

# Report on Master Thesis

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

Student:	Bc. Filip Šmolík
Advisor:	Mgr. Lukáš Vácha, Ph.D.
Title of the thesis:	Time-scale analysis of sovereign bonds market co-movement in the EU

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

The thesis analyzes a wide portfolio of the EU member states' sovereign bonds (10Y bonds specifically) and their co-movements using various wavelet-based methods. The authors find three important results which he summarizes as: a) co-movement significantly decreased during the crisis (using the Lehman Brothers breaking point as well as the Greek crisis), b) co-movement differs across scales, and c) the wavelet correlation decreased at lower scales near to the extreme events/periods.

The text is standardly structured. After the clear introduction and motivation, the author follows with the literature review. The third chapter covers the methodology, even though it might be seen as too detailed and long. The fourth chapter summarizes the analyzed data. The following four chapters approach the empirical results. The last chapter concludes. A reader might ask whether the text is not structured too coarsely as the text would benefit from better-connected results sections.

### Specific comments:

- By how much is the analysis in Chapter 5 influenced by non-normality of the underlying series? Grinsted et al. suggest using some data transformation if the series are far from normality. This might affect the results of the coherence itself as well as the confidence intervals which are based on the red noise, i.e. Gaussian AR(1).
- In Chapter 5, even though it is evident that co-movements changed during the crisis, it is not so evident whether the frequency break-down is worth the effort. From the wavelet coherence plots, it is very hard to believe that there are actual differences across scales as most of these are either all (or mostly all) strongly significant with the coherence close to unity or all (or mostly all) insignificant. Does not DCC-GARCH tell the same story?
- In Chapter 7, the contagion effect is studied. Would the analysis not be much more informative if the wavelet phases were utilized? The author might concentrate on this topic a little bit during the defense.

In summary, this is an excellent thesis and the author has shown that he understands the topic very well. Even though there are some questions and concerns, the presentation of the results and a width of the analysis perfectly compensate for it. The topic and the execution of the thesis fall into high levels of theses defended at IES. **In the case of a successful defense, I thus gladly suggest grade A and the Dean's Prize for an Extraordinary Diploma Thesis.**

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

<b>CATEGORY</b>	<b>POINTS</b>
<i>Literature</i> (max. 20 points)	20
<i>Methods</i> (max. 30 points)	30
<i>Contribution</i> (max. 30 points)	28
<i>Manuscript Form</i> (max. 20 points)	20
<b>TOTAL POINTS</b> (max. 100 points)	<b>98</b>
<b>GRADE</b> (1 – 2 – 3 – 4)	<b>1*</b>

**NAME OF THE REFEREE:** *PhDr. Ladislav Krištofek, Ph.D.*

**DATE OF EVALUATION:** 19.9.2014

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**Referee Signature**