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Technical note on the
Draft guidelines on the methodology for estimating and applying CCFs under the CRR

EBA public consultation

In July 2025, the EBA published a Consultation Paper with guidelines for estimating CCF. These guidelines adapt the criteria of the PD and LGD Guidelines and establish a specific framework for calculating realised, long-run and downturn CCF
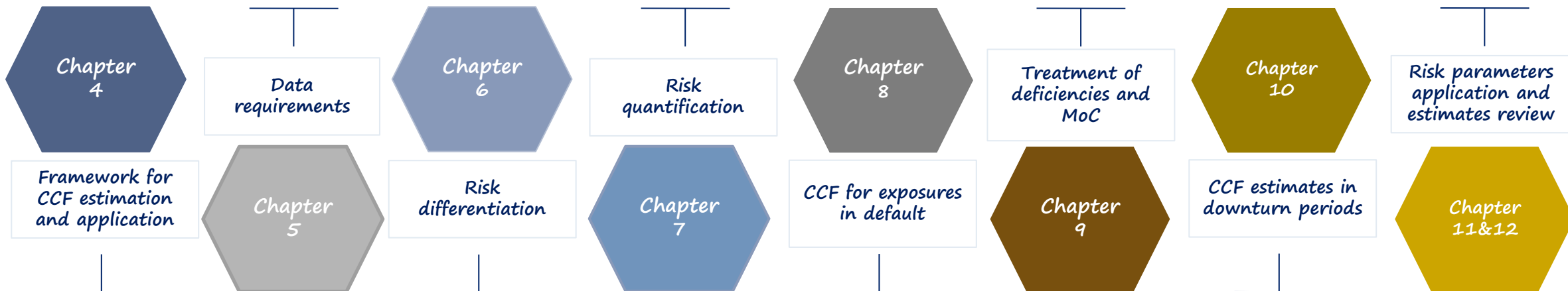
🎯 Context and Objective

- On 2 July 2025, the EBA published **a Consultation Paper with preliminary guidelines for estimating CCF** under Article 182(5) of Regulation (EU) No 575/2013 (CRR), as amended by CRR3.
- The purpose of the document is to establish a clear and consistent methodology for estimating and applying CCF in the IRB framework for revolving exposures.
- These guidelines formalise and adapt **criteria previously existing in the PD and LGD guidelines**, ensuring consistency across IRB models. They also take into account the LGD guidelines in downturn scenarios (EBA/GL/2019/03) and good practices from the Validation Handbook (EBA/REP/2023/29).
- A **specific framework** is established **for calculating realised CCF.**
- **Simplified approaches** are introduced **for low materiality situations** and new criteria for treating exposures in default, multiple defaults and additional provisions.

👣 Next steps

- **Consultation period open until 15 October 2025.** Entities may submit comments on the Consultation Paper via the EBA portal.

- **Qualitative impact analysis.** The EBA has included a questionnaire to assess the effect of the proposals on internal rating systems.

- **Publication of final guidelines.** Following the assessment of responses, the final *guidelines* are expected to be issued in late 2025 or early 2026.

- **Internal preparation by institutions.** It is recommended that institutions review their existing CCF models, identify potential impacts and plan technical and documentary adjustments in line with the new requirements.

Summary of content

- **Chapter 4** — Framework for CCF estimation and application
- **Chapter 5** — Data requirements
- **Chapter 6** — Risk differentiation
- **Chapter 7** — Risk quantification
- **Chapter 8** — CCF for exposures in default
- **Chapter 9** — Treatment of deficiencies and MoC
- **Chapter 10** — CCF estimates in downturn periods
- **Chapter 11&12** — Risk parameters application and estimates review

📄 Access to the document

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The CCF consultation guidance introduces additional requirements for its estimation, highlighting the incorporation of minimum mandatory information and updated specifications for the calculation of *realised* CCF

Framework for CCF estimation and application ▶

- The IRB CCF should only be applied to **undrawn revolving commitments** (not subject to 100% under the standard approach), assigning a single CCF per transaction.
- **Exposures that have been revolving in the 12 months** prior to default are **eligible**, even if they were not revolving on the exact date.
- The estimate must **be based on own historical data**, reflecting actual drawdown and repayment behaviour.
- There must be **consistency between the calculation and application of the CCF**, including disclosed and undisclosed limits.
- Expert judgement may be applied, but it must be documented, justified and assessed in terms of its impact on the estimate.

