**EUROPEAN CENTRAL BANK**

BANKING SUPERVISION

# Press release

## 28 July 2025

# ECB publishes revised guide to internal models

- Revised guide reflects updates to regulatory requirements under CRR3, including revised Basel framework
- Use of machine learning techniques in internal models clarified
- Enhanced transparency and harmonisation in the supervision of internal models

The European Central Bank (ECB) has today published its revised guide to internal models. The revision incorporates updates to the regulatory framework and builds on the experience the ECB has gained over the years of supervising internal models.

Since it was first published in October 2019, the guide has proven to be a very useful and appreciated tool for credit institutions and supervisors. The revised version provides transparency on the ECB's understanding of the most significant aspects of the applicable regulatory framework governing the internal models used by banks for credit, market and counterparty credit risk.

The main changes in the revised guide include:

- **Machine learning**: A new section, part of the rebranded chapter on "Overarching principles for internal models", specifies expectations for using machine learning techniques in internal models, addressing a need for clarification previously raised by the industry. It aims to ensure that models using these techniques are adequately explainable and that their performance justifies their complexity.

- **Credit risk**: The chapter on credit risk includes updates on roll-out and permanent partial use to align with CRR3 requirements, refined expectations on internal validation and internal audit in line with the EBA's supervisory handbook on the validation of internal ratings-based (IRB) rating systems, and clarifications of the responsibilities of senior management and the management body regarding the readiness for submission to the ECB of applications concerning internal models. It also refines expectations on the definition of default and the estimation of credit risk

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parameters, in particular with regard to the risk quantification of probability of default (PD) and loss given default (LGD) models.

- **Market risk**: This topic is now split into two chapters to present supervisory expectations for market risk models under both CRR2 and CRR3, reflecting the two European Commission's decisions to delay the implementation of legislation on the new Basel standards, first until beginning of 2026, and subsequently with an intended further delay until beginning of 2027 which is now subject to the scrutiny of the European Parliament and Council for a period of 3 months.

- **Counterparty credit risk**: This chapter includes more detail on how to model the risks of trades with partners, changes in exposure and updates on maturity in line with CRR3.

The revised guide has been developed in collaboration with experts from national competent authorities and has benefited from industry feedback gathered through two targeted stakeholder consultations.

The ECB expects this revision to improve the effectiveness and usefulness of the guide for the implementation and supervision of internal models. The revision helps institutions streamline their model landscapes, allowing them to better choose suitable portfolios for internal models and apply simpler approaches to others. In this vein, the revision of the guide is not in conflict with the ongoing initiatives on models' simplification, but it rather further supports them.

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### Notes

- A bank's use of internal models to calculate risk-weighted assets is subject to initial approval by ECB Banking Supervision. Banks' internal models are then subject to internal model investigations and ongoing model monitoring by ECB Banking Supervision.

- As of June 2024, about 60% of risk-weighted exposure amounts for the credit risk of banks directly supervised by the ECB (significant banks) were calculated using internal models and about 40% using standardised approaches. Altogether, credit risk accounted for about 83% of significant banks' total risk-weighted exposure amounts, which amounted to €7.5 trillion.

- The ECB originally developed the guide to internal models as part of its targeted review of internal models (TRIM), a large-scale project to address inconsistencies resulting from the use of complex internal models and to reduce unwarranted variability of outputs.

- The Capital Requirements Regulation (CRR) governs the calculation of risk-weighted assets for credit, market and operational risks, which form the basis for minimum capital requirements and regulatory capital ratios (see the dedicated [explainer page]()).