Boston University Statistics and Probability Seminar Series

Numeraire invariant choices in financial modeling and equilibria in incomplete markets.

Constantinos Kardaras

Department of Mathematics and Statistics,

Boston University

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Abstract: A set of weak axioms is proposed to model consumption choice rules of agents that are numeraire-invariant. We obtain that this corresponds to logarithmic utility maximization (albeit in a weaker, behavioral-based, sense) under a subjective agent's probability.

Further, the question of general equilibrium in an incomplete financial market model is undertaken, where economic agents have numeraire-invariant preferences. The market contains a borrowing and lending account in zero net supply, as well as a stock in positive unit net-supply providing certain dividend stream, exogenously specified. A characterization of existence and uniqueness of equilibrium is provided in terms of stochastic differential equations. Importantly, the proposed framework naturally allows for equilibria where assets in positive net supply contain bubbles. This is true even in the case of complete markets with unconstrained acting agents, a fact appearing inconsistent with the traditional "representative agent" framework of asset-pricing theory.

For directions and maps, please see *http://math.bu.edu/research/statistics/statseminar.html.*