



THE
Frontier Line

Thought leadership and insights from Frontier Advisors

Issue 121

October

Deferred Lifetime Annuities

Under the hood

Deferred Lifetime Annuities – Under the hood

Account-based pensions are the dominant form of retirement product in Australia. However, they involve the “inevitable and unavoidable trade-off between living standards during the early retirement years and the risk of running out of money during older age.”¹

Research has shown that almost half of all retirees only draw down the prescribed minimum amount, taking a cautious approach to protect against the risk of living longer than their superannuation. In effect, retirees are self-insuring their longevity risk by accepting lower income.

Reflecting on this, the Financial System Inquiry stated that greater use of longevity risk pooling could significantly increase retirement incomes. In response, the Federal Government announced in the 2016 budget that they would remove barriers to innovation in retirement income stream products. As a result, from 1 July 2017, tax exemption will be extended to products such as deferred lifetime annuities (DLAs) and group self-annuitisation products.

So, what are deferred lifetime annuities, how do they work and what are their benefits?



AUTHOR

David Carruthers, Frontier Advisors

Principal Consultant, Head of Frontier’s Member Solutions Group.

He conducts research and provides advice in the area of member outcomes, including retirement strategy, for superannuation funds. Previously, David worked at Mercer in both Melbourne and in London and Towers Perrin. David holds a Bachelor of Economics from Macquarie University and is a Fellow of the Institute of Actuaries of Australia.



AUTHOR

Wade Matterson, Milliman

Wade is a principal, senior consultant and the leader of Milliman's Australian Financial Risk Management practice. He

joined the firm in 2004 and is responsible for product development and risk management for clients throughout the Asia-Pacific region.

¹ Australian Government Actuary (2014), [Towards More Efficient Retirement Income Products](#)

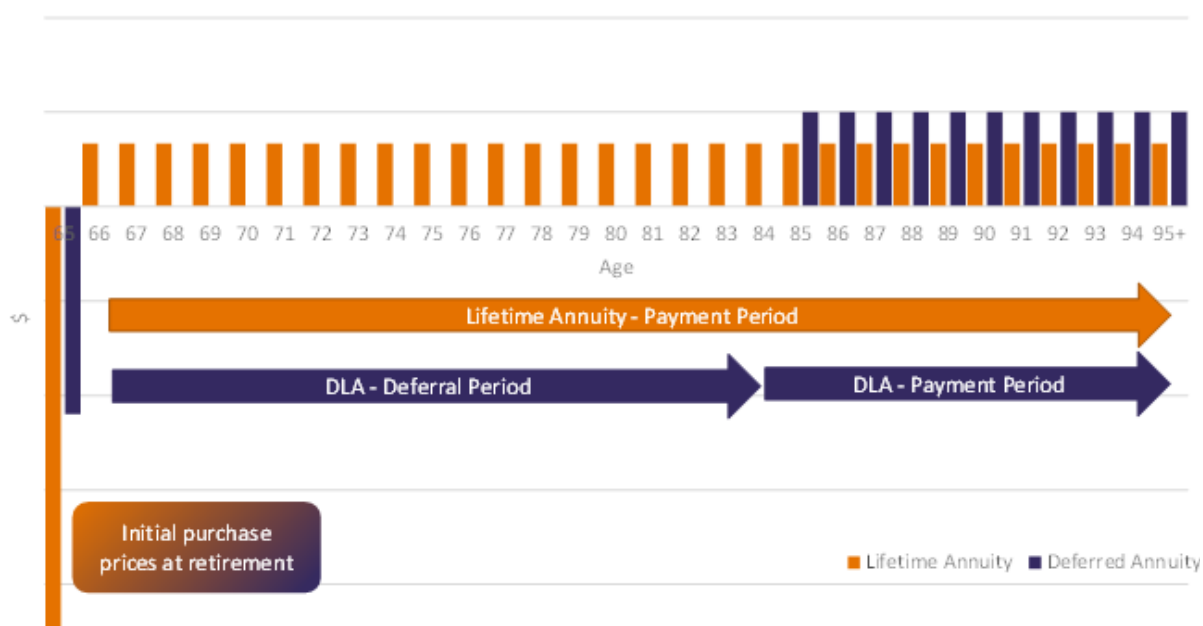
What are Deferred Lifetime Annuities?

