

Covenant risk – modelling, managing and mitigating a key risk

Moving schemes towards better glidepaths



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THE RISK LESS MODELLED

As part of LGIM's focus on Liability Aware Investing¹ we have been urging our clients:

- a) to manage their scheme risk in a holistic way; and
- b) to become increasingly outcome orientated in their decision making.

This means that "paying all pensions as they fall due" should increasingly be the primary driver of all scheme decision making. In practice, we believe this means trying not to be overly distracted by short-term moves in markets.

Our view of success for pension schemes is "the assets outlasting the liability cashflows". This is not a definition many would disagree with, and almost all of our clients are aspiring to some well-funded measure over time – usually buyout or a flavour of self-sufficiency. However, schemes face many hurdles along the way to achieving their aspirational targets. There are three key types of risks facing pension schemes today:

1. **Economic risks** – broadly defined as scheme assets underperforming or liquidity requirements not being correctly anticipated
2. **Demographic risks** – the most well known example here is longevity risk. Our Long-term Thinking² looks at demographic risks in a more general context
3. **Sponsor or covenant risk** – the risk that a sponsor becomes insolvent, forcing the scheme to wind up. This would crystallise a shortfall on a buyout basis or cause the scheme to enter the Pension Protection Fund (PPF). Both events would not meet our definition of success for a pension scheme as pension payments would not be paid in full

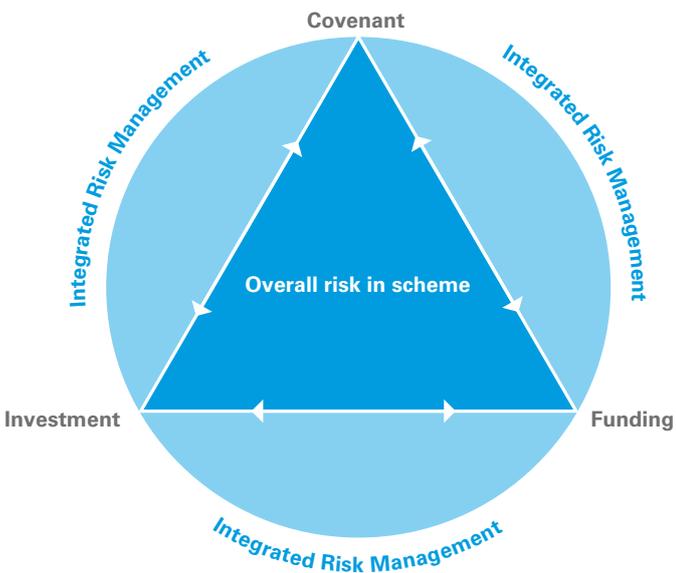
1. http://www.lgim.com/library/knowledge/thought-leadership-content/db-dynamics/DB_Dynamics_MARCH_17.pdf

2. http://www.lgim.com/library/knowledge/thought-leadership-content/long-term-thinking/baby_boom.pdf

Much of the decision making made by trustees already incorporates economic risks, and often in relatively detailed ways. More sophisticated models (such as LGIM's model³) also capture longevity risk. In this paper we focus on the influence of covenant or sponsor risk, as we believe very few schemes integrate it into their decision making as well as they could, sometimes regarding it instead as more of a 'stand-alone' risk.

Understanding the influence of covenant risk is particularly important given the Pensions Regulator's guidance on Integrated Risk Management. This requires trustees to understand investment risk, covenant risk and funding risk, and how these interact, in order to make the best decisions (Figure 1).