Data requirements ▶

- Entities must have **robust data quality and representativeness policies** justifying exclusions and assessing possible errors that may affect the estimation and application of the CCF.
- The RDS must contain the **data necessary to estimate the CCF**, including at least: NDD triggers, product profile changes, reported and unreported limits, information on waivers, additional provisions on each date, line closure information, etc.
- The *realised* CCF must be calculated taking into account **additional provisions for non-retail and retail exposures** (if used in the LGD), product changes, written-off amounts, etc.

Risk differentiation ▶

- **Potential risk drivers** must be **assessed** according to the relevant characteristics of the transaction, obligor, institution and external factors, with expert support.
- Extremely high values of realised CCFs must **be analysed** to identify risk factors and possible adjustments to the segmentation.
- **Discriminant power tests (OoS / OoT)** must be performed to validate the segmentation.
- The **homogeneity of the pools** must be ensured through various tests (comparisons of average CCFs, concentration analysis and overlap studies).

Risk quantification ▶

- The Long Run CCF must be estimated using all available internal data and considering the **arithmetic mean of the CCF at facility level.**
- **Closed drawing processes** must be considered when calculating the **Long Run CCF**. This estimate must be **adjusted to take into account open processes**, which can be estimated using a simple approach or a modelling approach.
- For the calibration of **the Long Run CCF at pool level or at calibration segment level,** additional analyses must be performed to verify the suitability of the approach.

It also establishes guidelines for estimating the CCF of exposures in default when additional drawings are expected, and specifies treatments for estimating the Downturn and MoC CCF

CCF for defaulted exposures ▶

- An *in-default CCF* must be applied to exposures in default **when additional drawings are expected**, for non-retail portfolios and for retail portfolios (which include such additional drawings in the LGD). To do this, post-default data must be used.

- **A simple approach** using the estimated CCF of the pool at the date of default, **or a modelling approach** using actual post-default forfeiture data and associated risk factors, is permitted. A specific formula is provided for calculating the *realised* CCF.

- The CCF in default must be estimated over a downturn period.

Treatment of deficiencies and MoC ▶

- In situations with **very limited data or unrepresentative exposures**, a **conservative CCF of 100%** may be set, provided that this is duly justified.

- The MoC must be quantified separately for each deficiency category (A, B and C) at the calibration segment level.

- The MoC must be **non-negative and strictly positive** whenever deficiencies or material uncertainties are identified; it may be 0 only if no such deficiencies or uncertainties exist..

- The obligation to document, periodically review and define a **remediation plan to reduce the MoC** over time through improvements in data and methodology is reinforced.

Downturn CCF estimates ▶

- The CCF Downturn estimate follows an **approach aligned with the LGD Downturn GL**, applying similar principles in segmentation, criteria for the DT period, etc.

- It should **be compared with a reference value** based on the years with the highest observed provisions.

- It is used if it is more conservative than the Long Run CCF, incorporating margins of conservatism (MoC). A high level of sensitivity to the cycle should be avoided.

- The guide allows for **three methods**: observed impact, estimated impact or, in the absence of data, a minimum estimate with MoC and a floor of +15 p.p. above the CCF LRA.

- If there are several downturn periods, the one that gives the most conservative result should be used.

Risk parameters application and estimates review ▶

- **Consistency in the definition and use of the CCF** is required at all stages, incorporating updated information and additional conservatism measures if there are deficiencies.

- The use of **human judgement and overrides must be justified**, documented and limited, assessing their impact on predictive power.

- Estimates must be used for capital and management purposes, except in justified cases, and senior management must always be informed if different values are used.

