Abstract

In pricing for European option Black–Scholes model has been widely used in various fields in which the model can be applied under appropriate conditions. In this paper, we discuss a binary option, which is popular in OTC (Over the Counter) market for hedging and speculation. In particular, asset-or-nothing option is basic for any other options but gives essential implications for constructing more complex option products. In addition to the primary role of the asset-or-nothing option, another availability of the option is considered by introducing fuzzy concept. Therefore, the uncertainty which an investor and intermediary usually have in their minds is incorporated in the pricing model. Thus, the model is described with fuzzy boundary conditions and applied to the conventional binary option, proposing more useful and actual pricing way of the option. This methodology with the analysis is examined, comparing with Monte Carlo simulations.

Keywords: Option pricing ▪ binary option ▪ asset-or-nothing option ▪ fuzzy boundary condition