Lifetime annuities involve exchanging a lump sum for a guaranteed income payment for life. Unlike account-based pensions (ABPs), their returns are not tied to movements in investment markets but locked in at the outset. They guard against two key risks for retirees – the risk that a market crash will wipe out their funds and the risk that the annuitant will outlive their money.

DLAs are annuities that start at a predetermined future date and continue until the death of the annuitant. For example, a retiree may purchase a DLA at, say, age 65 that will commence payment at 85. Importantly, in order to provide the maximum benefit of longevity pooling, if the annuitant dies before the annuity begins, the member's balance is notionally used to supplement the benefits for those other members who are still alive.

DLAs offer a potential compromise for those seeking risk protection whilst retaining most of the flexibility offered by an ABP. Because of their lengthy deferral period, DLAs provide higher rates relative to immediate income annuities – this allows members to allocate less funds to the annuity product.

For example, a potential solution for a retiree would be to use their ABP for the first 20 years of their retirement and thereafter use the proceeds of a DLA for their income requirements beyond that time.



The table below summarises the degree to which each of these solutions protects retirees from the risks that they have.

A lifetime annuity provides explicit guarantees against a number of the risks that retirees face. In contrast, an ABP provides flexibility and the possibility of a higher return (and therefore more income in retirement) – but no explicit guarantees.

As shown in the table, the solution of an ABP plus a DLA provides a balance between the risk protection provided by a lifetime annuity plus the flexibility and potential higher returns from an ABP.

Risks:	ABP	ABP + DLA	Lifetime Annuity
Market – the risk of a market drop	x	✓	✓✓✓
Inflation – the risk of high inflation	✓	✓	✓✓
Flexibility – the ability to change in the future	✓✓✓	✓✓	x
Longevity – protection against living longer	x	✓	✓✓✓
Adequacy – the risk of not having enough	✓✓	✓	x



Case study

Frank retires at age 65 with \$150,000 in superannuation. He seeks advice from his superannuation fund, and is presented with the following alternatives:

- Base Case – ABP, invested in a typical balanced fund. This would provide an income of \$11,652 each year until age 95 (his life expectancy plus 10 years with 90% certainty).
- Alternative 1 – Lifetime annuity. This would provide an income of \$7,153 each year until he dies (based on annuity rates at 30 June 2016).
- Alternative 2 – 80% invested in ABP, 20% invested in DLA. This would provide an income of \$10,864 each year for the first 20 years with 90% certainty, then \$7,153 each year from age 85 until he dies.

However, Frank is advised that the income from the ABP is only an estimate, and will vary depending on investment markets. Only the lifetime annuity and DLA figures are guaranteed. To better understand the range of outcomes, the adviser provides Frank with the following charts.

The results show that:

1. Due to exposure to growth assets, the ABP (base case) is expected to deliver a sustainable income in excess of the lifetime annuity (Alternative 1) at 90% certainty. However, growth assets are risky. In 5% of cases, the ABP is expected to underperform the lifetime annuity.

2. If Frank dies at age say age 85, no bequest would be available under the lifetime annuity option.
3. However, there is a 10% chance the ABP will run out at age 95. There is a 12% chance that Frank will still be alive at that age.
4. If Frank chose the ABP + DLA (Alternative 2) then he would expect to receive slightly less income than the ABP.
5. However, if investment returns were poor, Alternative 2 would outperform the ABP option (in around 5% of cases). In this option, the ABP is only required to fund 20 years of income, and therefore a higher level of income can be withdrawn with the same level of certainty compared to Alternative 1.
6. If Frank dies before age 85, a smaller bequest is expected with Alternative 2 than with the ABP option because around 20% of funds are allocated to the DLA. No bequest is expected with Alternative 1. Chart 3 above illustrates the range of bequest expected at age 85 under each alternative.

In summary, the ABP + DLA alternative preserves most of the liquidity, flexibility, and growth potential of the ABP only option with the same meaningful longevity protection as the lifetime annuity alone.

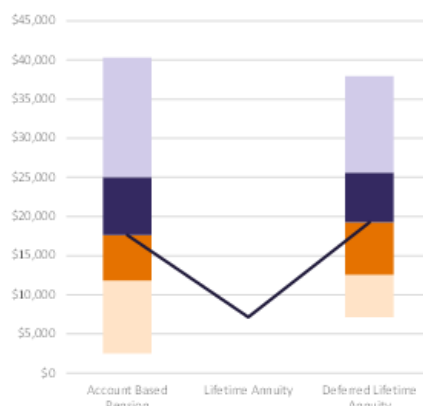
Calculations provided by Milliman.

