

Near optimality conditions in stochastic control of jump diffusion processes

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Abstract

This paper is concerned with necessary as well as sufficient conditions for near-optimality of controlled jump diffusion processes. Necessary conditions for a control to be near-optimal are derived, using Ekeland's variational principle and some stability results on the state and adjoint processes, with respect to the control variable. In a second step, we show that the necessary conditions for near-optimality, are in fact sufficient for near-optimality provided some concavity conditions are fulfilled. Finally, as an illustration some examples are solved explicitly.

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