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DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Post-Leave Presentation

Mr. HAN Xixuan

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The University of Hong Kong

will give a talk

entitled

VALUATION AND RISK MANAGEMENT OF VARIABLE ANNUITIES WITH GUARANtEED MINIMUM DEATH BENEFIT

Abstract

Variable annuities (VAs) have been developed and promoted in the insurance industry for many years, and play an important role in personal, family and pension investment. The kind of products pays amounts of money that vary according to the performance of a specified set of investments (usually stocks). And many are embedded with extra functions like guaranteed minimum death benefits (GMDBs). In 2007, insurance companies suffered a huge loss due to the collapse of the stock market. For instance, a VA embedded with the GMDB allows the insured to secure a fixed minimum amount of income when he dies. If the stock market performs poorly, insurance companies have to meet the responsibility of GMDB by their own money, which leads to losses. Thus the risk management of VAs has drawn increasingly attention in the industrial and academic community. Based on different models, there has existed some research on the valuation of VAs with GMDB (Gerber et al. 2012, Gerber et al. 2013, Gerber et al. 2015). In this talk, we will use a simplified version of the valuation method described in Gerber et al. 2013 to hedge portfolios of VAs with GMDB under the model of geometric Brownian motion. The valuation method lies on the assumption of exponential distributions of remaining life time. Inspired by Mukherjee et al. 1999 and Dufresne 2005, we will propose a new method called SVM-Jacobi to fit exponential sums to life tables. The asymptotic properties will be discussed as well. Finally, some simulation results of hedging will be presented.

on

Friday, September 25, 2015

9:30 a.m. – 10:30 a.m.

at

Room 301, Run Run Shaw Building

All interested are welcome