

UNIVERSITI TEKNOLOGI MARA

**LONG-RUN DYNAMICS OF CRUDE
OIL PRICE AND MACROECONOMIC
VARIABLES: A COINTEGRATION
VECTOR AUTOREGRESSIVE
ANALYSIS**

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AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This dissertation has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Oil plays an essential factor in Malaysia's economic growth. Malaysia is the second-largest oil producer in South East Asia and has the 24th largest crude oil reserves. Considering that oil is a depleting and a highly demanded global commodity, fluctuations in its prices may cause an impact on several macroeconomic variables such as gross domestic product (GDP), inflation rates and the production. It is essential to know the relationship between crude oil price and the macroeconomic variables to determine the economic interdependence. The main purpose of this study is to identify the causal relationship between crude oil price and the macroeconomic variables using vector autoregressive (VAR) model approach. This study utilized data from the year 2006 to 2016 on a monthly basis. The result of a VAR model approach indicates that GDP and inflation are the significant variables that will affect crude oil price. In addition, the study made a forecast to all the four variables by using geometric Brownian motion (GBM) model. Hence, the crucial part in this study is to determine which method is more reliable in forecasting crude oil price. This is done by comparing the mean absolute percentage error (MAPE) of VAR model approach and GBM. The lowest MAPE value indicates the highest accuracy of the forecast values. In this study, for both methods MAPE were below twenty percent, however, MAPE for VAR model approach is the lowest, which is 3.84 compared with 20.48. Thus, the VAR model approach is used to forecast crude oil price for the year 2018 on a monthly basis.

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