

What new insights does quantitative covenant assessment provide?

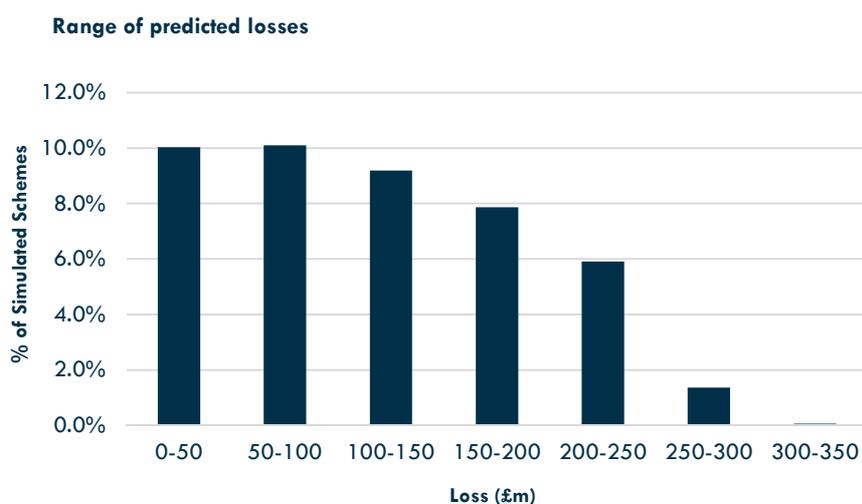
Nearly ten years have passed since the 2004 Pensions Act; some schemes have already been through three triennial valuations in this time. The covenant assessment in these valuations has to date been mostly qualitative. Qualitative assessment is a useful tool in understanding the particular risks the sponsor faces, however some trustees feel that very little new information is being brought to the table in each successive assessment. Qualitative methodology struggles to objectively identify the key risks to the scheme and their magnitude. The employer covenant is assessed separately to investment, longevity and economic risks; only recently very basic proxies have been introduced to capture integrated risk. Quantitative assessment, as provided by Gazelle's Mousetrap® (MT) model, provides a fully integrated approach offering new insight while addressing the shortcomings of qualitative assessment.

The quantitative approach

The MT model is not a 'black-box' containing some complicated algorithm. Instead it is an integration of components: a funding model, an investment model, an insolvency model, and – in particular – a model for sponsor financial resources. This last element allows both sponsor default and affordability issues to be examined. Utilising these tools some key questions can be answered:

- what is the probability of reaching solvency funding
- how much can the scheme expect to lose on default of the sponsor
- will on-going contributions be affordable

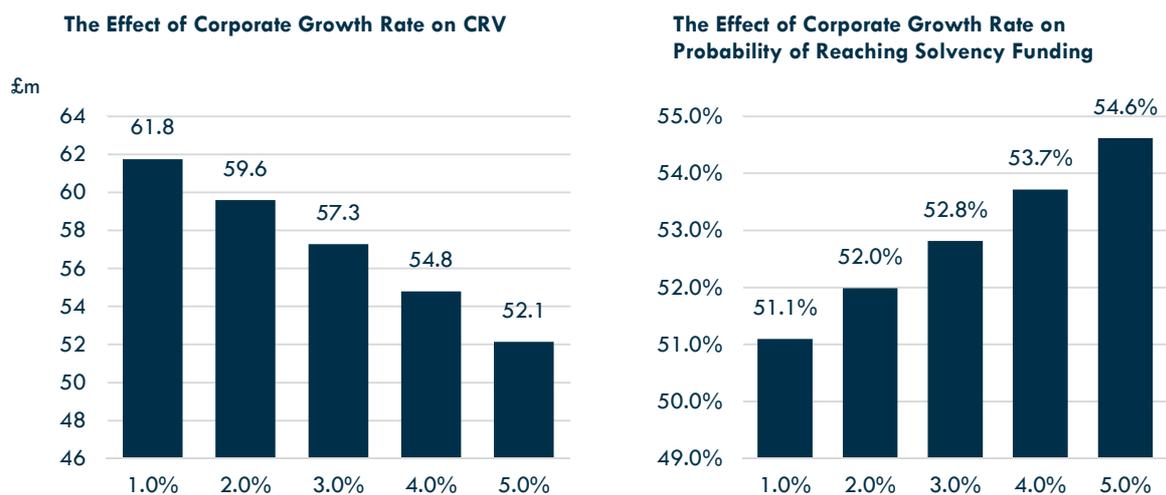
The Covenant Risk Value (CRV) – the average predicted loss – is typically considered as a measure of covenant risk. It approximates the price an insurer would require to take away the covenant risk (before any premium). The ratio of CRV to solvency liabilities is the proportion of benefits a member can expect to lose due to covenant risk. The Value at Risk (VaR) at any level can also be analysed, to measure the frequency of large potential losses.



