

Report on Bachelor Thesis

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

Student:	Samuel Maroš Kožuch
Advisor:	doc. PhDr. Ladislav Křištofuk, Ph.D.
Title of the thesis:	Using the log-periodic power-law model to detect bubbles in stock market

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

Author in his thesis employs non-trivial econometric methods from the field of econophysics in order to analyze endogenous financial bubbles present in the 4 selected stock market indices. Complexity of the methods he uses is well beyond the scope of the bachelor studies at the IES. Conducted analysis, as far as I can assess, is done rigorously and shed light on the stock bubbles from an interesting perspective, not so common in the mainstream economic literature. Nevertheless, I would suggest presenting the methodology, especially in case of equations defining the model, in more clear and consistent way, as for a reader that is not familiar with the methodology it could be difficult to follow the logic behind the model. For example, in the introduction chapter, baseline equations for power law and for JLS model are given (Equations 1 and 2) although the meaning of these equations at this point of the text is not clear. I have also found few imperfections regarding the presented equations, e.g. Equation 5 holds only for simplifying assumptions that are not stated in the text. On the other hand, author is aware of the general drawbacks of the model, which he discusses thoroughly in the text.

Author not only performs the analysis of the bubbles but also proposes a new method for estimating the model and compares it with previous research. This is a valuable contribution in terms of bachelor thesis. Because this is one of the main contributions of the thesis, I would suggest going into more detail regarding the optimizing process.

Formal presentation of the thesis is on a high level. Language is clear and to the point. In general, overall formal impression is very good. Literature review is done appropriately and author cites when needed. Although, some references to the different approaches to detecting bubbles could have been given. Few typing (e.g., headers in Figures 7-9) and factual errors (e.g., page 4 statement about Irving Fisher being an apprentice of Jan Tinbergen) occur throughout the text or some inconsistencies can be traced, but the overall very positive impression of the thesis is not diminished by these minor imperfections.

Suggested topic for the defense: Are you aware of any recent model that combines approach based on log-periodic power-law model with some fundamental indicators, such as GDP growth? Do you think that this can be a fruitful direction for the further research?

In case of successful defence, I recommend “**výborně**” (**excellent, 1**).

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

CATEGORY	POINTS
<i>Contribution</i> (max. 30 points)	30
<i>Methods</i> (max. 30 points)	28
<i>Literature</i> (max. 20 points)	18
<i>Manuscript Form</i> (max. 20 points)	17
TOTAL POINTS (max. 100 points)	93
GRADE (1 – 2 – 3 – 4)	1

NAME OF THE REFEREE: *Mgr. Ing. Matěj Nevrla*

DATE OF EVALUATION: *June 5, 2017*

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

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

Strong Average Weak
20 10 0

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.*

Strong Average Weak
30 15 0

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.*

Strong Average Weak
30 15 0

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.*

Strong Average Weak
20 10 0

Overall grading:

TOTAL POINTS	GRADE		
81 – 100	1	= excellent	= výborně
61 – 80	2	= good	= velmi dobře
41 – 60	3	= satisfactory	= dobře
0 – 40	4	= fail	= nedoporučuji k obhajobě