

Report on Bachelor / Master Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	Matej Sainer
Advisor:	Transition from GBP LIBOR to SONIA: Correlation and Volatility Analysis
Title of the thesis:	PhDr. Frantisek Cech, Ph.D.

OVERALL ASSESSMENT (provided in English, Czech, or Slovak):

Short summary

The thesis studies the relationship between London Interbank Offered Rate (LIBOR) and Sterling Overnight Index Average (SONIA), with a focus on their correlation and volatility. This is a highly relevant topic after replacement of LIBOR have been being discussed following the discovered market manipulations connected to LIBOR. To achieve its goals, the thesis uses Generalised Autoregressive Conditional Heteroscedasticity (GARCH) and the Dynamic Conditional Correlation (DCC) GARCH models. The results uncover significant differences between volatilities of the individual rates, and a low level of correlation between the two rates. Specifically, SONIA displays significantly lower level of overall volatility.

Contribution

Assesing the level of similarity between LIBOR and SONIA is very relevant for the attempt to find an alternative to LIBOR that would prevent market manipulations, and the thesis fits well into the literature. It provides an interesting result that SONIA reacts more mildly to shocks (especially those of low magnitude) and that generally, the correlation between LIBOR and SONIA is quite low. Such results are important on their own and provide a solid base for future research.

Methods

The thesis uses GARCH methodology to study the relationship between LIBOR and SONIA. Firstly, it uses standard GARCH model to estimate and compare the volatilities of the individual benchmark rates, and DCC GARCH to estimate the dynamic correlation. Such methods are completely adequate to the task, and the main results are well presented. The thesis lacks a deeper description of how it identifies the GARCH model that is used to estimate the volatilities. It would also be interesting to compare the estimated GARCH coefficients themselves, not only the fitted volatilities estimated by the GARCH model.

Literature

The review of the literature displays that the author is familiar with the literature on the topic in question, and presents relevant papers. It should, however, do a better job in connecting the individual papers and their conclusions together.

Manuscript form

The thesis is written with adequate English, and is well structured. I have some reservations to the presentation of the figures. The dotted line is in my opinion not the best way to represent a time series that displays as little volatility as SONIA. In Figure 5.1 the note does not match the figure as there is no dotted line. In Figure 5.8 the label does not make it clear what is the magnitude of the correlation. Hence we cannot make the comparison to Figure 5.7 which is one of the crucial aspects of the thesis.

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Overall evaluation and suggested questions for the discussion during the defense

The results of the Urkund analysis do not indicate significant text similarity with other available sources. In my view, the thesis fulfills the requirements for a bachelor thesis at IES, Faculty of Social Sciences, Charles University, I recommend it for the defense and suggest a grade B.

Below I present questions for the defense:

- Figure 5.2 shows that the volatility of SONIA does not follow the LIBOR until early 2020, since then the comovement is much more significant. Is there any specific reason for this?
- It could be important how the individual benchmarks react to changes of rates by the Bank of England. In light of this, is it ok to remove the observations around those changes?
- The Pearson's correlation ranges between -0.5 and 0.8, however the maximum estimated value of DCC GARCH is 0.25. What is the explanation for this difference?

SUMMARY OF POINTS AWARDED (for details, see below):

CATEGORY	POINTS
<i>Contribution (max. 30 points)</i>	28
<i>Methods (max. 30 points)</i>	24
<i>Literature (max. 20 points)</i>	17
<i>Manuscript Form (max. 20 points)</i>	15
TOTAL POINTS (max. 100 points)	84
GRADE (A – B – C – D – E – F)	B

NAME OF THE REFEREE:

DATE OF EVALUATION:

Digitally signed (15.1.2023)
Josef Kurka

Referee Signature

