

# Dynamic Hedging of Longevity Risk: the Effect of Trading Frequency

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## **Abstract**

This paper investigates dynamic hedging strategies for liabilities that are exposed to longevity risk. In particular, we consider a hedger who wishes to minimize the variance of her hedging error using longevity-linked derivatives.

Time-consistent, closed-form solutions of optimal hedging strategies are obtained under a forward mortality framework. To cope with the fact that liquidity of longevity-linked derivatives is still limited, we also consider a liquidity constrained case where the hedger can only trade longevity-linked derivatives at a deterministic and low frequency. The performance of the hedging strategies is evaluated in a numerical analysis with parameter estimates from the existing literature. We show that lowering the trading of the longevity-linked derivatives to a 2-year frequency only leads to a slight loss of the hedging performance. Moreover, even when the longevity-linked derivatives can only be traded at a very low (5-year) frequency, dynamic hedging strategies still significantly outperform the static hedging strategies.

**Keywords:** Dynamic hedging; Longevity risk; Minimum variance; Forward mortality model.