Referee Report on
Dissertation entitled "Essays on Credit Risk" by Gabriela Kuvikova

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The topic is very interesting, complex, with potentially useful findings for the financial industry and Economics in general. It required structured approach and use of advanced econometric techniques, which makes it a suitable topic for dissertation. ***I believe that the analysis is well approached and sound and therefore recommend the Thesis for a defense.*** In what follows, I provide some suggestions and questions.

1.   **The first essay "Loans for Better Living: The Role of Informal Collateral" investigates the role of informal collateral in pricing and performance of loans**, where performance is measured using the share of nonperforming loans. In particular, it focuses on the difference in pricing and performance of the household loans without and with purpose (housing loans). While both types of loans are practically similar in terms of collateralization (no direct collateral is requested or pledged), housing loans have to be used to finance real estate purchases or improvements. This makes them a natural base for assessing the impact of informal collateral (purpose of the loan) on pricing and performance. Statistically, housing loans carry lower interest rate and have lower expected loss than loans without purpose. The paper uses large set of panel data for household loans from an anonymous commercial bank and finds that the informal collateral improves loan quality. It also argues that it is not the purpose of the loan itself but the unobserved characteristics of the borrower that are behind the better loan quality. In addition, it notices that the interest rate differential tends to be higher than the observed difference in default rates between these two types of household loans.

I suggest renaming consumer loans to household loans throughout the Thesis, as this would be more aligned with commonly used typology and would allow making proper distinction between consumer credit and housing loans.

I suggest strengthening the motivation by explaining the role of the recovery rate. Perceived riskiness certainly plays a role in pricing of loans. However, what matters for banks is the expected loss. Therefore, the example on page 7, comparing default rates and interest rates of mortgages and consumer loans, would benefit from more discussion. The default rates need to be combined with recovery rate to make a meaningful comparison of the two products. Mortgages will have much higher recovery rate than consumer loans. Therefore comparing interest rates and default rates is not enough. This could be further

documented by the current situation on the mortgage segment, where the average mortgage rate fell further to 2 percent while the default rate hovers around 3 percent. This would imply that banks are making losses on half of their loan book, which is obviously not the case – expected loss is very small, close to zero.

What is Gabriela's view on the role of ordering of expenditures by borrowers? It has been argued that unobservable characteristics are driving the difference in default rates. However, one of these unobsrvables may simply be that borrowers prefer to give priority to housing loans repayments over consumer credit. Borrowers are likely to prefer to keep servicing housing loans rather than consumer loans when they are constrained, as they may be afraid they could face executors and would prefer to lose consumer goods rather than part of the household equipment or renovation financed from housing loans. This would in my view change the meaning of the informal collateral – it would be associated with the loan purpose itself that lowers the default rate.

Are borrowers' sensitivities constant across loans with and without purpose? The regression model assumes that there is a fixed premium for purpose loans. How would look the regression results if we allow for conditioning parameters on other X's by interacting purpose variable with other X's. This would show whether elasticities to X's are different for different type of loans or whether elasticities are common and there is indeed a fixed premium for housing loans.

Is the statement correct that loans to household constitute the largest part of the portfolio of most banks, page 24? It may be worthy to double check, usual bank loan book is split half-half between households and corporate.

2. **The second essay "Does Loan Maturity Matter in Risk-Based Pricing?" focuses on the effect of maturity structure for pricing and performance of loans.** It uses a combined approach of loan demand estimation and time-dependence of default to isolate the effects of maturity on loans performance. It finds that maturity maters for loan performance – default probabilities are maturity specific and are higher for longer maturities. This suggests that more risky borrowers tend to choose longer maturities in order to reduce monthly installments at a given (risk-based) interest rate.

Are there signs of adverse selection? It may be useful to provide just a simple evidence for adverse selection hypothesis. In a risk-based pricing, this should not be the case anymore. Are the data showing high variation in interest rates across borrowers? If so, this may indicate little adverse selection.

What is the role of macroeconomic development? In the specification of the hazard model, it may be appropriate to include some control variables for the general macroeconomic

conditions. Booms or recessions are known to affect probability of default and therefore should be controlled for to obtain more stable results.

What is the role of the length of the loans in the sample? The sample is unbalanced as loans with different length of observed performance are included. It would be helpful to note the average length of observed loan performance and discuss implications since longer observations have a higher chance to become nonperforming.

Why hazard functions for very-high risk are lower than those for high risk and rather close to low risk? Figure 3., first chart, page 70.

3.   **Third essay "Credit Ratings and their Informational Value: Evidence from the Recent Financial Crisis" analyzes the difference in S&P and Moody's issuer ratings for financial and non-financial companies.** It uses data for several thousand rated companies across 9 industries and applies limited dependent variable models to investigate the determinants of rating downgrades and differences in S&P and Moody's ratings, including the effect of the third rating agency – Fitch. In addition, it tries to determine whether there is a follower and leader between the two rating agencies. It finds that Moody's tends to be consistently more conservative on non-financial firms than S&P; for financial firms it is the opposite. But both agencies seem to assess communication and technology industry the same way. Fitch rating is found to have a significant effect on the split between S&P and Moody's ratings. Sovereign ratings are confirmed to affect issuer ratings, and finally, S&P ratings seem to follow Moody's.

Why the regressions of issuer rating change do not control for firm-level characteristics? I wonder what was the reason not to include firm-specific variables in the regression of Table 5, since firm-specific variables have been included in the case of the regression of disagreement between S&P and Moody's ratings.

What Gabriela thinks is the underlying reason for her findings that sovereign S&P rating has influenced financial issuer ratings significantly but differently in different periods? Table 5 shows that in the pre-crisis period, sovereign rating downgrades increased financial sector ratings. During the sovereign debt crisis, it led to a decline in financial sector rating. This is, however, not found for Moody's rating.