Report on **Bachelor Thesis**

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

Student:	**Jan Polách**
Advisor:	**PhDr. Jiří Kukačka**
Title of the thesis:	**Prospect Theory and Inertia in a Heterogeneous Agent Model**

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

The thesis "Prospect Theory and Inertia in a Heterogeneous Agent Model" thoroughly analyses two extensions of the most famous financial Heterogeneous Agent Model (HAM) based on the Prospect Theory. A suggestion to enrich the HAM by features of the Prospect Theory has already appeared in recent literature (Shimokawa et al., 2007, Physica A) but the challenge was not accepted before Jan. The second extension deals with the notion of partial investors' inertia (also called asynchronous updating) which is being utilised in several most recent HAM papers, but to the best of our knowledge without any proper simulation sensitivity analysis published.

I am pleased to summarise at the very beginning that **Jan has written an excellent piece of work** and due to outstanding quality of the entire thesis **I can honestly suggest the highest grade (1)**.

Jan managed to get familiar with relatively intellectually demanding field with ease, coded the Brock&Hommes (1998) model himself using Wolfram Mathematica and extended the model rigorously following a vague suggestions from international literature. Although the model is an extension of an existing framework, Jan had to suggest several non-trivial solutions and change the structure of the original model considerably to allow implementation. Based on an extensive literature survey pervading the entire work, Jan further calibrated new parameters of the model, coded new tools when the standard Mathematica library was insufficient, and utilised relevant data for empirical comparison with simulated series. However, the most outstanding part of the thesis is a large simulation analysis where Jan demonstrated strong quantitative skills and mastered not only selected tools of statistical and econometric analysis but also the field of computational simulations in economics research.

The cooperation with Jan from my advisor's point of view was excellent. Jan showed ability to independently suggest solutions to many non-trivial issues emerging during the research as well as to focus on a detailed and very elaborate analysis. Jan was able not only to clearly put the hypotheses to test but also very critically interpret the results and come to interesting and economically valuable (even surprising) conclusions which I believe might be beneficial for the related literature.

The extent of the thesis which is roughly 74 pages ranks the work to a group of long ones, but it does not detracts from its overall quality. The aim, design, working hypotheses, and conclusion are clearly stated and carefully elaborated. The work is well structured and formally more than meets very high academic standards. Moreover, and very importantly, it contributes to recent findings in literature. The text of the thesis is supplemented by an electronic archive containing complete source codes so that everyone can verify the results.

Suggested questions for the defense:
- Summarise the most important effects of the Prospect Theory implementation into the original HAM framework and and where possible, provide economic explanation/interpretation.
- One surprising conclusion of the work suggests that in the extended model and especially under asynchronous updating (inertia) feature fundamentalists have higher ability to survive in the market. This is somewhat in contrast with the Efficient Market Hypothesis according to which chartists should be the "endangered species" not vice versa. Can you explain this technically (within the model framework) and give it also a possible economic interpretation?

Summary:
As large, I do find this thesis **more than strongly surpassing academic standards for bachelors theses written at IES**. Personally considered, the ability of the author to suggest almost entire design of the work himself and the extensive and very elaborate simulation analysis utilising advanced computational techniques are the most distinctive qualities of the work.

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I am very pleased **I can strongly recommend the thesis of Jan Polách to defense at the IES FSV UK. With no doubts, I suggest the grade "1". i.e. "excellent"**, and if Jan manages the defense procedure well and this option still applies for current third-year students, I kindly recommend the committee to consider **the "Dean's Award for an extraordinarily good bachelor diploma thesis"**.

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

CATEGORY		POINTS
Literature	*(max. 20 points)*	20
Methods	*(max. 30 points)*	29
Contribution	*(max. 30 points)*	29
Manuscript Form	*(max. 20 points)*	20
TOTAL POINTS	*(max. 100 points)*	**98**
GRADE	**(1 – 2 – 3 – 4)**	**1**

NAME OF THE REFEREE: Jiří Kukačka
DATE OF EVALUATION: 9. 6. 2015

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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