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Nonlinear Mean Reversion and Arbitrage in the Gold Futures Market

Jeng-Bau Lin
Department of Business Administration, National Chung-Hsing University

Jin-Ming Liang
Department of Information Management, Hsing Kuo University of Management

Chin-Chia Liang
Department of Business Administration, National Chung-Hsing University

Abstract

Previous literatures take transaction costs as being negligible when analyzing the futures basis behavior in linear dynamic framework. However, we argue that the relationship between the futures and spot prices with the conventional linear cointegration approach may not be appropriate after taking transaction costs into account. In this paper, an incorporation of transaction costs presented by Dumas (1992) and Michael (1997) into the exponential smooth transition autoregressive (ESTAR) model developed by Granger and Terasvita (1993) is motivated to examine the dynamic relationship between daily gold futures and spot prices and the nonlinear behavior of the gold futures basis. Transaction costs may lead to the existence of neutral band for futures market speculation within which profitable trading opportunities are impossible. Further, our results indicate that the ESTAR model provides higher forecasting power than the linear AR(1) model.

Completed draft available on request from:
Jeng-Bau Lin
Department of Business Administration, National Chung-Hsing University
jblin@dragon.nchu.edu.tw
Taichung, Taiwan

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