driving change.

Longevity, good and bad

Let's start with what we know.

In 2002 the United Nations prepared a report called World Population Ageing: 1950-2050¹.



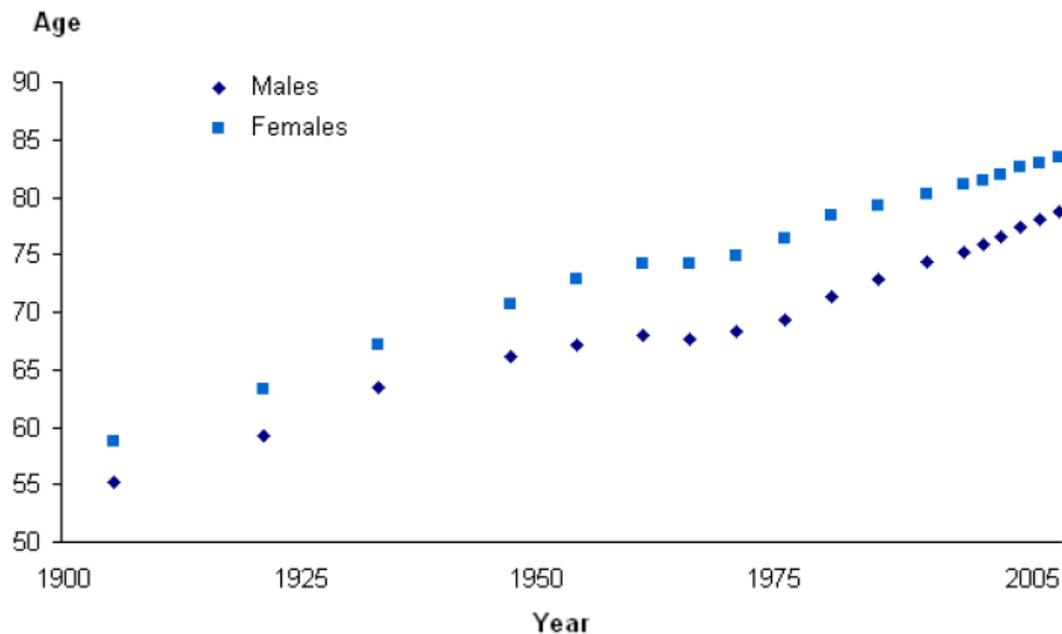
¹<http://www.un.org/esa/population/publications/worldageing19502050/>

The report shows that:

- “ Population ageing is unprecedented, without parallel in human history—and the twenty-first century will witness even more rapid ageing than did the century just past.
- Population ageing is pervasive, a global phenomenon affecting every man, woman and child—but countries are at very different stages of the process, and the pace of change differs greatly. Countries that started the process later will have less time to adjust.
- Population ageing is enduring: we will not return to the young populations that our ancestors knew.
- Population ageing has profound implications for many facets of human life.”

What else do we know?

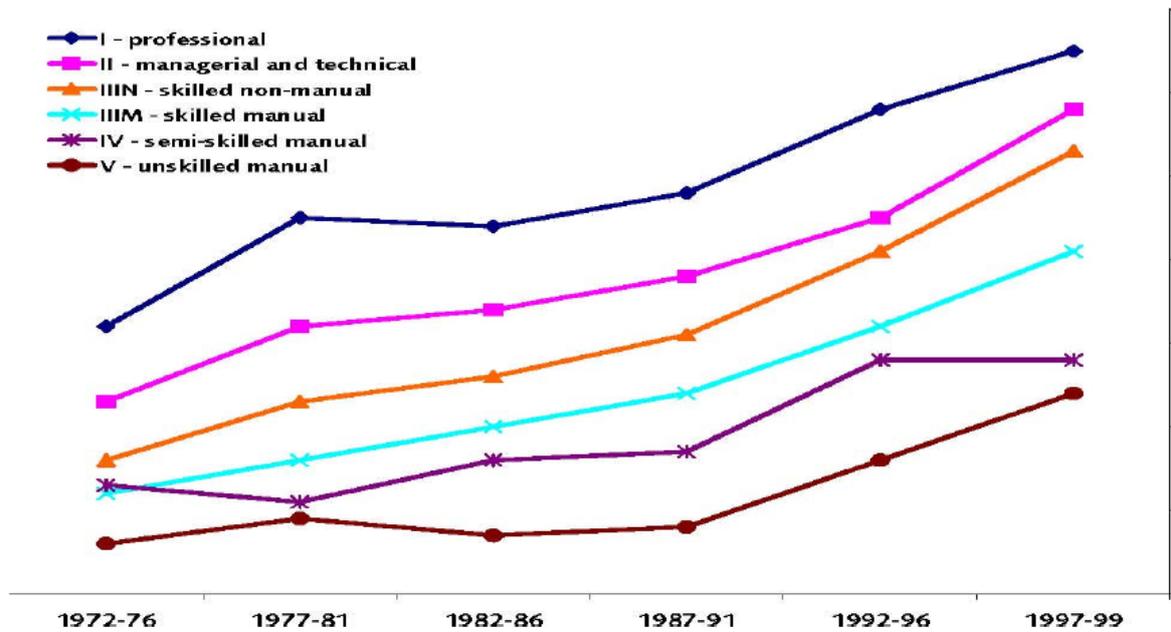
Expected length of life at birth, by sex, Australia, 1901-10 to 2004-06



We know that life expectancy is improving and has been for some time. The above chart is from a paper written for the Henry Review of the Tax System by actuaries Mike Sherris and John Evans at the University of New South Wales².

