ROBUSTNESS ISSUES IN RISK ESTIMATION

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Abstract. When estimating the risk of a P& L from historical data or Monte Carlo simulation, the robustness of the estimate is important. We argue here that Hampel's classical notion of qualitative robustness is not suitable for risk measurement and we propose and analyze a refined notion of robustness that applies to tail-dependent law-invariant convex risk measures and also other statistical functionals. This concept of robustness captures the tradeoff between robustness and sensitivity and can be quantified by an index of qualitative robustness. While similar idea were previously based on convergence concepts that are stronger than weak convergence, we will discuss here how it is possible to retain the notion of weak convergence by limiting contamination neighborhoods. This is joint work with Volker Krtschmer and Henryk Zhle.

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