Report on Bachelor / Master Thesis

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

Student:	**Bc. Jiří Šafka**
Advisor:	**PhDr. Pavel Vacek, Ph.D.**
Title of the thesis:	**Virtual currencies in real economy: Bitcoin**

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

In his master thesis, Jiří Šafka explores the world of virtual currencies with a focus on Bitcoins. Jiří provides a nice overview of legal status of Bitcoins around the world and discusses taxation issues associated with it. In the main part of thesis, Jiří models volatility of Bitcoins and then he analyzes a relationship between Bitcoins and a few selected real economy indicators. The thesis has two main findings: a) the volatility of Bitcoin differs significantly through time and this relation is captured best by T-GARCH (1,1) and b) there is no significant long-term relationship between the price of Bitcoin and the „real" economy, which would suggest that Bitcoin is independent of real economies.

There are several things that I like about the thesis:

1. Jiří Šafka explores relatively new phenomenon of virtual currencies. There is not much literature exploring it. We need to understand more its advantages, disadvantages, potential, risks and behaviour. This thesis aims in this direction.

2. The thesis is written in a readable way.

3. I really appreciate that Jiří is not scared by processing econometrically difficult data: daily Bitcoin closing prices exhibit non-stationarity, Bitcoin returns exhibit extreme volatility, volatility clustering and heteroskedasticity. On top of that, there are structural breaks in the data and data at the end of the dataset show volatility spike. Jiří dealt nicely with these challenges in his econometric part.

4. The thesis summarizes up-to-date developments associated with Bitcoins. For example, I enjoyed reading about how the US Internal Revenue Service decided to treat Bitcoins (only March 2014 decision!).

I have the following remarks, comments and questions:

a) I am confused from the table of results: on page 56, Figure 18 summarizes Results of OLS regressions across time periods with robust standard errors where necessary. On page 55, the author states: „The significant variables are crude oil and NASDAQ, which, in the contrary to expectations, does not have negative sign of beta coefficient. The coefficient is positive and surprisingly high (4.6192) meaning that one percent change in NASDAQ index was reflected by more than 4.6% change of Bitcoin price in the same direction." But the Figure 18 does not show this result (?).

b) The author really needs to learn how to cite correctly. How come that the citations do not contain page numbers if a specific sentence in quotation marks is cited? For example, page 29: "…large changes tend to be followed by large changes – of either sign – and small changes tend to be followed by small changes…" (Mandelbrot, 1963)

   or on page 45: "In application, one computes AIC for each of the candidate models and selects the model with the smallest value of AIC. It is this model that is estimated to be "closest" to the unknown reality that generated the data, from among the candidate models considered." (Burnham & Anderson, 2002)

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c) Thesis is an academic text that needs to fulfil specific requirements on its structure. Where is standard introduction? In the introduction, you need to state clearly what you do in the thesis, what the research questions and the main findings are and what your value added is. Your introduction is very readable but does not contain the required.

d) I would appreciate if the author stated his own opinion on Bitcoins. Jiří, would you like to have your wage in Bitcoins? And how about your life savings? Is Bitcoin adding any value to our society? Or is it just another toy for players that will lead to bubbles, experience collapses and will generate opportunity for frauds from people who store Bitcoins for people? There are not many people who understand how the money is created. Isn't it dangerous?

e) Many people oppose an adoption of the Euro due to the loss of „independent" monetary policy. With Bitcoins there would be no monetary policy. Also, Bitcoins due to their final amount, lead to deflation. Isn't this too high price to pay for „getting rid of the regulator" that would come with the abandonment of the existing currencies regulated by Central banks?

Despite the imperfections in the references and in the structure of the thesis, I recommend a grade of 1 (excellent).

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

CATEGORY		**POINTS**
Literature	*(max. 20 points)*	18
Methods	*(max. 30 points)*	29
Contribution	*(max. 30 points)*	25
Manuscript Form	*(max. 20 points)*	10
TOTAL POINTS	*(max. 100 points)*	**82**
GRADE	**(1 – 2 – 3 – 4)**	**1**

NAME OF THE REFEREE: Pavel Vacek

DATE OF EVALUATION: 19 June 2014 ***Pavel Vacek***

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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