²Sources: ABS Cat. No. 3302.0; ABS Cat. No. 310 – chart from “Longevity Management Issues for Australia’s Future Tax System, The Treasury”, Mike Sherris & John Evans, UNSW, Aug 2009.

We also know that mortality is different for different socio-economic groups...as shown by this chart from the UK³. As you can see, those in a higher socio-economic group have better mortality.



There are numerous theories as to the reason why rich people seem to live longer. We won't enter this debate here but it is likely that health status and education status are also highly correlated to wealth.

What Don't We Know?

Actuaries have been modelling mortality for more than 100 years. We're very good at predicting gradual increases in life expectancy. But we have a problem.

In the UNSW paper discussed above, Mike Sherris and John Evans say that longevity risk can be considered as being made up of:

- The "known/knowns" - A general improvement trend from socio economic improvements – as we can see on this chart
- The "known/ unknowns" - Some variation around the longer term improvement trend; and
- The "unknown/unknowns" - Sudden changes from wars, pandemics and disease management.

³ Source: Richards s, Jones G (2004) "Financial Aspects of Longevity Risk" presentation to Staple Inn Actuarial Society (UK)

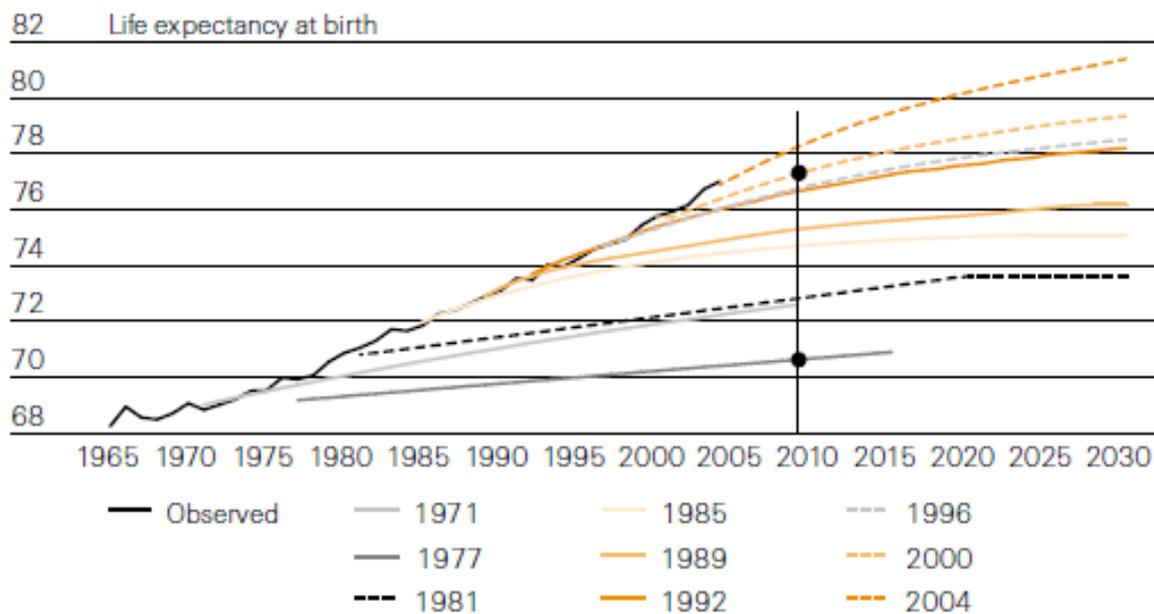
They go on to say:

“Whilst the known/known risk is easily managed as it can be modelled and therefore appropriate allowances made in pricing, the known/unknown risk is more difficult as its modelling is uncertain, and the unknown/unknown risk is impossible to manage as it is not predictable, and therefore appropriate allowances for these possible changes is not feasible.”

The problem is DISCONTINUITIES – normal modelling techniques cannot handle things like major medical breakthroughs, a cure for Cancer or viruses.

The following chart shows the success rate UK actuaries have had in the past with predicting mortality improvements – as you can see it’s been fairly woeful.

Figure 5: Actual and projected life expectancy at birth, UK males.



Source: Chris Shaw, "Fifty Years of United Kingdom National Population Projections: How Accurate Have They Been?", *Population Trends*, 128, Office for National Statistics, 2007

The list below⁴ sets out some of the medical advances that took place between 2000 and 2010. Each of these can have a significant impact on life expectancy and quality of life.

