To:

Andre Elda: Secretary at the University of Paris 1
Gunther Capelle Blancard: Co-supervisor at the University of Paris
Catherine Bruneau: Chairman of the Defense Committee

Dear Colleagues

At the request of the candidate I am forwarding this email to you in advance of the thesis defence. I provide here an updated version of my earlier report which reflects my reading of the final version.

Please acknowledge your safe receipt of this report.

Best wishes

Professor Alan E H Speight BA, MSc, PhD

Referee’s Report on

**Essays in Applied Econometric Modelling of Central European Financial Markets**

by Vit Bubak

Charles University in Prague/Universite Paris i Pantheon Sorbonne

**Overview:**

This thesis comprises three essays applying econometric techniques in the investigative modelling of the dynamic properties of a selection of Central European financial markets. The techniques applied are contemporary and appropriate to the research questions posed. Two of the chapters are concerned with the analysis of high frequency intraday foreign exchange data, and the third with almost a decade of daily observations on equity market data. The analysis is carefully conducted and well described, and the results presented using a variety of interpretative methods.

More specifically, Chapter 1 examines the conditional distribution of three bilateral exchanges rates between the Euro and, respectively, the Czech koruna, Hungarian forint and Polish zloty. Using known methods in the literature, it is demonstrated that simple scaling by model-free estimates of daily volatility and applying microstructure bias corrections yields returns that are normally distributed and generate a daily realized variance measure exhibiting positive skewness and long-memory. A simple time series model for this latter measure, its own volatility and daily returns, is found to provide a satisfactory forecasting model for the logarithmic variance, as utilized in more formal stochastic volatility modelling. This has potential promise in the analysis of central bank interventions, responses to macroeconomic ‘news’ announcements, and derivatives pricing; but these consequent applications are not pursued further in the current work, could be pursued in any subsequent analysis.

Chapter 2 provides an analysis of potential volatility spillovers between the exchange rate markets noted above and the Euro-US dollar exchange rate market. The methods used are well-considered in their selection, including the only very recently developed spillover index approach. Perhaps curiously, the results suggest possible partial independence of the Hungarian forint from the system in the early ample period. Interestingly, however, the co-movement of these exchange rates with the US dollar is is found to be greater in the in the 2008-09 crisis period. This is an important finding
for optimal portfolio construction by international investors, and provides a novel dimension to the research findings.

The third and final chapter investigates the dependence structure between the equity markets of the Central European economies noted above, together with those of Germany, the US and the UK, at the daily frequency, using GARCH models and copula methods. Evidence is reported of lower tail dependence amongst sub-sets of these markets consistent with contagion between the Central European markets. These findings have potential implications for asset allocation and portfolio section decisions, which are investigated empirically, and broadly confirm previous results suggesting a positive association between the degree of investor risk aversion and portfolio weightings.

Report:

I repeat here and also update my further comments in the preliminary report which I provided in response around to the questions put to me in Professor Janda’s letter to me of March 8, 2010, as follows:

a) Can you recognize an original contribution of the author?

The analysis in the thesis draws on well-established modern empirical methods which have seen application in context other than Central European financial markets. The originality lies largely, therefore, in the extension of empirical knowledge to markets not previously analysed. The correct execution of these advanced methods and interpretation of the findings obtained is also a considerable strength, and the work demonstrates a high level of conceptual understanding and analytical proficiency; this is to be commended. However, I also note that two of the three empirical chapters (given that the thesis comprises a collection of ‘papers’) are jointly authored with others, and it will be necessary to explore with the candidate, during the defence, the nature and proportionate contribution of others to the submitted work.

b) Is the thesis based on relevant references?

Yes, and the comments in my preliminary report have been addressed fully.

c) Is the thesis defendable at your home institution?

Yes, given resolution of the matter in (a).

d) Do the results of the thesis allow their publication in a respected economic journal?

Yes, in my opinion.

e) What do you propose to change or enhance for the thesis to be defensible at the regular defence?

Please see (a) above. Also, clear demonstration by the candidate of the importance and relevance of the body of work in its entirety for analysts of, and practitioners in, the financial markets considered, and the import of the findings for the robustness, caveat or otherwise of previous findings published in the literature for other financial markets. Further, an understanding and articulated appreciation of the limitations of the methods and techniques employed, the alternative methods that could have been deployed, and the further analysis that the methods and results described might lend themselves to in any subsequent work.
Referee’s Report on

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by Vit Bubak

Charles University in Prague/Universite Paris i Pantheon Sorbonne

**Overview:**

This thesis comprises three essays applying econometric techniques in the investigative modelling of the dynamic properties of a selection of Central European financial markets. The techniques applied are contemporary and appropriate to the research questions posed. Two of the chapters are concerned with the analysis of high frequency intraday foreign exchange data, and the third with almost a decade of daily observations on equity market data. The analysis is carefully conducted and well described, and the results presented using a variety of interpretative methods.

