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On Continuity and Asymptotic Consistency of Measures of Risk and Variability

Ruszczynski and Shapiro (2006) showed that a convex, real-valued functional on a Banach lattice is continuous whenever it is either increasing or decreasing. This result has played an important role in the development of the theory of risk measures. In this talk, we show that the monotonicity assumption can be relaxed to a much weaker condition: it suffices that the functional be bounded above on every interval. This extension permits new applications, particularly to measures of variability. We also present an improvement of a result of Kratschmer, Schied and Zahle (2014) concerning the asymptotic consistency of law-invariant risk measures.

This talk is based on joint work with Foivos Xanthos.