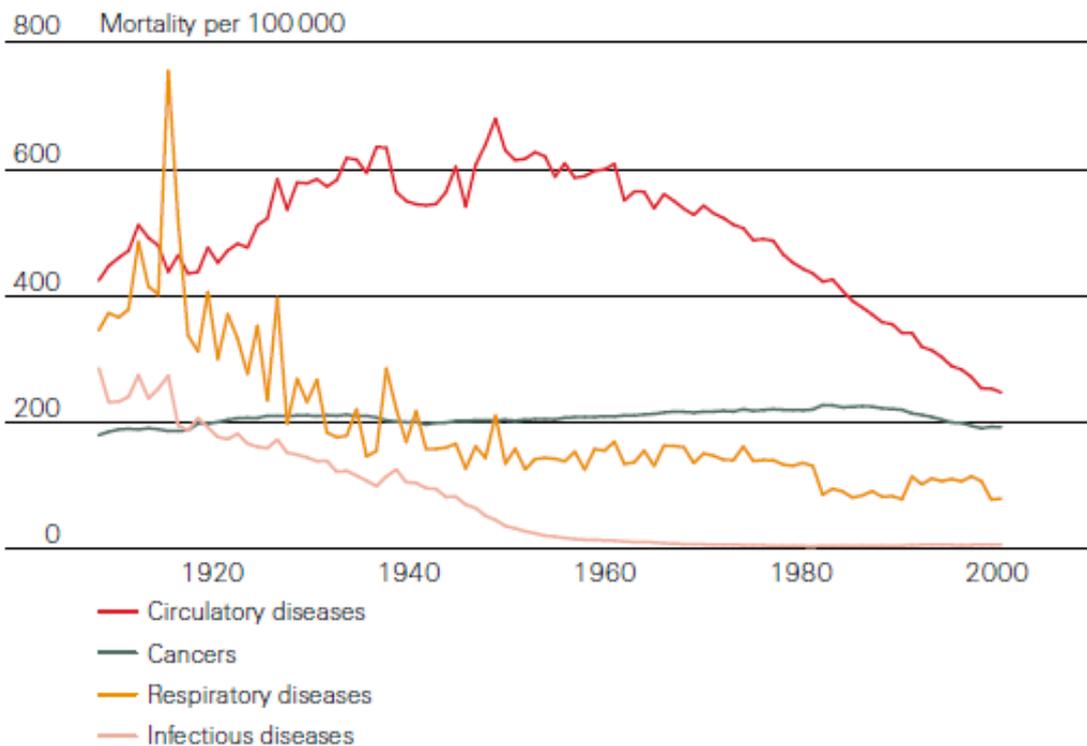
⁴ From: "A window into the future: Understanding and predicting longevity," SwissRe, 2011

Figure 3: ABC News and Med Page Today's top-ten US medical advances of 2000 – 2010

1. Human genome discoveries reach the bedside
2. Doctors and patients harness information technology
3. Anti-smoking laws and campaigns reduce public smoking
4. Heart disease drops by 40%
5. Stem-cell research: laboratory breakthroughs and some clinical advances
6. Targeted therapies for cancer expand with new drugs
7. Combination drug therapy extends HIV survival
8. Minimally invasive and robotic techniques revolutionise surgery
9. Study finds heart and cancer risk with hormone replacement therapy
10. Scientists peer into mind with functional MRI

And we can see from below that deaths from some of our major diseases are on their way down as a direct result of these medical advances. Only cancer is stable.

Figure 6: Mortality by cause, England and Wales



Source: British Actuarial Journal 12, Richards, Kirkby & Curry, 2005. Reproduced with kind permission of Stephen Richards

Longevity, the future

Whilst we are discovering cures to many medical disorders, it appears as though the maximum age people are living to has not changed for hundreds of years – it's around 120. So the human body has a "natural expiry date". Or does it?

Bear with us for a moment whilst we take a little detour.

In 1965 Intel co-founder Gordon E. Moore predicted that the number of transistors that can be placed on a chip would double every two years. This was termed Moore's law. Remarkably, this law has held true from 1970 to now. This means that in the next 2 years we'll get all the advancements from 1970 to now – AGAIN!

This fact has driven the incredible advancements in technology we've seen over the last forty years. This has been the technology age.

But it's slowing, and perhaps drawing to a close. The 2010 update to the International Technology Roadmap for Semiconductors has growth slowing at the end of 2013, after which time transistor counts and densities are to double only every 3 years. (Although in the past six months a new form of transistor has been discovered, the atom⁵!) The rate of growth of Information Technology advancement may slow, and over time, that market may mature but technology and the software that drives innovation may keep on surprising us.

So what's the next growth area? What will drive advancement of humanity over the next 40 years? Predictions are that we are at the start of that massive growth curve for life sciences. It will be Biomedical Technology that drives the next series of advancements.

There have been predictions by some futurists that the first person to live to 200 may have already been born⁶. This seems a bold claim and there is no science to prove it but there are scenarios where this may happen.

The October 2011 edition of the UK Wired magazine published an interview⁷ with Juan Enriquez - the founding director of the Life Sciences Project at Harvard Business School and a fellow at Harvard's Centre for International Affairs, where he says that lifespan will double over the next century. Enriquez is recognized as one of the world's leading authorities on the economic and political impacts of life sciences. In a speech to a TED conference in February 2009⁸, he spoke about "what will cause the next re-boot" – the next big change. He thinks it is the ability to engineer microbes, the ability to engineer tissues and the ability to engineer robots, in particular:

- Researchers are growing new body parts using stem cells e.g. tracheas for people with TB, regrown ears for wounded soldiers, new bladders instead of

⁵ http://www.pcworld.com/article/250317/atomsized_transistor_foretells_quantum_computer_scientists_say.html

⁶ <http://explainingthefuture.com/life.html>

⁷ <http://www.wired.co.uk/magazine/archive/2011/10/features/darwin-for-the-dna-age?page=all>

⁸ http://www.ted.com/talks/juan_enriquez_shares_mindboggling_new_science.html

colostomy bags, and in 2008 they even grew a new heart from just the cartilage and got it to beat.

