Report on **Bachelor / Master Thesis**

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

Student:	**Bc. Luboš Hanus**
Advisor:	**Mgr. Lukáš Vácha, Ph.D.**
Title of the thesis:	**Wavelet analysis of business cycles in the Visegrad Four**

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

The Master thesis focuses on analysis of business cycle in the Visegrad Four countries (Czech Republic, Hungary, Poland and Germany) during period 1991-2013. In order to uncover dynamic time-frequency relationships of output and key macroeconomic indicators wavelet methods are applied. Central part of the thesis study the industrial production synchronization within the Visegrad Four countries and Visegrad Four with the EU (represented by Germany). Author demonstrates that countries in the Visegrad region have rich coherency dynamics of output during the studied period. As the data range covers accession of the Visegrad Four countries to the EU (May 2004), the impact of various economic policies are obvious. Time-frequency analysis shows that Czech Republic and Hungary have highly coherent business cycles with Germany during the second half of the examined period (2000-2013), conversely Poland's business cycle is the least synchronized with Germany.

After introductory part extensive literature review follows. Author introduces basic stylized facts of business cycles and describes characteristics of Visegrad Four countries. In Chapter 3 wavelet analysis tools are described. This part is very intuitive and accompanied with supportive examples. Chapter 4 gives basic information about used datasets and provides preliminary data analysis. From the empirical part (Ch.5) I would highlight interesting coherency patterns of business cycles synchronization within the Visegrad Four countries (part 5.2). In next section the synchronization of the Visegrad Four and Germany is analyzed. Using the wavelet methodology author shows that all the countries initiated stronger synchronization with the Western Europe four years before they joined the EU.

To conclude, the thesis is well structured. Luboš Hanus demonstrate ability to work with relevant literature. Methodology apparatus is relevant to the research problem being investigated and all methods are clearly described. The contribution of the thesis is strong. Thus, I recommend the thesis for defense with the grade „výborně" (excellent, 1).

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

CATEGORY		POINTS
Literature	*(max. 20 points)*	18
Methods	*(max. 30 points)*	30
Contribution	*(max. 30 points)*	25
Manuscript Form	*(max. 20 points)*	17
TOTAL POINTS	*(max. 100 points)*	**90**
GRADE	**(1 – 2 – 3 – 4)**	**1**

NAME OF THE REFEREE: Mgr. Lukáš Vácha, Ph.D.

DATE OF EVALUATION: 14.6.2014

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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