The graph above illustrates the loss distribution outputted by the MT model

Sensitivity and scenario analysis

Sensitivity analysis is where the quantitative approach excels. There may be uncertainty about an aspect of the sponsor's business; it is not a particularly quick or easy process to translate this uncertainty into a view on covenant using the qualitative method. However with a simple change of an input into the MT model the exercise becomes fast and efficient. For example, suppose there is concern over the expected long-term growth rate of the sponsor; trustees believe that the sponsor's estimate of 5% is too ambitious. Sensitivity graphs can be plotted rapidly and the results are simple to interpret.



In this instance the expected corporate growth rate has only a small impact; discussions might better be directed towards more important risk factors which have a greater influence on the probability of reaching solvency funding and CRV. By plotting a number of these sensitivity graphs these risk factors can be established.

An extension of this is scenario analysis, where a potential event causes a number of changes in the financial profile of the sponsor. For example, some utility firms are exposed to a regulatory 'lock-up' scenario in which the expected growth rate, expected asset recovery, and credit rating could all fall. The impact of this scenario on the pension scheme is again very easy to evaluate using quantitative methods.

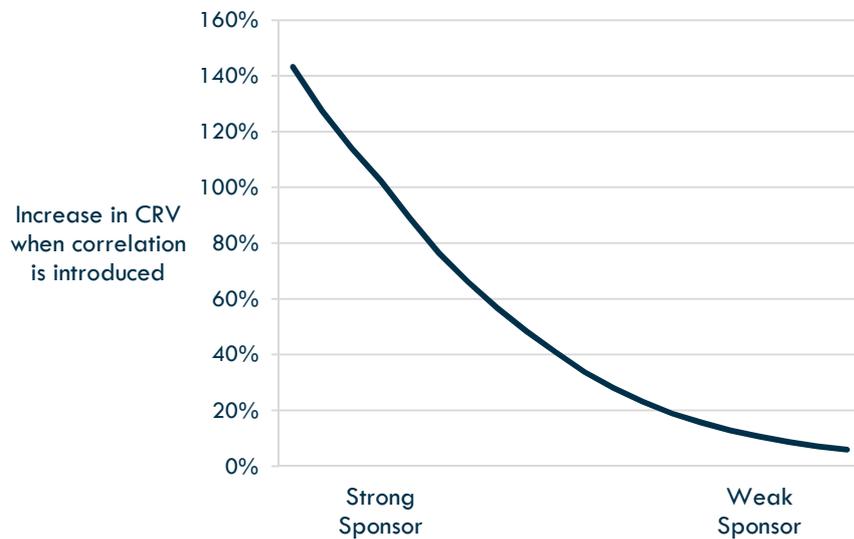
Correlation and implications for investment policy

A scheme's deficit is covered in two ways: by contributions from the sponsor and by investing in return seeking assets. This position is not hedged however; in fact the opposite is often true. Poor performance of return-seeking assets will often come in conjunction with poor affordability or even default of the sponsor. This is especially significant for sponsors in sectors that have historically been highly correlated with market movements, such as banks. Therefore it may be unrealistic to assume that the sponsor will always be able to increase contributions to compensate for poor investment performance.

