



**TOPICS:**

Credit Risk

**SOURCE:**

European Banking Authority

## EBA: Systematic Backtesting of Probability of Default Models with Regulatory Data

- The paper examines methodologies for **systematic backtesting of probability of default (PD) models** used by EU banks under the Internal Ratings-Based (IRB) framework. It addresses regulatory requirements under the Capital Requirements Regulation (CRR), which mandate regular validation of credit risk models, combining qualitative and quantitative techniques.
- The paper identifies limitations in traditional supervisory validation, which relies heavily on resource-intensive, bank-specific inspections and lacks transparency and scalability. To address this, it proposes a **data-driven, system-wide backtesting framework** using a proprietary dataset collected by the EBA from 2017–2024. This dataset includes granular information on PDs, default rates (DRs) and exposures across banks and rating grades.
- Methodologically, the study builds on the standard binomial test used in PD validation but highlights its key weakness: the assumption of independent defaults, which leads to overly conservative results (high false rejection rates).

To improve accuracy, the authors introduce a **generalised correction to the binomial test** that accounts for both asset correlation (cross-sectional dependence) and serial correlation (time persistence in defaults). Additionally, the framework incorporates order statistics to detect persistent miscalibrations over time and proposes an aggregation method to assess model performance at the EU-wide level.

- Empirical findings show that **miscalibrated exposures in SME corporate portfolios range from approximately 3% (under realistic assumptions) to 16.7% (under the standard binomial test)**. The results indicate a declining trend in miscalibration over time, likely due to improved data quality and more conservative model calibration. The paper also quantifies regulatory impact: correcting miscalibrations would reduce system-wide Tier 1 capital ratios by approximately **4 to 10 basis points**, demonstrating tangible capital implications.

