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Managing systematic longevity risk

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The superannuation sector has been effective in helping millions of Australians build a nest egg to improve their standard of living in retirement. One of the biggest challenges facing the retirement system today is how best to transform accumulated capital into income, or to put it a different way, how best to enable retirees to spend their accumulated savings when they do not know how long they are going to live.

Superannuation funds, by pooling together enough members can reduce idiosyncratic longevity risk. Idiosyncratic longevity risk is the risk to individual members from living for longer or shorter than average. Arrangements such as group self-annuitisation schemes (GSAs) aim to provide members with an income for life, giving retirees more confidence in spending their accumulated savings.

However, pooling individual risks doesn't protect against the risk of everyone living longer, or shorter, than expected. Systematic longevity risk results from the whole population or cohort of members living longer on average than assumed. When assumptions around how long members will live turn out to be incorrect, it can have detrimental impacts on member benefits and hence on their living standards. If life expectancy assumptions are too pessimistic, members' retirement incomes will be lower than expected or even run out in old age.

Life expectancies have been consistently underestimated

Assumptions around how long people will live are generally based on recent experience. For example, the widely used Australian Life Tables are released after each Census based on the most recent population mortality rates, that is, the proportion of people at each age who have passed away each year.

Unfortunately, projections of how long people will live into the future have often turned out to be off the mark. If the standard life expectancies in the early 1970s, according to the Australian Life Tables 1970-1971 had been used to design a retirement product, they would have been based on male retirees living on average another 12 years. By the late noughties, based on the Australian Life Tables 2015-2017, that had increased by two thirds to almost 20 years. Figure 1 shows how the commonly used Australian life expectancy tables have predicted for 65-year-old male retirees over the last century.

This inability to predict how life expectancies might change in the future has significant implications for superannuation funds designing solutions for retirees.

Who wears the risk when assumptions turn out to be wrong?

As history has shown, average lifespans of our population have increased rapidly over the last 50 years. Improvements in medicine, science and lifestyles should have a beneficial im-

fact on how long people live in the future too.

In the current retirement approach, using an account-based pension, it is left to the member to estimate their own lifespan and plan their spending accordingly. There is a growing awareness that saddling members with these risks is leading to poor member outcomes and forward-looking superannuation funds are looking at ways to offer retired members an income for life.

The entity or person who bears the risk of average lifespans changing significantly depends on the type of product and its provider, as demonstrated by looking at three of the more common lifetime income streams.

Annuities provided by life insurers

A lifetime annuity provides a contractually guaranteed income for life. The insurer pays the promised income to policyholders regardless of the underlying mortality experience. Life insurers are required to hold significant capital buffers to help ensure they can meet the guarantees made to policyholders.

If lifespans turn out to be longer than were assumed when pricing the annuity, then this capital is deployed to meet benefit payments. In extremes, additional capital can be raised from shareholders to replenish capital, which happens rarely as the Australian Prudential Regulation Authority (APRA) ensures life insurers hold a minimum reserve of funds at all times. Life insurers can guarantee all existing and future annuity payments in the case of a significant market or property crash.

Defined benefit schemes

Traditional defined benefit pension schemes typically pay members a lifetime pension. Usually, such schemes have an employer sponsor, who is required to pay more to meet any emerging funding shortfalls.

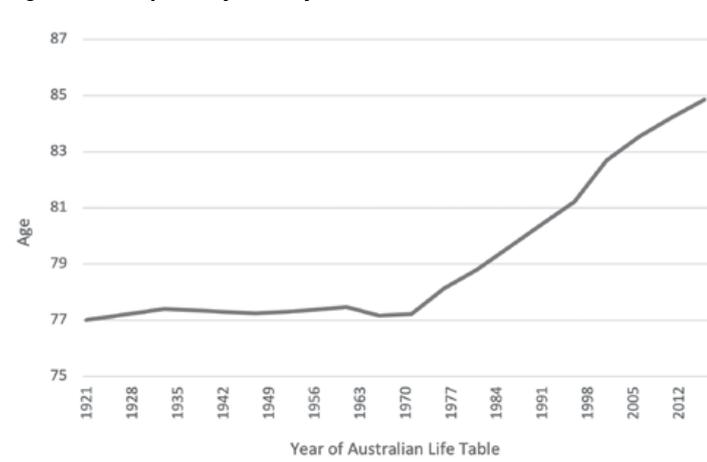
For schemes that are funded, that is, they are supported by a pool of assets, additional contributions might be required. Any promise is therefore dependent on the financial strength of the sponsor. In some countries, industry or government insurance schemes can step in to provide a minimum level of benefits for members should a sponsoring employer become insolvent, such as with the Pension Protection Fund in the UK.

Pooled retirement products

Pooled retirement products such as group self-annuitisation schemes (GSAs) can take many forms. However, for those where the mortality experience is passed through directly to members by adjusting payment rates, longevity risk is borne by the members.

