Report on **Master Thesis**

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

Student:	**Jindřich Jurkovič**
Advisor:	**Jozef Baruník**
Title of the thesis:	**Forecasting Realized Volatility Using Neural Networks**

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

The thesis proposes to use neural networks to forecast realized volatility in the forex markets and benchmarks their performance against popular Heterogenous Autoregressive Model and traditional ARIMA models. The thesis moreover introduces so called HARD model. In this respect, the thesis brings novel application as neural networks are used in the realized volatility literature very scarcely. Author deals with the demanding topic reaching far beyond the scope of the master level studies and brings original empirical results.

While the statistical estimation and comparison of the models is done correctly, the text is suffering little bit from better organization in terms of connection of the various chapters. First, a concept of realized volatility is introduced without introducing underlying process for prices, then text jumps directly to statistical measures, introduction of very general regression setting, ARIMA and HAR models, but to make text more coherent I believe it would benefit from keeping in mind that the main aim is to build an econometric model for volatility forecasts. In the present form, general interest reader will have problem with orientation and may get lost soon in the methodology Sections. Otherwise, the author has consulted the results with me several times and I have no other questions to the defense.

In conclusion, I believe that the thesis is a standard work, which brings potentially interesting empirical research with novel approach to modelling of the correlations in the stock markets. In case of successful defence I recommend a grade 1.

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

CATEGORY		**POINTS**
Literature	*(max. 20 points)*	20
Methods	*(max. 30 points)*	25
Contribution	*(max. 30 points)*	25
Manuscript Form	*(max. 20 points)*	14
TOTAL POINTS	*(max. 100 points)*	**84**
GRADE	**(1 – 2 – 3 – 4)**	**1**

NAME OF THE REFEREE: Jozef Barunik

DATE OF EVALUATION: 14.6.2013

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