

Report on Bachelor Thesis

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

Student:	Matej Balažovič
Advisor:	PhDr. František Čech Ph.D.
Title of the thesis:	Perceiving Uncertainty on Financial Markets During the COVID-19 Pandemic

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

Short summary

Author studies a relationship between forward rate agreements (FRA) spreads in the Czech Republic during the period of COVID-19 spread and government policies introduced during the period. Government policies are represented by Government Response Tracker from the University of Oxford. Author chooses 3 indicators, *Government Response Index*, *Stringency Index* and *Economic Support Index*. It is not clear from the text how or why the author chose these indicators. Forward rate agreement spreads studied in the thesis include spreads between 1x4 vs. 3x6 and 1x7 vs. 3x9 FRAs, where e.g. 1x4 means FRA three-month loan beginning in one month.

Contribution

Using the GJR-Garch model, the author concludes that "... COVID-19 data affected the FRA spread". The vagueness of this statement is characteristic of all results interpretations in the thesis. Results are interpreted very mechanically as if the author was in a rush. One sentence per estimated coefficient, then moving to the next. Critically, I don't think that the coefficient associated with the 1st lag of a FRA spread is interpreted correctly. Author writes "*Its positive value of 0.994 indicates that if the FRA spread increases by 100bps, it is expected to increase another 99bps the following trading day, holding all the other variables fixed.*". This is not how autoregressive models work, coefficient of 0.99 in front of a 1st lag means (other effects fixed) means that spread tomorrow will be almost the same as today plus noise. It does not mean that if the spread increases today, that it will increase tomorrow again. Further, variables used in the regression are heavily correlated and resulting coefficients have opposite signs, one should therefore be careful when interpreting the marginal effects. With regards to using GJR extension of the GARCH model, author does not interpret the results from the economic point of view but simply states that "*Since the (gamma) coefficient is statistically significant at 1% level, we can conclude that the GJR extension was a relevant choice that helped us to model the variance in a more realistic way.*". The author also writes in relation to the GJR-Garch model that he examined several versions of the model, but these results are not reported. After rereading the results section multiple times, it leaves me with the impression of a report from a statistical exercise rather than an attempt to answer the underlying research question.

Methods

The author uses standard time-series econometric models ranging from ARMA to GJR-GARCH models. Before estimation, he properly tests for the weak stationarity with the Augmented Dickey-Fuller test and for the autocorrelation using Ljung-Box test. Further, the author uses Akaike information criterion and Bayesian information criterion to choose the number of lags to include in the model. According to the provided figures, explanatory variables *GovernmentResponseIndex* and *StringencyIndex* look strongly correlated. Impact of this correlation on the interpretation of the results is however not discussed anywhere in the thesis.

Literature

Literature review consists of 5 sections and is heavily focused on COVID-19 effects on financial markets and investors behavior. However, I would appreciate more references actually related to the topic of the thesis with the special focus on predictability of forward rate agreement spreads. This is not the case, as only one short subsection with almost no relevant references is dedicated to it. It is

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therefore difficult for a reader to understand how this thesis relates to the existing literature without doing the extensive literature review himself. Further, the author mentions behavioral finance/economics multiple times across the thesis, this is however not extended further and it is not clear how it is related to the thesis.

Manuscript form

The thesis is well structured, written in LaTeX and reads well enough for the most part. Bibliography section is complete and referencing is done properly. My biggest concern is with the motivation in the introduction and logical connections between individual parts of the thesis. Introduction does not properly motivate the reader and also does not really contain the contribution of the thesis. There are also too many references which interfere with the flow of the text (e.g. citing definition of interest rate derivative and its uses in the introduction). There are no captions provided with tables or figures which makes it more difficult to understand the results without actually reading the whole text. The thesis is also quite short with only around 31 pages of the main text.

Overall evaluation and suggested questions for the discussion during the defense

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 C.

The results of the Urkund analysis do not indicate significant text similarity with other available sources.

Suggested questions for the defense:

- Why is Ljung-Box test better suited for smaller samples than Box-Pierce test?
- You write (p.14), that Akaike information criteria is biased towards selecting models with more explanatory variables. How and why?
- How do you explain your rejection of a non-stationarity on one hand and your reported ACF and PACF accompanied with AR1 coefficient very close to 1?

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

CATEGORY	POINTS
<i>Contribution</i> (max. 30 points)	13
<i>Methods</i> (max. 30 points)	29
<i>Literature</i> (max. 20 points)	10
<i>Manuscript Form</i> (max. 20 points)	19
TOTAL POINTS (max. 100 points)	71
GRADE (A – B – C – D – E – F)	C

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NAME OF THE REFEREE: Martin Hronec

DATE OF EVALUATION: 29.5.2022

*Digitally signed, 29.5.2022
Martin Hronec*

Referee Signature

EXPLANATION OF CATEGORIES AND SCALE:

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Overall grading:

TOTAL	GRADE
91 – 100	A
81 - 90	B
71 - 80	C
61 – 70	D
51 – 60	E
0 – 50	F