- Researchers found a way to transfer skin cells into stem cells. So the combination of these two technologies means you can take a piece of your skin and grow it into almost anything in your body.
- When you bring cells and biological tissue engineering and mechanics together, as Enríquez says “you begin to get some really odd questions”

So how do the robots fit in? Let’s take 2 examples:

1.



Oscar Pistorius – known as “Blade Runner” and “The fastest man on no legs”

He’s a South African paralympian who was born without tibia bones in his legs. He now uses prosthetic devices to walk and run. In 2008 after monitoring his track performances and carrying out tests, scientists took the view that Pistorius enjoyed considerable advantages over athletes without prosthetic limbs. On the strength of

these findings, he was ruled ineligible for competitions with able-bodied athletes. This decision was reversed later that year and he was permitted to try out with able-bodied South African athletes for the 400m before the 2008 Olympic games but missed the qualifying time by 1 second.

By 2011 his times had improved by more than a second and he qualified for the 2011 World Championships and 2012 Olympics. At the World Championships this year he participated in the 400m sprint and 4x400m relay, and was part of South Africa's silver medal winning relay team, making him the first amputee to win an able-bodied world track medal.

Enríquez ponders how long it will be until he and others like him are unbeatable by able-bodied athletes.

2. Cochlear Implants.



People born deaf who have hearing aids can hear about 70% of what is said in a loud restaurant. Next year maybe they'll hear 82% and the year after, maybe 90%. And then there's going to be a point where they're going to hear as well as we do. And after that they're going to hear better than us – be able to tighten their hearing, focus it, hear tones we don't hear in.

Enríquez says "It's not inconceivable that within 15 years you will not be hired by a symphony orchestra unless you have a cochlear implant. And now they're doing the same thing with eyes." They've also now built a biomechanical eye in Germany so that people who are blind can now see light and dark...and that's just the start.

In Enriquez' latest e-book Homo evolutis⁹ he says that we are at the next stage of human development, where we are taking our evolution into our own hands. He calls it "the ultimate re-boot".

Science fiction has become fact. We are staring down the barrel of LONG longevity, where we can cure major diseases, replace organs, and that's before we even start to talk about nanotechnology – which we're already seeing early applications of – or research into the ageing process. Futurist Ray Kurzweil¹⁰ thinks that if he can live long enough for this technology (biotech & nano tech) to kick in,– he'll live forever!

There is an interesting debate around who should pay for new medical interventions. It was noted above that the wealthy live longer than poor people. New medical innovations need to be paid for and, unless governments can find room in their budgets, it is therefore likely that new innovations will be rationed and hence be more available to the wealthy.

Longevity and some implications for financial services industry

The ageing of the population and the expected significant increases in longevity have profound implications for the FS industry. Simple questions such as:

- How much of a person would need to be replaced before they are counted as legally dead and can collect their life insurance?
- If you live beyond 120 as a brain in a vat, fully conscious and able to communicate and participate in life online and in virtual reality, are you still eligible for lifetime annuity payments?

Long longevity, as well as really rapid improvements in life expectancy over the next few years, are major risk issues. This is our next black swan event. This is something that Enterprise Risk Managers need to be paying very careful attention to, to see what the implications are going to be for your organisation.

Longevity improvements will be a slow burn issue for many FS businesses, superannuation funds and insurers; i.e. the actual realised financial liabilities emerge slowly over time ,

- However the implications are extreme for funds with guaranteed pensions – so public sector funds are very exposed to longevity risk.
- If you are planning to offer any sort of guaranteed retirement product this is CRUCIAL and you will need to have your actuaries doing some very good scenario testing to properly value the risks.
- By the way, the implications are extreme and quicker for life companies and others who are underwriting annuity products right now. If you are a

⁹ <http://www.amazon.com/Evolutis-Kindle-Single-Books-ebook/dp/B004KSREFC>

¹⁰ <http://www.fantastic-voyage.net/>

superannuation fund who's looking to collaborate with such an organisation, then you would need to have a level of comfort that they have a plan in place to handle these risks.

There is a growing need for intelligently designed and secure retirement products to help retirees cope with the risk of living too long, and the volatility of investments over their long retirement period.

Ageing societies

In so-called western societies, the Baby Boomers are retiring. This we know and we can predict its impact over the next 15 years.

The first baby boomers retired in 2011. In Australia, many held off their retirement due to adverse investment returns on their super, so we will see a big rush of retirements over the next 5 years.

To illustrate in the Australian context, the most recent Australian Prudential Regulatory Authority (APRA) statistics from 2010 show us that:

- 10% of members in APRA regulated funds are aged 60+, and
- those members aged 60+ hold 33% of assets. This means that these accounts are already in outflow, or will start to be drawn down in the next 5 years.
- This represents almost \$329 billion of accounts in or entering a net outflow situation
- And if we include the next age category down, the people aged 50 plus, then 15 years time the retired population will be
 - 25% of (current) members, and
 - accounts worth 63% of (current) assets in net outflow.
 - Whilst there will be some new young workers coming in over that 15 years, they will be few and their balances will be small so they will not have a big impact on these figures.