Figure 1. Integrated Risk Management



Source: the Pensions Regulator

DE-RISKING GLIDEPATHS

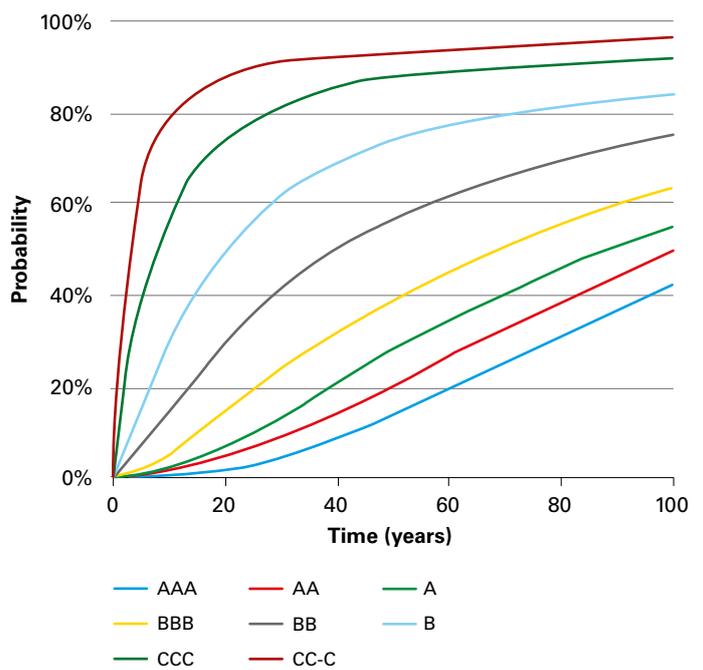
Most schemes explicitly create a de-risking glidepath and/or will actively consider de-risking as and when funding levels improve. Standard practice usually dictates that as funding levels improve, and upside potential reduces relative to downside risk, pension schemes should de-risk their investment strategy. Simply put: schemes reduce their growth assets and increase their 'matching' assets (those assets with bond-like properties).

We believe this makes sense⁴. Of course, one impact of this approach is that schemes also reduce the relative pace at which they can hope to reach their funding target – the less growth assets a scheme has, the less quickly it can hope to make up any deficit between its assets and liabilities. One of our key aims here is to explore the implications for glidepath construction of allowing for covenant risk.

COVENANT RISK IS SUBSTANTIAL

The typical sponsor of a UK defined benefit scheme is rated BB. Historical default rates for BB rated bonds suggest that approximately one third of BB companies will default within 20 years. This means that a typical scheme whose sponsor is rated BB has a one in three chance that within 20 years the sponsor will no longer be a source of contributions. Substantial liabilities are likely to remain at this point in time.

Figure 2. Cumulative probability of sponsor default



Source: LGIM calculations

3. http://www.lgim.com/library/knowledge/thought-leadership-content/foresight/LGIM_Foresight_Sep_2016.pdf

4. http://www.lgim.com/library/knowledge/thought-leadership-content/de-risking-dynamics/LGIM_DeRisking_Dynamics_MAY_15.pdf

