Integrated Risk Modelling with

LCP Triangulate

a new approach to assessing the pension strategy

July 2023

Introduction

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With more focus on journey planning than ever before, Trustees and sponsors are faced with a range of questions to address in determining their pension strategy

What is the optimum long-term target eg run off, buy-out or consolidator, and by when?

How much of the journey to that target will come from cash funding and how much from investment returns?

Will contributions be paid into the scheme or will contributions be contingent in some way eg escrow?

What is the best way to structure the investment portfolio to achieve the return target?

How and when should the scheme de-risk over time?

The choices made in answering all of these impact on what is done now, how much risk is taken and, ultimately, what members will receive from the scheme. But how should trustees and sponsors go about deciding what strategy is "better" than another?

The defined benefit pension industry uses many different risk metrics usually borrowed from other areas of finance. Although no single quantitative metric can tell you the whole story, they are extremely useful for assessing actions and can accelerate understanding and decision making in a way than non-quantitative, intuition-based approaches cannot.

For more detail on journey planning, please see here

"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science, whatever the matter may be."

Lord Kelvin

Introduction

A key problem, however, is that most metrics used (eg Value at Risk, "VaR") do not directly address the fundamental purpose of all pension schemes – to pay benefits to members. In our minds, a very natural way to choose between the various strategy options available is to simply assess which is expected to result in better outcomes for members. This is what many trustees and sponsors attempt to do when considering the various choices they face but are unable to do it in a quantitative way.

Our new Integrated Risk Modelling approach - LCP Triangulate, complements existing techniques by seeking to measure what members can expect to receive from their DB pension promise. Varying the investment and funding strategies allows a clear comparison on which approach is expected to give better outcomes for members (as well as their associated costs to the sponsor). Alternatively, strategies that give similar outcomes for members but are a better fit to sponsor needs may also be acceptable to everyone.

This analysis is done by applying the same sophisticated risk measurement techniques applied to the assets and liabilities that are commonplace within the industry, but, extending the analysis to include the sponsor. We are then able to allow for the pension fund and sponsor to interact and for sponsor strength to weaken to the point where sponsor insolvency causes the fund to not meet all its obligations, if not already fully funded. Good outcomes for the pension funds can also strengthen the sponsor as less cash may be required to be paid into the fund.

Strategies that reduce the likelihood of members receiving full benefits and increase costs to the sponsor are best avoided. Strategies that meaningfully reduce investment return in favour of reducing Value at Risk measures can often have unintended consequences.

