A general stochastic target problem with jump diffusion and an application to a hedging problem for large investors

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Abstract

Let Z(t,z) be a R^d-valued controlled jump diffusion starting from the point z at time t. The aim of this paper is to characterize the set V(t) of initial conditions z such that Z(t,z) can be driven into a given target at a given time. We do this by proving that the characteristic function of the complement V(t) satisfies some partial differential equation in the viscosity sense. As an application, we study the problem of hedging in a financial market with a large investor.

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