

Technical note

Updates to the supervisory guides on internal models (EGIM, EGAM and EGMA)

Issued

26 June 2026

Issuing agencies

European Central Bank

Primary applicability

Institutions that use internal models
for Pillar 1 own funds requirements

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In June 2026, the ECB updated the EGIM with a targeted change on CCF and, in parallel, revised the EGAM and EGMA to remove A-CVA

Evolution of the EGIM and update of EGAM and EGMA

- **February 2017. First version** of the Guide to internal models (TRIM Guide). With this Guide the ECB aimed to ensure consistent application of high supervisory standards for supervised institutions and promote a consistent understanding and application of rules related to the use of internal models.
- **November 2018.** Revised general topics chapter.
- **June 2019.** Revised risk-type specific chapters.
- **February 2024.** Revised ECB Guide to internal models (general and risk specific chapters).
- **July 2025.** Inclusion of reviews to reflect changes in regulatory requirements and to address experiences in using the Guide.
- **June 2026.** The ECB updated the Guide to version 4.1, removing the content relating to the estimation of the CCF, as the EBA is currently preparing specific Guidelines on this matter. In parallel, the ECB updated the EGAM and EGMA¹ to remove the references to A-CVA following its replacement by SA-CVA.

Key content of the EGIM following the June 2026 update

 Overarching principles	 Credit risk	 Market risk	 Counterparty credit risk
• Stronger core principles for internal model governance, requiring consistent application, robust documentation, enhanced data governance, and clearer roles across all group entities. • Incorporation and development of expectations regarding climate and environmental risks and the use of machine learning, together with clarifications on implementation timelines, audit independence, outsourcing and consolidation.	• CRR III-aligned on roll-out and PPU: removal of the coverage ratio, clear criteria for the use of IRB/SA and senior management approval. • Validation/Audit per EBA IRB handbook: 3 year cycle, CRCU independence, broader scope. • Senior mgmt. to approve, oversee and review results/ changes. Harmonised default definition and tighter PD/LGD rules.	• Split into two chapters covering market risk models under CRR II (unmodified) and CRR III. • It takes into account the implementation timeline of the FRTB framework in the EU and clarifies supervisory expectations during the transition. • Provides clarity on supervisory expectations for both frameworks during the transition period.	• Stricter requirements on scope, MPoR, collateral, initial margin, and risk factor granularity. • Enhanced guidance on calibration, EEPE, alpha, and unmodelled risks, with stronger expectations for use test, validation, and governance integration.

The ECB reiterates the basic principles for the governance of internal models, calling for consistent application, robust documentation, improved data governance and clearer roles across all entities within the group

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Guidelines at consolidated and subsidiary levels 	- Reinforced expectation for group-wide consistency in internal model principles, whether implemented through centralised guidance or harmonised local policies. - Institutions are now explicitly required to carry out gap analyses and monitoring procedures to ensure proper local implementation and alignment with group expectations. Subsidiaries must report material deviations to the parent entity, enhancing the group's supervisory oversight and accountability.					
	Documentation of internal models 	- Institutions must ensure that model documentation is complete, regularly updated, and independently understandable, supporting effective oversight and external review. Controlled model register must be created, containing essential model attributes, access controls, and versioning mechanisms. This register must be actively governed, forming part of the broader model lifecycle management and risk control framework.					
	Data governance 	- Explicit alignment with external standards such as DORA and BCBS 239, reflecting a more formalised approach to data governance. Structured controls required over all model inputs, including data based on human-judgement, with clear traceability and documentation. - Enhanced expectations cover the full data lifecycle, including quality assurance, security, and change control mechanisms.					
	Model risk management framework 	- Expectation of a formalised Model Risk Management (MRM) policy, defining governance roles, model categorisation, and escalation criteria. - There is an explicit requirement to ensure linkage between the model register and group-wide oversight, fostering integration across functions and levels. - Institutions are expected to embed model risk management more deeply into their enterprise risk frameworks, beyond the scope of internal models.					
	Management body and senior management 	- Institutions must define and document the responsibilities, mandates, and reporting structures of the management body and senior leadership concerning internal models. - The Guide encourages establishing oversight committees or equivalent structures to ensure independent governance and effective challenge. - Such arrangements should be calibrated according to institution size and complexity, reinforcing the principle of proportionality.					
	General principles for internal validation 	- The updated Guide outlines more specific organisational options to guarantee the independence of the internal validation function, both functionally and hierarchically. - It introduces best practices and audit expectations, including periodic reviews, sampling, and structured documentation of validation decisions. - Validation processes are explicitly linked to regulatory expectations and proportionality, promoting a risk-based approach.					

