Evaluating the Hedging Effectiveness in Crude Palm Oil Futures Market: A Bivariate Threshold GARCH Model

You-How Go
Faculty of Business and Finance,
Universiti Tunku Abdul Rahman, Malaysia
Email: goyh@utar.edu.my

Wee-Yeap Lau*
Faculty of Economics and Administration
University of Malaya, Malaysia

Abstract: This paper examines whether there is a significant change in hedging effectiveness on Crude Palm Oil (CPO) futures market from January 1986 to October 2010. Three models comprise of naive, conventional and bivariate have been evaluated. As the volatility of spot and futures markets is not similar across time, both markets exhibit asymmetric information transmission. Our results show firstly that a bivariate VAR(16)-threshold(1)-GARCH(1,1) model is found to be an adequate model to capture volatility spillover between the two markets. Secondly, time-varying hedge ratio exhibits high volatility especially during Asian financial crisis 1997-98, followed by the global financial crisis in 2008. Thirdly, the bivariate model performs better than others in risk reduction. It is imperative to incorporate volatility spillover into conditional variance and covariance equations as to ensure the accuracy of estimation.

Keywords: Bivariate VAR-Threshold GARCH model, hedging effectiveness, optimal hedge ratio

JEL Classification Number: G12, G13, G14

1. Introduction
Being one of the world leading producers and exporters of palm oil, Malaysia alone accounted for 39 percent of world production and 45 percent of world export in 2011 based on the data released by Malaysian Palm Oil Board. Like other commodities, price movement of crude palm oil (CPO) is subjected to fluctuation. Hence, exploring the characteristics of price movement is important to producers and suppliers in order for them to hedge their positions. For hedging strategy, Silber (1985) states that futures contract plays the role of risk transferring to those who are willing to bear them. However, it is not always effective to hedge with futures contract as it cannot eliminate the risk in spot market totally.

* Corresponding author. Email: wylau@um.edu.my