- A periodic review of estimates is mandatory, identifying deviations from the CCF made and updating the model if necessary.

- Estimation assumptions must be verified, and the documentation and traceability of the entire process must be ensured, including adjustments and corrective actions.

The framework for estimating and applying the CCF sets out the principles for applying the IRB model, limited to undrawn revolving commitments, and defines the estimation methodologies

Principles for specifying the range of application of the rating system	• **General principles:** it is established that the CCF model must be applied to exposures with similar risk characteristics and credit information and must be treated consistently in risk management. In addition, consistency is required in the definition of default and in the treatment of multiple defaults across all models and data sources used. • **Principles for specifying the scope and level of application of the CCF** (!) An IRB CCF must be applied to each exposure arising from **undrawn revolving commitments**, provided that these exposures are not subject to a 100% SA-CCF under the standard approach. • A revolving commitment is understood to be a transaction with a disclosed limit and flexible drawdown, which allows repayments and new drawdowns, and which can be cancelled by the institution. Examples: **current accounts with a limit, credit lines and commitments with revolving maturity**. • **A single CCF should be assigned per facility,** considering as a single facility those contracts related under a framework agreement with a global limit. Only exposures that meet the conditions defined as "revolving" should receive an IRB CCF.
CCF estimation methodologies	(!) Entities must estimate CCFs for all facility grades of the distinct facility rating scale or for all pools covered by the rating system, considering as **eligible those exposures that have been revolving commitments in the 12 months prior to default**, even if they were not at the exact moment of default. • The estimation must be based primarily on **the institution's own historical data related to** customer **drawdown and repayment behaviour**. Although the use of external data as a supplement is permitted, estimates based exclusively on external sources are not acceptable. The methodologies used must be appropriate to the type of exposure and consistent with the entity's limit management policies, considering aspects such as *drawing scenarios,* as well as potential differences in the legal environment of the relevant jurisdictions. • There must be **clear consistency between the calculation of** *the realised* **CCF and its application in the estimate**, including the treatment of notified and unnotified limits, as well as the methodological approach used (CCF for utilisation rate at the reference date lower than 100% and utilisation rate at reference date equal to or higher than 100%). Such consistency must be demonstrated.
Human judgment in estimation of risk parameter	• Entities may supplement their statistical models with human judgement, provided that they assess the assumptions and verify that the risk factors are consistent with their economic meaning. • They must analyse the impact of the judgement on the model, justify it adequately and document it with the criteria, assumptions, involved experts and the process followed.

The RDS must include all information necessary to estimate the CCF and be supported by robust policies that ensure data quality and traceability

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Data governance

- Entities must have **robust data quality policies** in place to ensure accurate, complete and adequate information at all stages of the CCF model (estimation and application process) that could distort the estimation and application of risk parameters.

- (!) Entities **must duly justify the exclusion from** the **RDS** of product types for which drawings are observed on the default dates. It is also necessary to review possible errors in the limits recorded, especially in revolving commitments with no off-balance sheet amount on the reference date.

- Entities must have **robust policies and methods for assessing the representativeness** of the data used in the estimation of risk parameters, specifying statistical tests and qualitative assessments when tests cannot be applied. They must apply consistent criteria for assessing internal, external or pooled data, unless justified by the nature or availability of the source.

Construction and storage of modelling data

- Entities must build and maintain an RDS that includes **complete and** protected **information** on exposures in default, risk factors and data necessary to calculate the *realised* CCF, **covering as long a historical period as possible**, consisting of consecutive years and complying with the minimum durations required by the regulations for each type of exposure.

- (!) It must include, **as a minimum,** key information on each defaulted transaction: default dates and reference, **default triggers, evolution of the product profile**, and data on the nature of the product (undrawn committed amount, **advised and unadvised limit**, including its characteristics). It must also include **additional drawings** following default on all dates (complete and incomplete) and any **amount forgiven or write off before or at the time of default,** especially in cases of restructuring

- (!) The RDS must include **relevant risk drivers that explain the drawdown behaviour**, differentiated by type: characteristics of the transaction (product type, limit, use, etc.), of the obligor (sector, size, behaviour), **of the institution** (internal processes, undisclosed limits) and external factors (legal environment and climate risks). These must be up to date, and if there is no information on the factors in recent data, a MoC must be applied.