The ECB maintains comprehensive supervisory expectations, set in 2025 for the first time, for the use of machine learning (ML) in internal models, with a focus on explainability, justified complexity and robust governance

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Data governance and maintenance 	- Institutions should define data standards aligned with best practices and academic research to assess the adequacy of data types, amounts, and sources used in ML models. These standards apply to synthetic (artificially generated) and unstructured data (e.g., texts, social media, videos). - ML input data must undergo exploratory analysis to understand: Data formats, handling of missing values and sources of bias in the dataset			Mathematical methodology of ML-based internal models 	- When it comes to model development , institutions must justify the design and parameterisation of ML models, ensuring they avoid overfitting and use independent samples for testing generalisation. They must assess bias from sample shifts and document all elements (e.g. seeds, data order) to ensure replicability. - ML-based models should balance complexity with explainability. Institutions must ensure risk drivers are well justified, explanations are robust and tailored to each stakeholder, and explainability techniques and tools that are models themselves (XAI tools) are clearly documented, highlighting limitations and ensuring alignment with regulatory expectations.	
	IT and 3rd-party involvement in ML-based internal models 	IT infrastructure must support ML model needs, especially for unstructured data and high computational demand. Best practice: infrastructure should offer traceability (e.g. versioning) to log decisions and allow replication and auditability of ML model outputs. - These IT principles also apply to market risk and counterparty credit risk models. - ML models must be explicitly integrated in outsourcing policies to manage risks from delegating related tasks. - The same outsourcing principles apply to credit valuation adjustment (CVA) models.					

The ECB maintains comprehensive supervisory expectations, set in 2025 for the first time, for the use of machine learning (ML) in internal models, with a focus on explainability, justified complexity and robust governance

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Making use of ML techniques 	- ML techniques are defined as highly complex, non-linear models with many parameters and large data needs. - The ECB applies a proportionality principle based on model complexity and role (e.g. modelling vs data preparation). - ML is a complexity and materiality driver, implying higher validation and management expectations.		Internal Validation 	- Internal validation must challenge: - Whether model complexity is justified. - Stability and robustness of outcomes, hyperparameter choices, and training randomness. - Validation must test performance on out-of-sample and out-of-time data. - Institutions must use explainability techniques to detect underperformance, instability, and deviation from realised values. Explainability tools themselves must be assessed at least annually.		
	Use of ML-based internal models 	- Institutions must clearly define how ML models are used in decisions (e.g. risk, credit, capital) and ensure outputs are explainable and properly integrated—or justified when not used. - When applying human judgement (e.g. overrides), they must limit, monitor and justify its use, especially for ML models with many inputs, ensuring proper documentation and understanding.		Internal Audit 	- ML-based models generally pose higher model risk, justifying increased audit intensity and frequency. - For complex or dynamic ML models, a deep dive should typically be included in the annual audit plan.		
	Governance 	- ML-related risks must be reflected in model risk governance, including validation, change management, and staff expertise. - The three lines of defence must have sufficient ML knowledge, including senior management, model developers and users.					

The Guide maintains its scope in relation to climate and environmental risk, as well as implementation deadlines, audit independence and accountability in the context of outsourcing and consolidation

