

The 51st Actuarial Research Conference, University of Minnesota (UMN)/University of St. Thomas (UST), July 27-30, 2016

A discrete-time risk model with Poisson ARCH claim number process

Jiahui Li ¹, Kam Chuen Yuen ¹, Mi Chen ²

¹*Department of Statistics and Actuarial Science,
The University of Hong Kong, Pokfulam Road, Hong Kong*

²*School of Mathematics and Computer Science,
Fujian Normal University, Fuzhou 350108, China*

Abstract

In this paper, we propose a discrete-time risk model with the claim number following an integer-valued autoregressive conditional heteroscedasticity process with Poisson deviates. In this model, the mean of the current claim number depends on the previous observations. Within this framework, the equation for finding the adjustment coefficient is derived. Numerical studies are also carried out to examine the impact of the Poisson ARCH dependence structure on the ruin probability.

Acknowledgements: This research is supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (HKU 7057/13P), and the CAE 2013 research grant from the Society of Actuaries. The conference support is also partially funded by the University Research Committee of HKU.