

One Gold, Two Currencies: Price Discovery between  
Spot Exchange Rate and Implied Exchange Rate Derived from Futures

*Matthew C. Chang, Jui-Cheng Hung and Chien-Liang Chiu*

Hsuan Chuang University, Chinese Culture University and Tamkang University

**Abstract**

In this study, we investigate the relationship between spot and implied futures exchange rate between U.S. Dollar (USD) and New Taiwan Dollar (NTD). We are the first to discuss such relationship because only the characteristics of NTD Gold Futures (TGF) and USD Gold Futures (GDF) traded on the Taiwan Futures Exchange (TAIFEX) allow us to do so. Thus, we not only contribute on understanding of price discovery in financial markets, but also on market efficiency and market mechanism through the unique futures contracts on the TAIFEX. The unit root tests confirm that

spot exchange rate and implied exchange rate are integrated of order 1, i.e.,  $I(1)$ .

Furthermore, Johansen cointegration test, Granger causality test, and Vector Error Correction Model (VECM) show that spot exchange rate more influences implied exchange rate. We calculate the information shares (Hasbrouck [16]) for spot exchange rate and implied exchange rate, and the results show the information shares for spot exchange rate are higher than those for implied exchange rate. Moreover, the multivariate regression analysis demonstrates similar results. The implications of our empirical results indicate the importance of market makers in less mature markets.

*Keywords:* Implied exchange rate, microstructure, price discovery, spot exchange rate, Taiwan Futures Exchange.