- (!) **The RDS should be separated into three samples**: train (for model development), test (for validation) and quantification (to estimate the numerical value of the CCF).

- (!) The entire RDS construction process must be documented so that it can be **replicated by a third party**. This includes **details of all exclusions made** and their justification, especially in the case of retail models (count and exposure of exclusions) and non-retail models (detailed list of exclusions at facility level, with justification on a case-by-case basis).

Representativeness tests must be carried out on the three RDS samples. The CCF must also be estimated based on the 12 months prior to default, taking into account changes in product profile and incorporating additional provisions

Representativeness:	(!) Representativeness must be analysed by comparing the **training, test and quantification samples with the application sample**. If the training sample lacks representativeness and this affects the discriminatory power, the model must be adjusted. If this occurs in the quantification sample, an adjustment and a MOC must be applied. In the case of the test sample, it must be assessed whether it needs to be adjusted.
	• The areas for measuring representativeness are: (1) the definition of default used; (2) application of the rating system; (3) changes in internal policies and external factors affecting risk (e.g. legal environment, granting and recovery policies); (4) structural changes in economic or market conditions; (5) material sub-segments of the portfolio with insufficient historical information to differentiate, validate or quantify estimates.

Data structure for CCF estimation	• Entities must **identify and document relevant changes in the** customer's **product profile** in the 12 months prior to default, such as substitutions of revolving commitments or new contracts instead of extending existing limits.
	• Each default should be treated as an independent observation, unless there are less than nine months between them (in which case, consider a single continuous default).
	(!) The **reference date** for the estimate **should be 12 months prior to the default**. If there was no revolving commitment on that date, the closest date on which there was one should be used. If the default occurs within 12 months of origination, the first date with a positive drawn amount should be taken.

Calculation of the realised CCF

• The *realised* CCF is defined **using two methodologies:**

% Use < 100	% Use > = 100
$$CCF = \frac{Drawn_{Def.} - Drawn_{Ref}}{Max(Lim_{Advised.},\ Lim_{Unadvised.}) - Drawn_{Ref}}$$	$$CCF = \frac{Drawn_{Def.}}{Max(Lim_{Advised.},\ Lim_{Unadvised.})}$$

The usage threshold may be reduced if it affects a small portion of the portfolio and is justified by dispersion.

• In cases where there are **changes to the product profile**: the drawn balance includes only revolving commitments, while the defaulted balance includes revolving commitments and new non-revolving commitments not linked to previous ones. The denominator includes undrawn limits on revolving commitments.

• Fees and capitalised interest on the reference and default balances (excluding non-capitalised interest) must be taken into account. In addition, if part of the exposure has been forgiven or withdrawn before or on the default date and has not been included in the amount drawn down, it must be added to the realised CCF numerator.

• **Additional drawings** must be taken into account in the estimation as follows:

  • Additional drawings after default must be included in the CCF. For non-retail exposures, their inclusion is mandatory; for retail exposures, they may be reflected in the CCF or in the LGD.

  • The CCF is adjusted by adding to the defaulted balance the difference between the maximum drawn after default (updated) and the amount drawn at the time of default.

