

# Report on Bachelor Thesis

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

Student:	Martina KLEJCHOVÁ
Advisor:	Petr Teplý
Title of the thesis:	<b>Agent-Based Modeling of the Financial Markets</b>

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

This bachelor thesis is a coherent work presenting an agent-based model of financial markets. It consists of 36 pages of main text and two appendices (with additional figures and the source code) of 12 pages in total. The thesis is written in English.

In the first part of the thesis the author provides an extensive review of literature concerning agent-based modeling. It proves that the author is familiar with the state-of-art of this field of research, however it misses a critical assessment of the discussed models. As a consequence, it is not clear why the author chooses to base her model on the work of He, Hamil and Li (2008).

The main body of the thesis presents two models. First, the author replicates the model of He, Hamil and Li (2008) and next she introduces an extension to this model. While He, Hamil and Li (2008) model a single market, the author deals with two separate, but interconnected, sub-markets. The analysis of two interconnected markets is the author's contribution to the field.

Both models are presented in a clear, consistent way. The author well demonstrates her skills in modeling and programming. Nevertheless, motivation of assumptions and interpretation of results leave some space for improvement. First, it is not clear why an analysis of two interconnected markets is useful. Are there some unexplained stylized facts which could be addressed in this way? Second, what is the rationale for choosing the given set of calibration parameters? The author argues that that calibration is not the scope of the thesis. This is acceptable, but a short description of the parameters (e.g. following He, Hamil and Li, 2008) would be useful. Finally, what is the lesson from the results presented in the thesis?

**Question:** What is the advantage of two-market models as opposed to single-market models when simulating financial markets?

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

CATEGORY	POINTS
Literature (max. 20 points)	17
Methods (max. 30 points)	25
Contribution (max. 30 points)	22
Manuscript Form (max. 20 points)	17
<b>n TOTAL POINTS</b> (max. 100 points)	<b>81</b>
<b>GRADE</b> (1 – 2 – 3 – 4)	<b>1</b>

**NAME OF THE REFEREE:** Barbara Pertold-Gebicka, PhD

**DATE OF EVALUATION:** 6.6.2011

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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