Chart 1: Income at age 65



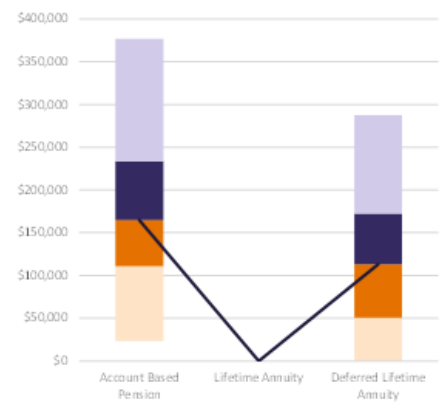
Source: Milliman

Chart 2: Income at age 85



Source: Milliman

Chart 3: Bequest at age 85



Source: Milliman

The annuity puzzle

Industry experts have long argued that annuities are the perfect financial product in retirement – they provide income certainty for the life of the annuitant. However, in Australia and most other countries in the world, few people buy them in the absence of strong financial incentives or compulsion – the so-called “annuity puzzle”.

A number of reasons for this phenomenon have been advanced, including the response that retirees don’t wish to lock away their funds, but rather value the flexibility of an ABP. Another reason is that retirees focus more on the possibility that they die early and don’t get “value” from the annuity rather than focus on the benefits they would receive from living longer.

Furthermore, DLAs suffer from what behavioural economists call “hyperbolic discounting” – the tendency for people to choose a smaller short-term reward over a larger reward at a distant point in the future.

These effects are much more pronounced with a DLA compared to an immediate annuity. A DLA “locks” funds away for decades and provides no benefit if the retiree dies during the deferral period. When they do receive a benefit, it is so far into the future that retirees find it almost impossible to perceive its relative value.



Creating a flexible DLA

The almost universal use of ABP reflects that retirees place a high value on flexibility. Is it possible to create a DLA that retains risk protection, but has greater flexibility?

A DLA can be decomposed into:

- A non-income paying investment during the deferment period; plus
- A lifetime annuity from the deferment age.

The simplest alternative to a DLA is a “rainy day fund” – setting aside funds that aren’t drawn upon until a later date. This later date could be a specified age, or for a specific need – such as aged care. If the retiree reaches the deferment age, then the funds could be used to purchase a lifetime annuity. If they die before the age, then the funds would be passed to their estate.

Such an approach trades off risk management for flexibility. It could result in a substantially different level of income (either higher or lower) for the retiree compared to purchasing a DLA at retirement:

- In deferment, a DLA is able to provide mortality credits to policyholders that survive until the end of the deferral period. Consequently, a retiree surviving the deferral period would have a higher balance than a rain-day fund (all other things equal).
- In deferment, a DLA provides a guaranteed return. A rainy-day fund approach could potentially earn more (or less) than the guaranteed return, exposing the member to market volatility and investment risk. Under a rainy-day approach, a member could invest the assets in line with the amount of investment risk they are willing to bear.

- The DLA converts to an immediate annuity at a guaranteed rate – the retiree will know what their annuity payments will be when they purchase the DLA. The rainy-day fund would convert to an immediate annuity at the prevailing rates at the time. With a DLA, the provider takes the risk that interest rates decrease (or mortality rates decrease) during the deferral period and receives the benefit to the extent that rates are higher or mortality rates decrease over the same period.
- The annuitant is taking on credit risk of the insurer providing the DLA. Whilst APRA requires insurers to hold capital to provide a buffer against unanticipated losses, there remains a risk that the insurer will not be able to meet its liabilities.

Therefore, while it is clear these two strategies may appear conceptually similar, they can result in dramatically different income profiles. Purchasing a DLA effectively locks in the future rate of income at the point in time the DLA is purchased. The income offered by the alternative rainy day fund strategy would depend on the investment returns on the assets, as well as the prevailing rate of an immediate annuity at the future date.

In the next sections, we consider how the rainy-day fund could be enhanced to provide some of the risk protection features of a DLA.

In deferment

In deferment, a DLA provides investment risk protection and mortality credits. As with all investment guarantees, investment risk protection can be expensive. The DLA provider needs to invest conservatively, and must hold capital to protect against a market fall and other adverse scenarios. So, whilst the mortality credits provide an increased benefit to the annuitant, the investment guarantee provides a lower (but more certain) benefit.

