

# Multifractal Analysis of Korean Agricultural Market

Hongseok Kim<sup>†</sup>, Gabjin Oh<sup>‡</sup>, Seunghwan Kim<sup>†</sup>

<sup>†</sup>*Department of Physics, POSTECH, San 31, Hyoja-Dong, Nam-Gu, Pohang, Gyeongbuk,  
790-784, Republic of Korea*

<sup>‡</sup>*Division of Business Administration, Chosun University, 375 Seosuk-Dong, Dong-Gu,  
Gwangju, 501-759, Republic of Korea*

## **Abstract**

We studied the long-memory effect of Korean agricultural market using Detrended Fluctuation Analysis (DFA). For previous works, the return time series of the commodity prices were uncorrelated in time, while the volatility time series were strongly correlated. According to our research, the return time series of the Korean agricultural commodity prices are anti-correlated in time, while the volatility time series are still correlated. In addition, we examined the n-point correlations of time series. Then we found that there exist the multifractal structure in Korean agricultural market prices.

*Keywords* : Hurst exponent; DFA, Multifractal, MF-DFA, Agriculture; Commodity; Long-range correlation

E-mail : floe@postech.ac.kr