Report on Bachelor / Master Thesis

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

Student:	Jiří Poláček
Advisor:	Jozef Baruník
Title of the thesis:	Realized Jump GARCH model: Can decomposition of volatility improve its forecasting?

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

This thesis applies a very novel methodology – the realized GARCH model – to predict future volatility of stock market indices in CEE countries. The value added of the thesis is twofold. First, the author compares the performance of several models used to predict volatility. Second, using the recently developed realized jump GARCH, the author examines the importance of exogenous shocks (jumps) in development of volatility of stock market indices – which aggregate information present in the market.

The thesis consists of six chapters. After brief and informative introduction in the first chapter, the author reviews the current state of art concerning the realized measures of volatility (chapter 2) and the models used to estimate volatility (chapter 3). Both review chapters are very comprehensive, but I find the latter an especially useful summary of the up-to-date methodology nicely presented in table 3.1.

Chapter 4 presents the data used in the empirical part of the thesis. These are high frequency data on indices from three stock exchanges: Prague, Warsaw, and Budapest. The author has downloaded the data in a ready-to-use form from data-provider's webpage. As the author devotes one page to discuss the necessity of filtration in the case of high frequency data, I find it natural to at least mention which filter(s) were used to prepare the indices for econometric analysis. Unfortunately this information is missing in the text.

Estimation results are discusses in chapter 5. The author discusses each index separately and compares the performance of five GARCH and two HAR models in predicting volatility of these indices. Interpretation and discussion of results is deep and careful. It is clear from the wording of the thesis that the author understands the topic and knows how to read the estimated coefficient. It appears that realized GARCH models perform the best in predicting volatility, and the realized jump GARCH does not outperform the realized GARCH when judging according to the goodness of fit. This latter finding could be expected due to theoretically negligible role of (or number of) exogenous shocks in the dynamics of stock market indices.

The thesis is written clearly, with an easy to follow structure and well build argumentation. English is usually on a high level, although sometimes the author 'thinks faster than he writes'.

Generally, the thesis makes a very good impression and definitely deserves a successful defense with an excellent grade (1).

Suggested question: How do the differences between the three stock indices, especially the composition of the underlying stocks, affect your estimations?

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

CATEGORY		POINTS
Literature	*(max. 20 points)*	20
Methods	*(max. 30 points)*	28
Contribution	*(max. 30 points)*	28
Manuscript Form	*(max. 20 points)*	17
TOTAL POINTS	*(max. 100 points)*	**93**
GRADE	**(1 – 2 – 3 – 4)**	**1**

NAME OF THE REFEREE: Barbara Pertold-Gebicka

DATE OF EVALUATION: 18.9.2014

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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