OPTIMIZATION OF EXPECTED SHORTFALL ON CONVEX SETS

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ABSTRACT. In this article we prove that the minimization problem of the expected shortfall over a convex but not necessarily closed set of financial positions $\mathcal{X} \subseteq L^1$ has a solution. We provide a motivation for this problem related to the computation of the solvency capital in a variety of actuarial models and we compare our result to the optimization conclusions arising from the application of subgradient arguments on this problem and for closed sets of financial positions $\mathcal{X}$.

Keywords: expected shortfall, coherent risk measures, saddle-points
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