EBA | EUROPEAN BANKING AUTHORITY

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Report on the comparability of supervisory rules and practices

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Abbreviations

CAs	Competent Authorities
CCF	credit conversion factor
CEBS GL10	Committee of European Banking Supervisors Guidelines No 10
CRD	Capital Requirements Directive – Directive 2006/48/EC and 2006/49/EC
CRD IV	Capital Requirements Directive IV – Directive EU 2013/36
CRR	Capital Requirements Regulation – Regulation EU 575/2013
EBA	European Banking Authority
ECB	European Central Bank
ELBE	expected loss best estimate
ESRB	European Systemic Risk Board
IRB Approach	Internal Ratings Based Approach
LDP	low default portfolio
LGD	loss given default
M	maturity
PD	probability of default
PIT	point-in-time
PPU	permanent partial use
RTS	regulatory technical standards
RWA	risk-weighted asset
SA	Standardised Approach
SMEs	small and medium-sized enterprises
TTC	through-the-cycle

1. Executive Summary

This report is part of the EBA study on the comparability of risk-weighted assets (RWAs) for Internal Ratings Based (IRB) Approach across the competent authorities (CAs) in accordance with the mandates on Article 502 of the Capital Requirements Regulation (CRR – Regulation EU 575/2013). The EBA investigated the comparability of RWAs from both a bank and supervisory perspective. The following report is focused on the impact of supervisory rules and practices on comparability. This report will be part of the final summary report that will be delivered to the European Commission by end 2013.

In order to gain a deep insight into the content of different supervisory rules and practices, a survey was addressed to the supervisors. The different rules, recommendations, guidelines and unwritten supervisory practices were analysed and described so as to assess their possible impact on comparability of capital requirements. The EBA targeted: (i) definition of default and past due, (ii) rating philosophy and general approach for risk parameter estimations, (iii) probability of default (PD) calibration, (iv) loss given default (LGD) calibration, (v) credit conversion factor (CCF) calibration, (vi) maturity (M) calibration, (vii) roll-out plan, (viii) permanent partial use, (ix) floors, (x) IRB shortfall/excess and (xi) regulatory mapping.

Based on survey results, it has been observed that only 25% of the listed topics are, on average, covered by public and binding rules which complement the Capital Requirements Directive (CRD – Directive 2006/48/EC and 2006/49/EC). However on certain key aspects of the IRB Approach, most CAs have clarified the regulatory framework with converging views. On other aspects, they tried to resolve issues with binding rules, but with diverging approaches or differing concerns.

Overall in the EU, the EBA noticed that supervisory normative approaches diverge, not only as regards the legal form given to the additional requirements of the CAs but also on the key aspects of the regulatory framework on which supervisors issued additional rules. Nevertheless, some trends appear: additionally to CRD minimum requirements, standards mainly touched the roll-out plans, the definition of default and past due, regulatory mapping, PD and LGD calibration and floors.

The EBA acknowledges that already existing mandates coming from CRR and Capital Requirements Directive IV (CRD IV – Directive EU 2013/36), namely regulatory and implementing technical standards and guidelines, will cover many of the observed differences in the regulatory implementation. A majority of them have to be delivered by end 2014. However not all the drivers are suficiently covered by these mandates, therefore additional work seems necessary on a limited list of drivers. This work should refine the diagnosis on the materiality of the drivers, help prioritize regulatory efforts and may lead to additional rules, possibly in the form of guidelines. The list includes (i) the total length of the roll-out plan and supervisory practices regarding non-compliance of an institution with the roll-out plan, (ii) PD computation with regard to data to be used to calibrate the models and the margin of conservatism, and (iii) downturn LGD

computation with regard to methodology/ies of calibration, data to be used to calibrate the models to downturn conditions, and the level of conservatism to be included in the downturn LGD.

2. Introduction

2.1 Mandates

Article 502 of the Capital Requirements Regulation (CRR – Regulation EU 575/2013) mandates the Commission to monitor pro-cyclicality periodically, and the EBA to report on (i) the comparability of the capital requirements and (ii) the cyclicality of the capital requirements and potential pro-cyclicality effect, for end 2013:

'The Commission, in cooperation with EBA, ESRB and the Member States, and taking into account the opinion of the ECB, shall periodically monitor whether this Regulation taken as a whole, together with Directive 2013/36/EU has significant effects on the economic cycle and, in the light of that examination, shall consider whether any remedial measures are justified. By 31 December 2013, EBA shall report to the Commission if and how methodologies of institutions under the IRB Approach should converge with a view to more comparable capital requirements while mitigating pro-cyclicality.'

'Based on that analysis and taking into account the opinion of the ECB, the Commission shall draw up a biennial report and submit it to the European Parliament and to the Council, together with any appropriate proposals. Contributions from credit taking and credit lending parties shall be adequately acknowledged when the report is drawn up.'

