

# Report on Bachelor Thesis

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

Student:	Vlastimil Bureš
Advisor:	PhDr. Ladislav Krištoufek, Ph.D.
Title of the thesis:	Financial earthquakes: Are volatility correlations related to Omori's law?

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

The bachelor's thesis studies a very interesting topic of financial time series dynamics – aftershocks of the critical events on the stock markets. The thesis is nicely structured and the text reads nicely even though some small deficiencies remained, e.g. subchapters of level 3 in section 5, which are not really needed. This is only a small issue, though. Vlastimil examines the effect that is quite well documented in the interdisciplinary finance literature, which is presented in the literature review – power-law behavior of the aftershocks of the extreme events. Three specific events are selected – death of Steve Jobs, the Flash Crash and one of the IBM earnings announcements. Using the non-linear least squares for obtaining the scaling parameter estimate, it is shown that all three events can be described by the Omori's law-like behavior. Issues with specific threshold selection is discussed as well. An interesting contribution to the methodology stems in the usage of two measures of volatility – absolute returns, which are mostly used in the relevant literature, and realized volatility-like measure. Importantly, the qualitative results remain the same. It needs to be stressed that such a behavior is not explained by standard financial methods such as GARCH-family models, which makes the repetitive identification of such behavior important for a deeper understanding of the financial markets dynamics.

The thesis has been discussed with me on quite regular basis and Vlastimil has shown interest in the topic. For the bachelor's thesis, the work is well sufficient and I believe that a deeper analysis would be possible for the master's thesis as well. **In the case of a successful defense, I suggest grade A.**

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

CATEGORY	POINTS
Literature (max. 20 points)	18
Methods (max. 30 points)	28
Contribution (max. 30 points)	29
Manuscript Form (max. 20 points)	19
<b>TOTAL POINTS</b> (max. 100 points)	<b>94</b>
<b>GRADE</b> (1 – 2 – 3 – 4)	<b>1</b>

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

**DATE OF EVALUATION: 8.6.2014**

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**Referee Signature**