The size and importance of the mortality credits depend on the proportion of people expected to die. For example, for a group of 1,000 men aged 65, approximately 9 are expected to die over upcoming year – the value of their benefits would then be used to increase in benefits to the surviving men, a so-called mortality credit of 0.9%. For a 1,000 men aged 85, approximately 61 are expected to die in the upcoming year – giving rise to a mortality credit of 6.1%. Women have lower mortality credits (0.5% and 4.5% in these examples) due to lower mortality rates for females.

The table below shows the approximate mortality credits that would arise for different deferment periods

The table highlights the impact of both the length of the deferral period as well as the mortality experience of the underlying pool. It shows that a short deferral period provides only a small mortality credit as the majority of people are expected to survive. Conversely, a longer deferral period produces much larger credits – however, fewer people enjoy the benefits of the credits as less are expected to survive the deferral period.

It should be understood that often the health of people choosing annuities is better than average (the anti-selection effect), and therefore the mortality credits will be lower than in the table above.

For a 65-year-old male purchasing a 20 year DLA, the benefit would be 37% higher because of the mortality credits. This equates to a 1.6% increase for each year of deferment. On this basis, the rainy-day fund would need to return 1.6% pa more than the investment return underlying the DLA to compensate for the mortality credits. For a female, the comparable increase is 1.2% pa.

The rainy-day fund would need to take on more investment risk and therefore expose the retiree to investment/sequencing risk to compensate for the mortality credits.

Deferral Period	Male Aged 65		Female Aged 65	
	Survival Probability	Mortality Credit	Survival Probability	Mortality Credit
5 years	95%	5.0%	97%	3.1%
10 years	88%	11.6%	92%	7.7%
15 years	79%	21.5%	85%	14.7%
20 years	63%	36.9%	73%	26.5%
25 years	41%	58.9%	53%	47.2%

Source: Australian Life Tables 2010-12, 25 year improvement

At conversion

The DLA contains a guaranteed conversion rate to a lifetime annuity at the end of the deferral period. In contrast, the rainy-day fund would be converted to a lifetime annuity at the prevailing rates at the point the lifetime annuity was purchased.

The DLA provider accepts the risk that interest rates (on which annuities are priced) decline during the deferral period (or mortality rates decline). Again, such a guarantee comes at a cost to the provider, and APRA requires insurance companies to maintain capital to allow for these contingencies.

In fact, the flexibility that the rainy-day fund provides could be a benefit – particularly given interest rates are currently at historically low levels. The rainy-day fund would retain the flexibility in deferral to monitor interest/annuity rates and purchase an annuity when rates are more favourable. It could also be possible to develop more sophisticated strategies whereby lifetime annuities are purchased in frequent, but small amounts during deferral to spread any potential interest rate risk.

The final word...

As the debate over retirement income continues, facilitating a deferred annuity market is an important part of the product tool-kit. DLAs will help to ensure funds have an array of options to help their members choose products that suit their needs in retirement.

With increasing options and approaches to solving the retirement income puzzle, funds and their trustees will need to understand the nature of these products and the benefits that they potentially offer. It will also be important to consider alternative strategies to understand the costs and trade-offs each solution offers.

As this paper highlights, DLAs offer a range of benefits through their ability to provide a focus on the longevity problem.

However, certainty comes with a number of compromises – both from a fund and member perspective. Cost, flexibility and unfavourable market conditions all create possible challenges when assessing their value against alternative approaches.

Together with the innate behavioural biases of members, funds will need to look deeply beyond the product to ensure the communications and marketing effort clearly articulates the value of the product solution. We also anticipate funds will need to spend significant time and effort assessing their membership to identify the members for whom a deferred annuity or similar structure would yield the greatest benefits.



About Frontier Advisors: Frontier Advisors is one of Australia's leading asset consultants. We offer a range of services and solutions to some of the nation's largest institutional investors including superannuation funds, charities, government / sovereign wealth funds and universities. Our services range from asset allocation and portfolio configuration advice, through to fund manager research and rating, investment auditing and assurance, quantitative modelling and analysis and general investment consulting advice. We have been providing investment advice to clients since 1994. Our advice is fully independent of product, manager, or broker conflicts which means our focus is firmly on tailoring optimal solutions and opportunities for our clients.

Frontier does not warrant the accuracy of any information or projections in this paper and does not undertake to publish any new information that may become available. Investors should seek individual advice prior to taking any action on any issues raised in this paper. While this information is believed to be reliable, no responsibility for errors or omissions is accepted by Frontier or any director or employee of the company.