Should DB schemes buy in to the case for buy-ins?

Buy-ins can be a useful tool in schemes' armoury as they de-risk into their endgames, but only under certain conditions.

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As defined benefit (DB) pension schemes mature and become better funded, they are increasingly looking to insurance solutions to help them de-risk. Three common solutions are:

- **Buyout:** the scheme pays a premium to an insurer, which takes ownership of a portion of the scheme's assets as well as the liability of being responsible for paying the pensions of the scheme's insured members
- **Buy-in:** similar to a buyout, but having been paid a premium by the scheme the insurer makes payments to the scheme, which pays the members in turn. The trustees treat their insurance policy as another asset
- **Longevity swap:** the scheme transfers the risk of paying for its pensioners living longer than expected to a counterparty in the form of a commitment to exchange payments throughout the term of a swap

In this paper we focus on buy-ins, whose key benefit is that they remove all the risks of those members covered by the policy. These include investment risk, re-investment risk, rates and inflation risk and longevity risk.

We believe that factors that make a buy-in of pensioners more appealing include:

- Attractive pricing of the buy-in
- A low return target for the scheme
- An inefficient current investment strategy for pensioners
- Pensioner risk dominating the scheme
- Substantial hedging challenges (perhaps relating to the benefit structure) which are better transferred to an insurer to handle
- Limited governance bandwidth

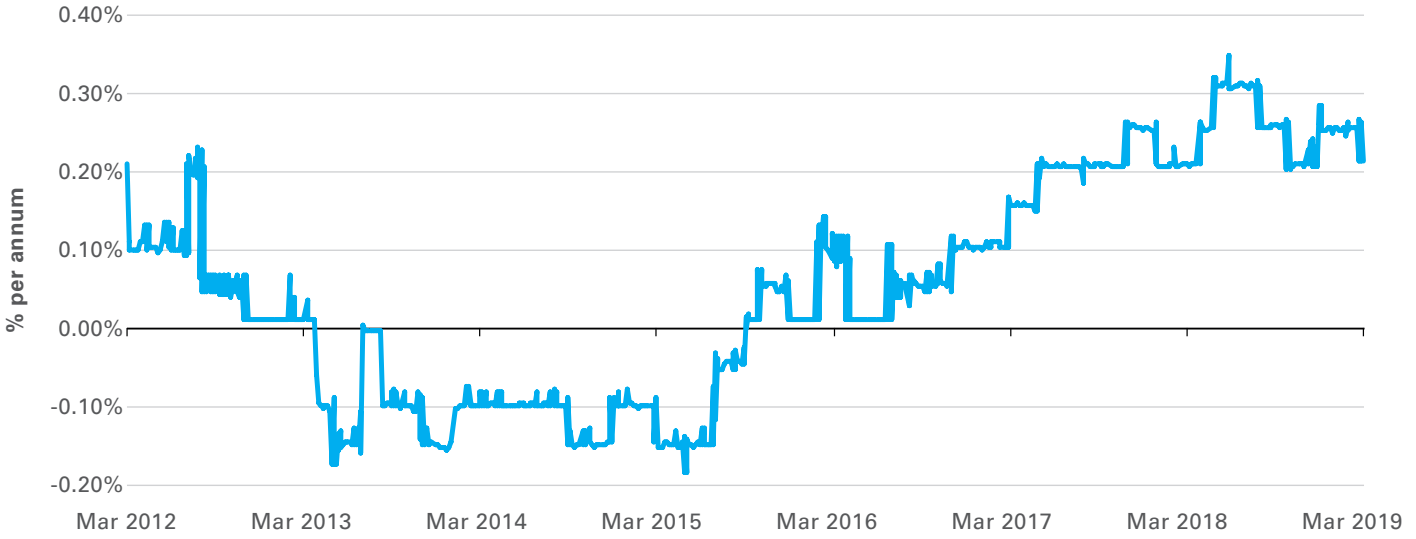
We explore each of these factors in turn and present a model that brings them together under a unifying framework which may help weigh a decision.

Legal & General
INVESTMENT MANAGEMENT

ATTRACTIVE PRICING

The difference between the cost of a buy-in and the scheme funding liabilities is typically larger for non-pensioners and reduces with age. As a result, buy-ins are much more common for (a section of) pensioners. Figure 1 shows how insuring pensioners has cheapened relative to gilts in recent years[1]:

Figure 1: pensioner buy-in price versus gilts - yield difference (higher values are cheaper)



Source: WTW bulk annuity and longevity market update, March 2019

Drivers for the improved pricing over the past few years include:

- Increased use by insurers of higher-yielding and less liquid assets
- Greater competition between insurers
- Decreased costs of longevity reinsurance to reflect recent longevity trends[2]

Notwithstanding these improvements, pricing may still be perceived as 'expensive', reflecting prudence and profit margins that must be baked into any insurer's pricing.

But this does not automatically mean it does not make sense to conduct a buy-in. Rather, there may be a sacrifice of expected return in order to reduce risk. In this case choosing not to hedge effectively offers a risk-reward opportunity for trustees, which needs to be balanced with the other opportunities available.

