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Modelling the Relationship between Crude Oil and Agricultural Commodity Prices

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Abstract

The food-energy nexus has attracted great attention from policymakers, practitioners and academia since the food price crisis during the 2007-2008 Global Financial Crisis (GFC), and new policies that aim to increase ethanol production. This paper incorporates aggregate demand and alternative oil shocks to investigate the causal relationship between agricultural products and oil markets, which is a novel contribution. For the period January 2000 - July 2018, monthly spot prices of 15 commodities are examined, including Brent crude oil, biofuel-related agricultural commodities, and other agricultural commodities. The sample is divided into three sub-periods, namely: (i) January 2000 - July 2006; (ii) August 2006 - April 2013; and (iii) May 2013 - July 2018. The Structural Vector Autoregressive (SVAR) model, impulse response functions, and variance decomposition technique are used to examine how the shocks to agricultural markets contribute to the variance of crude oil prices. The empirical findings from the paper indicate that not every oil shock contributes the same to agricultural price fluctuations, and similarly for the effects of aggregate demand shocks on the agricultural market. These results show that the crude oil market plays a major role in explaining fluctuations in the prices and associated volatility of agricultural commodities.

Keywords Agricultural commodity prices, Volatility, Crude oil prices, Structural Vector Autoregressive model, Impulse response functions, Decomposition.

JEL Classification C32, C58, Q14, Q42.

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