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	General principles on climate-related and environmental risks	- The Guide sets out the expectation that institutions assess the materiality of climate-related and environmental risks in relation to internal models. - Where relevant, such risks must be incorporated into internal models, especially when these models are used for own funds requirement calculations, ensuring alignment with broader prudential and ESG frameworks.					
	General principles for internal audit	- The Guide strengthens expectations on audit independence, proportional staffing, and governance, ensuring that internal audit has sufficient authority and resources to oversee internal model risk. - The Guide includes recommended practices for tracking audit findings, approving corrective actions, and monitoring resolution progress through structured tools and reporting to both management and supervisors.					
	General principles for the implementation of a changed or extended model	- The Guide sets a standard timeline of three months for the implementation of material model changes or extensions after ECB permission is granted, unless justified and approved otherwise. - This deadline also applies to reversions from more sophisticated to simpler model approaches, promoting prompt and consistent implementation across institutions.					
	Third-party involvement	- The Guide reinforces that outsourcing of internal model tasks does not exempt institutions from full responsibility, including validation, auditability, and in-house knowledge retention. - The Guide also clarifies that model eligibility assessments may be considered outsourcing under the Internal Model Approach (IMA), thus subject to the same governance and control requirements.					
	Internal models in the context of consolidations	- Requirement for a detailed “return to compliance plan”* in the context of mergers or consolidations, covering model integration and transitional capital calculations. - The Guide sets a separate ECB decision for each consolidation case, specifying the actions, target model architecture, and RWEA treatment timelines to restore full compliance.					

*According to Article 146 of the CRR.

The ECB maintains its approach to IRB internal models, requiring sound governance, data quality, regular validation, transparency and ongoing management to ensure regulatory compliance and a reliable measurement of credit risk

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
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Roll-out and permanent partial use



- Within an exposure class to which the IRB approach is applied, the institution may keep certain types of exposures under the **standardised approach under the permanent partial use (PPU) regime**, provided that it has **supervisory permission and meets the immateriality and risk profile criteria set out in the CRR**.
- The IRB **strategy must define objectives and intuitive criteria** for choosing between IRB and SA and include classes planned for the future.
- The **rollout plan requires senior management approval** and periodic updates, including classes to be applied.
- **Exposures under PPU must be monitored and reassessed on an ongoing basis to ensure compliance with CRR**.
- Where internal estimates are not used, **Article 176(3) requires a comparison to be made between the available internal estimates and the applicable regulatory values**.
- **Reversion to SA or F-IRB is only permitted if duly justified** and not intended to reduce capital requirements.

Model use



- Ratings must be used in **risk management, credit processes, and decision-making**, especially for PD. IRB parameters may be **adjusted if justified**.
- Ratings must specially support **pricing, EWS, recovery processes, adjustments, delegation**.
- **Consistent use** must be reflected in policies.
- **3 years of prior use** needed before IRB approval.
- **Non-rated/outdated** must be **minimized and tracked**. **Overrides** must be **justified**.

Management of changes to the IRB approach



- Institutions must apply the IRB approach at exposure class level, with PPU, deployment and roll-back rules assessed per class. Application to subcategories remains possible with supervisory approval.
- **IRB Strategy**. The Guide introduces best practices for deciding between IRB and SA, promoting objective and intuitive criteria at portfolio level. It also encourages reporting of exposure classes where IRB is planned for future use.

The ECB maintains its approach to IRB internal models, requiring sound governance, data quality, regular validation, transparency and ongoing management to ensure regulatory compliance and a reliable measurement of credit risk

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Data maintenance for the IRB approach 	• Robust IT systems must support IRB data; key specs, sources, and audit trails must be documented. • Register of rating systems (past & current) must be kept, updated ≥3 years. • For model approval/changes, systems must be live-ready and tested (UAT, COREP and own funds calculation) • Implementation testing includes unit, integration, system, and regression tests. • Clear roles & governance over data management; ensure traceability, accountability, and quality. • Data quality framework required, with standards (e.g. completeness, accuracy), controls, remediation, and regular reporting to senior management.					
	Internal Governance 	• Material systems need stricter controls and regular reviews. • Only fully remediated models can be submitted. • Senior management must approve and understand models. • Must receive regular performance reports on material systems. • CRCU must be independent and report to senior management. • Annual review of risk estimates via CRCU and validation.					
	Internal Validation 	• Must cover all levels and ensure consistency of results. • Policies and methods must be documented and regularly reviewed. • Must include checks: back-testing, discriminatory power, overrides, stability, data quality, etc. • Full validation required at least every 3 years for material systems. • Results must be reported to senior management with follow-up. • Changes must be notified to the authorities pursuant to Delegated Regulation (EU) No 529/2014.					
	Internal Audit 	• Rating systems must be audited annually (or every 3 years if low-risk). • Risk assessment must cover model use, overrides, data, and validation independence. • Audit tasks must be documented and approved by management. • Pre-IRB audits ensure compliance and completeness. • Material changes in models/validation require independent audit. • Roles of audit, validation, and control must be clearly defined.					

