Testing Black Scholes and Garch Option Models on Pharmaceutical State-Owned Enterprises Holding

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ABSTRACT

This study aims at testing the implementation of option contracts using Black Scholes and GARCH Option Models on the pharmaceutical State-Owned Enterprises (BUMN, Badan Usaha Milik Negara) holding using Long Straddle Strategy. The data were the closing stock price from 2002 to 2021 of two companies holding: INAF and KAEF. Results of this study were calculated by comparing percentage of average mean squared error of the Black Scholes and GARCH model with the implementation of Long Straddle Strategy, in which the smaller the percentage the better the model. The result showed that for one-month due date option contract, Black Scholes model was better than GARCH with error value on call option of 6.28% and put option of 4.279% for INAF and error value on call option of 5.24% and put option of 3.29%. With three-month due date option contract, Black Scholes model continued to show better results for call option with error value of 20.38% for INAF and 14.59% for KAEF. Conversely, GARCH model was better on the put option with 14.69% error value for INAF and 9.50% for KAEF.

Keywords: Black Scholes, GARCH, option contract, Long Straddle