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LONGEVITY HEDGING FOR PENSION SCHEMES
INVESTMENT IMPLICATIONS AND NEW DEVELOPMENTS

PENSION SCHEMES ARE INCREASINGLY CONSIDERING WHETHER AND HOW TO HEDGE LONGEVITY RISK. THIS PAPER OFFERS AN OVERVIEW OF THE INVESTMENT IMPLICATIONS OF HEDGING LONGEVITY RISK AND EXPLAINS KEY DEVELOPMENTS IN THE MARKET.

Investment strategy and regulatory developments are driving increasing pension scheme demand for longevity-risk hedging solutions.

From an investment strategy perspective, a longevity swap can effectively and efficiently hedge longevity risk, with clear benefits relative to conducting a buy-in. **Howard Kearns, Longevity Director at Insight Investment**, outlines the factors that pension schemes should consider when contemplating a longevity swap.

In terms of implementation, there have been several developments regarding longevity hedging. Notably, pension schemes are considering hedging the longevity risk of younger members given the relative cost-efficiency of doing so. The novation of longevity swaps to bulk-annuity providers has also assuaged fears that a longevity swap might complicate such transitions. **Paul Kitson, Partner at PwC**, explains the significance of these and other developments.

STRATEGY – INVESTMENT IMPLICATIONS OF LONGEVITY SWAPS

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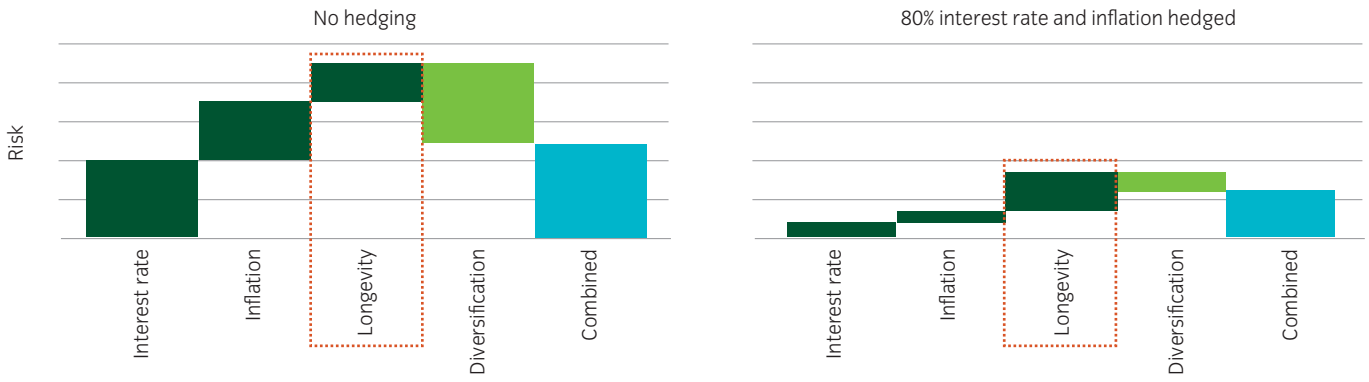
Many pension schemes have managed their liability risks by hedging interest rate and inflation risks through a liability-driven investment (LDI) approach. As a result, from an investment perspective, longevity risk has grown in significance for many schemes (see Figure 1).

This has led trustees and corporate sponsors to consider longevity swaps – an effective and efficient tool for hedging longevity risks.

Hedging longevity risk using a longevity swap can have a direct impact on a pension scheme's investment strategy, including its overall return requirements and its collateral pool. However, it is likely to be more efficient overall than a buy-in, which can have more wideranging implications that make it more difficult for a scheme to achieve its goals.

Figure 1: Longevity risk grows in significance as other risks are hedged[1]



[1] For illustrative purposes only.

How longevity swaps work

Under the terms of a longevity swap, a scheme agrees to make pre-defined monthly or quarterly payments to a reinsurer, via an insurer, in return for regular payments that cover the pensions due to a defined set of pensioners (see Figure 2).

The pre-defined payments paid by the scheme will reflect the reinsurer's best estimate as to the pension payments that will be required, along with an additional 'risk fee' to reflect the risk that the pensioners' longevity will increase.