The ECB is retaining the 2025 version of the default definition for IRB models, ensuring consistent application, clear criteria and reliable use of data

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Consistency of the application 		Default must be applied at obligor level, grouping all exposures (some implementation flexibility allowed). Exceptions for common obligors are valid only if impact is immaterial and properly monitored. Thresholds may vary by jurisdiction; consistency across SSM/non-SSM must be ensured. Joint obligations require consistent default treatment, especially between retail/non-retail. Obligors ≠ guarantors: each must be assessed separately to avoid bias in PDs.		Return to non-defaulted status 		- Reclassification to non-default status is allowed only when all obligor/facility conditions are met. A probation period starts after a material payment for distressed restructuring. - Return allowed with minor or <90-day past due, if no restructuring and other criteria are met. - In cases of restructuring, there should be no past due amounts and alignment with the rules on refinancing should be ensured. New default triggers reset probation, min. 3 months (1 year if restructured).
	Days past due criterion 		Default triggers at 91 DPD apply to all exposures, regardless of terms, once the materiality threshold is exceeded. - Institutions must use exact overdue days, and counters only reset if the past due amounts cease to be material. Thresholds must be in EUR, with daily FX conversion if needed. - Institutions must include fees or linked obligations but exclude write-offs unless UTP signs are present. Disputes or moratoriums may pause counting only if properly justified and aligned with EBA rules. Specific treatments (e.g., public sector, factoring) must be clearly defined. Additional triggers (e.g., lower thresholds) are allowed but must be tracked in parallel.		Unlikelihood to pay criterion 		- For sales or restructurings, institutions must assess loss materiality using sale price without adjustments and discounted cash flows. Late fees and penalties must be excluded if forgiven, but included if part of new contractual terms. - Only future cash flows should be considered when estimating the diminished obligation. Major write-offs require reassessment, and new post-default facilities require a full review. - Institutions must define UTP indicators by exposure type for timely detection.
	Consistency of external data 		- Use of external/pooled data with different DoD is allowed only if impact is negligible. If not, institutions must apply adjustments to granular or aggregated data. - External data increases uncertainty, often needing Category A MoC. - Different DoD in RDS is valid if justified and no adverse impact shown.		Adjustments to risk estimates in the case of changes of DoD 		Any change to DoD (e.g. DPD count, UTP indicators, return criteria) qualifies as a definition change under Art. 178 CRR. - Changes to IRB models require prior approval, and institutions must align the timelines and applicable treatment between the IRB approach and the standardised approach. - If risk differentiation weakens, models must be reviewed and adjusted. - When risk data no longer reflect the new default definition, apply adjustments to RDS (either granular or aggregated) or simulate results under a new default scope. - ECB recommends definition-related MoC if uncertainty rises. Old or misaligned data requires recalibration or parallel simulations.

The Guide maintains its expectations regarding data quality, the validation and review of IRB parameters, with a focus on transparency, representativeness and the robustness of estimates of losses and probabilities of default