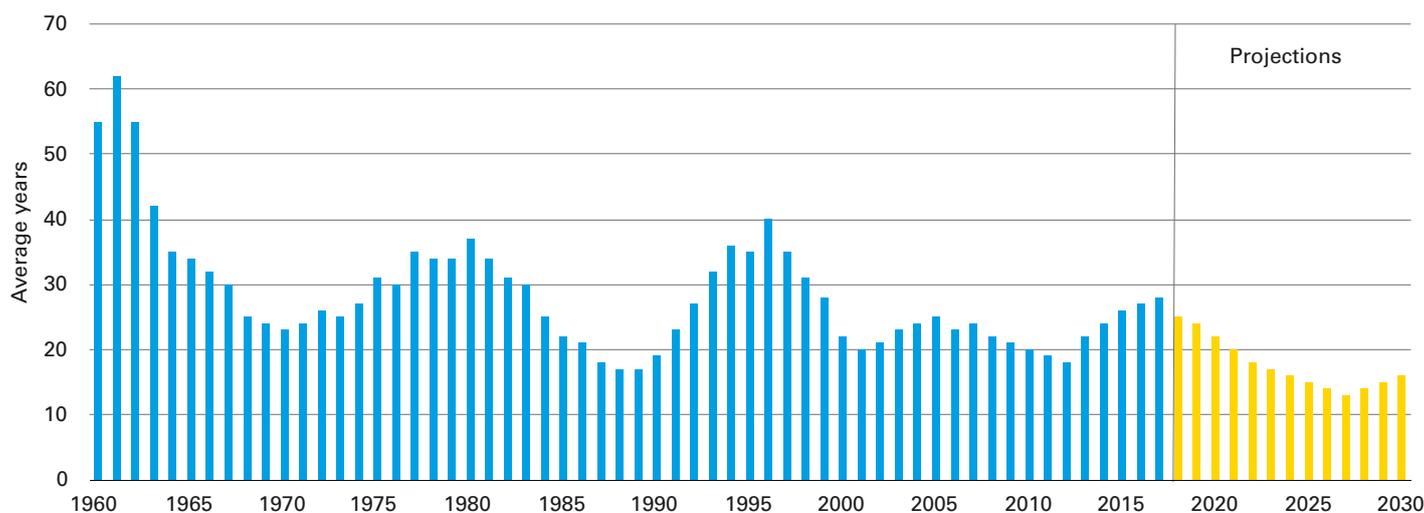
The risk of sponsor default is potentially compounded, relative to history, by an accelerating rate of change in the corporate world due to significant technological disruption. This makes it very difficult to extrapolate the health of companies in different industries, and at different stages in their evolution.

In 1965, the average tenure of companies in the S&P 500 was 33 years. By 1990 it had fallen to 20 years. It is forecast to shrink to 14 years by 2026. In the past seven years alone

many renowned companies and household names have been jettisoned from the S&P 500 including: Eastman Kodak, US Steel, Dell and the New York Times. They have been replaced by companies such as Facebook, PayPal and Netflix. This has potentially material implications for the long-term prospects of schemes and their covenants.

The schematic in Figure 3 below highlights how the average tenure of companies in the S&P 500 has evolved over time.

Figure 3. How the average tenure of companies in the S&P 500 has evolved over time



Source: INNOSIGHT

PRACTICAL SOLUTIONS FOR INCORPORATING COVENANT RISK

Trustees face challenges both in evaluating their sponsor, and in recognising the risk that their sponsor may not be a funding panacea in the future. But what should scheme trustees do to keep focused on that definition of success: “Paying all pensions as they fall due”?

We have two straightforward suggestions that may assist trustees with this challenging problem:

1. Allow for covenant risk as credit risk and model this risk

Trustees of well-funded pension schemes may not think that covenant risk is too important. However, even a fund that is 100% funded on self-sufficiency basis runs some form of covenant risk because they are unlikely to be fully funded on a buyout basis. In the event of sponsor default the pension scheme is likely to be forced to wind-up and buy out benefits.

Covenant risk is one of the biggest risks that pension schemes have to manage (and probably the hardest to quantify), and yet traditional asset liability modelling (ALM) ignores it. To help address this, LGIM has taken its approach that focuses on long-term success (set out in detail here), and incorporated covenant risk.

We simulated covenant risk in a similar way to the default risk of a corporate bond. This was done in parallel with the scheme’s assets and liabilities. On default of the sponsor we assumed that the scheme would be forced to wind up and buy out benefits with an insurance company⁵. No account was taken of the PPF as a backstop (as this is not permitted by the Regulator). We assumed the scheme would be unable to recover any money from the sponsor on wind-up.

5. We did not allow for the possibility of the scheme running as a ‘zombie’ i.e. without a sponsor. However we can provide analysis along these lines for trustees that are interested.

2. Re-evaluate the definition of success

Trustees may need to re-think how they judge success, or at least consider another angle. Ultimately, what should trustees care about? Is it a funding level figure, a deficit figure, a short-term volatility or value at risk? None of these metrics are in themselves sufficient. Essentially the trustees' job is to ensure that members get paid their pensions and, if members do not receive their full pension, that they receive as high a proportion of it as possible. They need to do this bearing in mind all the risks that the scheme faces, including covenant risk.

