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Volume 2008, 2008 - Issue 2-3

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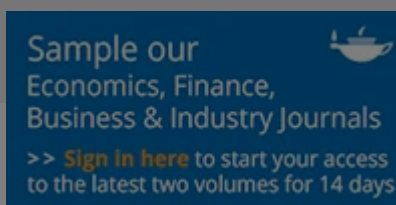
ORIGINAL ARTICLES

Modelling and management of mortality risk: a review

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Pages 79-113 | Published online: 12 Dec 2008

 Cite this article  <https://doi.org/10.1080/03461230802173608>



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Abstract

In the first part of the paper, we consider the wide range of extrapolative stochastic mortality models that have been proposed over the last 15–20 years. A number of models tend to be based on the assumption that mortality rates can be evaluated statistically. However, these models can be evaluated using a model that faces the same challenges as the review of stochastic mortality models. We then review stochastic mortality models for dynamic hedging (traded) and over-the-counter (OTC) derivatives, such as mortality-linked securities and mortality swaps. We then review the market for mortality-linked securities and mortality swaps.

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 Keyword

SCOR market model

Mortality-linked securities

Mortality swaps

q-forwards

Notes

- ¹In our notation the subscript c in $m_c(t, x)$ distinguishes the crude or actual death rate from the underlying or expected death rate.
- ²To date, we are unaware of any studies that have explicitly attempted to model the exposures as unobserved variables.
- ³The discrete-time models described in Section 4 can all be described as short-rate models, with the exception of the market model in Section 4.7.

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