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Use of data 	- Institutions must ensure high data quality, with sound internal and external data processes. - Use of external/pooled data requires proof of representativeness, avoiding bias/double-counting, and applying MoC where needed. - If using external scores, they must be understood, updated, validated, and not dominate the rating without internal input. Models based on pooled data need consistent application across institutions and must include internal data; each firm is fully responsible. Expert judgment should be limited and controlled; low data = apply higher MoC. - In mergers, acquirers must use both banks' data or justify gaps with adjustments.			Probability of default 	LROV (Likely Range of Variability): - Use at least 5 years of data that reflect the range of 1Y default rate variability. - Assess correlation between default rates and economic indicators. - If no correlation, include min/max default rates. - If there is a correlation, define the 'bad' and 'good' years, ensuring that the proportion of bad years is not lower than that observed over a longer period. - Compare calculated LRA PD to a benchmark PD (e.g. 2008–2018); bearing in mind that this reference does not constitute a minimum.	
	Loss given default 	- For retail exposures, it is no longer permissible to weight historical data if more recent data are better predictors of loss rates. - Quantification of LGD Downturn Risk (much more extensive): - LGD downturn should not be calibrated at a more aggregated level than the long-term average LGD. - The ECB uses a reference value (RV) to assess the downturn LGD, so any deviation must be duly justified.		Calculation of maturity for non-retail exposures 	Maturity (M) must reflect the maximum remaining time (in years) the obligor is allowed to fully meet contractual obligations. - This includes principal, interest, and fees, not just the repayment of drawn amounts. M should be calculated using the facility's expiry date, not the repayment date of any current drawdown. - Institutions must justify and document any exemptions from the one-year maturity floor.		
	Review of estimates 	- The ECB uses the EBA's Supervisory Manual as a supplementary reference on IRB rating system validation (published in August 2023) as a basis for interpretation. Full validations are expected at least every three years for material rating systems.					

The market risk framework under CRR II remains unchanged, with expectations regarding IRC models for institutions subject to this regime remaining the same

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Scope of the market risk chapter 	- The chapter defines the perimeter of market risk by clarifying the types of positions and instruments eligible for the trading book, in line with the CRR framework. Institutions must ensure that the classification of positions as trading or banking is consistently applied across internal systems and aligned with the business model. - Supervisors expect a clear and well-documented approach to the delineation of scope, with adequate controls and governance in place.					
	Regulatory back-testing of VaR models 	Back-testing must be performed daily on both actual and hypothetical P&L, and institutions must be able to explain and escalate all exceptions. - The ECB expects a structured process for monitoring model performance and investigating back-testing breaches. - Persistent underperformance may lead to supervisory actions, including the application of multipliers or model restrictions.					
	Methodology for VaR and stressed VaR 	Internal models must capture all relevant risk factors and be based on a reliable, representative historical data set. Institutions must ensure that the model appropriately reflects the portfolio's sensitivity to market changes. - The stressed VaR (sVaR) must be calibrated using a period of significant financial stress relevant to the institution's positions, and the choice of stress period must be justified with portfolio-specific analysis. Modelling assumptions, such as confidence level, time horizon, look-back window and data filtering, must be transparent, regularly reviewed and governed by internal approval processes.					
	Risks-not-in-the-model engines (RNIME) 	Institutions must identify any material risk not covered by internal models, including basis risk, model risk, market liquidity risk, concentration risk, and residual risks arising from simplifications or exclusions. - These risks must be assessed through robust internal processes and, where quantification is not feasible, addressed through conservative capital buffers, overlays, or scenario-based adjustments.					

The market risk framework under CRR II remains unchanged, with expectations regarding IRC models for institutions subject to this regime remaining the same

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	RNIME (cont.) 				The RNIME framework must be subject to validation and governance oversight, with clear roles for internal audit, model risk management and senior management in ensuring transparency, justification and supervisory readiness.		
	Scope of the internal model approach 				- Institutions are expected to include in the internal model all instruments and risk factors for which reliable modelling is possible and supported by sufficient data and risk management usage. - Where instruments are excluded from the IMA, the ECB requires clear justification based on data limitations, model weaknesses, or risk management usage. - Any material changes to the scope—either qualitative or quantitative—must be documented and, where required, notified to supervisors.		
	Aspects of internal validation of market risk models 				Internal validation must be independent from model development and encompass data quality, assumptions, methodology and system implementation. - Institutions are expected to validate all components of the market risk framework (e.g., VaR, stressed VaR, IRC), using both qualitative assessments and quantitative testing. - Full traceability, documentation and governance oversight are required to support the credibility of validation results.		
	Methodology for IRC models focusing on default risk 				- The Incremental Risk Charge (IRC) model must reflect both credit migration and default risk for trading book positions exposed to credit risk, including issuer-specific sensitivities and sectoral concentrations. Probabilities of default (PDs), loss-given default (LGD), credit rating transition matrices and correlation assumptions must be derived from robust empirical data and be conservative in nature. - The model structure and calibration must be validated through stress testing, benchmarking and sensitivity analysis, and the IRC output must be actively used in internal risk and capital processes—not limited to regulatory purposes.		

