



TOPICS:

Credit risk

SOURCE:

Deutsche Bundesbank

DB: Quantification of Margin of Conservatism Category C - Correlations and Quantification Levels

- This paper examines the **Margin of Conservatism for general estimation error (MoC C)** applied to **probability of default (PD) estimates under the IRB framework**. It addresses requirements stemming from the **CRR, EBA Guidelines on PD/LGD** estimation and the ECB Guide to Internal Models (**EGIM**).
- The paper makes **three principal contributions**. First, it develops a methodology for quantifying MoC C where institutions calculate long-run average default rates (LRADRs) using **overlapping one-year default-rate windows**. Because overlapping observations create temporal dependencies, treating observations as independent may misstate estimation uncertainty. The proposed LRADR variance explicitly incorporates covariance between monthly default counts. Subject to stationarity, mixing and other assumptions, the LRADR converges asymptotically to a normal distribution, providing a basis for MoC C quantification.
- Second, the paper addresses the ECB expectation that MoC C is quantified at **rating-grade level**,

whereas institutions may calculate LRADRs at **calibration-segment level**. It derives an approximate scaling factor for grade-level MoCs designed to produce aggregate risk-weighted exposure amounts (RWEAs) equivalent to those generated by segment-level MoC C. The adjustment depends principally on default-rate variances, observation periods and RWEA-sensitive grade weights.

- Third, the analysis examines **asset-correlation estimation**. Simulations confirm that maximum-likelihood estimates derived from default-rate time series can be downward biased when portfolios contain heterogeneous PDs. The bias increases particularly with greater discriminatory power and higher true asset correlation. Conventional upper confidence bounds, including **95% and 99% levels**, are found insufficient to fully correct this effect. The paper therefore proposes simulation-based adjustment factors calibrated to asset correlation, discriminatory power, unconditional PD, portfolio size and historical observation period.

