



An alisis de volatilidad de los precios de cierre dela acci on de ECOPETROL 2016-2018 [

2021

text (article)

Analítica

In this paper a modeling of the time series corresponding to the daily closing price of the Ecopetrol share between 2016 and 2018 is made. The methodology used is that of Box and Jenkins, which is developed step by step with the objective of obtaining a model of the mentioned series that allows forecasting the value of the share in the short term. Initially, a description of the basic components of the series such as its trend, cycles and volatility is made; obtaining that the series is stationary in average is constant through time. Then, with the use of the graphs of the autocorrelation and partial autocorrelation functions, a first ARIMA(2,0,1) model is postulated, observing that the residuals are not independent of each other and in conclusion this model does not capture the dependence well. The study of the residuals is done with the purpose of analyzing the variance, for which the series of squared residuals is used, being these the estimators of the conditional variances, obtaining that the model is good for the mean but not for the variance. Subsequently, the variance is modeled, analyzing the squared autocorrelation graphs, it can be determined from the Ljung-Box test that there is heteroscedasticity in the residuals. Taking into account the above, an ARCH or GARCH model is sought to model the Ecopetrol price series, by means of the ARCH test, it is confirmed that there is an effect of this nature

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