Report on **Bachelor Thesis**

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

Student:	Štěpán Svoboda
Advisor:	doc. PhDr. Ladislav Krištoufek, Ph.D.
Title of the thesis:	Short-term elektricity price forecasting – evaluation of selected hybrid models

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

Please provide your assessment of each of the following four categories. The minimum length of the report is 300 words.

Contribution

The main motivation of the thesis is to find whether the machine learning techniques can enhance the standard methods for (short-term) electricity price forecasting. It turns out that for this specific setting and dataset, it is not the case, at least not for the supporting vector regression and PSF compared to ARIMA. Even though this might be discouraging, such results are important as well. I believe this is caused by the univariate nature of the presented analysis as adding some independent variables might be helpful and might exploit the potential of non-linear transformations that take place in the utilized machine learning techniques. This could be left for a further research.

Methods

The thesis presents and utilizes methods that are not used standardly in economics/econometrics. These machine learning techniques are thus given a proper space. It needs to be noted that the used methods are above scope of the bachelor's curriculum and some of them theoretically very demanding (specifically kernels). The thesis combines the standard ARIMA approach towards modeling electricity prices with supporting vector regression (SVR) into the SVR-ARIMA method. I particularly like the approach towards in-sample and out-of-sample analysis where these samples are selected on a rolling window, thus providing a cross-validation of the results. Only a minor thing I miss there is a possible comparison between SVR-ARIMA and ARIMA-SVR, even though this is way above the scope of a bachelor's thesis.

Literature

Literature is covered in a sufficient detail. As the topic is quite out of the mainstream, a rather wide space needed to be given to the machine learning approaches. The covered literature list is thus quite long for a bachelor's thesis. I see no important references missing here.

Manuscript form

The thesis has a clear logical structure. For its length, it has quite a lot of subsections. In addition, the figures could have been given more work as some of them are either very basic or not really nice looking.

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

CATEGORY		POINTS
Contribution	*(max. 30 points)*	25
Methods	*(max. 30 points)*	28
Literature	*(max. 20 points)*	20
Manuscript Form	*(max. 20 points)*	18
TOTAL POINTS	*(max. 100 points)*	**91**
GRADE	**(1 – 2 – 3 – 4)**	**1**

NAME OF THE REFEREE: doc. PhDr. Ladislav Krištoufek, Ph.D.

DATE OF EVALUATION: 5.6.2017

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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