

Micro reserving: a look at the one-year risk and a comparison to chain-ladder

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Abstract

Reserve estimation or reserving is traditionally based on triangulated aggregated loss data, i.e. payments or incurred claims which are summed over origin periods and development periods. The goal of this thesis is to look further into reserving from the viewpoint of survival analysis. These models have been referred to as micro models as they are based on detailed data from individual claims. Each claim is treated as a process of an occurrence, reporting delay, payments and finally a settlement. By modelling the claim's process the complete claim data of the outstanding liabilities is simulated. The model is examined on a dataset from a Swedish insurance company and compared to the reserve estimates obtained by the traditional chain-ladder method. The data displays trend changes through time. The micro model manages to capture these trend changes to a larger extent than the chain-ladder and gives detailed information about the behaviour of the data. The underlying assumptions of the chain-ladder method are not fulfilled leading to a largely different estimate. Further look is taken at the one-year reserve and premium risk, where the one-year risk estimation is a natural extension of the micro model. We conclude that micro models can offer multiple advantages over the traditional methods. Such as reduced uncertainties in estimates and detailed information about different characteristics of the data.

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