The selection of risk drivers must assess transactional, obligor, institutional risk characteristics and external factors, ensuring that the model discriminates appropriately and that the final pools are homogeneous with each other

Risk driver selection	(!) Entities should assess the following aspects as **potential risk drivers** and take into account the assessment of expert areas for their selection: • Transaction-related risk characteristics : type of product, exposure, limit amount, committed balance not drawn down, percentage of use, etc. • Obligor-related risk characteristics : size, geography, sector, historical behaviour, number of associated credit lines, etc. • Institution-related factors : internal organisation, governance, monitoring and collection processes, authorisation of unnotified limits, etc. • External factors: legal environment, social and corporate governance regulations, climate risk indicators (transition and physical). • When extremely high values of realised CCFs are observed for reasons other than a low available balance on the reference date, the institution should identify **specific risk factors** and reflect these characteristics in the segmentation (ratings or groups).
Discriminatory power	(!) The entity must verify that **the model adequately differentiates between exposures with high and low CCF values**. (!) **Out-of-sample** (OoS) and **out-of-time** (OoT) **tests** must be performed to assess discriminatory power: • At all risk levels, both for final segmentation and intermediate steps of the model, for each calibration segment. • Under various economic conditions to ensure that the model is stable in different economic conditions. • In relevant sub-populations of the portfolio, especially those that are not representative of the development sample.
Homogeneity and heterogeneity	• It must **be ensured that the final pools of the model are homogeneous with each other**. To do this, at least the following checks must be carried out: • **Homogeneity test at pool and calibration segment level**, comparing historical CCF averages in relevant sub-populations. • **Concentration analysis in the final pools** to identify lack of homogeneity, absence of risk drivers or poor discretisation. • **Avoid significant overlaps** in the distribution of CCFs between final pools.

It is necessary to clearly identify closed drawing processes and then adjust the Long Run CCF to incorporate the effects of expected future drawings

Long Run CCF	• **All available internal data** must **be used** for exposures within the scope of the model. ⚠ The calculation must be made at the **highest level of granularity**, not on an aggregate basis, **calculating the CCF as the arithmetic mean of realised CCFs** for each facility grade or pool. (eliminating the possibility of applying annual or customer averages within the same grade).
Identification of closed transactions	⚠ Entities must **clearly document in their internal policies the moment of closing the drawing process for the revolving facility**, i.e. the moment when obligors can no longer draw on the facility. All **revolving exposures that have been closed** must be treated as **closed drawdown processes** for the purposes of the calculation of the observed average CCF. • In addition, exposures that have been in default for longer than the maximum recovery period (TtW of the LGD), transactions that have been cancelled or fully amortised, and transactions that have come out of default (healthy) are also considered closed. ⚠ The **Long Run CCF** is initially calculated as **the average of the observed CCF of closed drawing processes**, so it is necessary to have a sufficient number of closed processes out of the total number of processes. Subsequently, the **Long Run CCF must be adjusted taking into account the rest of drawing processes,** with the possibility of adjusting it using a simple approach or a modelling approach[1] .

Simple approach	⚠ **Scope of application: non-retail portfolios** and when one of the following conditions is met: (1) Low materiality of defaulted transactions with undisbursed committed amounts; (2) There are internal policies that limit additional drawdowns after default, which must be evidenced by a low historical level of additional drawdowns in relation to unused committed amounts.
	
	⚠ **Methodology**: The realised CCF for each exposure must be calculated as the **maximum of**:
	
	    • The observed **average CCF for the** relevant **pool** obtained from **closed drawing processes**,
	
	    • The **observed CCF for each exposure**, assuming that there will be no additional drawings after the estimation date.
	
	• The use of this approach should not reduce the applicable MoC.

⚠ **(1):** These estimates of future disposals should be incorporated into the LGD denominator.

It is necessary to clearly identify fully drawn and closed facilities and then adjust the Long Run CCF to incorporate the effects of expected future drawings

Modelling approach

- **Scope of application:** retail portfolios (with additional provisions in LGD) and non-retail portfolios.

- For the estimation, **all observed drawings up to the estimation date** must **be included** and **future provisions must be estimated within the maximum time frame of the recovery process**. For the estimates, the provisions observed up to the estimation date must be compared with historical patterns of similar transactions, considering both **closed and open provision cycles.**

- **Back-testing** of expected future drawings must be performed, and it must be ensured that the assumptions made are economically reasonable and aligned with the Long Run CCF.

