AUTOREGRESSIVE DISTRIBUTED LAG MODELLING

FOR MALAYSIAN PALM OIL PRICES

ABANG MOHAMMAD HUDZAIFAH

BIN ABANG SHAKAWI

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To my beloved parents, siblings and my loved ones

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ABSTRACT

Modelling food commodities prices has become the area of interest in financial time series. This study aims to model Malaysian average monthly prices of crude palm oil using dynamic regression approach. The sample period covers from January 2000 until December 2013. The model investigated is Autoregressive Distributed Lag (ARDL) model. The model uses multivariate analysis with monthly prices, productions, imports, exports and closing stocks of crude palm oil as the variables. The ARDL model is selected using Akaike Information Criteria (AIC) and Schwartz-Bayesian Criteria (SBC). The capabilities of this model in estimating the crude palm oil prices is compared to Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) model by using Mean Absolute Error (MAE) and Mean Absolute Percentage Error (MAPE). The process of modelling is done by using Eviews and Microfit statistical software. This study concluded that ARDL model is a better model in modelling the palm oil prices. The ARDL model selected by using AIC produce better estimation than the ARDL model selected by using SBC. Furthermore, there exist long-run relationship between crude palm oil prices and its determinants.

ABSTRAK

Pemodelan harga komoditi makanan telah menjadi bidang penting dalam siri masa kewangan. Kajian ini bertujuan utuk membuat pemodelan purata harga minyak sawit mentah di Malaysia menggunakan pendekatan regresi dinamik. Sampel data adalah merangkumi bulan Januari 2000 sehingga Disember 2013. Model yang dikaji ialah model Autoregresif Lat Teragih (ARDL). Model ini menggunakan analisis multivariasi dengan mengambil kira harga, penghasilan, import, eksport dan stok bulanan minyak sawit mentah sebagai pemboleh ubah. Model ARDL dipilih menggunakan Kriteria Maklumat Akaike (AIC) dan Kriteria Schwartz-Bayesian (SBC). Keupayaan model ini dalam menganggar harga minyak sawit mentah dibandingkan dengan model Purata Bergerak Bersepadu Autoregresif Box-Jenkins (ARIMA) menggunakan Purata Ralat Mutlak (MAE) dan Purata Ralat Peratus Mutlak (MAPE). Proses pemodelan dilakukan dengan menggunakan perisian statistik Eviews dan Microfit. Kajian ini menunjukkan model ARDL adalah model yang lebih sesuai dalam membuat pemodelan harga minyak sawit mentah. Model ARDL yang dipilih menggunakan AIC adalah lebih baik dalam proses pemodelan berbanding model ARDL yang dipilih menggunakan SBC. Selain itu, terdapat hubungan jangka panjang antara harga minyak sawit mentah dan penentu-penentunya.