As such, we are now encouraging our clients to consider, for each possible future scenario, a measure we call "Proportion of Benefits Met" (PBM). This is simply:

The sum of pensions paid divided by the sum of pensions promised.

As a simplified example, suppose the trustees have promised payments of £100 per annum for the next 20 years. The scheme assets meet these promises for the first 10 years but then the sponsor defaults, the scheme winds up, and only 50% of the remaining benefits are met on buyout. In this instance the PBM value would be 75%⁶.

For trustees, PBM creates an easier way to think about success, given all the risks and uncertainties they are constantly managing. Good governance under this model is to obtain "the most attractive distribution for PBM as possible"

Ensuring that all member benefits are paid is clearly the ultimate success. The chance of success (or probability of paying all pensions), calculated as the proportion of all simulations where PBM equals 100%, is one metric that we have used in the past. However, where all pensions cannot be paid in full, the extent of the shortfall in the event of failure is also important. As such, whilst trustees should normally (where realistic) continue to seek a high value for the chance of complete success, they should also seek to improve other measures such as the expected (i.e. average) value of PBM over all simulations. We call this metric the Expected Proportion of Benefits Met (EPBM). This takes into account the extent of a shortfall, not just the chance of there being one.

Journey planning: don't de-risk too early

The inclusion of covenant risk materially changes the answers to some of the questions trustees should be asking themselves. For example, trustees often ask themselves:

- a) "Is it better to invest relatively conservatively and target a lower return for longer?"; or
- b) "Should we invest relatively aggressively and target a higher return for a shorter period of time?"

If the answer is (a) then the scheme has a less volatile funding position with a more reliable progression towards its endgame, **but the scheme is exposed to covenant risk for longer**. If the answer is (b) then scheme assets are more volatile, **but the scheme is likely to be exposed to covenant risk for a shorter period of time**.

The ideal strategy will trade off a reduced period that the scheme expects to be exposed to covenant risk against more severe consequences if a 'perfect storm'⁷ occurs. By considering all of these factors within one consistent framework we can help trustees to avoid 'fighting blind'.

So what are the results? In many circumstances, we find that allowing for covenant risk actually pushes trustees closer to (b) and further from (a).

Traditional asset liability modelling for defined benefit pension schemes ignores covenant risk. Integrating this risk, trustees may find that a higher allocation to return-seeking assets makes sense. In terms of a de-risking glidepath this means de-risking later or by less.

6. Calculated as $(10 \times 100 + 10 \times 50) / (20 \times 100) = 75\%$

7. Where sponsor default coincides with scheme underperformance

Figure 4. Allocation to growth assets for strategies seeking to maximise EPBM

Buyout Funding Level \ Sponsor credit rating	AAA	AA	A	BBB	BB	B	CCC	CC-C
60%	65%	65%	65%	65%	65%	65%	65%	65%
65%	65%	65%	65%	65%	65%	65%	65%	65%
70%	30%	40%	40%	45%	45%	65%	65%	65%
75%	15%	15%	15%	30%	30%	65%	65%	65%
80%	10%	10%	10%	15%	25%	35%	65%	65%
85%	5%	5%	5%	15%	20%	30%	40%	65%
90%	0%	0%	0%	10%	15%	25%	35%	55%
95%	0%	0%	0%	0%	10%	20%	25%	25%

Source: LGIM calculations

Figure 4 shows the allocation to growth assets of ‘optimised’ investment strategies for a range of typical schemes. For each scheme, these were obtained by testing many different investment strategies and selecting the one that maximised our EPBM measure. The schemes differ in terms of their sponsor’s initial credit rating (a reflection of covenant strength) and the scheme’s initial funding level (here quoted on a buyout basis). As might be expected, higher funding levels are associated with lower allocations to growth assets – this agrees with standard glidepath logic. However the other important observation is that the lower the sponsor’s credit rating, the higher the scheme’s allocation to growth assets. The results suggest that a typical scheme with a BB rated sponsor would hold a significant (10%) allocation to growth assets even when 95% funded on a buyout basis.