Defined Benefit(DB) funds represent 18% of the assets in Australian APRA regulated funds, or around \$140bn. In Australia, we are now at the point where cash flows of DB funds are turning negative. Many funds have been closed for a long time and have reached the point where benefit payments cannot be met from new contributions.

When this happens, the superannuation fund needs a redemption programme. The investment time horizon reduces, and a different investment strategy is needed to

provide the necessary cash flows to meet future redemptions. Actuaries have been designing this sort of asset-liability programme for many years.

What about Defined Contribution(DC) funds which have the lion's share of assets in the Australian superannuation system?

- Right now the proportion of people with significant DC assets is still fairly small – the current weight of money is in DB and Small to Medium Sized Superannuation Funds (SMSFs)
- We know that some DC funds with an older age structure will be entering a net outflow situation in the next couple of years.
- In 15 years time with the Baby Boomers all retired, there will be significant assets in retirement across all fund types.
- We predict that between now and 15 years from now most DC funds will enter a net outflow situation.

If you are a trustee, do you understand the impact of demographics on your fund? In what year will your benefits exceed your contributions? When this happens, where will the money come from to pay benefits? Actuaries have been doing this sort of analysis for DB funds for many years, and best practice DC funds are undertaking this analysis as well.

Trustees need to start thinking about the structure of their investments to cope with that future net outflow situation. And given that some investments are illiquid and structures take a long time to change, that planning should be happening now.

So all of this we know. With some good advice, this can be planned for and trustees can take action to cope with this change.

If we are already going to be retired for 30 years, we will see 3-5 market crashes during our retirement. The longer we're retired, the more susceptible we are to market reversals.

Those Australians who retire with sufficient superannuation to purchase a private annuity will need a choice of retirement products that will suit their needs.

What do retirees want?

a) An income

Retirees need an income to survive. The income may be from many and a combination of sources for example, income from a drawdown of their capital, a guaranteed income stream from an FS business i.e. an annuity product, an income stream from investments and an income stream from the government.

b) Flexibility

Over the last twenty years, sales of lifetime annuities have reduced to the point where very few are sold in Australia at all. This coincided with the rise of so-called “allocated” or account-based pensions and annuities.

Whilst there are a number of reasons for this change (including the fact that account-based products gave access to market returns in a very high return environment), one of the major attractions of these account-based products was that they offered flexibility.

This flexibility was offered in two ways:

- access to capital, and
- flexibility in payments.

This gave retirees more control over their income and assets, allowing them to adjust to changing circumstances and to respond to unexpected or “lumpy” expenses.

Whilst retirees invested in account-based products experienced strong investment returns through much of the previous twenty years, in the Global Financial Crisis, many experienced significant negative returns. This brings us to the next thing retirees want.

c) Protection / risk reduction

Retirees should be able to purchase a product that offers them protection against the two major risks they face, which are (in order of magnitude):

- market risk - the risk of a decline in their asset base due to negative returns, and
- longevity risk – the risk that they will outlive their funds.

They should be able to choose to be fully or partially protected from either or both of these risks, depending on their circumstances.

It is unlikely that Australian retirees will return to purchasing lifetime pensions and annuities, as the requirement for flexibility and control over their money is too important to them. In order to meet their needs, new more flexible annuity products need to be developed which offer adequate protection.

We need new generation hybrid annuities that let people choose how much of their longevity risk and how much of their investment risk they want to offset, whilst retaining control of the bulk of their assets. Today’s retirees want access to capital, flexibility of income AND risk reduction. And they can have it all – WE HAVE THE TECHNOLOGY. We have Deferred annuities, variable annuities, a bunch of

guarantees that can be added to a variable annuity to manage risks, target benefit funds – the list goes on.

Potential Product issues

In addition to the dramatic increases in longevity, there are some other important changes underway with how consumers and Governments think about the role of FS products and the role that the government has in providing a safety net to retirees.

This section will suggest some human psychological issues and potential scenarios that FS businesses may be faced with and then develop potential scenarios for future products.

- There is an entitlement culture. People have an expectation that because they have paid their taxes they are entitled to a government funded pension and health care in retirement. Currently around two generations of people pay for the retirement benefits of one generation. In our lifetime there may well be two generations paying for two post-retired generations and then potentially two paying for three. There is an important intergenerational equity issue. This is a moral issue. We have seen protests in the streets of Europe over planned austerity measures to reduce government costs.
- Governments could potentially place controls on post retirement spending which will lead to removal of the ability to access lump sums. In effect they could place strict limits on the extent to which assets can be drawn down or even accessed. There could also be significant increases minimum age for accessing the government pension.
- The concept of retirement and a fixed retirement age could simply disappear. Healthy people will be expected to work longer.
- We are in an era of austerity. Governments will cut back on welfare for those who, the government deems, don't deserve it. The Government will make it clear what is expected of the individual and will take the view that "You can't say that you weren't warned" with respect to eligibility for various benefits. For example, people will be expected to save and need to make healthy, culturally acceptable life choices. The issue is that there is clear evidence that people's health is significantly determined by the choices they make. This means that people should be encouraged/rewarded for the correct behaviour. More importantly, people shouldn't be rewarded for bad behaviour. However, they shouldn't be punished for bad luck. This is a difficult issue - where do we draw the line between dangerous pursuits (dirt bike riding) and dangerous behaviours (overeating)?
- There is an option where the government could reward people for not taking a pension by giving them another financial reward (such as start-up funds for a business). Further, product providers could link in with their products a

method by which older people can earn income. There could be a facility to provide specific and targeted skills to older high net worth people.