Laun Middleton
Partner

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Case studies

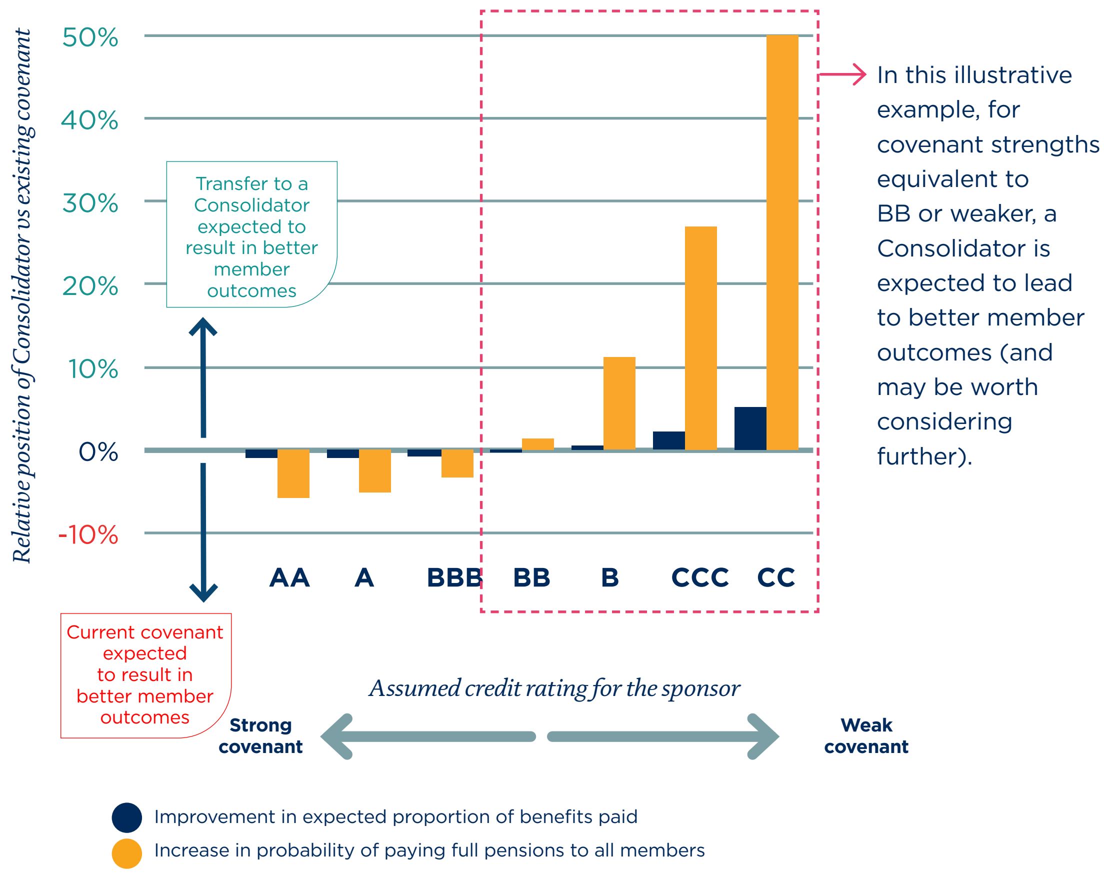
We provide some high-level examples of client cases using LCP Triangulate to support decisions made on pensions strategy. In each case, we address one of the questions posed above that all trustees need to consider.

What long term target should we adopt?

One of the current innovations in the market is the emergence of pension fund consolidators – a consolidator is a defined benefit pension scheme into which other pension schemes can transfer their liabilities. They do not offer the same security as a buy-out with an insurer and operate in a different regulatory environment. However, for some schemes, these vehicles may well provide an attractive solution that is better for members than the more traditional journey plan of taking investment risk now in order to achieve a buy-out after many years. But how can you assess if you are one of those schemes?

We have illustrated some analysis for an example pension scheme on the right, and shown the results assuming it is currently sponsored by a company with a variety of covenant strengths (represented by credit ratings to give additional granularity). As expected, the analysis confirms that the weaker the current covenant, the more likely it is that a consolidator is expected to give members' better outcomes. The powerful aspect of Triangulate is to enable trustees and other parties to quantify the difference. Whilst trustees will need to consider several factors to assess a Consolidator, this approach enables trustees to readily analyse the range of covenant scenarios under which a transfer to a Consolidator may be appropriate. The results for each scheme will depend on many factors, such as the size of scheme compared to the sponsor, investment strategy, current funding position and availability of any additional cash (eg from a wider group) to support any transaction.

For more detail on consolidators, please see here



In this illustrative example, for covenant strengths equivalent to BB or weaker, a Consolidator is expected to lead to better member outcomes (and may be worth considering further).

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Is it better to take more investment risk to achieve the target sooner or a lower level of investment risk over a longer period?

Many trustees wrestle with this decision – the trade-off between the amount of investment risk taken and the time taken to achieve the ultimate objective. One trend that has developed over recent years is the desire to minimise the value at risk (VaR) with advisers and trustees doing all they can to reduce this metric. But is that always a good thing for members? In this example, we analyse the impact on member outcomes for a well-funded pension fund targeting an investment return of 1% in excess of gilts. Although the sponsor is strong and currently can easily underwrite the risks associated with this, the trustees have a desire to reduce VaR further.

Although reducing the target investment return from Gilts + 1% to Gilts + 0.5% reduces the VaR significantly, it also significantly reduces the likelihood of paying all pensions. This sponsor has a single "A" credit rating – stronger than many sponsors. However, the reduction in probability of meeting all pensions when the investment strategy is de-risked is similar to retaining the current investment strategy but reducing the covenant strength to about a BBB credit rating. This is not an approach that is likely to be in the best interests of members.