The net effect is to transform the scheme's obligation to pay pensions – which may vary depending on the longevity of theunderlying pensioners – into an obligation to make a series of pre-defined payments. As such, the scheme is no longer exposed to the longevity of the pensioners.

It is important to note that the pre-defined payment will be linked to inflation in much the same way as the scheme's pension benefits. As such, the longevity hedge does not alter the scheme's exposure to inflation risk.

Figure 2: How a longevity swap works[2]

Collateral assets may not be affected as you expect

If the pensioners underlying the longevity swap survive for longer than the reinsurer expected, or if there is an improvement in future longevity assumptions, the value of the swap will move in favour of the pension scheme. That is, the value of the cashflows the scheme expects to receive from the reinsurer increases relative to the value of the pre-defined cashflows that it must pay to the reinsurer.

In this situation the scheme is exposed to counterparty risk because if the reinsurer defaulted on the contract, it would lose the increased value inherent in the longevity swap.

To manage counterparty risk, longevity swaps are collateralised: assets reflecting the outstanding risk fee, and the changing value of the swap, are posted by the pension scheme and the reinsurer to minimise the economic impact if either party defaults on their obligations.

For most of the swap instruments that pension schemes typically use, such as interest rate and inflation swaps, the scheme is only allowed to post cash or gilts as collateral. In the case of a longevity swap, however, the list of eligible assets often extends beyond cash and gilts to include high-quality corporate bonds.

This can be beneficial for the scheme as it means assets that could not otherwise be used as collateral can be used to collateralise the longevity swap, easing the burden on the cash and gilt portfolio that may be used to collateralise other swap contracts.

For example, if a longevity swap hedges £1bn of pensioner liabilities, a scheme may be required to pledge £50m of assets as fee collateral on day one. If the eligible assets were limited to cash and gilts, this would materially reduce the pool of assets available to collateralise other swap contracts, increasing the amount of leverage associated with those contracts. By posting high-quality corporate bonds as fee collateral, however, the pool of cash and gilts is left unchanged.

What about a buy-in?

Schemes instead might opt to address longevity risk via a buy-in, under which a portion of the scheme's assets are passed to an insurer, who in return promises to meet the pensions due to a defined group of pensioners.

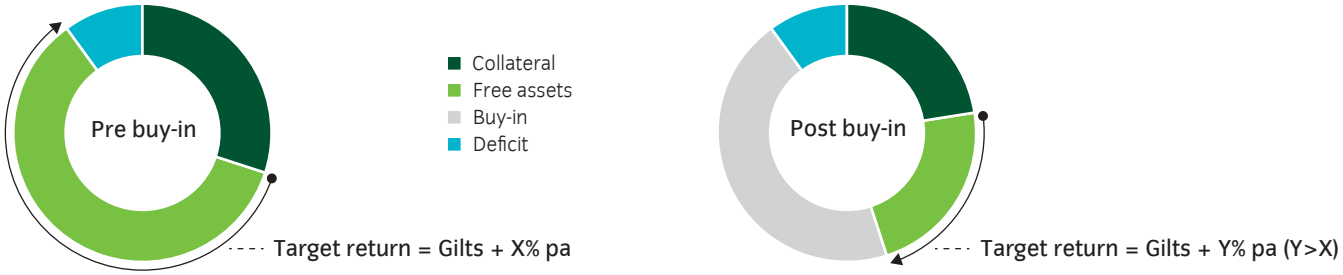
A buy-in immunises against all the risks associated with a group of scheme members. However, buy-ins can consume a disproportionate amount of scheme assets versus the amount of risk they remove, which in turn places additional strain on residual scheme assets, potentially creating significant future risks for a scheme.

[2] For illustrative purposes only. Simplified example based on a single pensioner receiving fixed £10,000 payment per annum.

By allocating assets to the buy-in, and retaining assets to back its low-risk LDI portfolio (to hedge the non-pensioner liability-related risks), the residual assets may need to be invested in a high-return/high-risk assets to achieve a full buy-out within the set timeframe (see Figure 3).