CRR III strengthens the ECB’s expectations regarding internal market risk models, with stricter requirements regarding scope, validation, modelling and the treatment of risks not covered by the model

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Scope on market risk  • Outlines the ECB’s supervisory expectations for institutions using internal models to calculate market risk own funds requirements under CRR III. • It focuses on the key methodological, validation and governance aspects but does not cover every technical detail, leaving room for supervisory discretion. • The guidance aims to ensure consistent supervisory practices while preserving flexibility for institution-specific modelling choices.				Regulatory backtesting and P&L attribution  • Regulatory back-testing compares hypothetical P&L (HPL) with actual P&L (APL) to validate the accuracy of market risk models. • The P&L attribution (PLA) test compares risk-theoretical P&L (RTPL) with HPL to ensure the model correctly captures the drivers of trading outcomes. • Trading desks consistently failing PLA or back-testing may lose approval for internal model use (non-modellable status), requiring a fallback to the standardised approach. • Institutions must maintain robust documentation of the test population, exceptions and escalation processes. Additionally, the ECB expects institutions to have internal back-testing for ES/VaR models.		
	Risks not in the model engines (RNIME)  • Institutions must identify and quantify RNIME through conservative methodologies or add-ons, covering residual basis, event or model risks. • Any significant updates in RNIME treatment may require model change classification and prior supervisory notification.				Methodology for ES and SSRM  • The Expected Shortfall (ES) models must reflect tail risks through robust calibration, historical data, sufficient granular risk factor modelling, and simulation techniques, ensuring stability and relevance under stressed conditions. • SSRM must use the same risk factors as ES, but recalibrated to severe but plausible scenarios; justification of scenario selection is expected.		

CRR III strengthens the ECB’s expectations regarding internal market risk models, with stricter requirements regarding scope, validation, modelling and the treatment of risks not covered by the model

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Scope of the internal model approach  • The IMA must include all trading book instruments with eligible and modellable risk factors. • The use of IMA is subject to desk-level approval. • Any exclusions must be justified based on data availability, modellability, or internal risk practices. • The scope must be aligned with the trading intention and accurately reflect the positions in the trading portfolio. • Material changes to the scope must be documented and, where required, notified to supervisors.				Internal validation of market risk models  • Institutions must implement a comprehensive and independent validation function, covering conceptual soundness, empirical accuracy, and risk coverage. • Validation must occur at least annually, and also in response to model changes, failures or supervisory requests. • The ECB expects involvement from senior management and internal audit, with validation results forming part of governance decision-making. Validation must include quantitative testing (e.g. benchmarking, back-testing) and qualitative review of modelling assumptions.		
	Methodology for DRC  • The DRC model must capture incremental default and migration risk under Article 325bw CRR, using appropriate PDs, LGDs, and transition matrices. • PDs must not default to zero in absence of observed defaults; transition matrices must be granular and rating-sensitive, and LGDs economically grounded.				Risk management, governance and audit  • Internal models must be embedded in risk management processes and used in decision-making, limit frameworks, and reporting. • Governance must ensure transparency, documentation, change control, and independent review by internal audit and senior committees.		

The Guide maintains the supervisory expectations regarding CCR models, with the strict requirements set out in the 2025 version concerning MPoR, collateral, initial margin and the granularity of risk factors

