Predicting the unpredictable

What are the challenges faced by pension schemes when it comes to modelling and valuations? How can members be provided with a clear idea of what they will need in retirement, what their income will be, and how much they need to save now?

Summary
• Pension modelling offers useful estimates, not certainties, because outcomes depend on changing assumptions around returns, inflation, longevity, contributions and retirement choices.
• Presenting projections as precise answers can damage member trust when figures change, making clear communication about uncertainty essential.
• Schemes should use modelling for scenario testing, show realistic ranges, and help members plan retirement as an ongoing process.

For an industry so highly regulated and controlled, there remains a lot of unpredictability – or, at least, an understanding that fate's fickleness often needs some kind of sextant.

That is why modelling, attempting to understand what could happen, is such a huge part of the pensions landscape. The industry looks to models to assess its investments, gauge how those investments will perform, and what the result is likely to be. On the consumer side, models are put in place to let the holders of those pensions – those ultimately downstream of the pension fund's work – what they need to save and what their benefits should look like.

Within the UK, wrote Arling Close client director, Stuart Jones, pension funds are required to apply rigorous and transparent valuation methods for their financial assets. These need to be, he added, "*[…]* grounded in accounting standards, regulatory guidance, and sector-specific codes of practice". It is a system that not only underpins the integrity of scheme reporting, but also the robustness of funding assessments and investment governance.

The usefulness of models

It is important to remember that a valuation is not a prediction, but a best guess of what the future may look like. Models are how funds and schemes get there and are used to get an estimate built from variables such as investment returns, inflation, interest rates, and longevity.

"I've met with numerous clients who wished to have one exact figure for their income during their retirement years," says Avenue Investment Management senior wealth counsellor and client relationship manager, Paul Ferrara. "It makes sense, but this isn't the way modelling works. All projections are made under reasonable assumptions that vary with time concerning investment earnings, inflation, and the life expectancy of a person. A projection is an 'assuming' and cannot be guaranteed."

This can be an issue when presented with those same consumers looking for accurate figures about their incomes. While a model is a best guess, their very unpredictability means that the information could at times not only be inaccurate but could work to the detriment of the people that they are meant to serve.

"Every model is wrong," says Trafalgar House director, Dan Taylor, "but some of them are useful. The problem is that we've become very good at presenting an estimate as though it were an answer. For members, that becomes a real problem. We give someone a single monthly retirement figure based on assumed investment returns, inflation, retirement age, and future contributions, then present it with something close to the certainty of a bank balance."

When the numbers shift, he adds, that can shake trust with the member wondering what has changed or, worse, that the numbers were never accurate in the first place.

"It matters," Taylor continues, "because accurate information is now the single biggest driver of trust that members have in pensions. Our own research found that one in four people put accuracy ahead of every other factor when thinking about their pension."

The risk of modelling

It does not take much for small changes within a model to produce drastically different outcomes. Quoted in Accounting for Sustainability's *Using Scenario Analysis for Future Resilience* report, the Institute and Faculty of Actuaries planetary solvency lead, Sandy Trust, said that underestimates in modelling often arise from scenarios that assume continued growth.

When it comes to climate scenarios, Trust adds, many use an economic modelling philosophy that presumes that the economy will be 210 per cent of its size by 2050. Climate damage is then modelled as a GDP reduction – Trust uses a figure of 9 per cent – that excludes tipping points, ecosystem damage, and health and social impacts. This ultimately, they say, downplays the most severe and disruptive risks.

And that is just a single set of models. Within pension schemes, even more models and areas need to be considered. Pension scheme decision-making depends on modelling. Investment projections, LDI stress tests, triennial valuations, covenant analysis, and longevity assumptions all play an important role.

"Models," says Hughes Price Walker director, Ray Walker, "can convey a misleading sense of precision: A funding level, a deficit figure or a projected journey-plan date may look definitive. Whereas experience can diverge materially from the assumptions with markets, inflation, interest rates, mortality experience and sponsor circumstances. The best-run schemes therefore use modelling to explore uncertainty by testing a range of outcomes, understanding the sensitivity to key assumptions, and agreeing in advance what action would be taken if experience diverges from the central expected outcome."

Black swans

The past six years or so have underlined how hard prediction can be. Since 2020, schemes and savers have had to contend with a global pandemic, war in Europe, rapid technological disruption, and sharp swings in energy and financial markets.

These events, too, have been difficult to predict – especially Covid-19, with its two-year shutdown of the world economy seemingly coming from nowhere.

And they have had great impacts that could not have been predicted. Indeed, the past year has seen a great drag on the world economy due to the US' war with Iran.

"A projection is an 'assuming' and cannot be guaranteed"

The Pensions Regulator stated a few months ago in its *Annual Funding Statement Analysis 2026*: "Principally due to the Iran war, financial market conditions were more volatile in early 2026, specifically during March, than during much of the preceding year. Over the first quarter of 2026, we have observed increases in gilt yields, an increase in inflation expectations, a widening of credit spreads, and a relatively low return on equities following a strong run."

Ferrara admits that models cannot design for such events.

"It's more a matter," he adds, "of preparing than predicting with these events. The thing is, you don't know what the next big shock will be, but you can build some sort of buffer that will take the blow, often the difference between plans that will not last and ones that will."

Conversely, however, such 'Black Swan' events may be where modelling can be an aid to funds and schemes. While you cannot sensibly predict the next war, market shock, or political crisis, you can stress test the balance sheet against severe scenarios. Here, is it not predicting the future, but showing trustees where the scheme is vulnerable before conditions change.

Talking to consumers

The question remains on how to talk about the unpredictability of models and valuations when having conversations with consumers.

"People want clear answers," says Hughes. "They want to know how much they will need, what monthly income they might receive, and whether they are saving enough? Yet those answers depend on variables that are inherently uncertain. Investment returns, inflation, contribution patterns, retirement age, taxation, annuity rates, drawdown behaviour, and how long the individual will live are significantly variable."

For schemes and funds, the communications challenge will be how to be helpful without providing false assurance. Better engagement should hopefully result from showing realistic ranges, explaining the main levers members can control and framing retirement planning as an ongoing process rather than a one-off calculation.

Zedra client director, Dan Whincup, says that it is important to have a common frame of reference or concepts that most members can understand. In this respect, he says that the Pensions UK Retirement Living Standards are very helpful.

He adds: "The challenge becomes even greater when members have multiple pension arrangements, potentially with different types of modelling, communications, and member experience available. In many ways, a member's overall retirement planning can only be as good as the least-effective modeller or communications they have to deal with from their various pension providers."

There is opportunity here, he says, for schemes to help members consider their pensions as a whole and in a common language that aids them in understanding. This will help schemes and funds move beyond simply providing information and helping their customers plan for retirement.

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