

# Report on Master Thesis

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

<b>Student:</b>	<b>Viktoriiia Ilina</b>
<b>Advisor:</b>	<b>Mgr. Michal Král</b>
<b>Title of the thesis:</b>	<b>Is hype really that powerful? The correlation between mass and social media and cryptocurrency rates fluctuations</b>

## **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**

I enjoyed reading the thesis. Especially with the current situation when the price of Bitcoin bounces between 40k and 30k USD in a matter of days, the thesis addressing the impact of media attention on the development of the cryptocurrency price could not have been timed better. I appreciate the author's effort to delve deep into the topic because Viktoriiia's interest in the crypto world and significant knowledge of technical details, which are shared with the reader, are apparent.

On the other hand, what the thesis really brings somewhat lies behind the expectations. I do not only mean my expectations but also expectations derived from the title and mostly from the evaluation of the hypotheses shaping the analysis. There are actually more interesting discussions about why the results are not according the original ideas than about the interesting results.

What is really new is the analysis of a relatively young cryptocurrency, Tezos, aside from the analysis of Bitcoin and the resulting comparison that comes out more interesting (not surprisingly) for Tezos. Also, the analysis of the most recent data covering 2018-2020 brings some important updates as the current wild ride of Bitcoin has just started at the very end of the analyzed period. Finally, the media sources' coverage, including Google Trends, Reddit, Wikipedia, Twitter, Telegram, and general crypto news, is rather extensive but may not be quite optimally utilized. I especially appreciate that the dataset is made public. I also like the sentiment analysis of Reddit data, which, unfortunately, does not really lead to superior results compared to the other information sources.

### **Methods**

The methodology is not a really strong part of the thesis. I apologize for such a statement; after finishing the IES master-level curriculum, I would expect a higher level of econometric rigor. The thesis is based on the analysis of correlations, Granger causality, and wavelet coherence. Before these analyses, the initial step is stationarity testing, which is explained very vaguely, while two pages are then devoted to the description of the (trivial) correlation coefficient. Granger causality testing is perhaps the most elaborate method; however, it is misdescribed. I am actually not able to recognize from the text whether the author really understands what the method does and how.

There is a huge discussion about the sources of data (see above), which is super interesting, and also a discussion about the sentiment/opinion analysis of the Reddit textual data, which is overwhelmed by irrelevant details such as how some columns in an Excel file were renamed during data processing. Still, then the core of the contextual analysis is described again relatively vaguely. Hence, the reader actually needs to believe it was done correctly by some software without understanding the important details.

My main methodological doubt comes from the very nature of the final dataset. The thesis is, simply stated, trying to explain (or at least put to some relationship) the dynamics of prices of the two cryptos by the coverage in various media and by the sentiment index derived from Reddit data. While

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the latter makes perfect sense (positive sentiment can be naturally associated with price increases and vice versa), the media (Google, Wiki, Twitter, etc.) coverage will generally grow both in case of a price booms and drops. Since the thesis is mostly based on a correlation analysis of (correctly) first-differenced prices and volumes, I am not surprised that not much is seen there because potential positive and negative correlations in specific subperiods will tend to cancel one other out on average. I will be happy if the author proves me wrong during the defense. Thus, some more interesting results are subsequently obtained by the wavelet coherence analysis, allowing for separation of the short, medium, and long-run effects by definition.

## Literature

The literature section is based on the paragraph-by-paragraph description of relevant papers without any clear attempt to provide some deeper comparative analysis of the differences and similarities, trends and tendencies, etc., in the literature over time. While this is quite a common phenomenon in the theses, it is a missed opportunity to extract some really contributive knowledge after a lot of time and effort was invested in the actual reading. A section lists the „most commonly assumed factors that underpin the market“, but it is not clear how this list is related to the subsequent description of individual articles.

Some references are incorrect (the year is missing), especially when the paper's title is unnecessarily mentioned. Also, a lot of information is stated without a clear source, which is natural as it has been gathered variously over the internet and became part of the author's knowledge. Still, proper sourcing of some important details would increase the reliability of the text. Finally, while access dates are correctly displayed for the internet item in the bibliography, the same practice is not followed in the text, especially in the footnotes.

## Manuscript form

The whole thesis has a reasonable structure, but the large sections „Literature review“ and „Empirical results“ are hard to grasp as these have no structure of subsections. Quite often, the author uses tiny one-sentence paragraphs. There are maybe even three inconsistent formats of datums in work. Some direct quotations (Pierre Alexandre Picard) are not properly cited. Graphics is reasonable, but the tables are often pixelized screenshots that are not self-contained. There is no way to check the bibliography's completeness as it was most likely managed manually in Word.

## Summary and suggested questions for the discussion during the defense

Although I have provided some critical remarks from the opponent's position, I would like to repeat that I enjoyed reading of the thesis, especially the descriptive parts crowded with interesting details. My overall conclusion is that the thesis meets the IES master level standards, and I can thus recommend it for the defense and suggest a grade D.

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

I would be interested in how the author views the results of her analysis in the light of current developments in the price of bitcoin and whether some recent events are less surprising for her than for the normal population after gaining the knowledge summarized in the thesis.

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

<b>CATEGORY</b>	<b>POINTS</b>
<i>Contribution</i> (max. 30 points)	23
<i>Methods</i> (max. 30 points)	18
<i>Literature</i> (max. 20 points)	14
<i>Manuscript Form</i> (max. 20 points)	12
<b>TOTAL POINTS</b> (max. 100 points)	<b>67</b>
<b>GRADE</b> (A – B – C – D – E – F)	<b>D</b>

**NAME OF THE REFEREE:** Jiří Kukačka

**DATE OF EVALUATION:** 27. 1. 2021

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**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