Report on Master Thesis

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

Student:	**Pavel Fišer**
Advisor:	**doc. PhDr. Jozef Baruník Ph.D.**
Title of the thesis:	**Co-jumping of yield curve**

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

Please provide your assessment of each of the following four categories, summary and suggested questions for the discussion. The minimum length of the report is 300 words.

Contribution

The master thesis focuses on a potential influence of jumps and co-jumps on the term structure of the U.S. Treasury bond contracts. Detection of jumps and co-jumps is a very actual topic in the recent literature. In this thesis, Pavel focuses on bond term structures. I see the contribution of the thesis in revealing that the co-jumps significantly influence bond correlation structures at all maturities. Furthermore, the analysis shows co-jumps response to scheduled macroeconomic announcements.

Methods

For the jump and co-jump detection, Pavel uses time-frequency domain approach. He uses wavelet analysis that allows for precise detection of jump in time. This subsequently enables estimate co-jumps in a bi-variate setting. An advantage of this approach is minimal false co-jump detection rate. Moreover, detection of jumps and co-jumps permits to disentangle the estimated processes to continuous and discontinuous part and separate the "true" correlation, called continuous correlation, from the total correlation that is biased by the co-jumps. Using this sophisticated apparatus, Pavel studies responses to monetary policy without the influence of the discontinuous part of a correlation. Thus, obtained results are more robust to system-wide market shocks and reveal more accurately the dependence.

Literature

The thesis provides a broad review of relevant literature. In the thesis, Pavel uses recent literature and references it correctly. Clearly, he shows a very good understanding of literature.

Manuscript form

The thesis reads well and is clearly structured. It logically connects the findings with the actual literature.

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Summary and suggested questions for the discussion during the defense

Overall, Pavel has shown good theoretical as well as programming skills. The thesis is a coherent piece of excellent work. To conclude, I believe that the fulfils all the requirements for a master thesis at Institute of Economic Studies. I suggest grade A.

A suggested question for the discussion during the defense:

At page 40, in Table 5.3: some values describing the co-jumps to quadratic variation ratio are very high. Could you please provide an explanation of these high values?

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

CATEGORY		**POINTS**
Contribution	*(max. 30 points)*	25
Methods	*(max. 30 points)*	30
Literature	*(max. 20 points)*	20
Manuscript Form	*(max. 20 points)*	20
TOTAL POINTS	*(max. 100 points)*	**95**
GRADE	**(A – B – C – D – E – F)**	**A**

NAME OF THE REFEREE: Lukáš Vácha

DATE OF EVALUATION: 13.6.2018

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

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*

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*

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*

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	**GRADE**
91 – 100	**A**
81 - 90	**B**
71 - 80	**C**
61 – 70	**D**
51 – 60	**E**
0 – 50	**F**