- More controls will be placed on the investment and consumption of compulsory savings to make sure that people do not double dip.
- People will be expected to take more responsibility for funding their retirement and seeking out products for a secure retirement.
- The regulators will not want any disasters on their watch. They will impose significant amounts of controls on governance structures. They will increase capital requirements for guarantees. They will impose layers of compliance requirements that will potentially remove creativity of business leaders and create a false sense of security. (The tiger in the room, i.e. the risk is there, we just can't see it).
- Given the experience of the GFC, people now have little trust of financial promises made by financial institutions, or government. The experience of the past is that there is no such thing as a financial guarantee – many financial promises by governments and corporations have already been broken and we now acknowledge that they could always have been broken. There will be a lack of trust in the modern welfare system in particular. There will be expectations of rationing or stricter means tests to access welfare.
- People will generally underestimate their life expectancy and overestimate their chances of dying sooner - in effect, they will live longer than they expect.
- People with enough funds will bias towards self managed investments and will attempt to deal retail financial institutions out of their plans.
- People are stressed by greater choice and do not take it up. The best systems are ones with a default with an opt-out.
- People overestimate the chance of 'winning'. i.e. people will often take unnecessary risks to make a large win¹¹.
- People place a high discount rate on the future; in particular they underestimate the amount they will need to save. People will have a bias to short-term consumption rather than long term saving.
- It is not possible to financially educate the vast majority of people to the extent that they can financially plan for their own retirement. Due to the complexity of the exercise this level of knowledge is a very high bar. At the most financial education will create awareness for the need for advice. Few people get advice. There will be a market for Robo-planner.

¹¹ http://en.wikipedia.org/wiki/Overconfidence_effect

- People will rely more on portable technological solutions. There will be a low level of engagement with FS providers. There will be higher levels of engagement with providers of entertainment or intellectual content. Gaming / virtual reality will be used to help people make key financial decisions.
- People are social animals and will generally identify themselves as a member of a number of "tribes" e.g. social groups, cultural groups, age groups, work groups.
- Who will be standing up for the customers? What will be the role of consumer organisations vs. the Government, consumer regulators and the ratings agencies or financial commentators? Who will blow the whistle on potential issues?
- There is a view that the next big cycle of productivity will come from biopsychosocial issues abbreviated "BPS"¹². i.e. those countries that will excel will be those who are best at managing BPS issues for example by developing strategies to promote practices that improve mental health outcomes. There is potentially a way of thinking about disruptive FS products through the lens of BPS. People want to feel that they are in control. People who have little control are more stressed and have reduced life expectancy¹³.

Based on the above observations there are some profound impacts on product design and delivery. The following list some of these for discussion.

- Who will be able to innovate the best FS products? FS or non-FS businesses? The real disruptive product designs could well emerge from non-FS businesses because FS businesses will not want to cannibalise their existing client bases. Existing FS businesses will have an incentive to lock in their client bases though inertia.
- Who can innovate best, big or small companies? Big companies have the advantage of scale and data, small companies may be able to pilot new ideas more effectively.
- Technology will provide important gateways to product providers. People will be able to access wholesale product providers and will be nudged to various choices. There will be smart, and not so smart, apps that will provide advice.
- People will want quick escape routes from products. They won't want to be tied to any product or provider. They will want to be able to opt out of choices even if there are guarantees offered. For example, people may want

¹² http://en.wikipedia.org/wiki/Biopsychosocial_model (abbreviated "BPS") is a general model or approach that posits that biological, psychological (which entails thoughts, emotions, and behaviours), and social factors, all play a significant role in human functioning in the context of disease or illness. Indeed, health is best understood in terms of a combination of biological, psychological, and social factors rather than purely in biological terms

¹³ Drawn from the speech by Sir Harry Burns, Chief Medical Officer for Scotland, delivered the Autumn Lecture in Edinburgh on 10 October 2011. <http://www.actuaries.org.uk/news/pages/autumn-lecture-sir-harry-burns>

to terminate their arrangements with their annuity provider or capital guaranteed underwriter.