- **Adjustments to the observed CCF may be made at the exposure, pool or portfolio level**.

- Assess the potential **bias arising from the inclusion of incomplete processes** and explicitly reflect the uncertainty associated with the estimation of future dispositions with an **associated MoC**.

Specific treatments

- Cases with **negative observed CCF**: The *realised* CCF should be set to zero, both for the calculation of the observed CCF and the long-run CCF. The actual CCF prior to this adjustment may be used as input for risk differentiation in the model development.

- If there are **CCFs with a retracted reference date** prior to the 12 months window, it should be analysed whether they introduce bias in the Long Run CCF, comparing their proportion with cases with a reference date of 12 months. If bias is detected, an appropriate adjustment should be applied.

CCF calibration

- Entities must align their CCF estimates with the calculated Long Run CCF, which may be done by:

  - Directly **at the pool level**, in which case they should only perform additional calibration tests at the relevant calibration segment level.

  - **At the calibration segment level**, which requires a comparison of at least the Long Run CCF with the estimated CCF applied to the same set. If the individual values observed exceed the Long Run CCF value, they must be adjusted (e.g. with a *scaling factor*).

- The **calibration sample**, i.e. the sample of exposures used to compare the estimated CCF estimates with the Long Run CCF, **must be the same as the sample used to calculate the Long Run CCF.**

A specific methodology is established for calculating the CCF in-default, applicable to both non-retail and retail rating systems, provided that in the latter case additional drawings are considered after default

General requirements	Entities authorised to use their own CCF estimates in certain rating systems must **assign a CCF *in-default* to exposures in default** in that rating system that are **non-retail**, or **retail where additional drawings are considered in the CCF**. • For retail exposures that do not take into account additional drawings in the estimate, no CCF in-default shall be applied. In order to calculate them, it is **necessary to have all relevant information** subsequent to the moment of default, and it is mandatory to perform ***back-testing* and *benchmarking*** to validate the CCF *in-default* estimates.
Simplified approach	• Under the simplified approach, institutions must apply the estimated CCF of the pool to belonged on the reference date closest to the date of default to exposures in default.
Modelling approach (1/2) — *General aspects*	Entities must **analyse situations where the CCF in-default shortly after the date of default systematically deviate from the CCF estimates immediately before the date of default at the facility grade or pool** and **justify** any deviations that are not due to changes in risk factors after default. A specific justification for such a deviation may be that an entity restricts additional provisions after default. **Reference dates**: instead of selecting 12 months prior to the default date, they should **be based on the patterns of additional drawings in closed drawing processes** (e.g., specific days after default, key events, a combination of both, or any date between the time of default and the end of the maximum provision period defined by the entity). **Historical data**: The **same exposures** should be considered on all reference dates. **Continuous monitoring**: **Patterns of additional drawings** should be reviewed periodically**,** as well as **internal policies** that may impact estimates of the CCF *in-default.* **Additional information required in the databases:** All relevant risk factors after default and additional factors determining additional drawings. It is also necessary to have the amount drawn down on each reference date and all additional drawings after the reference date.

A specific methodology is established for calculating the CCF in-default, applicable to both non-retail and retail rating systems, provided that in the latter case additional drawings are considered after default

Modelling approach (2/2)

Calculation of the realised CCF

⚠ The **methodology for calculating the *realised* CCF** for defaulted exposures is defined as follows, depending on whether or not the line is committed on the reference date:

% Use (Ref.) < 100	% Use (Ref.) >=100	
$$CCF = \frac{\sum Drawings_{After\,Ref} + Fees_{After\,Ref} + Interest_{After\,Ref}}{Limit_{Ref} - Drawn_{Ref}}$$	$$CCF = \frac{Drawn_{Ref.} + \sum(Drawings_{After\,Ref} + Fees_{After\,Ref} + Interest_{After\,Ref})}{Limit_{Ref}}$$	*The usage threshold may be reduced, similarly to non-default cases*

- All amounts after the reference date must be discounted to that date.

