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**Credit Risk in the Macroprudential
Framework: Three Essays**

DISSERTATION

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Abstract

This thesis focuses on proper credit risk identification with respect to macroprudential policies, which should mitigate systemic risk accumulation and contribute to higher financial stability of the financial sector. The first essay deals with a key credit risk parameter – Loss Given Default (LGD). We illustrate how the LGD can be estimated with the help of an adjusted Mertonian structural approach. We present a derivation of the formula for expected LGD and show its sensitivity analysis with respect to other company structural parameters. Finally, we estimate the five-year expected LGDs for companies listed on Prague Stock Exchange and find that the average LGD for the analyzed sample is around 20–50%.

The second essay examines the issue of how to determine whether the observed level of private sector credit is excessive in the context of the “countercyclical capital buffer”, a macroprudential tool proposed in the new regulatory framework of Basel III by the Basel Committee on Banking Supervision. An empirical analysis of selected Central and Eastern European countries, including the Czech Republic, provides alternative estimates of excessive private credit and shows that the HP filter calculation proposed by the Basel Committee is not necessarily a suitable indicator of excessive credit growth for converging countries.

The last paper describes the stress testing framework used in the Czech central bank and focuses on a general question how to calibrate models used to stress test the most important risks in the banking system. The paper argues that stress tests should be calibrated conservatively and rather to overestimate the risks. However, to ensure that the stress test framework is conservative enough over time, verification, i.e. comparison of the actual values of key financial variables with predictions generated by the stress-testing models should become a standard part of the stress-testing framework.

Keywords: loss given default, credit risk, Basel III, countercyclical capital buffer, stress-testing

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