- It is difficult to envisage a scenario where lifetime annuities will be a viable product without Government compulsion or strong defaults. Firstly, immediate lifetime annuities will look expensive, i.e. the return on an investment appears low initially, and this is partly because this is often the first time people understand the cost of their retirement including hedging for inflation and longevity. Second, in purchasing an annuity you are making a bet that the life company providing the annuity will not default. As discussed above, people have less trust in the companies they deal with and with the governments that regulate FS providers.
- Deferred lifetime annuities may be viable because they look relatively cheap. These can form a real option for longevity protection.
- Accepted wisdom is that those organisations that capture the individual's relationship through the savings phase should be able to retain them through the retirement phase. Superannuation funds may be best placed to innovate new products because they have a greater hold on their membership and less of a need to maintain profit margins.
- As intelligent apps emerge there will likely be a trend towards more white labelling of products. Retailers will become wholesalers, with a consequent squeeze in profit margins.
- Intelligent apps will rely more heavily on ratings agencies to select products and to commentators for editorial opinions to sway people's decisions.
- Intelligent apps will need to be able to consider life stage issues and target savings by assessing value of current consumption vs. future consumption. They will also be able to monitor your Facebook and Twitter feeds to see where you are planning to spend your money and give on the spot advice e.g. "Melinda do you realise that if you take that trip to Bali / buy those cases of wine / go on the ski trip you will set your retirement funding back by 2 years?"
- Other innovative products will be developed that could combine income streams from capital draw down with longevity protection kicking in at, for example, age 85 or 90.
- Reinsurers are developing products to hedge against longevity. They can offset their risks against their mortality books e.g. pandemic risk. Longevity is a 'slow burn' risk i.e. whilst long term liability may increase based on increasing longevity, short term immediate liabilities do not change substantially. There is therefore time for the FS business and the regulator to react to the changing liabilities.

The Financial Services business of the future

This section will firstly pose some legitimate questions and make some observations relevant to FS providers wanting to adapt to the new world order. We will then consider a number of potential business models through the eyes of innovative organisations/people.

- Given the austerity fever engulfing many countries, to what extent could the Government develop initiatives that overtly or covertly rewarded or punished people who don't behave the right way? In particular is there a scenario where the government punished people through loss of tax incentives if they don't invest in default products?
- How important will brand be for FS sales? i.e. brand of FS provider rather than the product aggregator e.g. Apple, Google. What about the brands of wholesale and retail ratings agencies? It seems that as wealthy people disaggregate their assets away from major retail service providers they may be attracted to products 'made' by trusted brands like Google and Apple.
- How strong will the big Australian superannuation funds be relative to the banks? Will they be able to hang on to their members post retirement? If so then this could lead to a major drift of wealth to the potentially mutual sector. On the other hand, will mutual (not-for-profit) super funds suffer the same fate that befell the mutual life companies i.e. will they become "fat and happy" and lose their competitive edge?
- What is an optimistic view of the FS market? Is it that advice is automated through aggregators and the major FS providers become wholesalers?. This is a very pessimistic outlook for the major retail FS providers.
- Will there be partnerships between the government and the FS industry as there is in the provision of disability benefits? Partnership may extend to monitoring of an individual's behaviour and whistle blowing on adverse behaviour that may determine the extent to which the individual is entitled to a Government benefit, or the cost they pay for insurance or other FS. For example health monitors in clothing etc. – if you start smoking again your insurance becomes more expensive and Government support in retirement reduces (because you won't be living as long). Through modern monitoring technology the government will be able to examine financial decisions. (Big Brother is watching you!)
- How can customer confidence in the FS system be enhanced? Members need to be treated as the customer stakeholder – like in commercial businesses where the CEO balances shareholder, customer and staff needs. But the third leg is probably government as they are footing the bill for anyone who is not adequately provided for by the FS system. How does this partnership of customer, staff and government change the way these

organisations behave? The pension fund customer may not be as savvy as a corporate shareholder and hence may need more information and advice before being in a position to make an informed decision.

- What does the future financial planner look like? Do they just deal with the top end on a fee for service basis? How will the younger/poorer people who need advice get it? Automated advice tailored to all your personal info (which Big Brother will know) is surely the future here. Only the Top End will be paying for a personal relationship. Artificial intelligence capabilities will see the birth of the Robo-planner on our iPad screen that will build a relationship with us – the way some people already have a relationship with their SatNav - but who is really just a program. (That is, until we crack artificial intelligence...)

Let's borrow someone else's brain!

The balance of this section postulates how various highly innovative organisations and people may construct the future FS business. In particular what would what would Steve Jobs¹⁴, Pixar¹⁵, Richard Branson¹⁶, Kerry Packer¹⁷ do with the FS industry?

Steve Jobs:



If the FS industry received a “Steve Jobs” makeover, he would turn a luxury brand into a mainstream one while still hanging on to luxury profits. So for example in superannuation he would give everyone their own portable superannuation fund and make it the “cool, must have” accessory (oh wait, that is already happening in Australia with the Self Managed Super Fund market!)

Jobs made computers appealing to “everyday people”. What if we could work the same magic on financial services? Computers and superannuation/investments are equally arcane. What would the “user

¹⁴ http://en.wikipedia.org/wiki/Steve_Jobs

¹⁵ <http://en.wikipedia.org/wiki/Pixar>

¹⁶ http://en.wikipedia.org/wiki/Richard_Branson

¹⁷ http://en.wikipedia.org/wiki/Kerry_Packer

interface" be that makes it not only attractive, but also cool to be interested in your finances?

Jobs built things to help people achieve their dreams. He was the master of the message - the world's greatest corporate storyteller, turning product launches into an art form. You can have the most innovative idea in the world, but if you cannot get people excited about it, it does not matter. Therefore, Jobs would sell people the dream of being financially secure. I am sure a cool iPad app would be part of his solution for how to make this real to people. Perhaps a real-time check on your financial health with prompts when you get off track – like a personal financial trainer. It would feed you video-based education when you need to make key decisions, or show you what other people had done in the same situation to make a good decision. It would give you a stern talking-to after a shopping spree or if you are planning to borrow too much to buy a property.