The EBA understands the provision on Article 502 of the CRR as constituting two separate but linked issues, namely (i) comparability (the issue of convergence of capital requirements across institutions) and (ii) pro-cyclicality (the issue of variations in capital requirements across the economic cycle, the subsequent impact on lending behaviours and the potential pro-cyclicality effect as amplification of the economic cycle by the financial sector).

A great deal of work on the comparability of capital requirements for the Internal Ratings Based (IRB) Approach has already been finalised and published, namely the first interim report on the review of the consistency of risk-weighted assets (RWAs), based on a top-down approach, published on 26 February 2013, and the second interim report on the review of the consistency of RWAs dedicated to low default portfolios (LDPs), published on 5 August 2013. Further, the third interim report, on comparability for small and medium-sized enterprises (SMEs) and residential mortgages exposures is published together with this report and provides the first, preliminary results of the current ongoing study, which is likely to be finalised in the first quarter of 2014. The EBA also investigated on the possible pro-cyclicality of capital requirements under the IRB Approach in a separate report.

This report supplements the above mentioned studies, focusing on the impact of supervisory rules and practices on comparability. In order to gain a deep insight into the content of the drivers and different supervisory rules and practices, a survey was addressed to the supervisors in June 2013. The different rules, recommendations, guidelines and unwritten supervisory practices were analysed and described so as to assess their possible impact on comparability of capital requirements. This report will be part of the final summary report that will be delivered to the European Commission by end 2013, which will also integrate the conclusions and policy recommendations of the other above mentioned reports.

2.2   Methodology

In order to understand the possible differences in the IRB framework across EU Member States, the EBA asked competent authorities (CAs) to respond to a questionnaire on the rules they adopted to supplement or specify the framework set by the Capital Requirements Directive (CRD – Directive 2006/48/EC and 2006/49/EC). The answers to this questionnaire are reviewed here.

Substantial differences are found in the actual implementation of the CRD framework by CAs. Such diversity may have led to diverging practices in institutions and non-risk based differences in capital requirements.

It should be stressed that they do not necessarily imply non-compliance of the national rules with the original CRD framework. Indeed, the main differences are fully consistent with the flexibility provided by the IRB framework, which leaves many choices open to both institutions and supervisors, so as to preserve risk sensitivity of the internal models.

It should also be noted that they do not always have a material impact on the level of capital requirements. Hence, the work presented here is complementary to EBA studies on the consistency of internal models (in particular, first and second interim report on the review of the consistency of RWA). The assessment of the materiality and the prioritisation of the identified drivers of differences in RWAs are further investigated in the final summary report.

The EBA questionnaire considers a wide range of supervisory practices for drivers listed as having a possible impact on the comparability of the own funds requirements stemming from the IRB Approach. Responses were received from 21 CAs, including 12 CAs also participating in the EBA data analysis on bank practices for LDP as well as SME and residential mortgages.

2.3   Structure of the report

This report is organised in accordance with the list of the drivers which were subject of the EBA questionnaire on supervisory rules and practices. The following topics – drivers – were targeted: (i) definition of default and past due, (ii) rating philosophy and general approach for risk parameter estimations, (iii) probability of default (PD) calibration, (iv) loss given default (LGD) calibration, (v) credit conversion factor (CCF) calibration, (vi) maturity (M) calibration, (vii) roll-out plan, (viii) permanent partial use, (ix) floors, (x) IRB shortfall/excess and (xi) regulatory mapping.

For each driver, the EBA identified and analysed the range of supervisory rules based on requirements introduced by the CAs in addition to those resulting from the CRD, in the form of public and binding regulatory texts or of non-binding texts (e.g. guidelines). The questionnaire also considered the case where non-public but uniform criteria were used to assess compliance of the internal rating systems. Alternatively, institution practices are assessed on a case-by-case basis by the CAs.

Moreover for all the drivers the EBA investigated to what extent, the existing mandates coming from the CRR and Capital Requirements Directive IV (CRD IV – Directive EU 2013/36), namely regulatory and implementing technical standards and guidelines, will cover the observed differences in the supervisory rules and practices.

In case not all the drivers are sufficiently covered by the CRR and CRD IV mandates, the EBA provided the very first insight into potential priority and additional tools which could be undertaken.

Further details with regard to supervisory rules for each individual driver are available in Annex 1.

3. Definition of default and past due

This part of the report is dedicated to rules concerning definition of default and past due. The EBA analysed supervisory rules in relation to the following drivers:

- Past due definition

- Materiality threshold

- Offsetting criteria

- Calculation of days past due

- Forbearance

- Unlikeliness to pay

- Treatment of default for risk parameter quantification

- Default rate computation.

Supervisory rules and practices for each individual driver are described in Annex 1.

Summary

More than 60% of the CAs have adopted rules concerning default and past due definitions. However the national rules take very different forms. Twelve are public and binding, one is public and non-binding and a medium variance of rules across the CAs is observed.