A LOWER RETURN TARGET

Setting the overall return target for a scheme is a complex matter, depending on a number of factors. These include the funding position (both in funding level and deficit terms); any deficit recovery plan in place; the strength of employer covenant; and other scheme circumstances.

It is important to understand the impact of a buy-in in a broad context, rather than in isolation. Whilst a buy-in of (some of the) pensioners for an underfunded scheme eliminates the risk of those members, it can also mean that the assets not used to fund the buy-in need to work harder[3].

If the buy-in is priced at gilts, and the assets are sold are gilts, then no 'risking-up' of other assets is required. But often the scheme would need to sell post-retirement strategies that are generating excess returns, in which case it could become challenging to maintain the overall return target.

1. The pricing is likely based on scheme cashflows that make a prudent estimate for longevity. Pricing on gilts + x with prudent longevity corresponds to pricing of gilts + y, where y < x, on best-estimate assumptions for longevity.
2. Albeit this does not inherently make a buy-in more attractive relative to doing nothing, given that members are expected not to live as long.
3. But not necessarily; e.g. if buy-in pricing is attractive and/or excess gilts are used to fund the buy-in.

Further, even if the return target can be maintained, it is generally harder to generate higher returns as efficiently as lower returns, because excess return per unit risk (i.e. the Sharpe ratio) goes down. For example, it is difficult to achieve 6% pa over gilts in a diversified way (in the absence of leverage or substantial alpha), because a scheme would likely need to focus almost entirely on equities.[4]

Another potential barrier to maintaining efficiency is that using the cash and liability-driven investment (LDI) parts of scheme assets to fund a buy-in could mean that the scheme can no longer hedge rates and inflation risks to the same degree.

INEFFICIENT INVESTMENT STRATEGIES

For DB schemes, a key consideration is that cashflow-matching credit can be a highly risk-efficient way of generating excess returns to pay pensioners.[5] A DB scheme that is not using such a strategy may find a buy-in more attractive.

As we have explained elsewhere,[6] we believe that cashflow-driven strategies should form a key component for DB schemes, particularly those approaching their endgames. Our research shows that they can offer a more attractive distribution of outcomes for a scheme than a "barbell" approach from growth and LDI assets.

However, it is important not to overstate the potential benefits of credit. Reasons include demographic risks in the liability cashflows and the fact that historic credit returns might understate the risks posed by the asset class, due to a lack of extreme tail scenarios.[7] There is also, of course, only a limited supply of cashflows to match (i.e. only so many pensioner cashflows). Our analysis and calculations, shown later, allow for these considerations.

PENSIONER RISK

If pensioners dominate the scheme compared to non-pensioners, then a lower return target is likely to be appropriate. In addition, their risks cannot be 'diversified away' by other risks in the scheme to nearly the same degree.

MORE SUBSTANTIAL HEDGING CHALLENGES

Some schemes may face more substantial challenges in hedging risk so may find passing those risks to an insurer a more appealing prospect.

A buy-in eliminates all longevity risk for those members bought-in, including uncertainty around the age of spouses (and other eligible dependants). It also eliminates what we call 'small scheme risk', which arises when membership is too low for idiosyncratic demographic uncertainties to be diversified away by pooling.

In addition, a buy-in removes investment risks that can be hedged in principle by the scheme itself but are hard to do well in practice; for example, challenges hedging CPI-linked and LPI-linked liabilities.

LIMITED GOVERNANCE BANDWIDTH

There may be a view that maintaining a robust governance structure to manage pensioner risks is disproportionately time, cost and labour intensive relative to the benefits. The impact of varying degrees of buy-ins on the governance burden for trustees is not straightforward. For example, buying-in only half of a scheme's liabilities is unlikely to halve the trustees' governance burden.

4. At a more granular level, looking within asset classes, lower return assets tend to generate returns more efficiently. For example, higher rated credit tends to lose a lower proportion of its spread to expected defaults and in equities there is strong empirical evidence that lower beta equities outperform on a risk-adjusted basis.
5. It is generally more difficult to find credit to back non-pensioners due to a lack of longer-dated supply
6. See, for example our **2017 paper on covenant risk** and our 2016 paper **Endgame portfolios and the role of credit**.
7. There is a non-linear effect whereby it may only require a financial crisis (such as the global financial crisis of 2008/2009) to be moderately worse for defaults to be multiples higher. Many companies only just escaped disaster and only thanks to unprecedented measures from central banks and the state and which may be difficult to repeat in the future.

PUTTING IT ALL TOGETHER

The heat-map in Figure 2 shows, under a model we have developed, how the 'optimal' proportion of overall assets to spend on buying-in pensioners varies with:

(a) The fraction of the scheme that is pensioners (which is strongly related to scheme maturity)
(b) The target return of the scheme[8] (over gilts)

As an example, the model suggests that a scheme that is 90% pensioners and whose overall assets (including insurance policies bought) are targeting gilts + 0.75% should spend about 28% of its assets on buy-ins for pensioners.