Therefore, a Steve Jobs makeover would likely mean the rise of the individual product / tailored solutions and automatically delivered financial advice i.e. the death of the mutual. All of the available products would be proprietary. It would not be possible to select which components of the product you wanted. You had to buy the whole system or nothing.

The FS brand will aim to build loyalty and prestige around being associated with the organisation. There would be sophisticated techniques to bring people together. Active use of social media, blogs, chat rooms, financial stories and lessons disseminated widely.

Pixar:



Pixar is all about teamwork and collecting ideas from wide sources, fostering talent and continual change.

They build a team of 'super talented' staff. All facets of the business have full time employees (unlike most Hollywood production businesses for example). They develop strong distribution partnerships but whilst retaining their own brand. Their core capabilities are creativity and technology engineering.

In the FS industry they will be at the leading edge of product development. They will constantly update products and allow the ability for people to shift up to the next product.

There is a Pixar university. Staff will be continually trained with an “up or out” culture. In effect if you do not make the grade and get the promotion, need to consider leaving. As with Apple, the customer will have the relationship with the business rather than any individual in the business.

All advice staff are in house; there will be a high tech delivery capability. They will create a fun culture. All underlying products produced in house.

Richard Branson:



Virgin attributes include: sex appeal, cheekiness, great customer service, fun. Branson’s business Philosophy is built around taking risks, having fun, believing in what you are doing.

Branson: “Looking back on Virgin’s history, our ability to adapt quickly to changes has helped mitigate reverses. You must be quick to accept that something is not going well and either change tack or close the business. We run our companies lean and small; there is very little red tape and certainly no bureaucracy. We make and implement decisions quickly -- usually before our competitors in the market have held their fifth meeting on the same issue”

Branson: “Though I believe in taking risks, I also firmly believe in 'protecting the downside.' This means working out in advance all the things that could go wrong and making sure you have all those eventualities covered.”

The Virgin brand is about building a lifetime relationship. Their brand is a promise and they keep their promises.

Virgin starts businesses in “clusters’ of related businesses to make them feel like a small, cosy operation. For example, their existing FS cluster sells pensions & investment plans. No more than 60 people in each building – so they can know each other’s name. Family company type atmosphere. Running a big business as if it were small – fostering an entrepreneurial attitude.

The Virgin makeover would likely see a FS hub that outsources key capabilities. In particular, the business would claim to buy in the trendiest latest products on the market and deliver these to the individual in stylish packages. Designed for the young market, advice lite, low cost with trimmed back service.

Kerry Packer:



Kerry Packer was an Australian media and gambling entrepreneur. His business Philosophy was to dominate. He was a consummate political operator and owned media so could influence the message.

Under a Packer-esque makeover, we would use the money in super funds to invest in media – buy TV and magazine assets. We would also be investing in casinos. We would be spending a lot of time and money wooing and influencing key politicians to implement favourable public policy for the FS industry. Sport provides a strong emotional attachment for people. There will be a lot of promotion of sport and sports personalities. Communities of customers will be built around their sporting interest.

Under a Packer approach an operator would buy a large super fund then set about accumulating others to make a mega-fund. It would be a for-profit model. They would then use the profits to do all of the above. They would wipe mutuals out, or consolidate them into the mega fund / purchase them under the offer of a better deal for their members. (Following on to the logical conclusion, this operator would sell the lot for a huge profit and walk away!)

The Actuary

This discussion paper has concluded that there is significant change coming for the FS industry, both locally and globally. A key driver of change is increasing longevity. We have claimed that there will be an acceleration of health and social improvements that will be unprecedented and could lead to people living healthy meaningful lives well into their one hundreds. Increasing longevity will affect all aspects of our society as governments struggle to maintain intergenerational equity and to control the moral dilemmas that new technology will bring.

To this point, we have not really mentioned the actuary. Longevity, on the face of it should be the actuary's "sweet spot". The issue for the actuarial profession is that we are facing significant and unpredictable change for the FS industry. Actuaries are the only profession that really understand profit, capital and risk management of FS companies. An issue however is that many actuaries are involved in the detail of the business i.e. managing and monitoring the predictable aspects of the financial integrity of the FS businesses. We have various statutory responsibilities depending on the various government rules. We therefore have the reputation with many as the back office people, mainly managing compliance and low order risk management.

Our claim is that the actuarial profession needs to be open and drive discussion on the impending changes in the pipeline. We need to position ourselves as the profession that saw the change coming and were able to build models and develop assumptions that stress tested various likely outcomes. The numbers will tell us what could happen but it is also important to be able to develop scenarios of likely social and financial outcomes that will affect society wide. With our deep business knowledge actuaries should be able to draw this vast amount of information together and deliver key strategic inputs to FS businesses.

Many actuaries are involved in developing strategy and we believe the professional bodies that represent actuaries should be positioning the profession as the people who can build the scenarios. We are not claiming that the actuaries should be the entrepreneurs; rather we are claiming that the actuaries need to be positioned as able to ally with other business professionals to be able to develop innovative solutions for the future. There will always be innovators who will pick the change and take advantage of the disruption that is caused. What we think is that the teams that use the actuary will have the advantage over those that do not.

Barry Rafe, FIAA

Melinda Howes, FIAA

May 2012