Session 4: Increased Longevity and the Challenge of Determining qx at Extreme Ages, Part 2

Coping With Longevity: The New German Annuity Valuation Table DAV 2004 R

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Annuity products have become very popular in the German life insurance market in recent years. Given the increased financial exposure to longevity risk, a subcommittee of the German Actuarial Society (DAV) examined in detail the adequacy of the current industry annuity valuation table DAV 1994 R, which has been used for nearly 10 years. This examination eventually led to the development of the new industry annuity table DAV 2004 R, which will be used in Germany for the pricing and valuation of new annuity business from January 1, 2005 on.

The table DAV 2004 R is based on a large pool of insured lives experience that has been collected and analyzed by Munich Re and Gen Re. It takes into account the correlation between the insured annuity amount and the mortality level that was not available in earlier data collections. It is also graduated by the years lapsed since the start of the benefit payment, because the data showed a very low mortality level in the first years of benefit payment.

A projection of the future improvement of mortality rates was derived from German population data. Various models, including cohort-based ones, for such projections were investigated and compared to each other. The model

$$\frac{q(x,t+1)}{q(x,t)} = e^{-F(x)}$$

with a trend function $F(x)$ depending on attained age x was chosen as the most appropriate model for the purpose. The projection was also adjusted in order to reflect the greater mortality improvement in higher socioeconomic classes that can be observed in data from German public pension insurance.

In a final step, prudent margins were calculated that are intended to ensure the applicability of the new table in the future.

The paper sets out the data that was available as well as the methods used to arrive at the final table. It also contains a comparison of the new German approach and annuity valuation tables from other countries, such as Switzerland and the UK.