

# On convex extrema for monotone risk distributions

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## Abstract

The question of extremal distributions within a given set of laws has a wide field of applications, especially in actuarial sciences. Rather often, the distributions that are admissible have to satisfy certain constraints, such as exhibiting a particular shape. The present paper is concerned with the family of  $s$ -convex stochastic orders and the set of distributions whose probability mass functions or densities are  $t$ -monotone. Our main purpose is to point out how this monotonicity restriction can be adequately removed by having recourse to the stationary-excess operator and its iterations. Some applications are also presented.