

Parris-Bell, Marilyn

From: Ralph Stevens <ralph.stevens@unsw.edu.au>
Sent: 30 April 2014 15:56
To: Parris-Bell, Marilyn
Subject: Abstract submission for L10

Dear Marilyn,

Hereby I would like to submit the following abstract for L10.

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TITLE:
Value Hedging of Annuities with an Uncertain Market Price of Longevity Risk

ABSTRACT

Annuity providers and life insurers face systematic longevity risk. The literature consists of methods for modelling systematic longevity risk and proposed methods to mitigate it. A capital market solution to transfer systematic longevity risk is a value hedge contract, such as the proposed q-forwards. Those contracts have the benefits of standardization and commoditization. This enhances the potential to appeal to a larger investor base, thus increasing liquidity and lowering the risk premium. However, given that there is not yet a mature and liquid market for systematic longevity risk there is no accurate measure for the price of systematic longevity risk. Therefore, while the market is not mature and liquid, it is likely that there is time variation in the implied market price of systematic longevity risk inferred from the value hedge contracts.

We use the Cairns-Blake-Dowd model for the distribution of mortality probabilities and a Bayesian model for the uncertainty in the evolution of the market price of systematic longevity risk. We use this model to determine the optimal hedging portfolio. Moreover, we evaluate the hedge effectiveness of this portfolio. The optimal hedging portfolio and its hedge effectiveness are compared to the case in which the market price of systematic longevity risk is a known time-invariant constant.