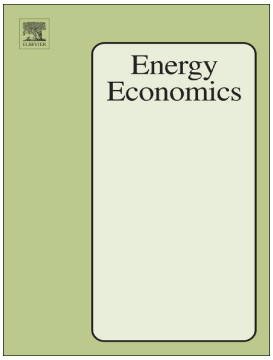

Does Investor Attention to Energy Stocks Exhibit Power Law?

Ravi Prakash Ranjan, Malay Bhattachharyya

PII: S0140-9883(18)30374-8
DOI: doi:10.1016/j.eneco.2018.09.005
Reference: ENEECO 4152

To appear in: *Energy Economics*

Received date: 21 December 2017
Revised date: 2 September 2018
Accepted date: 7 September 2018

Please cite this article as: Ravi Prakash Ranjan, Malay Bhattachharyya , Does Investor Attention to Energy Stocks Exhibit Power Law?. Eneeco (2018), doi:10.1016/j.eneco.2018.09.005

Does Investor Attention to Energy Stocks Exhibit Power Law?

Ravi Prakash Ranjan* Malay Bhattachharyya†

September 18, 2018

Abstract

In this article, we explore the dynamics of memory and the correlation structure in investor attention. Information on whether a time series is a pure noise or has a short or long range memory is important for predictive modelling of the series and analyzing its relationship with other variables. Existing studies on time series memory of stock variables are limited to price, volume, returns and conditional variance of returns. We carry out an in depth analysis to understand the dependence structure of stock's investor attention time series (IATS) for energy market. In this process, we first investigate the existence of correlated dependence in IATS and analyze its dynamics using detrended fluctuation analysis. Further, we check how this dependence changes a) with frequency of sampled data b) during volatility clustering periods of price and volume of underlying stocks. Finally, we perfom detrended cross correlation analysis on local and global IATS to find any cross correlation dependence between the two. We use relative search query volume in Google to quantify IATS for a particular stock and analyze top 20 energy companies based on their market capitalization. The obtained detrended fluctuation coefficients for stock's IATS differ significantly from 0.5 indicating the existence of memory in the series. The dynamics of this memory exhibits persistent and mean reverting behavior. We also observed a reasonably high positive cross correlation dependence between local and global IATS. Finally we find that volatility clustering has little effect on dependence structure of investor attention time series. We also include a few examples to illustrate practical implications of these results.

Keywords: Stock's IATS, Google Trends, Memory, Fluctuation Analysis

*Doctoral Student, Decision Sciences Area,Indian Institute of Management - Bangalore, Email: ravi.ranjan14@iimb.ernet.in

†Professor, Decision Sciences Area, Indian Institute of Management - Bangalore, Email: malayb@iimb.ernet.in