Why do we get this result? It is because the de-risked strategy now takes much longer to reach buy-out levels of funding, which introduces more downside risk – the long-term covenant is much less certain than the short-term. The result of this analysis may be very different if the pension fund was large relative to the sponsor or perhaps was in a highly cyclical industry (neither of which was the case here).

Situation

Strong sponsor

Well funded pension scheme

Trustees' focus is minimising VaR

Gilts + 1% investment strategy

VaR = **£500m**

Probability of paying members benefits in full = **95%**

Gilts + 0.5% investment strategy

VaR = **£350m**

Probability of paying members benefits in full = **88%**

Case studies continued

Using non-cash funding approaches to maintain member security

The benefits of quantifying the impact of changes to sponsor risk and pension strategy are very clear when looking at the impact of material corporate events eg "Type A" events. In this example, a large corporate transaction led to a material weakening of the sponsor covenant. We were able to quantify the impact of this on expected member benefits, consider the proposed mitigation from the sponsor and the counter demand from the trustee.

Before event	After event	Initial sponsor proposal	Initial trustee demand	Alternative contingent funding
£2.5bn assets Not well funded (c.65%) Strong / tending to strong sponsor Probability of paying members benefits in full = **81%** Average proportion of benefits paid = **97%**	Type A event, more leverage in business, sponsor now tending to weak Probability of paying members benefits in full = **65%** Average proportion of benefits paid = **93%**	Offer of £150m immediate cash injection Probability of paying members benefits in full = **67%** Average proportion of benefits paid = **94%**	£1bn immediate cash injection Probability of paying members benefits in full = **86%** Average proportion of benefits paid = **98%**	£750m in escrow, pay out after 10 years Probability of paying members benefits in full = **81%** Average proportion of benefits paid = **98%** Proportion of escrow expected to return to sponsor = **32%**

The table shows that the impact on members from the event was significant and needed mitigation. It also showed that the initial offer from the sponsor was inadequate and that the initial trustee demand was disproportionately high.

One solution that provided members with very similar level of security post event was an escrow that gave protection under sponsor insolvency for the next 10 years and was paid into the scheme at the end of 10 years, if the scheme needed it. Any excess was returned to the sponsor. This was one example of a settlement – others could have included a charge over assets, funding special purpose vehicles or simply increases to the level of annual contributions.

The power of LCP Triangulate lay in being able to quickly analyse any proposal for its effectiveness in giving security to members allowing a choice to be made on which solution provided the best "fit" for the sponsor and trustees.

Optimising investment strategy and funding for "run off"

We see many pension funds that are well funded, although not yet at a level where they can buy-out. Some additional investment return is needed along with the scheme membership maturing so buy-out deficits reduce. In this example, we consider two different approaches to investing to achieve a relatively low expected return target along with how funding risks can be measured.

In this case, the sponsor covenant was strong but the pension fund was relatively large versus the free cash flow of the business. Therefore, the sponsor was focused on managing cash flow risks in order to retain available funds for ongoing business investment – a key need for their industry sector. The current approach taken to managing this risk was to invest in a diversified range of return seeking assets together with a large holding of gilts / liability driven investments. Within the return seeking assets, there was a heavy reliance on "skill based" investments where active management was expected to be a key generator of the return targeted. The diversification that this approach provided reduced short term risk measures such as Value at Risk (VaR) but the reliance on complex asset classes was a concern as was large "assumption risk" ie the design of the strategy was based on very subjective assumptions.

We compared this approach with an alternative that has gained some traction within the pension industry – a cashflow based approach to investing. In this example we used high quality corporate bonds to match the first 20 or so years of cashflows on a rolling basis. The residual investments were held in gilts and LDI together with some simple return seeking assets (mostly equities). In addition, we modified the way that the technical provisions were calculated to reduce the "noise" from mark-to-market volatility of the corporate bond assets by allowing for about half of the credit spread within the discount rate for those liabilities that were matched with credit (NB this did not change the initial technical provisions).

