

Exploring internal mechanism of warrant in financial market with a hybrid approach

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Abstract

In this research, we explore the internal mechanism of warrant in financial market with a hybrid approach integrating Black-Scholes pricing method and Grey theory into a genetic algorithm (GA) based back-propagation neural network (BPN). Black-Scholes pricing method can help make earnings with little risk. Grey theory can decrease the random and implicative noise of tempestuously undulant warrant prices. GA is used to find the best architecture for BPN to avoid local optimum.

In experiment, we find that most of selected input variables for BPN include Black-Scholes pricing values and Grey index values. It shows that those two kinds of values are crucial factors. And the earnings rate of warrant outperforms that of the underlying asset. In addition, the proposed model is verified to outperform traditional BPN. However, the high risk of warrant is another subject to which we should pay attention.

Keyword : Warrant; Black-Scholes pricing method; Grey theory; Genetic algorithm; Back-propagation neural network