

Hypothesis Testing in Credit Risk

A Visual Approach for Deeper Understanding

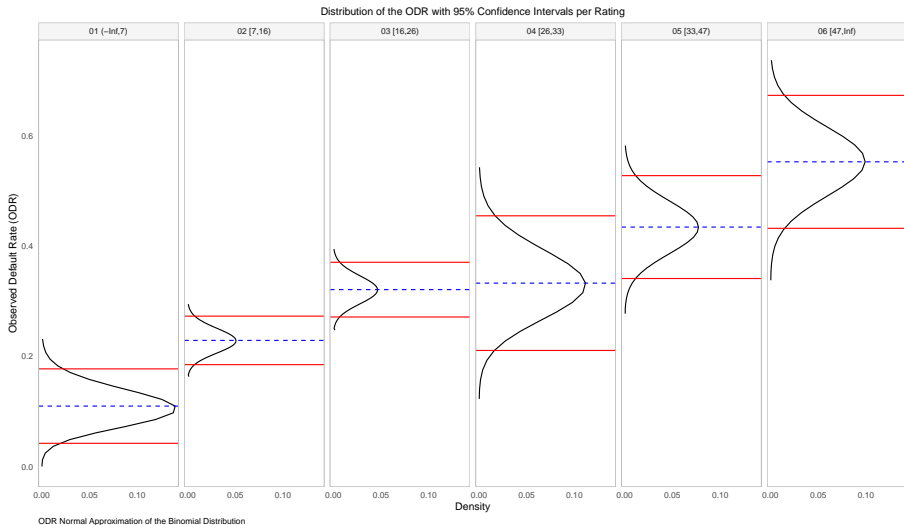
Andrija Djurovic

www.linkedin.com/in/andrija-djurovic

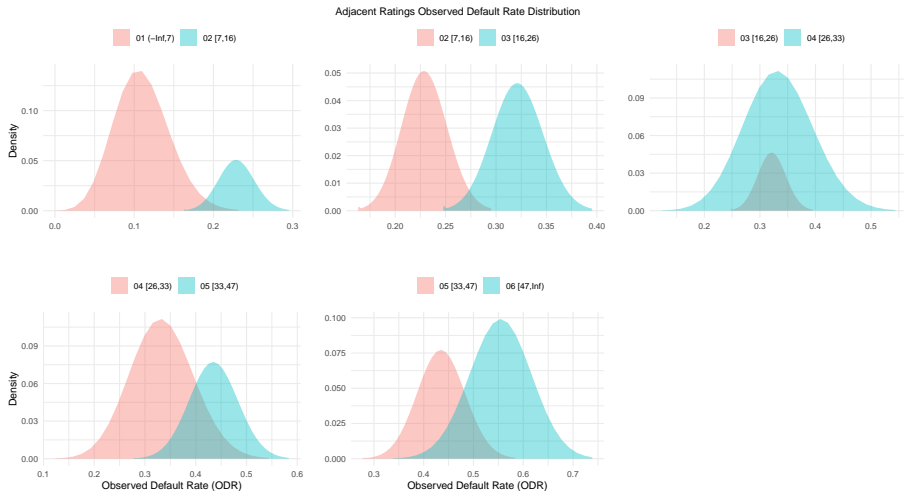
Hypothesis Testing in Credit Risk

- Statistical hypothesis testing is extensively used in credit risk, especially for validating various types of credit risk models, including Probability of Default (PD), Loss Given Default (LGD), and Exposure at Default (EAD).
- Practitioners typically formulate statistical hypotheses to assess various aspects of the model, such as the quality of the ranking order, the model's predictive power, or the model's structure quality.
- Two commonly applied tests that evaluate the quality of a model's structure are heterogeneity and homogeneity. These procedures are used across all risk models. The tests are conducted at the rating grade level for PD models, while for LGD and EAD models, they are applied at the pool or bucket levels.
- Heterogeneity testing focuses on assessing the differences in risk profiles between adjacent ratings, pools, or buckets of facilities or obligors. On the other hand, homogeneity testing examines the consistency of risk profiles within a single rating, pool, or bucket.
- Practitioners may sometimes need assistance understanding what is being tested in these procedures. In such cases, a graphical representation of the metric and its distribution can help clarify the purpose of the analysis and support the final decision-making.
- The following slides present visualization examples that can assist in heterogeneity and homogeneity testing for credit risk models. Practitioners are encouraged to see these examples as flexible guidelines rather than fixed templates and to adapt them to their specific needs. Readers can find the underlying data for the graphs here: [PD](#), [LGD](#).

Example 1: Heterogeneity Testing in PD Modeling

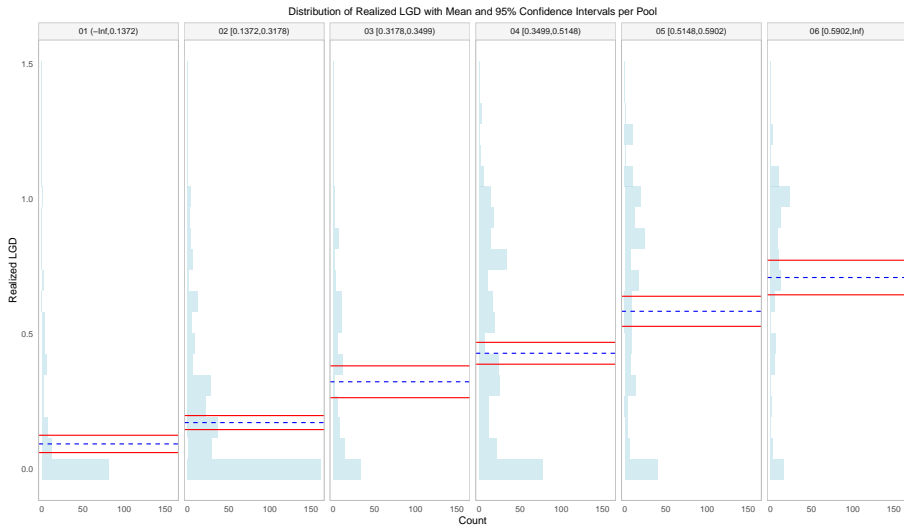


Example 2: Heterogeneity Testing in PD Modeling



ODR Normal Approximation of the Binomial Distribution

Example 3: Heterogeneity Testing in LGD Modeling



Example 4: Homogeneity Testing in LGD Modeling

