External Examiner's Report on
"Essays in Applied Econometric Modeling
of Central European Financial Markets"
Thesis Submitted for the Degree of PhD by Vit Bubak

This thesis analyses several features of some Central European (CE) financial markets (Czech Republic, Hungary and Poland) applying advanced econometric methods. It comprises three studies, the first two using intraday data, the third one daily data, focusing in turn on the distribution and dynamics of CE exchange rates, volatility transmission between CE and US FX markets, and dependence structure in CE equity markets.

After a general introduction putting the analysis into context and summarising the main points of each study, the first chapter contains a thorough investigation of CE exchange rates using high-frequency data. Unlike most existing studies, the present one relies on model-free nonparametric measures of ex-post volatility based on 5-minute intraday returns. Daily returns appropriately scaled by model-free estimates of daily realised volatility are shown to be normally distributed and independent over time, whilst daily realised variance appears to exhibit positive skewness and long-memory type dynamics. A three-equation model for daily returns, realised variance and its time-varying volatility is also estimated, and its forecasting properties are examined. The relevance of the analysis for policy-makers, asset pricing and risk management is explained.

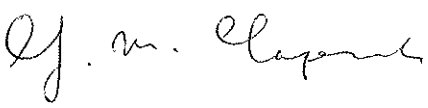
The second chapter analyses volatility transmission between CE exchange rates and the US dollar, again relying on model-free estimates of daily exchange rate volatility based on intraday data. The advantages of a nonparametric approach are clearly outlined. Specifically, a multivariate generalisation of the HAR-GARCH model is estimated; Granger causality tests for volatility spillovers are then carried out, and finally a spillover index is computed. Significant spillovers are found, and a change in their pattern coinciding with the crisis period of 2008-2009 is documented, with an increase in co-movement between CE and US rates in the most recent period characterised by higher uncertainty. The implications of the empirical analysis for international investors and its importance for the issue of the common source(s) of foreign exchange risk faced by the new EU members are spelt out.

Finally, the third chapter examines the structure and degree of dependence between equity markets in the same CE countries and in three Western ones (Frankfurt, London and New York). Asymptotic dependence in the pairwise index return distributions, with particular attention to dependence in the lower tails, is investigated first. Then the dependence between the pairs of asset markets is modelled using a semiparametric copula framework, and a portfolio selection exercise is carried out using optimal weights derived from the estimated copula models. Value-at-Risk and expected shortfall are also computed as risk measures. Significant tail dependence is found in a number of cases. It is emphasised that investment strategies should take into account both asymmetric dependence and non-normality of the marginal distributions.

The thesis demonstrates that the candidate has an excellent knowledge of both the theoretical literature on financial markets and the econometrics literature on modelling (high-frequency) financial data. Also, the critical reading of earlier studies, the choice of a suitable framework and the competent application of appropriate econometric techniques all show that the candidate is capable of thinking independently and of producing original research. The thesis offers new material in the area of empirical finance, and it makes a solid contribution to our understanding of the CE financial markets (especially by using nonparametric methods, in contrast to earlier studies). All three studies are publishable in respectable academic journals in the appropriate form. With the exception of a few typographical errors to be corrected, no changes are required. On the whole, the thesis achieves the required originality for the award of the degree of PhD. Further questions/comments will form the basis of the oral examination.

Name of the External Examiner:

Professor Guglielmo Maria Caporale



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