Black-Scholes Versus Artificial Neural Networks in Pricing FTSE 100 Options

ABSTRACT

This paper compares the performance of Black-Scholes with an artificial neural network (ANN) in pricing European style call options on the FTSE 100 index. It is the first extensive study of the performance of ANNs in pricing UK options, and the first to allow for dividends in the closed-form model. For out-of-the-money options, the ANN is clearly superior to Black-Scholes. For in-the-money options, if the sample space is restricted by excluding deep in-the-money and long maturity options (3.4% of total volume), the performance of the ANN is comparable with that of Black-Scholes. The superiority of the ANN is a surprising result, given that European style equity options are the home ground of Black-Scholes, and suggests that ANNs may have an important role to play in pricing other options for which there is either no closed-form model, or the closed-form model is less successful than Black-Scholes for equity options.