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
Scope of the counterparty credit risk 		- The chapter clarifies supervisory expectations applicable to institutions using internal models for counterparty credit risk, particularly under the IMM framework. - The Guide clearly distinguishes requirements depending on whether IMM, SA-CCR or OEM approaches are used, ensuring institutions apply only the relevant expectations.		Trade coverage 	- Institutions must include all trades within the scope of IMM, ensuring comprehensive coverage of both linear and non-linear exposures. - The 2025 version explicitly clarifies that trades excluded from benchmarking portfolios do not count towards the IMM minimum coverage threshold, reinforcing the need for proper justification of exclusions.		
	Margin period of risk and cash flows 	- The MPoR must be based on realistic assumptions that reflect delays in collateral exchanges and liquidation processes under stressed conditions. - The Guide contains enhanced expectations on the definition of the “most recent exchange of collateral,” treatment of interpolation within simulation paths, and the capture of illiquid collateral or concentrations. - Institutions are also expected to capture all cash flows—contractual, optional, or contingent—within the MPoR horizon, and document assumptions with greater precision.	Collateral modelling 	- Institutions must ensure collateral is modelled consistently with the exposure profile and risk management practices, including proper alignment with OTC derivatives and SFTs. - The 2025 version strengthens requirements around modelling the interaction between collateral and exposures during MPoR and clarifies when volatility adjustments may be used for simplification.			
	Modelling of initial margin 	- Initial margin must be incorporated in exposure modelling where it affects future exposure. - The guidance reinforces that modelling of IM should reflect contractual terms, re-use limitations, and stress calibration. IM must not be treated as a static buffer but as a dynamic element in exposure projections.	Maturity 	- Effective maturity must be calculated to appropriately reflect the economic horizon of exposures, especially for open-ended or callable trades. - The 2025 version reinforces that maturity assumptions should be supported by empirical analysis and that effective maturity cannot be shortened without robust justification.			
	Granularity, number of time steps and scenarios 	- Numerical methods used in the model must be sufficiently granular and statistically representative to capture the underlying exposure. - The updated Guide introduces stronger requirements to validate the level of convergence of the numerical methods, focusing on time-grid density and number of simulated scenarios.					

The ECB maintains its expectations regarding the use, validation and calibration of CCR models, as well as the requirements for the treatment of EEPE, alpha and unmodelled risks

1	Overarching principles	2	Credit Risk	3	Market Risk	4	Counterparty Credit Risk
	Calibration, frequency and stress calibration  • Institutions must calibrate model parameters using recent, relevant and sufficient data. • The Guide clarifies that stress calibration must reflect severe but plausible market conditions, with documentation of assumptions and reproducibility. • The frequency of calibration must be justified and aligned with risk management; material changes require governance oversight.				Risks not in effective expected positive exposure  • All material risks not captured in EEPE must be identified, assessed and conservatively addressed. • The Guide stresses the need to quantify these risks where possible or apply appropriate capital add-ons or adjustments. • Institutions must document their treatment and integrate it into the validation and governance framework.		
	Effective expected positive exposure (EEPE)  • EEPE models must be calibrated using full trade-level data and must reflect netting and collateral agreements. • The Guide clarifies that all relevant risk factors must be incorporated, and modelling assumptions must be justified and back-tested. • Institutions must monitor and explain material deviations between EEPE and actual exposure profiles.			Use test  • CCR models must be fully embedded in the institution's risk management, used consistently for internal purposes (e.g. limit setting, pricing, capital allocation). • The Guide strengthens the ECB's expectations around documentation, traceability and the use of model outputs in actual decision-making processes. • Institutions must demonstrate management understanding and active use of model results.			
	Alpha parameter  • Institutions must estimate and justify the alpha parameter used to scale EEPE to EAD. • The Guide contains clearer expectations on empirical calibration, conservatism and documentation. • Supervisors may challenge alpha values that are not robust, conservative or grounded in observed performance.		Validation  • Validation must cover all aspects of the CCR model: data quality, methodology, implementation and performance. • The Guide further emphasizes the independence of the validation function and requires testing under both normal and stressed conditions. • Any expert judgement or manual adjustments must be critically reviewed and validated.				