By comparison, a longevity swap removes the same amount of longevity risk as a buy-in, but it has the advantage of leaving all of schemes assets available for investment. This means the scheme can dedicate all of its assets towards the goal of reaching its endgame, unlike a buy-in under which a portion of the assets have been passed to the insurer.

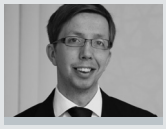
Figure 3: A pensioner buy-in can increase the target return needed from your assets[3]



Longevity swaps: an effective and efficient option for hedging longevity risk

Pension schemes are maturing, and their priorities are shifting: managing their liability risks effectively and efficiently are key if they are to achieve their target within a sustainable timeframe. Taking into account their potential implications for a pension scheme's investment strategy, longevity swaps can play an important role in hedging a key liability risk, ultimately supporting a pension scheme's journey to its ultimate objective.

IMPLEMENTATION – KEY DEVELOPMENTS IN LONGEVITY HEDGING



Paul Kitson
Partner
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The Pensions Regulator continues to encourage pension schemes to manage risk appropriately and encourage trustees and corporate sponsors to have regard for a long-term objective, rather than just short-term Technical Provisions measures.[4]

We therefore believe pension schemes will continue seeking ways of hedging or mitigating risks that could disrupt the journey plan to endgame, including longevity risk.

There have been several developments illustrating the growing demand for and use of longevity hedging solutions:

- As longevity swaps are becoming more commonplace, implementation costs are greatly reduced and documentation is becoming more standardised.
- Some pension schemes are looking at out-of-the money or option structures that provide protection against increases in life expectancy, while retaining the benefits of declining life expectancy.
- Transactions involving participants in the capital markets, and not just reinsurers, are increasingly under discussion.
- Over the last few years, there have been changes in the way longevity swaps are allowed for in pension scheme and company sponsor accounts. In many cases, longevity swaps are allowed for as an 'arms-length' hedging contract, meaning the risk fee is allowed for as it occurs on a year-by-year basis rather than having a day-one impact.

There are two notable developments to highlight in particular: the **growth in demand for longevity hedging for younger members**, and **proof that novation of a longevity hedge to a buy-in provider is efficient and readily achievable**.

Longevity hedging for younger members: an efficient option

Many pension schemes have recognised that most of their longevity risk sits with younger members rather than older pensioners.

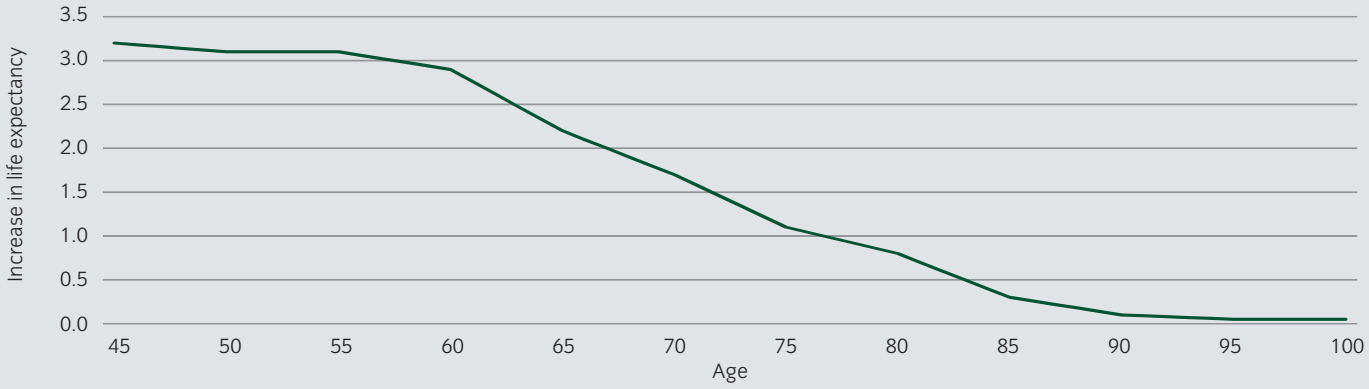
Younger members have increased longevity risk because there is more time for technology, science and regulation to impact how long people live. Even if these new technologies or interventions take time to become available, younger members will still be alive and young enough to benefit from them.

