

Opponent's Report on Dissertation Thesis

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Title of the Thesis:	Three Essays on Bank-Sourced Credit Risk Estimates
Type of Defense:	DEFENSE
Date of Pre-Defense	February 17, 2021
Opponent:	Prof. PhDr. Petr Teplý Ph.D.

Address the following questions in your report, please:

- a) Can you recognize an original contribution of the author?
- b) Is the thesis based on relevant references?
- c) Is the thesis defensible at your home institution or another respected institution where you gave lectures?
- d) Do the results of the thesis allow their publication in a respected economic journal?
- e) Are there any additional major comments on what should be improved?
- f) What is your overall assessment of the thesis? (a) I recommend the thesis for defense without substantial changes, (b) the thesis can be defended after revision indicated in my comments, (c) not-defensible in this form.

(Note: The report should be at least 2 pages long.)

The recent COVID-19 crisis has highlighted the importance of credit risk management and the use of appropriate risk models in banking. Commercial bankers were allowed by global banking standards Basel II in 2007 to use internal models, which should theoretically estimate risks in a better way than standardized models. However, these models are demanding on the use of data that are not usually available to academics. Fortunately, Barbora Štěpánková has an access to an exclusive data set, on which she builds her thesis. All three essays deal with credit risk management from a micro perspective, what is unique. The first essay focuses on banks' credit risk models. The second essay proposes an alternative to credit transition matrices developed by credit rating agencies. Finally, the last one sheds the light on the degree of variance in credit risk estimates provided by various banks for a single entity.

I have reviewed the final version of the thesis of Simona and respond to the specific questions as follows:

Ad a) YES, each of the three submitted essays represents an original empirical contribution to the literature as supported by evidence of their publications. One of them has been already published in the European Journal of Operational Research and another one has been accepted

to the Journal of Credit Risk (both journals are highly respected in the field of risk management). The last one was circulated as Working Papers IES.

Ad b) YES, the thesis is based on relevant references.

Ad c) YES

Ad d) YES. As stated above, two chapters of the dissertation thesis have been accepted to respected journals. I would like to highlight that in the European Journal of Operational Research, where Essay 1 was published, ranks to TOP journals in the field of risk management (Q1 in Economics, Business), what further underpins a high quality of the thesis.

Ad e) NO. I had minor comments specified in my pre-defense report that have been addressed as indicated below.

Ad f) I recommend the thesis for defense without substantial changes.

More detailed comments

Essay 1 - Bank-Sourced Transition Matrices: Are Banks' Internal Credit Risk Estimates Markovian?

In the first essay Barbora focuses on the essential features of banks' internal credit models using a dataset of probability of default estimates from 12 global A-IRB banks in the 2015-2018 period. Her results indicate, among others, that internal credit risk estimates do not satisfy the assumptions, showing evidence of both path-dependency and time heterogeneity even within the period of economic expansion.

My comments and questions to this essay have been addressed.

Essay 2 - Bank-Sourced Credit Transition Matrices: Estimation and Characteristics

Essay 2 builds on a unique dataset of probability of default estimates from 24 global A-IRB banks in the 2015-2019 period. It focuses on the features of banks' internal credit models and proposing a bank-sourced version of credit transition matrices (CTMs). Large-scale Monte Carlo simulations are used as the main tool.

My comments and questions to this essay have been addressed.

Essay 3 - Consistency of Banks' Internal Probability of Default Estimates

In the third essay Barbora analyses empirically determinants of PD dispersion existence of credit rating provided by an external agency, and bank's geographical proximity to its borrower. This chapter builds on a unique dataset of almost 5 million probability of default estimates provided by 28 global IRB in the January 2016 - June 2020 period. I assume that the author is going to submit this chapter as a paper to a respected journal. Apart from the following comments, I will discuss my further comments to improve the paper separately with Barbora.

My comments and questions to this essay have been addressed.

To summarize, the papers composed by Barbora Štěpánková show that she has developed a solid academic approach, namely to review the existing literature and to identify and investigate open questions and to draw relevant conclusions from that. The topics chosen are highly attractive subjects which makes her contributions valuable, in particular also to bank managers, regulators and policy-makers. I appreciate that all three essays have been prepared by Barbora as a single author, what is unique at the IES.

Overall evaluation: I consider this doctoral thesis as a very good academic work and appreciate that Barbora has reflected all my previous comments to the final version. **I recommend the thesis for the final defense without substantial changes.**

Date:	April 8, 2021
Opponent's Signature:	
Opponent's Affiliation:	Prof. PhDr. Petr Teplý Ph.D. IES