

XL Property rating : a reinsurance pricing tool combining experience and exposure rating for property excess of loss treaties

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Abstract

Experience rating and exposure rating are traditionally considered to be independent but complementary methods for pricing property per risk excess of loss reinsurance. Both techniques have their strengths and limitations. The purpose of experience rating is to forecast the losses borne by the reinsurer based on historical claims information, possibly corrected for the current economic environment. Most of the traditional experience rating methods require that the relative portfolio composition remains constant over time, both regarding the risk types and the insured values of the risks. Mathematical models are often used to make extrapolations to price unused or rarely used capacity. These methods do not take into account the composition of the portfolio which generates exposure in the upper region of the programme. Exposure rating methods take the profile of the portfolio as a starting point. In theory, this method should allow to perform pricing, even if no loss experience is available. In practice, exposure pricing also has its limitations.

In a paper presented at the 10th IME conference in Leuven, Desmedt and Walhin showed that these two methods may be efficiently combined in order to improve the accuracy of property excess of loss pricing. They developed an experience rating method, based on historical profile information and exposure curves to derive reliable measures for the evolution of the claim frequency and severity above different thresholds. For pricing unused or rarely used capacity, exposure rating is used, based on a calibration on the experience of a working layer.

Based on these principles, a reinsurance pricing tool has been developed using the SAS[®] development environment. Starting from historical portfolio profiles and claims information, this tool allows to analyse the imported information, tune the pricing parameters, and finally price the working layers with modified experience rating, taking historical profile information into account, and the upper layers with calibrated exposure rating. This tool is also characterized by a high degree of flexibility, in the sense that it allows to easily test various assumptions with a minimum of manipulations. This often proves to be useful in a context where the

quality of information is not always optimal, and consequently assumptions have to be made.

In the presentation, we will first recall the basics of the methodology. Afterwards, we will illustrate the various functionalities of the tool by going through a real-life quotation of a property per risk excess of loss reinsurance treaty.

Keywords

Experience Rating, Exposure Rating, Property per Risk Excess of Loss Reinsurance, Exposure Curves, Reinsurance Pricing Tool