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Geometry of polar wedges in Riesz spaces and super-replication prices in incomplete financial markets. (English)

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The paper builds on the results of a previous research on the super-replication price of unbounded claims. More specifically, it shows that the main results of that previous research can be still generalised in incomplete financial markets by considering the pure geometric structure of the underlying problem, based on the properties of Riesz spaces and polar wedges therein, without explicitly referring to an underlying utility function or its conjugate. Although the paper is primarily written for a mathematical audience who need not have a detailed knowledge of mathematical finance, the authors occasionally use some specific terminology that due to lack of space is not detailed within it. Therefore, the reader should refer to the introductory overview references to obtain further details as necessary.

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Keywords : super-replication; incomplete markets; contigent claims, duality theory; Riesz spaces; polar wedges
Classification :
∗91B16 Utility theory
46N10 Appl. of functional analysis in optimization and math. programming
60G44 Martingales with continuous parameter
91B26 Market models