

Robust Risk Measurement with Imprecise Probabilities*

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Abstract

Model uncertainty gives rise to imprecise probabilities. We propose a new way to perform risk measurement under model uncertainty. Key is a coherent, law-invariant risk measure, which additionally is robust under model uncertainty: maximum expected loss over all alternative risk factor distributions whose relative entropy does not exceed a certain threshold. We give an explicit formula to calculate this risk measure and the worst case distribution. Practical implementations of this method do not require any numerical optimisation.

Keywords: stress tests, multiple priors, model risk, ambiguity aversion, relative entropy, maximum entropy principle, exponential family

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