

Referee report on a doctoral dissertation

Dissertation title: Essays on Information in Financial Markets

Dissertation author: Peter Štefko

Referee: George Vachadze

The submitted doctoral thesis is devoted to the empirical investigation of three interrelated questions of market efficiency, flow toxicity and market liquidity, and the risk contagion dynamics between sovereign securities markets. These topics are important to understand how information is disseminated in financial markets. The dissertation consists of three chapters, each of them examining different asset classes for different time horizons and at different frequency levels.

The first chapter of the dissertation carries out a multidimensional investigation of weak-form market efficiency for the stock market indices of the United States, Germany, and five other Central and Eastern European countries during the years following the 2008 Financial Crisis. The author conducts the empirical analysis using three different sampling frequencies (daily, hourly, and 15-minute) and relies on the White Reality Check procedure to control for the possibility of data-snooping bias. The author finds that the stock markets of the United States and Germany are strongly consistent with market efficiency at all three sampling frequencies, however, stock markets of Austria, the Czech Republic, Hungary, Poland, and Slovenia at the two intraday sampling frequencies are not without accounting for transaction costs.

The second chapter of the dissertation investigates the order flow toxicity of the WTI crude oil futures market by utilizing trade-level data on WTI crude oil futures contracts during the period 2017 – 2019. The author relies on the Volume-synchronized Probability of Informed Trading (VPIN) metric to estimate the order flow toxicity around the weekly regular US crude oil inventory levels announcements made by two different publishers. This way the author accesses how quickly the announced inventory information dissipates in the price discovery process. The author finds that the estimated probability of informed trading increases by approximately 20% on average for both types of reports under investigation. Though in both cases it occurs virtually immediately, the most pronounced VPIN adjustment after the publication of a DOE report takes place, on average, within the first two seconds, about three times faster than after the API report. In addition, the author finds some evidence of a positive association between the magnitude of the order flow toxicity change around the two types of inventory announcements and the degree to which these announcements are surprising.

The third chapter investigates the dynamics of risk contagion between a set of the four most liquid Eurozone sovereign government bond futures markets (France, Germany, Italy, and Spain) during the period 2016 – 2020. The author relies on the connectedness framework and finds that the overall system-wide connectedness, as measured by the total spillover index, tends to rise sharply following geopolitical or macroeconomic shocks such as the Italian political crisis of 2018 and the Covid-19 outbreak of 2020. The author also reports that (a) the volatility transmitting role of Italy has been mainly caused by its internal turbulent political development, (b) Germany is the main volatility transmitter of major global affairs, (c) the degree of a country's directional spillovers transmission depends on a given country's underlying macroeconomic fundamentals.

All topics covered in this dissertation and all results obtained by the author have very important practical implications not only for retail and institutional investors but also for policymakers. Empirical methodologies used by the author are up-to-date standards in the respective field of empirical finance and are well-grounded in existing empirical literature in general. Because of these facts, the dissertation has a very high empirical relevance. The obtained results are discussed in detail and systematically compared with the already published results. From the formal point of view, the thesis is well structured into chapters and contains all usual items like the lists of references, tables, figures, and abbreviations used in the text. The text reads well and indicated the great effort made by the author (and thesis supervisors!). All three chapters of the dissertation contain the “State of the art”, description of empirical procedures, and mathematics behind it. The main findings are presented at the end of each chapter. Every chapter has its appendix whether the author discusses the technical details. This helps the reader not to lose focus while reading the main text of the chapter. The introductory chapter provides a nice overall overview of the dissertation and discusses how chapters are connected. The figures, tables, references, and the text itself are processed according to standards. The bibliography of the work contains about 100 references in a standard format. The quality of the thesis from the formal viewpoint is on a very high level. Graphs are made at high resolution and are well abbreviated. The main results of the thesis, which are summarized at the end of each chapter, represent an original contribution of the author

To conclude, Mr. Peter Štefko has proven his ability to raise important questions in the field of financial economics and analyze relevant financial data to find answers to the original questions. After reading his dissertation, I got convinced about his potential both to perform independent and creative empirical work and to present his findings clearly and concisely. I highly recommend this dissertation (as it is) to be accepted by the committee without any delay.

Please do not hesitate to reach me if you have any questions or require any additional information.

Thank you very much.

Sincerely,

George Vachadze

George Vachadze

Professor of Economics
Department of Economics
Lucille and Jay Chazanoff School of Business
College of Staten Island, City University of New York
2800 Victory Blvd., 3N-101,
Staten Island, NY 10314
Tel: (718) 982 3404
Fax: (718) 982 2888
Email: george.vachadze@csi.cuny.edu