This correlation is much easier to work with in a quantitative framework. By simulating sponsor financial resources and investments returns which are correlated, the disadvantages – and advantages – of this effect can be studied.

This analysis can produce some interesting results. Introducing correlation into the model has greater impact on CRV for schemes with strong sponsors for example. Even identifying this relationship using

qualitative analysis is difficult, let alone attempting to measure more precisely the impact of correlation on the expected loss. Too often qualitative analysis can get caught up in a belief that sounds plausible – “correlation will be more damaging to schemes with weaker sponsors” – but is not appropriately scrutinised.



The graph above illustrates how stronger sponsors can be expected to experience a heavier impact on scheme loss exposure due to correlation

The establishment of this quantitative relationship means that covenant risk can now be taken into account when making investment policy decisions. There is currently no accepted consistent framework for setting investment policy on an integrated risk basis which includes the sponsor covenant. The popularity of flight paths and de-risking triggers has largely developed with scant reference to covenant, despite the EIOPA QIS identifying heavy reliance on covenant in the UK. It is increasingly likely that quantitative modelling of covenant and investment risk will challenge investment consulting approaches which do not integrate covenant going forward.

Transactions and material detriment

The impact of a transaction on a given pension scheme is difficult to analyse using the qualitative approach. The structure of the sponsor post-transaction may be heavily distorted – if it is even the same firm at all – but the assessment of covenant must incorporate all of these changes and identify the ones that may lead to a material detriment. In addition, transactions occur on a much more accelerated timescale than valuations and the proposed terms of financing structures may change frequently. Qualitative assessment is neither accurate nor fast enough to deal with these situations.

The quantitative method is well suited to transactions as it can compare a variety of outcomes for the scheme using an objective framework and do so in a very short space of time. Furthermore, the model can also be used to assess potential scheme funding arrangements and mitigation options, should there be a material detriment to the scheme post-transaction.

Protection against covenant risk

The natural question to ask given all of the above information is how covenant should be reflected in scheme funding arrangements. The first thing many trustees are drawn to is asking for a greater level of contributions from the sponsor. However in many cases this is not a very efficient way of improving the odds of reaching solvency funding or reducing expected loss. Using quantitative methods, it is not only easy to see the impact of increased funding on the scheme, but also straightforward to gauge the effectiveness of other options, such as contingent funding or re-risking. All options can be quickly assessed using a consistent framework.

Conclusion

The main insight provided by quantitative covenant assessment is that the impact of change in the covenant structure can be measured objectively and consistently. This change can be a genuine proposed or actual alteration, due to a transaction or restructuring for example, or simply different views held by trustees and the sponsor about the future. It is very easy not only to use sensitivity analysis to identify where the risk is generated but also to assess the routes that can be taken to reduce risk.

The quantitative framework also works to integrate covenant risk with other hazards, such as investment risk, to provide a more complete picture. The impact of correlation between these risks can also now be assessed, with some surprising results. This opens the door for more risk types to be integrated in a similar fashion, such as interest rate risk, inflation risk and longevity risk.

Ultimately a fully integrated model representing all pension risks with their interrelationships or correlations could provide a powerful tool for both trustees and sponsors. Quantitative assessment possesses the ability to analyse these interrelationships and offers objective and useful metrics with which to gauge on-going covenant risk and the impact of scheme and sponsor decisions.

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Simon Willes and Alex Barrell have developed Gazelle's Mousetrap model for quantifying covenant risk.

Key Messages

- Quantitative covenant assessment provides a consistent basis from which to measure risk
- It is capable of capturing the sensitivity of this risk to each individual aspect of the sponsor's business and therefore can expose the key areas of concern
- The integration of covenant risk with other pension risks can be explored in much greater detail than ever before
- The strength of employer covenant can be accounted for objectively when making investment policy decisions
- The impact of transactions can be precisely and rapidly analysed, rendering it easy to make the case for material detriment
- Quantitative assessment is able to evaluate the effect of increased funding to the scheme as well as contingent funding arrangements