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A partial internal model for longevity risk. (English) Zbl 1398.91334
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Summary: This paper proposes a simple partial internal model for longevity risk within the solvency 2 framework. The model is closely linked to the mechanisms associated with the so-called Danish longevity benchmark, where the underlying mortality intensity and the trend is estimated yearly based on mortality experience from the Danish life and pension insurance sector, and on current data from the entire Danish population. Within this model, we derive an estimate for the 99.5% percentile for longevity risk, which differs from the longevity stress of 20% from the standard model. The new stress explicitly reflects the risk associated with unexpected changes in the underlying population mortality intensity on a one-year horizon and with a 99.5% confidence level. In addition, the model contains a component, which quantifies the unsystematic longevity risk associated with a given insurance portfolio. This last component depends on the size of the specific portfolio.

MSC:

91B30 Risk theory, insurance (MSC2010)

62P05 Applications of statistics to actuarial sciences and financial mathematics

91D20 Mathematical geography and demography

Cited in **5** Documents

Keywords:

Solvency 2; mortality; longevity stress; Danish longevity benchmark; systematic and unsystematic risk

Software:

[Human Mortality](#)

Full Text: [DOI](#)

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