Report on Diploma Thesis

Topic: Risk Estimation and Backtesting

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Diploma thesis of the student Yuling Li concentrates on risk estimation and backtesting. Managing and modeling of financial risk is very timely and useful topic, and also corresponds with the topics of diploma thesis at the Department of Finance.

The objective of the thesis is to verify different VaR estimation approaches by means of backtesting on chosen time series.

Diploma thesis is divided into five main chapters, where first chapter is introduction, second chapter and third chapter is theoretical and methodological, chapter fourth is the application part, and the last chapter is conclusion.

Second chapter is concentrated on description of risk measures. First, the author describes market risk, principles of risk measures and Value at Risk. Then attention is paid to description of method of risk estimation, where is described historical simulation, filtered historical simulation, analytical solution and Monte Carlo simulation. The chapter third is devoted to description of backtesting procedure, where is described Kupiec’s unconditional coverage test, Christoffersen’s conditional coverage test, Joint test of coverage and independence.

The most important part of the diploma thesis is the chapter fourth, where calculation of VaR estimation using historical simulation, filtered historical simulation, analytical solution for normal distribution and student’s distribution and also made backtesting by Kupiec’s and Christoffersen’s test. For calculation of VaR estimation were selected significance level of 15%, 10%, 5%, 1% a 0,5%. From the presented backtesting results of particular VaR estimation methods, the most fitting method of VaR estimation is filtered historical simulation. Results of selected method are commented and presented in the tables and by graphs.

Although were used very sophisticated method of VaR estimation (the diploma thesis's expertise is very high), it is necessary to state, that some parts of diploma thesis are less comprehensible to readers (mainly chapter 4: some of the chapter titles are not clear). There is
not summary of results at the end of the fourth chapter and also results are very general in the conclusion.

Despite the above shortcomings, the thesis is processed on an excellent level of expertise, including graphical presentation. Because the main aim of this thesis has been fulfilled and author also respects the formal guidelines, the diploma thesis can be recommended to defense.

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