Opponent's review of the Diploma thesis

Title: Effects of Global Financial Crisis on Stock Market Volatility

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The diploma thesis presented by Yaxin Guo deals with up-to-date issue of stock market volatility. The author focuses on situation in two countries – China and Japan. To analyze impact of the Global financial crisis the author divides selected sample period into three sub samples called precrisis, crisis and post crisis period. The main aim of the paper to „model effect of global financial crisis on volatility of stock markets using conditional volatility model” is well stated. The presented work is well structured however some parts of 2.3 seem to be closer to chapter 3, especially 2.3.3. The level of English is quite volatile throughout the work. Sometimes it is hard to capture author’s ideas but on the other hand the model description part is well written.

The weakest part of the thesis is the work with references. A lot of in text references are not included in the reference list e. g. Engle (1982), Zakonian (1991), Wood (2000), Taylor (1986) and many others. Also references in the reference list are not written according to the norm and faculty rules in many cases. Models descriptions are probably based on Reider (2009) with slight modification but this work is not mentioned in the thesis. There is probably mistake in equation 3.2 or later in the model because \( a_t \) comes from original paper whereas the author use \( \mu \) instead of \( a \) later in equations.

The selection of the crisis period is quite subjective and seems strange for the Japan especially when crisis starts quite early (from 21/6/2007). I would prefer similar dating for both countries. Also in figure 4.2 it seem that the crisis may start later. I don’t understand why the crisis dating for Japan in figure 4.2 is different from figure 4.4.

On the other hand there are different models used in the analysis and all of them are correctly tested for normality, autocorrelation and heteroskedasticity. The results are interesting in the way that it’s much harder to model stock markets volatility in China than in Japan.

I recommend presented master thesis for defense.
Questions for defense:

Did you think of higher order models e.g. GARCH (2,1) or GARCH (2,2)?

Why is the $R^2$ of the models negative and what are the consequences for AIC and other criterions?

What are (according to your opinion) main causes of models failure when modelling China stock market?

In Ostrava, May 14, 2015

Ing. Aleš Melecký, Ph. D.