

A matter of life and death

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any pension fund trustees have made changes to their funding and investment strategies to reduce exposure to interest rate and inflation risks. Longevity risk has tended to attract much less attention, but this is changing.

Thus far, managing liability risk has generally focused on the hedging of interest rate and inflation risk. The reasons for this are simple: firstly, these are very significant risks; and secondly, markets for instruments that allow these risks to be managed are much larger and more liquid, allowing cost-effective and simple hedging.

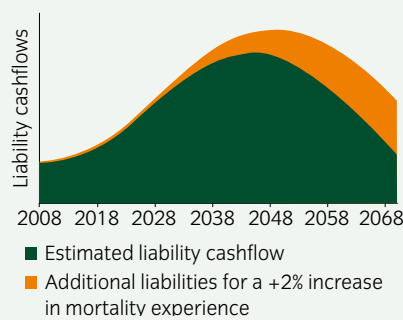
Longevity risk management has attracted less attention. While it has been possible to hedge this risk it has typically been complex and expensive. But markets that cater for this risk are now evolving rapidly bringing a wide range of options to trustees and scheme sponsors. Solutions are now being implemented. For example, it was widely reported in 2009 that Babcock implemented a longevity hedge with Credit Suisse. Other related activity included a deal between RSA and Rothesay Life and more recently between the Berkshire Pension fund and Swiss Re and between BMW's UK scheme and Deutsche Bank.

Does it matter?

Relatively small changes in longevity rates can have a large impact on total liabilities. For instance, if longevity improvement expectations increase by just 2% per annum more than forecast, a typical scheme would see its future

liabilities increase by around 15%, as more members would be receiving pension payments for a longer period. These payments are also likely to be increasing due to future inflation.

Chart 1 – The effect of increasing life expectancy



Bespoke solutions

Longevity solutions to date have generally been customised for specific pension schemes. Calculating the

longevity profile for a specific group of pension members is fairly simple, but relies on a number of key assumptions about the scheme and how these factors will vary over time. The longevity experience of members of a small pension scheme may be volatile and materially different to that of the general population.

Counterparties taking 'the other side' of longevity hedges have previously been difficult to find – the provider of the hedge would have had a risk position that is extremely illiquid with a very long maturity and with potentially uncapped risk. These factors meant that the solutions could appear expensive, and thus less attractive to many pension funds.

What is longevity risk?

In the context of pension scheme management, longevity risk is the potential for the members of any pension scheme to live longer than expected. If scheme members live longer than assumed in the actuarial calculations, the cost of meeting benefit obligations will be higher than expected.

In recent years, life expectancy has been rising substantially thanks to many factors, including advances in medicine. Between 1981 and 2002, the remaining life expectancy for men aged 50 rose by four and a half years. For women the increase was three years. Similar increases were seen for those aged 65.

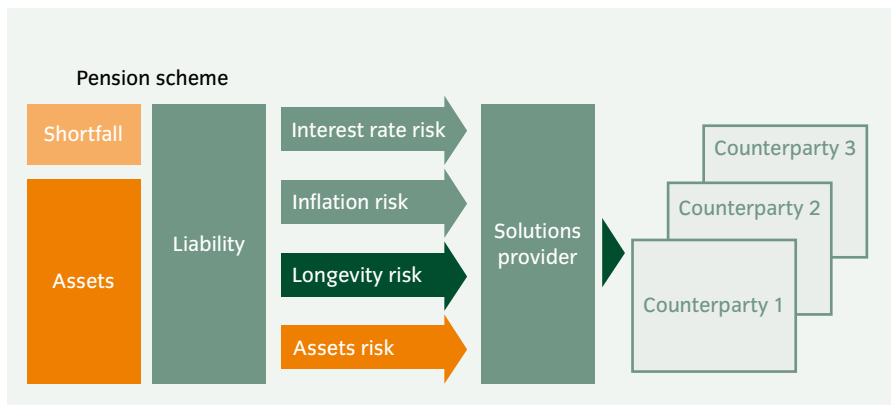
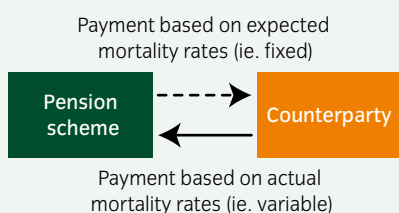
A more homogenised market

A barrier preventing the rapid growth of the longevity hedging market has been the differing requirements of key parties. The vast majority of pension funds require a longevity solution that matches the exact longevity experience of their scheme over the projected future lifetime of the membership. However, investors in insurance-linked securities are normally only interested in taking exposure to changes in population longevity experience to benefit from the risk premium over a fairly short time horizon.

A simple standardised longevity swap is based on population longevity experience, with a maturity of 5 or 10 years. Although this is much shorter than typical scheme liabilities, by including a final payment at maturity based upon longevity expectations beyond 10 years, this can still provide a good aggregate hedge.

By introducing standardised longevity derivatives, some investment banks may be able to offload some of the longevity risk received from pension funds, leaving themselves exposed purely to the basis risk between scheme-specific and broad population longevity. As the bank's portfolio of pension fund hedges increases and becomes more diversified, the basis risk should reduce.

Chart 2 – Longevity swap in action



The way forward

As discussed, a small number of longevity hedging deals have now been executed. Some of these have been in the form of a packaged solution combining longevity protection with interest rate and inflation hedging. Obviously, this is attractive as a 'one-stop' solution, but it may not be the most cost-effective route for many schemes. Breaking down the constituent risks, deciding which of them the scheme does not wish to be exposed to, and then putting together a strategy for hedging those risks, is likely to be cheaper and more flexible.

The development of the longevity market is still in relative infancy, but has made great strides in recent years. Furthermore, the infrastructure that has been built up to service interest rate and inflation swaps can be used to manage longevity hedges, including counterparty risk assessment and collateral management. Many pension schemes have built relationships with solutions providers who in turn have developed the technical expertise to help implement these types of strategy efficiently.

Obviously there are costs associated with introducing a longevity hedge.

Although structures vary, under a typical longevity swap the scheme will be paying an amount based on the best estimate of future longevity costs plus a risk margin. The size of the margin will depend on the size and nature of the scheme. However, an effective strategy can help minimise costs and reduce uncertainty for the pension fund.

Long-term pension provision has caused many concerns over the past 10 years. Including longevity hedging in an LDI strategy will not eliminate those concerns, but will increasingly play a part in managing and reducing them.

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