Following the replacement of A-CVA with SA-CVA under CRR III, the ECB is updating the EGAM and EGMA by removing references to A-CVA, pending the EBA’s RTS on supervisory assessment and the materiality of changes

	EGAM	EGMA
What is it?	Guide to the methodology used by the ECB to assess IMM models for counterparty credit risk.	Guide on the materiality assessment of extensions and changes to IMM models.
Background	The CRR regulates the use of the IMM to calculate exposures under the CCR, but does not provide for equivalent specific RTS on the methodology for the supervisory assessment of these models. Consequently, the ECB published the EGAM in September 2020 to provide transparency on how it assesses compliance with IMM models in supervisory investigations and ongoing monitoring.	The CRR requires prior approval for certain extensions and changes to internal models, but does not provide for specific equivalent RTS to classify the materiality of extensions and changes to IMM models. Consequently, the ECB published the EGMA in September 2017 to set out indicative criteria for their classification and supervisory treatment.
What does it contain?	Supervisory assessment criteria relating to scope, exposure modelling, margin risk period, collateral, initial margin, calibration, EEPE, alpha parameter, use test and validation.	Guide on classifying changes and extensions according to the supervisory process applicable to them: ECB investigation, prior notification or subsequent notification.
What has changed since the previous version?	All sections, chapters and references to A-CVA are removed.	All sections, chapters and references to A-CVA are removed.

MS has extensive experience in risk and capital management, particularly in the processes of compliance with the associated regulation (CRR/CRD)

MS differential strengths in risk and capital management

- 1. Proven credibility with supervisors:** Recognised by European and US regulators as a top-tier provider for internal capital models, with 7 ECB framework agreements and the highest rating in the capital area.
- 2. Deep regulatory modelling expertise:** Comprehensive modelling experience across **i)** Credit risk (IRB, IFRS 9, CECL, stress testing), **ii)** Market risk, CCR, IRRBB (VaR, pensions, xVA), **iii)** ALM and liquidity, **iv)** Residual value and ESG risk, **v)** Economic capital. Delivering compliant, robust, and high-performing models.
- 3. Independent model validation:** Trusted partner to verify compliance with CRR/CRD and EBA/ECB Guidelines, supporting regulator approval (ECB, DNB, Bundesbank) and mitigating supervisory risk.
- 4. Capital engine design & implementation:** Proven track record in building and deploying capital calculation/reporting solutions (MIR, SIRO) and running impact analyses that streamline processes and ensure precision.
- 5. Specialised, multidisciplinary teams:** Experts in modelling, regulation, impact assessment, and reporting, blending quantitative strength with regulatory insight to deliver pragmatic, actionable solutions.
- 6. End-to-end IRB model assessment:** Leadership in designing, validating, and developing IRB models, IFRS9 frameworks, and TRIM/SREP readiness, while addressing supervisory findings and strengthening risk governance.
- 7. Advanced analytics & ML innovation:** Application of machine learning to optimise model accuracy, automate validation, and enhance decision-making in credit scoring, fraud detection, capital forecasting, and in the development of internal models, in line with emerging supervisory expectations.

C. Abbreviations

Abbreviation	Meaning
CCR	Counterparty credit risk
COREP	Common reporting
CRR	Capital Requirements Regulation
CRCU	Credit Risk Control Unit
CVA	Credit Valuation Adjustment
DMP	Default management process
DoD	Definition of default
DPD	Days pas due
DR	Default rates
DRC	Default Risk Charge
ECB	European Central Bank
EBA	European Banking Authority
EEPE	Effective expected positive exposure
EGAM	Guide on assessment methodology
EGIM	Guide to internal models
EGMA	Guide on materiality assessment
EWS	Early warning system
F-IRB	Foundation Internal Ratings-Based approach
FRTB	Fundamental Review of the Trading Book
HPL	Hypothetical profit and loss
IM	Initial Margin
IMM	Internal Model Method
IRB	Internal Ratings-Based

Abbreviation	Meaning
IRC	Incremental Risk Charge
IT	Information technology
LGD	Loss given default
LRA	Long-run average
MoC	Margin of conservatism
MPoR	Margin period of risk
OTC	Over-the-counter
PD	Probability of default
PLA	Profit and loss attribution
PPU	Permanent partial use
RNIME	Risks not included in the model engines
RTPL	Risk-theoretical profit and loss
RTS	Regulatory Technical Standards
RWA	Risk-weighted assets
SA	Standardised approach
SFT	Securities financing transactions
SSRM	Stress scenario risk measure
sVaR	Stressed Value at Risk
TRIM	Targeted Review of Internal Models
UAT	User acceptance testing
UTP	Unlikelihood to pay
VaR	Value at Risk
XAI	Explainable artificial intelligence



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