⚠ If, after the default, there are debt write-offs, the calculation of *the realised* CCF shall be based on the total amount drawn down of the outstanding credit obligation, **without taking into account the write-off**.

Model development

⚠ For defaulted exposures, **information on additional provisions** may be incorporated either as **risk drivers** or by **selecting reference dates** appropriate to those additional provisions.

⚠ For these exposures, **the risk drivers** must **be analysed after the date of default and the date of termination of the drawing process**. It is also advisable to include additional drivers to those assessed for performing transactions that may be relevant after default.

Quantification

⚠ To calculate the CCF for defaulted exposures, all **closed drawing processes** must be considered, as well as **incomplete drawing processes on reference dates prior to the date of application of the parameter.**

⚠ **Future drawings should not be estimated for exposures that exceed the maximum length of the recovery process as specified by the institution**. Relevant information relating to specific exposures may be reflected in the application of CCF parameters through overrides.

⚠ **The CCF *in-default* must reflect downturn conditions**, as set out in Chapter 10.

Deficiencies should be identified, appropriate adjustments made, and MoC quantified in a manner similar to the specifications in the PD and LGD Guidelines

Identification of deficiencies	• **Category A: Data deficiencies** (e.g., misreported or unreported default data, incorrect or outdated historical ratings, errors in identifying available limits, gaps in information on drawings and cash flows, use of unrepresentative external data, lack of data to incorporate the effect of the *downturn* period *or* changes in the product mix) and **methodology (**e.g. failures in estimating future drawings or in measuring the observed CCF).
	Category B: Deficiencies in the representativeness of the sample and other uncertainties (e.g. relevant changes in internal policies or external factors, structural breaks in economic or market conditions, and future expectations regarding the evolution of the portfolio, the risk profile or the macroeconomic environment that are not adequately reflected in the historical data observed).
Appropriate adjustment	• Entities should **apply appropriate adjustments** to correct biases identified in the estimate arising from deficiencies in categories A and B. These adjustments **may result in an increase or decrease in the estimated parameter** and should lead to a better estimate.
	• The methodologies applied and their justification must be properly documented, and their adequacy must be monitored regularly. **Important: the application of adjustments does not exempt the entity from remedying the underlying deficiencies.**
MoC	Entities must quantify the **MoC for categories A and B** (uncorrected deficiencies) **at the calibration segment level**.
	In addition, they must quantify the **MoC for category C (general estimation error)**, which must **reflect the dispersion of the estimator** and be calculated **at least for each calibration segment**.
	• The **final MoC** is the **sum of the MoCs for the three categories** (A, B and C) and is added to the best estimate of the parameter.
	• In no case may the MoC reduce the risk parameter estimate**; the MoC must be greater or equal than 0.**
	• If appropriate adjustments have been made, the **MoC should reflect any additional uncertainty associated with those adjustments**.
	When **data are very limited or exposure is immaterial**, a **conservative CCF of 100%** may be set**,** if adequately justified.
	• Entities must **thoroughly document the MoC**: identified deficiencies, category, method of quantification, and follow-up.
	• The MoC should be reviewed periodically and should be reduced or eliminated progressively if the underlying deficiencies are corrected. A **remediation plan** is required **to address the causes of the MoC and reduce the estimation error over time**.

The CCF Downturn would be estimated using guidelines similar to those set out in the LGD Downturn Guidelines

