

Report on Bachelor / Master Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	Daniel Bartušek
Advisor:	Evžen Kočenda
Title of the thesis:	The impact of oil-related events on volatility spillovers across oil-based commodities

OVERALL ASSESSMENT (provided in English, Czech, or Slovak):

Please provide your assessment of each of the following four categories, summary and suggested questions for the discussion. The minimum length of the report is 300 words.

Contribution

The thesis analyzes the impact of events related to oil on the connectedness among the oil-based commodities. More than 900 events occurring over the period from 1978 to 2022 that are related to oil are processed and grouped according to same characteristics. Connectedness is computed based on the Diebold and Yilmaz spillover index/connectedness measure. Then, a novel bootstrap-after-bootstrap econometric procedure developed by Greenwood-Nimmo et al. (2021) is employed to quantify which events can be linked to increases in connectedness with a statistically significant accuracy. The key contribution is evidence that geopolitical events are twice as likely to be linked with sudden and persistent rise in volatility connectedness than economic events, while natural events are found to be insignificant. Majority of the events linked to increased connectedness share three common characteristics: they are negative, unexpected, and invoke oil supply shortage. Besides a thorough quantitative analysis, the thesis also serves as a reference source of important events with proven impact on the energy markets.

Methods

Quantification of the connectedness is done with the Diebold and Yilmaz (2009, 2012, 2014) spillover index/connectedness measure plus with its frequency decomposition version designed by Barunik and Krehlik (2018). Hence, high-frequency realized variance and range-based realized variance are used to compute both types of connectedness measures. Impact of events on connectedness is analyzed with a non-parametric bootstrap-after-bootstrap procedure devised by Greenwood-Nimmo et al. (2021) - this thesis is the first thesis that applies the novel method. The methods are described well and in extensive detail.

The methods are well applied on the data. The data (commodity prices) on crude oil, heating oil, gasoline, diesel, and natural gas are fully described with all needed details. This part of the data section is further complemented by an interesting account about the history of the oil market. Process of collecting and processing the news on data events is fully described. The set of events in itself is a valuable information set that can be employed in relevant empirical work further on.

Literature

The literature review section summarizes the current state of research in the field very well. In the beginning, it brings the perspective of the oil in its position in a global economy. Then, it brings separate views of the volatility and oil spillover studies. Finally, it also covers literature related to the news studies. Hence, the literature is reviewed in a great detail and covers all relevant papers and angles.

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Manuscript form

The manuscript conforms to formal requirements for the master thesis. The text flows and reads well. The results are presented with enough detail. Introduction is informative with a clearly presented goal of the thesis. Data are described with full detail. The hypothesis testing is described in the text. Tables and figures are presented in an organized and legible manner. References are complete.

Summary and suggested questions for the discussion during the defense

The thesis represents an excellent empirical work on the subject of connectedness among energy commodities. The results of the Urkund analysis do not indicate significant text similarity with other available sources. In my view, the thesis fulfills the requirements for a master thesis at IES, Faculty of Social Sciences, Charles University. I suggest a grade of A and also recommend the thesis to be considered for an award.

SUMMARY OF POINTS AWARDED (for details, see below):

CATEGORY	POINTS
<i>Contribution (max. 30 points)</i>	30
<i>Methods (max. 30 points)</i>	30
<i>Literature (max. 20 points)</i>	20
<i>Manuscript Form (max. 20 points)</i>	20
TOTAL POINTS (max. 100 points)	100
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE: *Evžen Kočenda*

DATE OF EVALUATION:

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Overall grading:

TOTAL	GRADE
91 – 100	A
81 - 90	B
71 - 80	C
61 – 70	D
51 – 60	E
0 – 50	F