Measuring the Rate Change of a Non-Static Book of Property and Casualty Insurance Business

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Abstract

Motivation. Calculated rate change factors can substantially affect loss ratio forecasts and thus are critical parameters for enterprise risk management (ERM). However, current methods are not well suited to a changing book of business.

Method. The analysis first explores the conceptual underpinnings of rate change and then applies the conclusions of this analysis to several practical problems.

Results. The proposed approach shows improved accuracy as compared to current methods, with particular significance for a non-static book of business.

Conclusions. I conclude that "rate change" measures the change in premium *relative to loss potential*. One can then apply this conceptual formulation in order to solve several problems that one confronts in practice: how to adjust for shifts in limits and deductibles, how to blend together changes in exposures when the portfolio uses several different exposure bases, and how to properly weight together granular measures of rate change (e.g., for each policy, subline, etc.) into an overall rate change for the entire portfolio.