

SUMMARY

ANIS ERMA WULANDARI. Efficiency of Coffee Commodity Futures Markets in Indonesia. Supervised by HARIANTO, BUSTANUL ARIFIN and HENY KUSWANTI S.

Indonesia is the world 4th largest coffee producer after Brazil, Vietnam and Columbia with export potential and higher national consumption concluded in 2017 while the coffee production is relatively stagnant. This is led the producers to, not only the production risk, but also the price risk which then emphasize the importance of futures markets existence as price risk management instrument. Coffee itself started to be traded in futures markets specifically in Jakarta Futures Exchanges (JFX) back in 2013 although the regulation allows them to be traded in futures market starting 2001. The coffee futures trading has been increased significantly since the first trading which have been reached 339.253 lot as of 2017 or grows 26,06 percent compare to the previous year. The Arabica Contract Futures (ACF) and Robusta Contract Futures (RCF) growth by each 0.71 percent and 13.73 percent in 2017 which shows the dynamics of the futures trading activities. This is due to the commodity prices increasing trend and encourage the market participants to hedge their position.

In general, this research is performed to analyze the efficiency of coffee commodity futures markets in Indonesia. This is important to be conducted to provide information whether futures market is still reliable to be used as hedging instrument to mitigate price risk occurred in spot market. In order to examine the coffee futures market efficiency, hence we performed 1) analysis toward futures and spot price volatility is performed to confirm whether futures price volatility influence the volatility in spot market, 2) analysis of the cointegration between the two markets to evaluate the coffee futures market efficiency and speed of adjustment between the two prices toward the disequilibrium, 3) analysis of causality relationship between local futures and spot market and also calusality relationship between local and offshore futures market and 4) analysis of determinant factors of coffee price movement whether it's also influenced by price of other type of coffee i.e Arabika toward Robusta and vice versa.

Analysis is conducted by assessing the daily coffee price of Arabika and Robusta for 4.5 years market activity especially through the 1172 trading days in Jakarta futures market (JFX) and also the same period for the spot market. Offshore coffee futures market which utilized as reference for spot price determination, using data issued by Bappebti with the same period while monetary variables using data issued by Bank Indonesia. The ARCH-GARCH analysis result indicates that futures price volatility both local and offshore and exchange rate impacting the volatility of spot price both Arabika and Robusta while volatility of onshore futures price is impacted by volatility of offshore futures price.

Engle-Granger cointegration test indicates that futures and spot market have long term cointegration. The results of Error Correction Model (ECM) exhibits negative error correction term is negative and highly significant, indicating that there is a short-term relationship between futures and spot market both Arabika and Robusta. Significant coefficient in futures and spot market respond to restore the equilibrium whenever there is some price discrepancy. Spot price coefficient is lower than futures price' which indicates that futures price have faster adjustment

toward the disequilibrium and transmit information to spot market therefore price discovery in futures market.

Granger causality test indicates and bidirectional causality relationship between futures contract of Arabica (D(ACFSEP)) and Robusta (D(RCFNOV)) with spot market which reflects market expectation during and after the harvesting period. Considering the premature condition of coffee futures market in Indonesia, further analysis is performed to examine the influence of offshore futures market to local market. The result indicates that coffee prices in Indonesia influence offshore futures market except Arabica spot price which shows bidirectional relationship related to Arabica coffee production information as the impact of global coffee trading dominated by Arabica coffee. In general, it's found unidirectional causality relationship from local futures market to offshore futures market and unidirectional relationship between onshore and offshore futures market. This is confirming the importance of Indonesia coffee production toward global coffee production.

Furthermore, the OLS estimation exhibits that spot price of Arabica influence the Robusta spot price and vice versa. Arabica futures price is influenced by futures prices set in previous trading days, futures price with different deliveries and interest rate are the determinant for Arabica spot price. Further, Robusta futures prices are determined by Robusta futures prices set in previous trading days, other contract prices with different maturity, Arabica futures contract price and interest rate while futures prices is found responsible toward the Robusta futures price movement. This research confirm that offshore futures price is the determinant factor of local futures and spot price both Arabica and Robusta.

This research provides empirical evidence to hedgers, futures exchange and regulator that futures market may be used as effective price discovery and risk mitigation instrument as well as provides information to the regulator and futures exchange to develop stronger coordination for price transparency and better market cointegration. Should coffee producers especially farmer have the same access to price information equal to other market participants in the whole coffee trade chain, it will provide selling option for the farmer to sell directly in spot market rather than facing collector trader which then optimize their income. The futures market dominated price discovery for coffee in all periods and also show the domination of offshore futures price to local futures and spot price which confirm both local price refer to the same price reference. This serves as a reminder that regulator may provide reliable price information to be used by the hedgers for their decision making and regulator is also required to implement price transparency to elevate the coffee market in Indonesia.

Keywords: causality, coffee, efficiency, futures market, spot market