Report on Bachelor Thesis

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

Student:	**Bc. Tomáš Juchelka**
Advisor:	**doc. PhDr. Ladislav Krištoufek, Ph.D.**
Title of the thesis:	**Prediction of Stock Market Volatility Using Internet Data**

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.

The thesis supplements standard models of volatility, specifically the GARCH model and the ARFIMA model applied on the Garman-Klass estimator of volatility, with data on online activity as measured by Twitter, specifically the number of Tweets for given hashtag and cashtag. In addition, the Tweets are separated into the positive ones and negative ones so that possible asymmetric effect of Tweets on volatility can be studied. In short, the Twitter-adjusted models outperform the standard models in the sense of one-day ahead volatility forecasting performance.

Contribution

A direct contribution of the thesis is in the topic itself as most of the studies focusing on the Twitter (or online in general) data and its usefulness for volatility modelling usually build on very simple connections between the two, specifically most studies are practically correlation studies. In the thesis, the author takes two standard approaches of financial econometrics and incorporates the Twitter data into them. The contribution is thus quite strong. Nevertheless, I believe it would be even stronger if the results of the Diebold-Mariano test were presented with testing statistics and *p*-values so that a reader can clearly see the differences between the models' performance.

Methods

Methodology is presented in an intelligible way, even though the separation into two chapters might be confusing for some readers. As for the level of the used methodology, the GARCH models can be considered as standard methods for a master's thesis but ARFIMA models are quite above the standard level. Overall, the applied methodology is fine, level-wise.

Literature

There is a literature review in the text. However, it feels somehow artificially added there. The thesis overall is based on relatively few references and the work with literature might be seen as a weaker point of the thesis (even though not necessarily a weak point).

Manuscript form

The thesis structure is logical and quite standard. The results section seems quite repetitive and the tables could have been given more work. The text itself sounds not so academic at times but it is not too disturbing.

*Overall, this is a fine thesis. Even though the results could have been presented in a better way and the text itself would certainly benefit from some further work, **I believe that the thesis can be defended and I suggest mark B with a total of 75 points**.*

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

CATEGORY		**POINTS**
Contribution	*(max. 30 points)*	25
Methods	*(max. 30 points)*	25
Literature	*(max. 20 points)*	12
Manuscript Form	*(max. 20 points)*	13
TOTAL POINTS	*(max. 100 points)*	**75**
GRADE	**(1 – 2 – 3 – 4)**	**2**

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

DATE OF EVALUATION: 6.9.2017

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