[3] For illustrative purposes only. [4] For example, see the recent consultation on a revised defined benefit funding code of practice: https://www.thepensionsregulator.gov.uk/en/document-library/consultations/defined-benefit-funding-code-of-practice-consultation

Given these factors, the typical standard deviation of potential increase in life expectancy increases rapidly as age reduces.

For a one-year-in-20 event, the possible increase in life expectancy for younger people is much higher (see Figure 4). As a result, the exposure of a pension scheme to a potential increase in liabilities from longevity improving increases significantly the higher the proportion of younger members.

Figure 4: The possible impact of life expectancy increasing is much higher for younger people[5]



This has led some pension schemes to seek to hedge the longevity risk associated with younger members as well as their pensioners. Insurers have been doing this for some time, and many pension schemes are now using the same approach. While the risk fee for insuring younger members is higher than for insuring older members, the amount of risk reduction achieved is substantially higher too.

In Table 1, we show the analysis developed for one pension scheme, where the ratio of cost relative to risk removed is higher for younger members, despite the hedging cost being higher.

Table 1: For one pension scheme, the relative cost-efficiency of a longevity hedge for younger members was much higher[6]

	Younger non-pensioners (under 55)	Older non-pensioners	Younger non-pensioners (under 55)	Older non-pensioners
Average member age	50	60	70	85
Increase to liability from 1 year in 20 upward shift (£m)	120	55	60	1
Lifetime insurance cost (£m)	70	40	70	5
Relative cost-efficiency	1.7	1.4	0.9	0.2

Novation of longevity hedges: simpler than previously feared

The presumed difficulty of novating a longevity swap to a buy-in provider has long been cited as a concern from trustees and corporate sponsors when considering a longevity swap. Concerns have been expressed that if and when a pension scheme wishes to conduct to buy-in, a longevity swap would become a barrier to executing the buy-in.

However, there have now been several transactions where longevity swaps have been novated to buy-in providers as part of a buy-in, such as the British Airways transaction, led recently by PwC.

The feedback from buy-in insurers in these cases is that, done correctly, the existence of a longevity swap can actually make a buy-in simpler to execute, as the insurer does not need to source longevity protection from scratch themselves.

[5] Source: PwC.
[6] Source: PwC. For illustrative purposes only.

IMPORTANT INFORMATION

RISK DISCLOSURES

Past performance is not indicative of future results. Investment in any strategy involves a risk of loss which may partly be due to exchange rate fluctuations.

Any target performance aims are not a guarantee, may not be achieved and a capital loss may occur. Funds which have a higher performance aim generally take more risk to achieve this and so have a greater potential for the returns to be significantly different than expected.

Portfolio holdings are subject to change, for information only and are not investment recommendations.

ASSOCIATED INVESTMENT RISKS

Fixed income and liability-driven investment

Where the portfolio holds over 35% of its net asset value in securities of one governmental issuer, the value of the portfolio may be profoundly affected if one or more of these issuers fails to meet its obligations or suffers a ratings downgrade.

A credit default swap (CDS) provides a measure of protection against defaults of debt issuers but there is no assurance their use will be effective or will have the desired result.

The issuer of a debt security may not pay income or repay capital to the bondholder when due.

Derivatives may be used to generate returns as well as to reduce costs and/or the overall risk of the portfolio. Using derivatives can involve a higher level of risk. A small movement in the price of an underlying investment may result in a disproportionately large movement in the price of the derivative investment.

Investments in emerging markets can be less liquid and riskier than more developed markets and difficulties in accounting, dealing, settlement and custody may arise.

Investments in bonds are affected by interest rates and inflation trends which may affect the value of the portfolio.

Where high yield instruments are held, their low credit rating indicates a greater risk of default, which would affect the value of the portfolio.

The investment manager may invest in instruments which can be difficult to sell when markets are stressed.

Where leverage is used as part of the management of the portfolio through the use of swaps and other derivative instruments, this an increase the overall volatility. While leverage presents opportunities for increasing total returns, it has the effect of potentially increasing losses as well. Any event that adversely affects the value of an investment would be magnified to the extent that leverage is employed by the portfolio. Any losses would therefore be greater than if leverage were not employed.

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