

## ABSTRACT

Crude oil is one of the most important commodities in the economic sector and is among the most actively traded commodities in the world. Fluctuations in crude oil prices in the international market have serious and long-lasting effects on the economy, impacting both importing and exporting countries. Therefore, decision-making is necessary to address the continuously fluctuating and generally unstable global crude oil prices. One approach is to forecast global crude oil prices. West Texas Intermediate (WTI) crude oil, which originates from Texas, United States, is one of the benchmarks for global crude oil prices. Monthly WTI crude oil data has been identified as having long memory characteristics, leading to modeling with the ARFIMA method. The best ARFIMA model for this data is ARFIMA (1, d, 0) with a value of d of 0.84837. However, heteroskedasticity effects were present in this model, prompting variance modeling with the GARCH model. The best final model for the monthly WTI crude oil data is ARFIMA (1, d, 0) – GARCH (1, 1) with a MAPE value of 4,96%.

**Keywords:** *Crude oil, Long Memory, ARFIMA, Heteroskedasticity, GARCH*