ONE-DIMENSIONAL REFLECTED BSDES WITH TWO BARRIERS UNDER LOGARITHMIC GROWTH AND APPLICATIONS

BY

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Abstract. We deal with the problem of existence and uniqueness of a solution for one-dimensional reflected backward stochastic differential equations with two strictly separated barriers when the generator has logarithmic growth $|y| \, |\ln|y|| + |z| \sqrt{|\ln|z||}$ in the state variables y and z. The terminal value ξ and the obstacle processes $(L_t)_{0 \leqslant t \leqslant T}$ and $(U_t)_{0 \leqslant t \leqslant T}$ are L^p-integrable for a suitable $p > 2$. The main idea is to use the concept of local solution to construct a global one. As applications, we broaden the class of functions for which mixed zero-sum stochastic differential games admit an optimal strategy and the related double-obstacle partial differential equation problem has a unique viscosity solution.

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