

Pricing of Mortality-linked Contingent Claims: an Equilibrium Approach

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Abstract

This paper introduces an equilibrium approach by assuming that the underlyings have transformed normal distributions to price the Swiss Re mortality bond in a discrete time economy. The study assumes a general distribution, which is more plausible for valuating mortality-linked-type securities. The valuation relationship is still risk-neutral (preference-free) and the mortality bond is priced as the expected value of its terminal payoff, discounted by the risk free rate. This pricing rule complements current researches on the mortality-linked security market, which may only include discrete trading opportunities and insufficient market trading data. This approach incorporates not only default risk, but also high-order moment risk for mortality-linked contingent claims. Finally, this study gives a closed-form solution for pricing the Swiss Re mortality bond.

Keywords: longevity risk, mortality-linked securities valuation, transform normal distribution.

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