

Duality formulas for robust pricing and hedging in discrete time

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We focus on robust super- and subhedging dualities for contingent claims that can depend on several underlying assets. In addition to strict super- and subhedging, we also consider relaxed versions which, instead of eliminating the shortfall risk completely, aim to reduce it to an acceptable level. This yields robust price bounds with tighter spreads. As applications we study strict super- and subhedging with general convex transaction costs and trading constraints as well as risk based hedging with respect to robust versions of the average value at risk and entropic risk measure. Our approach is based on representation results for increasing convex functionals and allows for general financial market structures. As a side result it yields a robust version of the fundamental theorem of asset pricing. The talk is based on joint work with Patrick Cheridito and Ludovic Tangpi.