More specifically, Chapter 1 examines the conditional distribution of three bilateral exchange rates between the Euro and, respectively, the Czech koruna, Hungarian forint and Polish zloty. Using known methods in the literature, it is demonstrated that simple scaling by model-free estimates of daily volatility and applying microstructure bias corrections yields returns that are normally distributed and generate a daily realized variance measure exhibiting positive skewness and long-memory. A simple time series model for this latter measure, its own volatility and daily returns, is found to provide a satisfactory forecasting model for the logarithmic variance, as utilized in more formal stochastic volatility modelling. This has potential promise in the analysis of central bank interventions, responses to macroeconomic ‘news’ announcements, and derivatives pricing; but these consequent applications are not pursued further.

Chapter 2 provides an analysis of potential volatility spillovers between the exchange rate markets noted above and the Euro-US dollar exchange rate market. The methods used are well-considered in their selection, including the only very recently developed spillover index approach. Perhaps curiously, the results suggest possible partial independence of the Hungarian forint from the system, but, uncontroversially, also with time-varying volatility spillovers associated with episodes of market uncertainty.

The third and final chapter investigates the dependence structure between the equity markets of the Central European economies noted above, together with those of Germany, the US and the UK; at the daily frequency, using GARCH models and copula methods. Evidence is reported of lower tail dependence in the amongst sub-sets of these markets consistent with contagion between the Central European markets. These findings have potential implications for asset allocation and portfolio section decisions, which are investigated empirically, and broadly confirm previous results suggesting a positive association between the degree of investor risk aversion and portfolio weightings. However, as noted, the analysis is not yet wholly complete in the preliminary submission.

**Report:**

I have structured my further comments around the questions put to me in Professor Janda’s letter to me of March 8, 2010, as follows:
a) Can you recognize an original contribution of the author?

The analysis in the thesis draws on well-established modern empirical methods which have seen application in context other than Central European financial markets. The originality largely lies, therefore, in the extension of empirical knowledge to markets not previously analysed. The correct execution of these advanced methods and interpretation of the findings obtained is also a considerable strength, and the work demonstrates a high level of conceptual understanding and analytical proficiency; this is to be commended. However, I also note that several of the chapters (given that the thesis comprises a collection of 'papers') are jointly authored with others, and it will be necessary to explore with the candidate the nature and proportionate contribution of others to the submitted work.

b) Is the thesis based on relevant references?

Yes, though there are a number of notable exceptions from the listed references, partly relating to comparative work on similar but different markets beyond the mainstream analysis of the established (e.g. US, German, Japanese and UK) financial markets (some of which is only recently published, but others are more extant), and certain other analyses of Central and Eastern European financial markets (some but not all of which has been published by the current reviewer). Theses should be included and referenced in the text or by footnote to the text.

c) Is the thesis defendable at your home institution?

Yes, given resolution of the matters in (a) and (b) above, and full completion of Chapter 3 (see Overview above).

d) Do the results of the thesis allow their publication in a respected economic journal?

Yes, in my opinion.

e) What do you propose to change or enhance for the thesis to be defensible at the regular defence?

Please see above. Also, clear demonstration by the candidate of the importance and relevance of the body of work in its entirety for analysts of, and practitioners in, the financial markets considered, and the import of the findings for the robustness, caveat or otherwise of previous findings published in the literature for other financial markets. Further, an understanding and articulated appreciation of the limitations of the methods and techniques employed, the alternative methods that could have been deployed, and the further analysis that the methods and results described might lend themselves to in any subsequent work.

Conclusion:

The thesis can be defended after revision as indicated in my comments.

Alan Speight
Professor of Finance
Pro-Vice-Chancellor
Swansea University
From: SPEIGHT A. [mailto:A.Speight@swansea.ac.uk]
To: Centrum doktorskych studii IES [mailto:phd@fsv.cuni.cz]
Sent: Tue, 20 Apr 2010 20:02:46 +0200
Subject: RE: Referee report for Vit Bubak's dissertation

Dear Jakub Seidler,

I provide herewith my referee's report on the doctoral submission by Vit Bubak, which I would be grateful if you would pass to Professor Ing. Karel Janda, Chairman of the Council for PhD Studies, for the purposes of the dissertation pre-defence scheduled for April 22, 2010.

I trust this report is of value and assistance to you. Please acknowledge receipt of this report.

I would appreciate confirmation of the outcome of the pre-defence at the earliest opportunity, and will require advance notice and discussion over any possible dates for the full defence. Please be aware that there are already considerable future demands on my diary which may lead to some inflexibility on my part as to possible dates.

Best wishes

Alan Speight
Professor of Finance
Pro-Vice-Chancellor
Swansea University