

# On the Design of Some Optimal Bonus - Malus Systems Using Frequency and Severity Components

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The majority of optimal Bonus-Malus Systems (BMS) presented up to now in the actuarial literature assign to each policyholder a premium based on the number of his accidents, Lemaire (1995). Frangos and Vrontos (2001) presented a BMS based both on the number of accidents of each policyholder and on the size of loss (severity) for each accident incurred. In this paper we generalise the results of Frangos and Vrontos (2001) for different claim frequency and different claim severity distributions. Using a data set from an insurance company we compare the Negative Binomial - Pareto model with various alternative models and we propose a generalised BMS that takes into consideration simultaneously the individuals characteristics, the number of accidents and the exact level of severity for each accident.

*Key words:* Optimal Bonus - Malus Systems, Frequency and Severity Components, Generalised Linear Models

*References*

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