PROFESSIONAL PENSIONS

Understanding the limitations of the CMI longevity model

While the Continuous Mortality Investigation's longevity model is a useful projection tool for schemes, **Amy Kessler** explains it has key limitations

AT A GLANCE

- Changes in longevity take time to appear with rolling average CMI
- CMI is limited as it is based on general population not pensioners
- But the CMI model is resulting in cheaper longevity insurance

The CMI, or Continuous Mortality Investigation, is the group that publishes an updated model each year for projecting longevity improvements in the United Kingdom. The CMI model is a projection tool and a very good one – but it is merely a projection tool. The CMI model is not a crystal ball.

A decade ago, when the CMI model first came into widespread use in the UK, we were in the middle of the highest longevity improvements – or the fastest declines in the rate of mortality – since the introduction of antibiotics, perhaps the highest ever for retired people.

These very high rates of improvement were driven by the beneficial effects of smoking cessation, statins, stents and improvements in the treatment of cardiovascular disease in general. Deaths from these causes have fallen steadily since the 1980s, and experts focused on cause of death modelling have long predicted that there would be diminishing marginal returns from these improvements.

These diminishing marginal returns have arrived in recent years. We have begun to see longevity improvements slow materially in the retired population, with the greatest changes in people over the age of 85. At the same time, the incidence of flu death in the frail elderly has increased significantly. Although some of these developments were anticipated by the experts in cause of death modelling, the challenge for the industry was that no one, including the CMI itself, knew when to expect the lower improvements that have recently arrived.

The CMI model is heavily dependent on improvements in the most recent few years, which are taken together in a rolling average to establish the starting point for the projection of future improvements.

Year-on-year results are very volatile as each year's deaths are impacted by weather, flu and a host of other factors. It was only after a few years of lower improvements between 2011 and 2015 that it became clear an inflection point had been reached.

Since the CMI model and many in the industry were looking at the rolling average of improvements in the recent past to establish the starting point for our projections, it did take some time for the industry to determine the current trend had shifted to a materially lower level. This updated data is now taken into current market pricing for longevity risk transfer. As the current levels of improvements are much lower than in the past, the risk is now priced substantially lower than before.

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CMI limitations

The most important thing for all market participants to understand is that the CMI is a useful projection tool, but it is just a projection and it may or may not accurately predict the life expectancy of different groups of pensioners.

The CMI has a key limitation in that it is calibrated on data from the general population rather than pensioners who have experienced the most rapid improvements since 2011.

Moreover, the same reversal in trend that began in 2011 may reverse again, and likely will in the 50 years that a pension fund or insurer will hold onto the risk. The next wave of improvements will come from breakthroughs in cancer, diabetes treatments, improved flu vaccines and changes in health trends surrounding obesity and sedentary lifestyle.

If this seems hard to believe, just think back 20 years to how certain people were that incidence of smoking would remain high and that heart disease would remain the dominant cause of death among retired pensioners. The challenge for all of us in predicting promises to pensioners is that no one knows when the next wave of high improvements will arrive or how different socioeconomic groups will fare in the future. That is why retaining longevity risk is unrewarded for pension funds and many insurers that lack significant mortality exposure as an offset.

For anyone looking at today's CMI and believing they now know for certain that their liabilities are lower, remember this: there is risk in retaining longevity exposure. The trend reversal we have just seen toward lower improvements is likely to reverse again when the next wave of health and medical improvements come through.

Moreover, this risk is unrewarded for pension funds and can be insured today at the lowest price in a decade, thanks to the updated CMI, which is not a crystal ball.

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