SEMINAR

A review on lambda quantiles

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Lambda quantiles are generalization of quantiles that have been introduced by Frittelli, Maggis and Peri (2014) in the context of risk measure theory with the name of Lambda Value at Risk. Instead of a fixed confidence level they consider a function, the so called Lambda. We present an overview of Lambda quantiles in particular under the decreasing case of Lambda. In such a case, Lambda quantiles share several properties with quantiles; among these the locality, formalized by Bellini and Peri (2022), that says that moving the mass to the left or the right of the Lambda quantile, this does not change. Furthermore, similarly to quantiles, Lambda quantiles can be written as minimizer of an expected scoring function, this is property is important for the application of supervising learning methods. Hence, we will present the novel framework of Lambda quantile regression and we will conclude with a financial application. We will also backtest this methodology using the hypothesis tests introduced by Corbetta and Peri (2018) for Lambda quantiles based on the Poisson Binomial distribution.