The two approaches result in near identical outcomes for members but sponsor contribution risks are better controlled under the cashflow matching approach. The initial conclusion from this analysis would be that members and trustees should be relatively indifferent to the two approaches, but the sponsor would have a clear preference for the cashflow based approach.

Situation

Strong sponsor but pension fund is "large"

£1600m assets

80% funded on buy-out

Target investment return = gilts + 1%

Current return seeking strategy

Return seeking and LDI fully hedged

Probability of paying members benefits in full = **90%**

Average proportion of benefits paid = **99%**

Total sponsor contributions: **£210m ± 80m**

Cashflow matching and asset led discounting

Allow for half of credit spread in Technical Provisions

Probability of paying members benefits in full = **91%**

Average proportion of benefits paid = **99%**

Total sponsor contributions: **£160m ± 50m**

Case studies continued

Conventional thinking – sometimes it works, sometimes it doesn't

In this case study we look at a scheme that has a strong sponsor, a reasonably aggressive investment strategy and a relatively weak funding basis. Unsurprisingly, due to the strength of the sponsor the vast majority of benefits are expected to be paid out (around 98% of the total promise). But in this case there is still a meaningful loss in expected benefits in a downside (1 in 20) scenario (around 84%).

By de-risking and getting more cash in the door sooner, unsurprisingly the downside of member outcomes is improved. In this case the expected proportion of benefits paid improved slightly, but the downside loss was much smaller (88% vs 84%), as shown below.

In this case, the balance between funding, investment and covenant could be improved by reducing the funding and investment risks and taking a little more covenant risk (as covenant risk was low given the current strong position).

However, what happens if the covenant was weak rather than strong? In this scenario we get the opposite result.

In this scenario, de-risking the investments and asking for more contributions was to the detriment of member security, both in terms of central scenarios (expected benefits paid reduced from 96% to 83%) and downside scenarios (from 76% to 69%).

Why? Because putting extra strain on a weaker sponsor tipped the balance. There was already too much covenant risk within the system. Seeking to reduce funding and investment risks (and replace them with more covenant risk) simply made the situation worse.

As such, the Trustee's efforts may be better placed on seeking additional covenant protections (eg parent guarantees, dividend protections, negative pledges or 3rd party protection) rather than seeking additional contributions and investment de-risking.

The reader should take caution in drawing any rule-of-thumb conclusions from this analysis. It isn't as simple as strong sponsors should de-risk and weak sponsors should aim to improve covenant. The results are highly specific to each individual circumstances in terms of how the strength of covenant interacts with the size of the scheme vs the business, the starting position on funding and investment.

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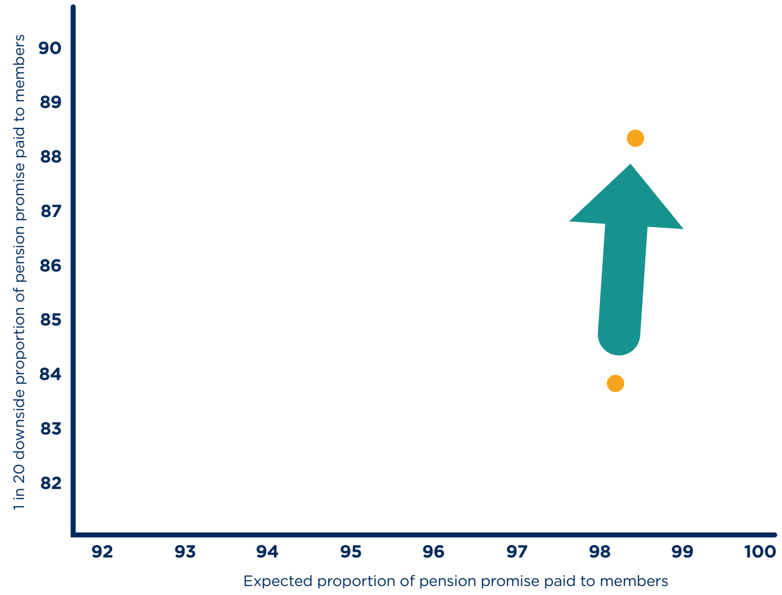
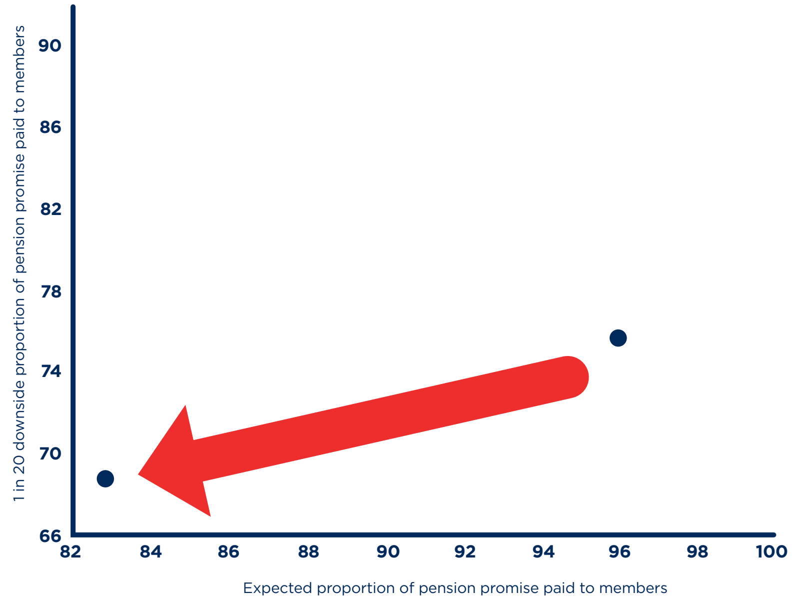
Impact of funding and investment changes for a strong sponsor



