Simulation of BSDEs with jumps by Wiener chaos expansion

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Abstract

We present an algorithm to solve BSDEs with jumps based on Wiener Chaos Expansion and Picard's iterations. This paper extends the results given in Briand-Labart (2014) to the case of BSDEs with jumps. We get a forward scheme where the conditional expectations are easily computed thanks to chaos decomposition formulas. Concerning the error, we derive explicit bounds with respect to the number of chaos, the discretization time step and the number of Monte Carlo simulations. We also present numerical experiments. We obtain very encouraging results in terms of speed and accuracy.

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