

Advisor's Report on Dissertation Thesis

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Title of the Thesis:	Essays in Empirical Financial Economics
Type of Defense:	DEFENSE
Date of Pre-Defense:	February 21, 2018

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 importance of financial economics has been substantially increased after the global financial crisis in 2007-2008. The main focus has shifted from monetary policy towards financial stability with the aim to identify potential financial instabilities to take timely and adequate preventive measures to mitigate an excessive risk build-up. Hence, many research studies dealing with macroprudential issues and providing a theoretical and empirical background to financial analysis and assessment as well as macroprudential tools have emerged. In this respect, the thesis provides four paper that contribute to this effort, dealing with up-to-day highly relevant and widely discussed topics among researchers and policy makers alike.

In the first introductory chapter, the author briefly describes the studies included in the thesis and the motivation for her research. She also explains how early warning systems fit into the macroprudential toolkit and what are the other tools that could be used.

The first paper (the second chapter) that was published in the Journal of Financial Stability examines which variables have predictive power for financial stress for 25 OECD countries using Financial Stress Index developed by Vermeulen et al. (2015). A Bayesian model averaging is employed to identify early warning indicators that are used in the panel model as well as country-specific models. The results suggest that the predictive power of the estimated model is somehow limited. Although the country models have better performance, it is still hard

to predict an increase in financial stress. The equal weighting used to construct the Financial Stress Index might be questionable as there is a different importance of equity, bond, exchange rate and interest rate markets as well as the banking sectors among the investigated economies. However, this simplification is commonly used in the literature as there is not any well-established framework that would be generally accepted.

The second paper (the third chapter) was published in *Economic Systems*. It develops an early warning system for the short horizon of six quarters and the long horizon of 12 quarters. First, the Financial Stress Index is developed for a panel of advanced and developing countries to identify crisis occurrences. Second, early warning indicators are selected by Bayesian model averaging. Finally, the constructed model is applied to the Czech economy. The main contribution of the paper is the application of the model to the Czech Republic benefiting from information obtained from the employed panel. Additionally, it uses the relevant literature and the innovative technique of Bayesian selection for explanatory variables. Finally, it is well written with a clearly stated contribution and policy relevance. It well flows after the first paper that elaborates on methodological aspects of early warning systems including Bayesian selection method used also in this study.

The next paper (the fourth chapter) was published in the *Journal of Economic Surveys* and deals with the impact of bank competition on financial stability. This study is based on meta-analysis employing research of 31 studies investigating the topic. Almost six hundred estimates of the competition-stability nexus are collected. The findings reveal that the definition of financial stability and bank completion used by researchers systematically influence the results obtained. The study suggests only a very limited relation between bank completion and stability even when considering publication bias. The paper is well written and this topic is very relevant for the European economies due to the dominant role of banks in their financial sectors.

The last chapter focuses on a management board composition and risk of Czech banks. The study is based on the unique data set conducted by the author and comprising bibliographic information on the management board combined with individual bank data. A nonparametric machine learning algorithm – the random forest – is employed to identify determinants of bank risk. The conducted empirical analysis suggests non-linear relationship between the observed bank risk proxies and investigated variables (average directors' age, average director term, the proportion of directors holding MBA and the proportion of non-national directors) for the Czech banking sector in the period 2001-2012. It is a very interesting study with a lot of data work behind. The study also highlights its limitations and reports extensively the relevant descriptive statistics of data sample and results. This chapter was not published in a journal yet, but was already circulated within the CNB WP series.

During the defense, the author could further discuss the contribution of the thesis to the current macroprudential policy discussions and its practical implications to put the topics in the broader context of macroprudential analysis and assessment providing justification on the selection of the topics. She can also discuss how the recent macroprudential challenges could be tackled using the conclusion of the thesis.

All in all, Diana is an excellent PhD student with the outstanding publication record and an extensive knowledge and experience. During her PhD studies, she gained an international academic experience from the University of California Berkeley. Additionally, her research benefits from her working experience obtained in the Czech National Bank, OECD and EIOPA. She demonstrates that she is able to apply different economic theory to policy-relevant

empirical research. All her achievements during her studies are reflected in a high quality of her dissertation thesis with a clear original contribution.

Overall, the thesis is well written, fully complying with the standards for dissertations in the Institute of Economic Studies. It is based on the relevant references to the literature and consists of three papers already published in international impacted journals and one study published as CNB WP.

Hence, I recommend the thesis to be defended in the submitted version.

Date:	29.8.2018
Opponent's Signature:	
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