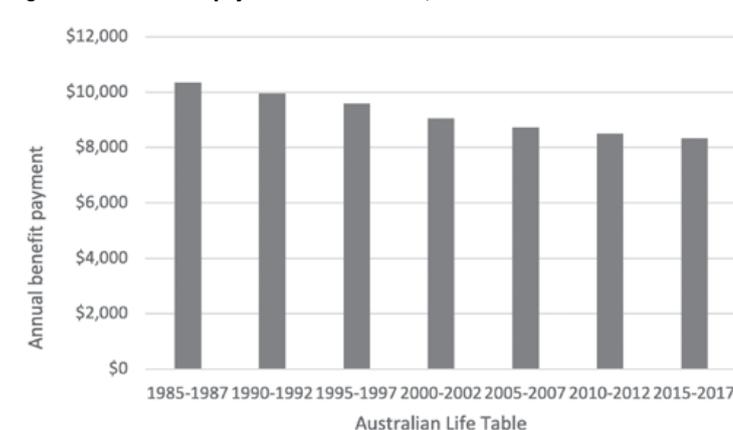
Differences between assumptions and experience are to be expected and can result in volatility in payments year-on-year, up or down. However, if population life expectancies increase then members' benefits will be lower than expected over the course of their retirement. This systematic longevity risk can result in member benefits not keeping pace with rising prices or even reducing significantly over time.

Figure 1. Life expectancy of a 65-year-old male



Source: Australian Life Tables from Australian Government Actuary

Figure 2. Initial annual payment based on \$100,000 investment



Source: Challenger

Example: GSA and systematic longevity risk

Consider a pooled retirement scheme with payment rates set based on the Australian Life Tables available at the time. For simplicity, assume payments are not indexed and the fund achieves net investment returns of 5% p.a. Figure 2 shows how the payment rates for a new 65-year-old male member would have fallen by almost 20% in nominal terms as a result of the changes in the life tables over the last 30 years.

For a member that joined such a scheme 30 years ago their actual income payments are likely to have reduced by more than this, all else being equal. Mortality assumptions are determined using historical data. When life expectancies are rising rapidly, it is likely that assumptions will overestimate the number of members that will pass away meaning benefits are being paid to more members than expected.

For pooled arrangements that pass on mortality experience to members, member payments would need to be



The quote

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reduced as a result. To try and allow for this effect when setting mortality assumptions, actuaries often use historical trends of improvements to estimate how fast life expectancies might increase in the future.

Solutions for superannuation funds

For funds designing new retirement products, systematic longevity risk is a real challenge. Most superannuation funds do not have the capital buffers that come with a balance sheet like a life insurer, nor the luxury of a sponsoring employer willing and able to tip in more capital should it be needed to continue paying adequate lifetime incomes.

However, when looking to meet their member needs with a lifetime income, there are other options available to superannuation funds.

Longevity insurance

Longevity insurance is an innovative institutional solution that enables a superannuation fund to issue contractual returns of various guises in its own name, while having the full balance sheet support of the underwriting insurance company. Under this arrangement the superannuation fund is able to pay the promised income to its members regardless of the underlying mortality experience. It is enabled by a back-to-back group policy with a specialist insurance company.

If lifespans turn out to be longer than expected, then the superannuation fund will be immunised from this risk and is still able to continue the contractual payments to the member. This type of solution provides significant flexibility to superannuation funds with respect to designing and adapting retirement solutions.

Longevity insurance arrangements such as this enable superannuation funds to issue stand-alone longevity protected products or integrate longevity protection as a feature into other products.

Specialist decumulation mandates

Decumulation mandates can come in many forms and seek to achieve various forms of risk control from contractual returns to explicit contractually guaranteed longevity risk protection.

Like longevity insurance, this type of strategy can be integrated into the operational ecosystem of a superannuation fund to allow for holistic retirement product design. A differentiating factor of this strategy is the deconstruction of insurance into its component parts, such that the mandate is comprised of assets managed in accordance with an asset and liability management process, along with appropriate total return swaps and longevity insurance hedges to ensure appropriate risks are maintained and undesirable risks are fully transferred from the superannuation fund.

Longevity swaps

For superannuation funds designing pooled retirement products it is possible to insure longevity risks to pro-

vide greater certainty for members. In a longevity swap a counterparty, typically a life insurance company, takes on this risk for the fund, for a cost, to remove members' exposure to longevity risk.

The superannuation fund has certainty over how long benefit payments will need to be paid to members while the insurer picks up the tab if members live longer than expected. As with all insurance, longevity swaps have a cost, the trade-off coming in the form of slightly lower expected returns to members over the long term.

Conclusion

For superannuation funds that are not able to tap into additional funding when assumptions turn out to be off the mark, systematic longevity risk can be a real deterrent to providing members with a lifetime retirement product. Fortunately, other alternatives exist that can help superannuation funds offer retirement income solutions that do more than just pass this risk on to members. **FS**