Figure 2: Proportion of total scheme assets used to buy in pensioners

proportion pensioners\ scheme return target over gilts	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%
5%	5%	5%	5%	0%	0%	0%	0%
10%	10%	10%	10%	0%	0%	0%	0%
15%	15%	15%	15%	0%	0%	0%	0%
20%	20%	20%	16%	2%	0%	0%	0%
25%	25%	25%	18%	4%	0%	0%	0%
30%	30%	30%	20%	5%	0%	0%	0%
35%	35%	35%	21%	7%	0%	0%	0%
40%	40%	37%	23%	9%	0%	0%	0%
45%	45%	39%	25%	11%	0%	0%	0%
50%	50%	41%	26%	12%	0%	0%	0%
55%	55%	42%	28%	14%	0%	0%	0%
60%	58%	44%	30%	16%	0%	0%	0%
65%	60%	46%	31%	15%	0%	0%	0%
70%	62%	47%	33%	6%	0%	0%	0%
75%	63%	49%	27%	0%	0%	0%	0%
80%	65%	47%	17%	0%	0%	0%	0%
85%	67%	38%	7%	0%	0%	0%	0%
90%	58%	28%	0%	0%	0%	0%	0%
95%	49%	19%	0%	0%	0%	0%	0%

Source: LGIM calculations

This model takes into account the factors discussed, making what we feel are realistic assumptions at the time of writing (given in the appendix).

8. Including the implicit return from insured pensioners

A key assumption for our analysis is that the trustees are more interested in funding level risk than deficit risk. A focus on this means that given a target return for the assets (such as gilts +1%) the 'optimal' percentage asset split is always the same regardless of the funding position.[9]

The broad pattern reflects the challenges of generating returns from a reduced asset base following a buy-in. The gilts +1.25% column is interesting: the loss of credit as a diversifying and efficient source of returns means that it is probably not worth buying-in any pensioners if they comprise only 5% of the scheme. And if pensioners are 75% or more of the scheme, then meeting the overall return target becomes too challenging. But there is a sweet-spot in the middle, where buying-in a fraction of pensioners can make sense, according to the model.

SCHEME CIRCUMSTANCES

A key point is that the results from our analysis can be sensitive to the exact assumptions used, which will vary with the scheme's circumstances.

The sensitivities underline why bespoke analysis is so important. A decision to buy-in would clearly not be taken lightly by trustees, who would work with actuarial and investment advisors to ensure the funding strain is manageable. However, we believe our framework offers an additional layer of insight, combining key factors into a quantitative tool for use in reaching a decision.

This sort of approach can be combined with our models that simulate long-term outcomes for use in judging success for schemes.[10] In particular, it can help set an appropriate target return.

OTHER FACTORS

There are a number of other factors trustees should be thinking about if a buy-in is on the cards. For example, a focus on deficit risk, rather than funding-level risk, can help promote buy-ins for underfunded schemes because liability risks, such as longevity risk, become relatively more important.

A general point is that it's worth trustees ensuring that member data is accurate and up to date. Even if a buy-in is two years away, it would be prudent for trustees to get ready so they can move quickly if need be.

AN ABUNDANCE OF CHOICE

Trustees and sponsors have more choices than ever before to secure members' benefits. Whether a trustee board decides to keep responsibility for this itself, or transfer some or all of that responsibility to an insurance company, the decisions that will need to be made will be different from those that the trustees have made previously.

The endgame is more nuanced and other issues come to the fore. Buy-ins can be a useful tool in schemes' armoury as they de-risk into their endgames. As we have shown in this paper, there are a number of interesting factors at play, which when viewed together provide a crucial insight that should help inform a decision on whether a buy-in is indeed the right course of action for a scheme.

9. Since one is looking at the geometric difference between asset and liability returns. This allows the influence of funding level on decisions to be reflected purely in the target return.
10. As described here **our 2017 paper on covenant risk**

APPENDIX

Underlying assumptions:

Assumption	Value
Return on insured pensioners*	Gilts pa
Proportion of assets required in LDI – pensioners	17.5%
Proportion of assets required in LDI – non-pensioners	40%
Effective Sharpe ratio on cashflow matching credit backing pensioner cashflows	0.75
Longevity cashflow risk – pensioners	1.85% pa
Longevity cashflow risk – non-pensioners	2.40% pa
Correlation between longevity risk of pensioners and non-pensioners	0.9
Wedge (RPI-CPI) cashflow risk	0.50% pa
LPI cashflow risk (model uncertainty in delta hedging)	0.25% pa
Overall longevity + wedge + LPI risk – pensioners **	1.93% pa
Overall longevity + wedge + LPI risk – non-pensioners **	2.46% pa
Sharpe ratio of growth assets (any assets that are not CF matching credit or LDI)	For arithmetic risk premia (ARP) of 0-4% assume 0.4. Then trend downwards to a Sharpe ratio of 0.2 for an ARP of 5.0%
Correlation between returns on assets backing pensioners and non-pensioners	0.6

* Using best-estimate liability cashflows

** Assuming these three risks are uncorrelated

Other simplifications include an assumption that non-insured pensioners are backed by a combination of cashflow-matching credit and LDI and that the scheme must be 100% funding level-hedged against movements in interest rates and inflation.