

Report on Bachelor / Master Thesis

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

Student:	David Černý
Advisor:	prof. PhDr. Ladislav Krištofek, Ph.D.
Title of the thesis:	Impact of total transaction fees on the price of Bitcoin and Ethereum

OVERALL ASSESSMENT

Short summary

The author studies a relationship between transaction fees and price dynamics of Bitcoin and Ethereum. He uses the daily data from 2016 to 2022 and estimates two simultaneous equations using 2SLS including variables documented previously in the literature.

It is clear that a lot of effort went into this thesis and it translates directly to the quality of the submitted text. Furthermore, I especially appreciate the author providing code to replicate the results that is easy to understand and runs out of the box.

Contribution

The author documents statistical relationships between the price dynamics of Bitcoin and Ethereum and selected fundamental, economic and investor speculation factors. He provides detailed reasoning behind selection of variables based on the previous empirical findings in the literature.

The author does not find a significant effect of transaction fees on the price. On the other hand he documents multiple effects on transaction fees which differ between Bitcoin and Ethereum. For more details I refer you to the Conclusion section of the thesis with a brief description of individual effects.

Methods

Author estimates a system of two simultaneous equations (price equation and transaction fee equation). He discusses in detail the necessity to address endogeneity in the system and his motivation to use instrumental variables via Two Staged Least Squares method. As the benchmark, standard OLS estimation of each equation is performed.

In the Results and Discussion section, the author offers basic exploratory data analysis to introduce the reader into the empirics of the problem. He performs the Wu-Hausman to test for endogeneity, Augmented Dickey-Fuller and KPSS tests to test the unit-root of residuals, Breusch-Pagan test to test the homoscedasticity assumption as well as Durbin-Watson test for autocorrelation as well as Shapiro-Wilk test for the normality of the residuals.

Further he adds robustness checks to his results performing analysis on subsamples on top of the analysis performed using the whole sample.

Literature

Literature review covers an extensive list of relevant publications with references being appropriately formatted. It goes from the history of crypto assets through technical details leading to the papers related to the core themes of transaction fees as well as price dynamics.

Manuscript form

Thesis is very well written. Sections are logically connected making the whole text easy to read. Tables and figures are well designed. My only comment is that tables are not self-contained (missing captions) and in order to understand, the reader needs to search in the text around the tables..

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I would also like to see the main contribution mentioned during the Introduction which otherwise motivates the reader to read the whole thesis.

Overall evaluation and suggested questions for the discussion during the defense

The results of the Turnitin analysis do not indicate significant text similarity with other available sources.

In my view, the thesis fulfills the requirements for a bachelor thesis at IES, Faculty of Social Sciences, Charles University, I recommend it for the defense and suggest a grade A.

Suggested questions for the discussion during the defense:

- *How could you extend your analysis to other crypto assets beyond Bitcoin and Ethereum?*
- *Can you elaborate on the instrumental variables selection process and what other variables not included in the thesis did you consider?*
- *How would your results differ in case different subintervals were chosen?*

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

CATEGORY	POINTS
<i>Contribution (max. 30 points)</i>	28
<i>Methods (max. 30 points)</i>	30
<i>Literature (max. 20 points)</i>	20
<i>Manuscript Form (max. 20 points)</i>	19
TOTAL POINTS (max. 100 points)	97
GRADE (A – B – C – D – E – F)	A

NAME OF THE REFEREE: Martin Hronec

DATE OF EVALUATION: 26.8.2023

Digitally signed, 26.8.2023, Martin Hronec

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