The basic reason for this is that the higher the chance of sponsor default, the more that the possibility of (early) buyout matters in the optimisation. Given that buyout is the most expensive way of securing benefits, optimisation suggests holding more in return-seeking assets to help

close the larger funding gap on buyout sooner. It isn’t quite this simple – there are other factors at play⁸, which we will explore in detail in a later piece, but this is the key driver.

We also believe that this heatmap approach could inform how trustees set de-risking glidepaths, as it captures the impact of changing covenant strength as well as allowing for traditional de-risking triggers.

SETTING LIABILITIES

The framework can also be used to help set the Technical Provisions (TP) liabilities for a scheme, influencing the stated funding position and the pace of funding via recovery plans. This is the remaining piece of the puzzle in the Integrated Risk Management triangle shown in Figure 1.

The Pensions Regulator states that “Technical provisions should represent a target reserve to hold against a scheme’s future liabilities calculated using assumptions that have been chosen prudently, taking into account the degree to which the employer covenant can support a range of likely adverse outcomes⁹.”

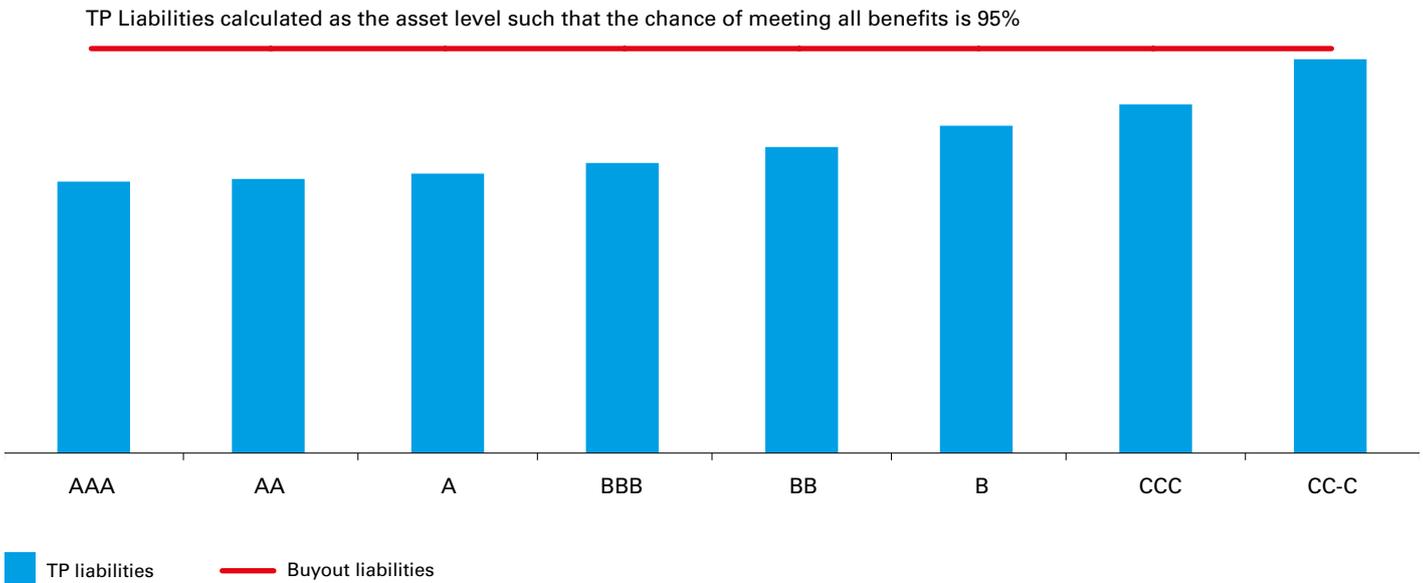
8. Including the influence of sequence risk, the period the scheme is expected to be exposed to covenant risk, the risk of a ‘perfect storm’ (where the sponsor fails when markets are most depressed) and the exact choice of success metric. It’s complicated, which is why models can help assess the trade-offs!

