Adv. Math. Econ. 14, 147–181 (2011)

Advances in MATHEMATICAL ECONOMICS

Robust utility maximization with unbounded random endowment

Keita Owari [1]

Institute of Economic Research, Hitotsubashi University, 2-1 Naka, Kunitachi, Tokyo 186-8603, Japan
(e-mail: keita.owari@gmail.com)

Received: February 22, 2010
Revised: July 27, 2010

JEL classification: C61, G11

Mathematical Subject Classification (2010): 91G80, 60H30, 46N10, 60G44

Abstract. This paper studies the problem of robust utility maximization with random endowment. When the endowment is possibly unbounded, but satisfies certain integrability conditions, we first prove the fundamental duality relation between the utility maximization and the dual problem, and the existence of a solution to the dual problem. Then the existence of an optimal strategy in a certain choice of admissible class is discussed. As an application, we introduce a robust version of utility indifference prices.

Key words:hedging, defaultable claims, convex duality, Neyman–Pearson lemma, jump processes

[1]The author deeply thanks an anonymous referee for a number of valuable suggestions. Also, the financial support from the Global Center of Excellence (COE) program "the Research Unit for Statistical and Empirical Analysis in Social Sciences (G-COE Hi-Stat)" of Hitotsubashi University is greatly acknowledged.