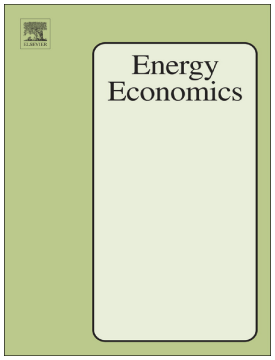

Analyzing Volatility Transmission Using Group Transfer Entropy

Thomas Dimpfl, Franziska J. Peter

PII: S0140-9883(18)30304-9
DOI: doi:10.1016/j.eneco.2018.08.008
Reference: ENEECO 4121

To appear in: *Energy Economics*

Received date: 12 August 2017
Revised date: 6 August 2018
Accepted date: 7 August 2018

Please cite this article as: Thomas Dimpfl, Franziska J. Peter , Analyzing Volatility Transmission Using Group Transfer Entropy. Eneeco (2018), doi:10.1016/j.eneco.2018.08.008

Analyzing Volatility Transmission Using Group Transfer Entropy

Thomas Dimpfl[a], Franziska J. Peter[b,*]

[a] *University of Tübingen, Department of Statistics, Econometrics, and Empirical Economics, Sigwartstraße 18, 72074 Tübingen, Germany. Email address: Thomas.Dimpfl@uni-tuebingen.de*
[b] *Zeppelin University, Department of Empirical Finance and Econometrics, Am Seemooser Horn 20, 88045 Friedrichshafen, Germany. Email address: Franziska.Peter@zu.de*

Abstract

We analyze the transmission of volatility between the oil, stock, gold, and currency markets using transfer entropy. Our approach, which we denote by group transfer entropy, measures the overall sensitivity of a process to lagged realizations of a group of other processes. We supplement our measure by a suitable block bootstrap approach which allows to conduct inference. Our empirical analysis uses daily data of OVX, VIX, GVZ, and EVZ from 2008 to 2017. The results show that oil and stock market volatility are the most affected by past volatility changes in the other markets, which highlights the importance for investors to hedge against this predictable risk transmission. Furthermore, we show that group transfer entropy can unveil nonlinear dynamics beyond the standard vector autoregressive methodology and provides a useful basis for forecast averaging.

Keywords: transfer entropy, volatility transmission, oil market, forecast averaging

JEL: C32, C35, G19

*Corresponding author.