The Supervisor´s Appraisal

Title: Effects of Global Financial Crisis on Stock Market Volatility
Author: Bc. Yaxin Guo

The topic of this thesis is the issue of modeling and forecasting the volatility of stock markets in the context of the global financial crisis. Volatility of financial variables has significant impact on investors' decisions. This theme is undoubtedly highly topical and appropriately chosen.

The main aim of this thesis was to model effect of the global financial crisis on volatility of stock markets using conditional volatility models. For the purpose of this thesis, author utilized daily time series of Chinese and Japanese stock markets covering the period from January 2006 till March 2015. Chinese stock market is represented by Shanghai Composite Index while Japanese market is approximated by Nikkei225 Index. Basic testing period and also all sub periods are long enough. Identification of sub-periods was made on the basis of real development of respective markets. However, there is clear inaccuracy in Fig. 4.4.

The proposed structure of the thesis corresponds to main goal and also sub-goals of this thesis. Problem solving procedure is fully adequate to defined goals. Appropriately chosen methods and techniques enabled to obtain adequate and good quality results. In particular, selected linear and nonlinear models with conditional heteroskedasticity were applied to model and forecast the volatility of chosen stock markets.

The main goal of this thesis as declared in Introduction section was fulfilled as supported by the methods applied in this thesis and results achieved. The thesis is divided into six chapters.

Second chapter has previously descriptive character. It is focused on basic characteristics of financial markets and financial time series. Third chapter that can be considered as methodological part of this thesis is devoted to basic approaches to model and forecast the volatility. There is also described the procedure, that was utilized in the application part of the thesis for verification on real data. Master student describes in detail not only the process of construction of linear and nonlinear models with conditional heteroskedasticity, but also various types of these models. Attention is also given to verification of estimated models, including diagnostic check. Moreover, there are also defined criteria for model selection and various loss functions.

The fourth chapter represents practical part of this thesis. First of all, a basic statistical analysis of chosen data was carried out. Next, there were estimated best linear and nonlinear models and made the appropriate statistical tests of residual components of estimated models. Results were finally graphically presented in an appropriate manner and interestingly commented. Author of the thesis also deals with the in-sample forecast of volatility and evaluates its quality on the basis of selected function loss.

Thesis topic can be considered as technical. Master student has demonstrated ability to work professionally with specialized econometric software Eviews.

Third and fourth chapters can be considered as crucial and the most important parts of this thesis. Testing the leverage effects, stacionarity, heteroscedasticity, autocorrelation and
other properties of financial time series in different stages of the real economy can be considered as positive aspect. This resulted in a study of the dynamics of the volatility of selected Asian stock markets. The comparison of achieved results and commenting on developments of volatility in the context of real events in Chinese and Japanese economies can be considered as very positive as well.

The results delivered by an author are evidential and interesting. Conclusions are correct and are based on author’s results without contradictions. The whole text is written logically, argumentation and expression is at good level. The author's language is generally understandable. References to formulas, graphs and tables are mostly correct as well. However, author’s work with citations could be greatly improved. Some sources mentioned in the text are not included in the reference list. This is probably the weakest part of the thesis.

Diploma thesis meets qualitative requirements for this type of works. Therefore, I recommend it for defense.

Ostrava, May 15th 2015

Ing. Petr Seďa, Ph.D.
Thesis supervisor