Impact of funding and investment changes for a weak sponsor



Summary

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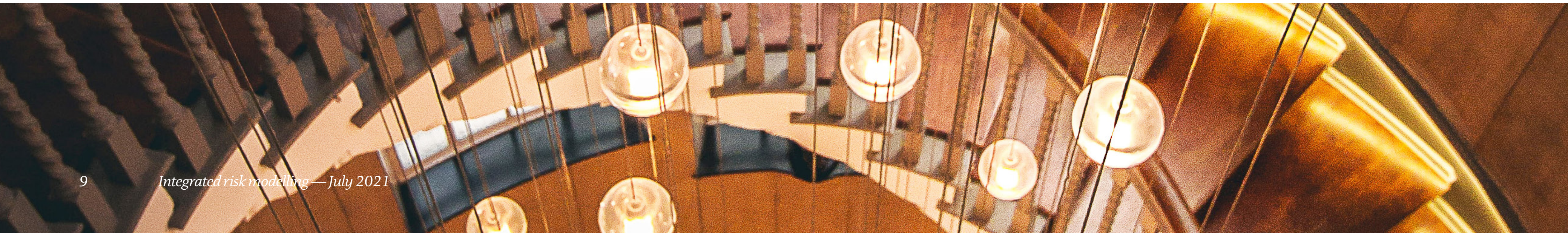
We have outlined a selection of uses for LCP Triangulate, our quantitative approach to analysing pension strategy for both trustees and sponsors that directly measures expected member outcomes. The same analysis can also be used to look at other company metrics, such as the distribution of sponsor contributions, dividends or credit ratings.

Whilst there is a lot of complexity “under the bonnet”, we believe the simple metrics based on member and sponsor outcomes are important for trustees and employers to focus on for decision making. By pulling together investment, funding and covenant into a single metric trustees and sponsors are now able to quickly address the complex issues they face on setting investment strategy, funding assumptions, the value of parent company guarantees etc.

Although the approach is new, LCP Triangulate is well aligned to the evolving pension regulatory landscape and, we believe, will become a key part of pension analysis in the coming years.

LCP is the leader in bringing new ideas and technology to the market to help our clients make better decisions more quickly. We believe LCP Triangulate cuts through much complexity enabling stakeholders to focus on what matters when setting their investment and funding strategy.



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At LCP, our experts help to power possibility by navigating you through complexity to make decisions that matter to your business and to our wider society. We are powered by our desire to solve important problems to create a brighter future. We have market leading capabilities across pensions and financial services, energy, health and analytics.

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