

Computation of Greeks for barrier options using chain rules for Wiener path integrals between two curves

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Abstract

Barrier options are exotic option whose payoff depend on whether or not the underlying asset price reached predetermined barrier level prior to the exercise time. In this paper, we discuss the double knock-out barrier options, and presents a new methodology to compute the Greeks (sensitivities) of barrier options. In particular, we develop chain rules (CR) for Wiener path integrals between two curves arising in computing the Greeks for barrier options. The boundary term of CR, concentrated on the set of paths touching one of the curves once, are specified. We also illustrates the effectiveness of our method through numerical examples.

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