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Properties of distortion risk measures

The current actuarial-financial literature does not reach a consensus on which risk measures should be used in practice. Our objective is to give at least a partial solution to this problem. In this paper we study properties that a risk measure must satisfy in order to avoid some of the "inconsistencies" observed with popular measures like VaR.

We review the reasons why certain risk measures, like Conditional Value at Risk (CVaR) can, in some cases, lead to erroneous decisions. Some properties are proposed so that risk measures can avoid such inconsistencies. This leads to the definition of two new families of risk measures: *complete* measures and *adapted* measures.

In particular, we study the set of risk measures that are based on distortion functions and characterize the completeness and adaptive properties of these, in terms of the derivative of the distortion function that defines the risk measure.

This is joint work with Alejandro Balbás and Silvia Mayoral (Madrid).