9. Source: <http://www.thepensionsregulator.gov.uk/codes/code-funding-defined-benefits.aspx#s15024>

Figure 5 shows an example where we have defined TP liabilities such that — if the scheme were 100% funded on TP — there would be a 95% chance of meeting all benefits¹⁰. This approach both allows for prudence and integrates the influence of covenant risk, as the regulator requires. The weaker the sponsor covenant the more

likely the possibility of early buyout becomes. A higher TP liability is then required for trustees to be confident they could meet all benefits if the scheme were fully funded on that basis. In our later piece, we will explore in more detail how changes in asset allocation and sponsor strength should impact TP liabilities.

Figure 5. Using our framework to set TP liabilities



Source: LGIM calculations

Qualitative oversight is important

This framework is designed to provide a holistic way for trustees to achieve the right risk balance for their scheme. It has broad applicability, in particular in helping trustees fulfil their duties in terms of Integrated Risk Management. However, it is not “one size fits all”, so some care and caveats are needed:

- In some extreme circumstances the metrics considered are likely to be inappropriate for investment strategy selection. If a scheme were significantly underfunded with a particularly weak covenant (a very high likelihood of insolvency over the next year) these metrics would be inappropriate. This is because they would not capture the risk-aversion appropriate over the very short time-horizon the scheme faces. Long-term thinking is less applicable in this circumstance

- We are not saying that all schemes are necessarily taking too little risk. Trustees may already be running a lot of risk for a variety of other reasons
- In practice, trustees should take into account a range of metrics, including more traditional measures before changing their investment strategy. They should also beware of potential behavioural factors that could drive them towards a lower risk strategy rather than a model-driven approach (that more objectively weighs up different scenarios)
- We are not suggesting that trustees do not currently take account of covenant risk. Rather, while current thinking does in part allow for the inclusion of covenant risk, often this is not done in a way that is well integrated with asset liability modelling. We can offer a holistic approach with quantitatively driven insights into the overall risks schemes face

10. Where for each sponsor rating the investment strategy is chosen to maximise the chance of meeting all pension promises. A similar pattern is found using our EPBM measure.

COVENANT RISK – A CHEAT SHEET FOR TRUSTEES

We have highlighted a number of key reasons we think trustees should be moving covenant risk higher up the governance agenda and re-thinking how covenant risk impacts their asset allocation decision.

Those key reasons are reiterated below:

1. The average sponsor in the UK is BB rated and looking at historical default levels one in three sponsors could potentially be expected to default over the next 20 years
2. Most DB schemes have a de-risking glidepath based on a journey to their endgame of self-sufficiency or buy out. It is very rare for asset-liability modelling (that may influence these glidepaths) to fully integrate the impact of covenant risk
3. Relative to not allowing for covenant risk, the suggested glidepaths have more growth assets held for longer
4. Given all of the risks pension schemes face, and the difficulties in assessing them, basing all decisions on the probability of 100% success may not create optimal outcomes. A framework where trustees consider the expected proportion of benefits met and other metrics that take account of the shortfall is likely to be more appropriate

Our new framework allows trustees to make better informed decisions and, perhaps most importantly, improve ultimate outcomes for scheme members.

WHAT NEXT FROM LGIM?

We would be delighted to meet with you in person to discuss our findings in more detail, and show how they could be relevant for your scheme. For those interested in more of the technical detail (including the assumptions underlying our calculations), we would be happy to share a more in-depth piece in due course.

To set up a meeting or request more of the technical detail please contact your Client Relationship Manager.

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