General requirements	• To quantify CCF Downturn, the **specifications of this guidance document**, which is currently under consultation, must be taken into account, together with the specifications of the standards associated with LGD estimated in a downturn scenario. • The CCF Downturn should be calibrated at least at the same level as the CCF Long Run. Exposures should be divided into calibration segments if they have significantly different risk profiles, considering geographical areas, industry sectors and types of retail products. • To identify the Downturn period, the **annual default rate** should be used as one of the key indicators. • If several crisis periods are identified, the CCF should be calculated for each identified Downturn period, apply the one that results in the highest average value (including MoC) and add an additional MoC if any period cannot be estimated. Periods may be excluded if they are proven to be irrelevant to the segment.
Requirements for estimating CCF Downturn	• **The Downturn CCF** should **be used if it is more conservative than the Long Run CCF**. To do this, both should be compared, including their margins of conservatism (MoC), and ensure that they cover all uncertainties. • It is necessary to ensure that CCF Downturns **are not overly sensitive to the** economic **cycle** and, if they are, adjustments should be applied to limit their impact on capital. • The same Downturn period identified for exposures not in default should be used. For these exposures, the CCF can be quantified in two ways: by calculating it for exposures in default for each date in the Downturn period or by applying a component in the adverse scenario. ⓘ The **Downturn** CCF **obtained should be compared with the Reference Value** (CCF estimated using the two years with the highest CCF value).
Estimation of the CCF Downturn	ⓘ Based on the available data, three estimation approaches can be applied: • **Observed Impact**: Used when sufficient data is available to analyse the effect of an adverse period on realised CCFs. The estimate is based on empirical evidence (increase in CCF or time in default). If there is no observable impact, the long-term average CCF with appropriate MoCs can be used. • **Estimated impact**: If there is insufficient data, an extrapolation approach is used where a statistically significant dependence between *realised* CCFs and relevant economic factors can be established. A strictly positive Category A MoC must be quantified due to the lack of data. • **Impact Not Available:** If none of the above approaches are possible, entities should quantify the CCF Downturn using another approach, applying a strictly positive Category A MoC for missing data. In addition, the resulting CCF Downturn (including the MoC) **should be equal to or greater than the CCF LRA plus a 15 percentage point supplement.**

Entities must ensure consistency, traceability, and conservatism in the application and ongoing review of CCF parameters, incorporating expert judgement under control and taking corrective action in the event of significant deviations

Application of risk parameters	• Entities must ensure **consistency in the definition and use of CCF parameters** across all phases, updating systems and ratings with new information. • **Additional conservatism** should be applied when there are deficiencies in models or data, with a framework to identify, quantify and document this adjustment. • Entities may apply **expert judgement in the use of qualitative variables and** override inputs and outputs of the rating process, always under clear, documented and conservative criteria. They should monitor and justify such adjustments, set limits per model and regularly analyse their impact on the model's performance and predictive power. If a significant deterioration is detected as a result of the adjustments, corrective measures should be taken. • **Use test:** Parameter estimates should be used equally for regulatory capital and internal management, except in justified cases (non-consideration of MoC or regulatory floors). If different estimates are used, the information provided to senior management should include both sets of parameters.
Review of estimates	• **Mandatory periodic review:** Institutions should regularly review CCF estimates to ensure that they remain accurate, conservative and representative of their current portfolios. • **Identification of deviations:** Significant deviations between estimates and actual observations (e.g. differences between estimated CCF and *realised* CCF) must be detected. • **Model update or recalibration:** If deviations or changes in the customer population or behaviour are identified, the institution should adjust the model or apply additional margins of conservatism (MoC). • **Assessment of assumptions:** The assumptions used in the estimation must be verified to ensure they are still valid, including the definition of reference limits, 12-month horizon, and product composition. • **Documentation and traceability:** All results and decisions made during the review must be documented, including the use of expert judgement, adjustments, and any corrective actions applied.

A | Annex
Abbreviations

CCF	Credit Conversion Factor
CRR	Capital Requirements Regulation
DT	Downturn
EBA	European Banking Authority
GL	Guidelines
IRB	Internal Ratings-Based approach
LGD	Loss Given Default
LRA	Long-Run Average
MoC	Margin of Conservatism
NDD	Non-Data-Driven Triggers
OoS	Out-of-Sample
OoT	Out-of-Time
PD	Probability of Default
RDS	Relevant Data Set
SA-CCF	Standardised Approach Credit Conversion Factor
TtW	Time to Work-out

MS Management Solutions
Making things happen

An International Firm

Multidisciplinary Team

Best Practices *Know-how*

Proven experience

Maximum Commitment

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