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A SECOND ORDER SDE FOR THE FORCE OF INTEREST.

Gary Parker
Simon Fraser University

ABSTRACT

In this paper, we model the force of interest by a linear second order stochastic differential equation. We use this model in the discounting process and apply it to immediate annuities certain for which we illustrate the first three moments. We obtain explicit results for the expected value and autocovariance function of the force of interest and of the force of interest accumulation function. The three cases for the roots of the characteristic equation, namely, real and distinct, real and equal, and complex conjugate roots are treated.