On intensity model and outlier detection for compound point process.

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The sequence of financial transactions is modeled as a compound point process, where both its components (times and increments) are characterized by their intensities. The mutual dependence of these components as well as their dependence on covariates are expressed via a regression model for intensities. Namely, the nonparametric version of Cox model is used, its parts estimated, and the properties of estimates (the consistency) discussed. Further, the goodness-of-fit test for the Cox model, using the notion of generalized residuals, is recalled and modified to deal with studied case. The practical application analyses the processes of card payments, showing simultaneously the method of detection of outlied (atypical) sequences of payments, with the aid of certain standard results on crossing probabilities of risk processes.

Key words: Random point process, intensity, compound process,
outlier, financial series, prediction.

References:

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