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**Qiji J. Zhu\***, Dept of Mathematics, Western Michigan University, Kalamazoo, MI 49008. *Convex Duality and the Fundamental Theorem of Asset Pricing*. Preliminary report.

The Fundamental Theorem of Asset Pricing (FTAP) relates arbitrage-free prices of financial assets to martingale measures and plays an important role in mathematical finance. Traditionally, this theorem is proven using a separation argument. We observe that by considering an individual agent's portfolio maximization problem and its convex dual, one can arrive at a more precise version of the FTAP which in a (realistic) incomplete market reveals how the agent's risk aversion relates to a corresponding martingale measure.

This talk is adapted from lectures of a special topic course in Courant Institute on convex duality and mathematical finance by Peter Carr and Qiji Zhu. (Received August 06, 2015)