Report on **Bachelor Thesis**

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

Student:	**Kateřina Krouská**
Advisor:	**PhDr. Jiří Kukačka, Ph.D.**
Title of the thesis:	**Analysis of herd behavior across cryptocurrencies**

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

Short summary

Following a common perception that participants in cryptocurrency markets are less rational than their "colleagues" in the standard financial markets and thus more prone to various behavioral biases, Kateřina, in her bachelor thesis, examines herding behavior in the cryptocurrency market between 2017 and 2022. The study utilizes the standard CSAD measure and investigates the influence of various factors, including market conditions, major coins like Bitcoin, and external events such as the war in Ukraine and the Covid-19 pandemic. The findings indicate that while herding behavior is observed during the bull year of 2017 and in the up-market, no evidence of herding is found in the aggregate over the entire period. Overall, the study highlights the maturing nature of the cryptocurrency market and suggests further investigation into the influence of external events and additional variables on herding behavior.

Contribution

Herding has been extensively studied in standard financial markets in the past. Thus, the main economic contribution lies in examining herding behavior in the cryptocurrency market, for which only very limited recent literature exists. The study provides detailed insights into the factors that had driven herding in the recent past, such as market conditions, major coins like Bitcoin, and external events covering the crucial period of the Covid-19 pandemic when the cryptocurrency prices experienced record surges to new ATHs followed by massive crashes. The findings also highlight the importance of considering the influence of major coins on smaller ones, shedding light on the interdependencies within the market. Surprisingly, the study reveals that herding is present only during extreme movements of Bitcoin while pointing out that smaller coins are influenced by the performance of the largest coins rather than solely by Bitcoin.

Kateřina also constructed a well-designed dataset composed of the 100 most capitalized cryptocurrencies. Importantly, the sample is updated every 180 days to avoid survivorship bias. Finally, Katerina was able to interpret the rich set of results very well, especially the strong herding of the rest of the market around five dominant coins is a practically important result providing well-theoretically supported empirical evidence of a close interconnection between the giant coins and the rest of the market.

Methods

The thesis covers a wide range of standard herding detection linear models surpassing the bachelor-level IES curriculum. First, Kateřina demonstrates a good understanding of the theoretical framework based on the Cross-sectional absolute deviance (CSAD) metrics and the related set of regression models (upgraded versions based on asymmetric herding, extreme external factor movements, and external influence of five dominant cryptocurrencies) capturing potential nonlinear functional relationship wrt market returns. Second, the research hypotheses were reasonably defined (pg. 3), and the regression results were correctly interpreted. Unfortunately, the time constraints did not allow for the appropriate elaboration of standard econometric tests of important OLS assumptions, nor were robust standard errors applied by default. The thesis does not even discuss any potential econometric issues or statistical assumptions (except for stationarity testing) related to the chosen methodology.

Literature

The literature section is comprehensive and divided into three topical areas. The first is devoted to the traditional financial paradigm and the field of behavioral finance; the other two focus on the literature on herding behavior in financial markets, herding in the cryptocurrency markets, and, importantly, criticism of inconsistencies in the ongoing research. Overall, Kateřina demonstrates familiarity with the

Report on Bachelor Thesis

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

Student:	Kateřina Krouská
Advisor:	PhDr. Jiří Kukačka, Ph.D.
Title of the thesis:	Analysis of herd behavior across cryptocurrencies

current literature on the analyzed topic. Finally, citations are appropriately done using a standard style for economic papers.

Manuscript form
The thesis is written in decent English, standardly structured, and typeset in LaTeX. Most formatting comments from my side are considered in the final version. The bibliography section is complete and well-formatted. Referencing tables and figures is done correctly in the text, the tables are very well designed, and both figures and tables are self-contained. A few nice colorful graphics are easy to look through and understand.

Overall evaluation and suggested questions for the discussion during the defense

The assessed thesis fulfills the IES, Faculty of Social Sciences, Charles University bachelor-level standards. Thus I can recommend it for the defense and suggest a grade B.

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

Additional topics for the discussion:
- To support the results and validity of the OLS regressions, what standard econometric tests should have been elaborated?
- An easy-to-implement modification would be computing the robust standard errors. Why considering robust standard errors might be crucial? Can you elaborate more on this idea?
- While the CSAD measure has been used in previous studies, it is essential to recognize that different herding measures exist. Please briefly elaborate on some of these methodologies and compare them to your approach.

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

CATEGORY	POINTS
Contribution (max. 30 points)	25
Methods (max. 30 points)	22
Literature (max. 20 points)	19
Manuscript Form (max. 20 points)	19
TOTAL POINTS (max. 100 points)	**85**
GRADE (A – B – C – D – E – F)	**B**

NAME OF THE REFEREE: Jiří Kukačka

DATE OF EVALUATION: 31. 5. 2023

_____
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