

Extreme Longevity Risk:

A looming threat for DC and DB pensions, insurers and the economy

Guy Coughlan, 14 February 2025

In an era of rapidly advancing medical technology and improving living standards, the prospect of significantly increased life expectancy is both exciting and daunting. While living longer is generally a positive development, it poses substantial financial risks to individuals, institutions, and even entire economies. It is crucial that we understand and prepare for the far-reaching financial implications should an extreme longevity scenario be realised. This briefing note summarises my recent research on the financial impact of extreme longevity increases and how this impact might be mitigated. More details are available in my paper *“Avoiding a longevity catastrophe: Harnessing longevity indices to mitigate individual, institutional and systemic risks.”*

The Longevity Risk Triad

There are three key areas where extreme longevity increases could have catastrophic impacts:

1. Individuals with defined contribution (DC) pensions: They face the risk of outliving their retirement savings, or alternatively living in great hardship for fear of running out of money. This is idiosyncratic longevity risk specific to the individuals.
2. Institutions and governments offering defined benefit (DB) pension plans and life annuities: They could face financial distress or insolvency from significantly underestimating their liabilities. This is diversified population longevity risk.
3. The financial system: This could suffer significant impairment if the impact is sufficiently widespread, with considerable negative consequences for the broader economy. This is systemic longevity risk.

An Extreme Longevity Scenario

To illustrate the potential magnitude of the issue, consider a scenario in which life expectancy in developed countries increases to match global best practice. For instance, if UK and US males at age 65 were to experience a six-year increase in life expectancy to match current (2023) levels for 65-year-old females in Hong Kong, the financial implications would be staggering.

Mitigating Risks for Individuals

For individuals with DC pension plans, longevity risk crystallises at two critical times:

1. The date of retirement
2. The date when savings are exhausted.

While traditional strategies like income drawdown and annuity purchases offer some protection, they have limitations. For example, at the point of retirement when an annuity is purchased or a drawdown strategy is initiated, an unexpected increase in population life expectancy could reduce retirement income far below the level that was planned. This reflects an exposure to population longevity risk in the accumulation stage which impacts annuity prices and drawdown rates. Hedging longevity risk during the accumulation phase could provide individuals with protection against this particular kind of longevity risk.

Drawdown strategies are also exposed to idiosyncratic longevity risk once the strategy is implemented postretirement. The idiosyncratic longevity risk could be mitigated by pooling (diversifying) the risk of a large number of individuals, leaving exposure to the aggregate longevity of the diversified population of individuals.

Institutional, governmental and systemic risks

Financial institutions, corporations, and governments providing DB pensions, along with insurers offering life annuities, face significant risks from extreme longevity increases. Many DB pension plans and annuity insurers have taken steps to reduce their exposure through longevity risk transfer methods, including:

- Bulk annuity purchases
- Reinsurance contracts
- Longevity swaps
- Longevity index hedges.

However, many other institutions, particularly governments, have not yet adequately addressed this risk, leaving them vulnerable to the financial consequences of extreme longevity. Furthermore, the longevity risk transfer that has occurred has led to a concentration of significant longevity exposure within a relatively small number of reinsurers.

This concentration of the risk raises concerns about the potential for systemic impact. While individual institutions and even governments face the prospect of financial distress or insolvency if an extreme longevity scenario unfolds, there's an even greater worry that these isolated problems could spread throughout our interconnected financial system, potentially leading to its impairment, with catastrophic consequences for the broader economy.

The Power of Longevity Indices for Risk Transfer

Longevity index hedges can be particularly effective in mitigating the risks associated with extreme longevity scenarios, both for individuals and institutions, thereby reducing systemic risk in the economy.

Longevity index hedges are risk transfer instruments linked to standardised population longevity indices. They can take the form of an insurance contract or a capital markets derivative. While they have only been used in a relatively small number of longevity risk transfer transactions, they offer several compelling advantages:

- Operational simplicity
- Transparency
- Flexibility
- Potential for broader risk sharing across the economy.

It is important to note that longevity index hedges differ from other means of transferring longevity risk, such as bulk annuity purchases or longevity swaps. They are based on offsetting longevity risk exposure rather than indemnifying against the risk. This requires a change in mindset, with a focus on estimating the amount of risk offset rather than the precise indemnification amount.

Conclusion and Implications

This paper should serve as a wake-up call to the financial industry, policymakers, and individuals about the potential impact of extreme longevity increases. There is a need for innovative risk management tools, such as longevity index hedges, to ensure the sustainability of retirement systems and the stability of financial institutions.

Regulators and governments who are concerned about longevity risk from a financial stability perspective should perhaps consider how they can facilitate a wider set of organisations holding longevity risk. One effective way to achieve this is by promoting the use of longevity index hedges.

Those working in DC pensions, DB pensions, insurance companies, and regulatory bodies should proactively consider how to deal with the possibility of an extreme longevity scenario. By leveraging tools such as longevity indices and associated hedging instruments, stakeholders can work towards creating more resilient retirement solutions capable of withstanding the challenges posed by such a scenario.

As we continue to push the boundaries of human longevity, it is crucial that our financial system evolves to keep pace, ensuring that longer lives remain a blessing rather than a financial burden.

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