SPECIAL COLLOQUIUM

Department of Mathematics and
Department of Statistics and Probability

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Analytic Solution for Ratchet Guaranteed Minimum Death Benefit Options Under a Variety of Mortality Laws

Tuesday, February 19, 2013
C405 Wells Hall
2:00 p.m. - 2:50 p.m.
Refreshments: 1:40 p.m.

Abstract

We derive a number of analytic results for GMDB ratchet options. Closed form solutions are found for DeMoivre's Law, Constant Force of Mortality, Constant Force of Mortality with an endowment age and constant force of mortality with a cutoff age. We find an infinite series solution for a general mortality law and we derive the conditions under which this series terminates. We sum this series for at-the-money options under the realistic Makeham's Law of Mortality.

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