Modelling the heterogeneity of surrender behaviours by using GLM mixtures

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Insurance have been concerned about surrenders for a long time especially in Saving business, where huge sums are at stake. The emergence of the European directive Solvency II, which promotes the development of internal risk models (among which a complete unit is dedicated to surrender risk management), strengthens the necessity to deeply study and understand this risk. In this paper we investigate the topics of segmenting and modeling surrenders in order to better take into account the main risk factors impacting policyholders’ decisions. We find that several complex aspects must be specifically dealt with to predict surrenders, in particular the heterogeneity of behaviours as well as the context faced by the insured. Combining them, we develop a methodology that seems to provide good results on given business lines, and that moreover can be adapted for other products with a few effort.

Keywords: Risk management, Life insurance, Surrender risk, Mixture models.