Nearly 40% of rules do not add much to the existing regulatory framework, as they tend purely to replicate the CRD rules. In cases where they further specify EU rules, they are dispersed among many risk drivers. The most common drivers covered in this case are calculation of days past due, materiality thresholds and criteria for unlikeliness to pay. On the default definition, the variance of practices is authorised by the CRD IV and the CRR, which specify that CAs may replace the 90 days with 180 days for exposures secured by residential or SME commercial real estate in the retail exposure class, as well as exposures to public sector entities. On the calculation of days past due, practices vary considerably. For instance, some countries have defined hard limits, either in absolute or in relative terms, and others have not. On the treatment of default for risk parameter quantification, a high variance of practices is also observed. The efforts of the supervisors to harmonise practices are focused on two aspects: the treatment of technical and multiple defaults, and the treatment of curing exposures.

Mitigants

Implementation of the CRR will help to reduce the variability of supervisory practices for the abovementioned list of drivers. Article 4(78) of the CRR provides a definition of one year default rate which is now directly applicable. The regulatory technical standards (RTS) referred to in Article 178(6) of the CRR will promote convergence as regards materiality thresholds. Furthermore, guidelines according to Article 178(7) of the CRR have to be drafted by the EBA and will have a positive impact by setting a uniform implementation of the definition of default.

Moreover under Article 144(2) of the CRR, the EBA shall develop draft RTS to specify the assessment methodology that CAs shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach.

Priority and additional tools

No need, given legislative mandates of the EBA.

4. Rating philosophy and general approach for risk parameter estimations

This part of the report is dedicated to rules concerning the rating philosophy and general approach for risk parameter estimations. The EBA analysed supervisory rules in relation to the following drivers:

- Rating system philosophy (rating assignment part)

- PD parameter – risk quantification (the length and the period for calibration imply the stability or the change with cycle of the parameter)

- PD parameter – risk differentiation (migration)

- Backtesting of cyclicality performance.

Supervisory rules for each individual driver are described in Annex 1.

Summary

The abovementioned questions enquired about the possible convergence of national rules concerning the constraints relating to rating philosophy and its monitoring (rating assignment/rating migration and PD estimation/backtesting) as implemented by institutions with IRB systems. The assignment of ratings determines the degree of migrations between rating buckets due to the economic cycle. This migration will impact the kind and number of counterparties that will be taken into account for PD calibration. However, the dynamics of the PD will also depend on the data series (length, period, etc.) and the calibration method used by the institutions. The Committee of European Banking Supervisors guidelines No 10 (CEBS GL10) mention that institutions should understand the dynamics of their ratings and capital requirements and ensure it works as intended.

Overall, fewer than 40% of CAs have rules concerning the rating philosophy.

There is a low variance of rules across the CAs, since very few supervisors have defined very specific and prescriptive requirements. When they specified such rules, they were generally in line with the CEBS GL10. The CAs usually favoured a principle-based approach; in the majority of cases, those rules are not binding or even not public. They require institutions to understand the rating philosophy and the dynamics of their rating systems.

Few respondents require the institutions to have a global picture of all their rating systems in order to understand the dynamics of their own funds requirements.

In general, the impact of the absence of requirements regarding the rating philosophy on the possible lack of comparability of RWAs is expected to vary for the different asset classes. It may be higher for asset classes subject to economic cyclicality where long internal time series are not yet available (corporate, retail, etc.).

It should be noted, however, that to date, based on one data observation and limited qualitative descriptions of the rating philosophy used by institutions, the EBA has not found evidence of material impact of the rating philosophy on the comparability and pro-cyclicality of the own funds requirements. This issue may be more relevant for SMEs and retail exposures where behavioural models are more Point-In-Time (PIT).

Under Article 144(2) of the CRR, the EBA shall develop draft RTS to specify the assessment methodology that CAs shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach. Under Article 180(3)(b) of the CRR, the EBA shall develop draft RTS to specify the methodologies according to which CAs shall assess the methodology of an institution for estimating PD. These regulations are moving in the direction of encouraging institutions to have a clear and documented understanding of all their rating systems and their dynamics.

Priority and additional tools

Policy recommendations are investigated in the dedicated EBA report on pro-cyclicality of the capital requirements.

5. Probability of default calibration

This part of the report is dedicated to rules concerning PD calibration. The EBA analysed supervisory rules in relation to the following drivers:

- Choice of PD estimation approach

- Choice of PD estimation approach: benchmarking

- Risk transfer/guarantee

- Market information

- Explanatory variables

- Available data

- Margin of conservatism

- Calibration – number of grades

- Calibration of master scale/rating scale

- Calibration – performance/discrimination/concentration

- Central/global models.

Supervisory rules for each individual driver are described in Annex 1.

Summary

The issue analysed in this section is the uniformity of national rules concerning PD calibration as implemented by institutions with IRB systems.

There is a high variance of practices across the CAs. A lot of countries do not define any specific rules and, when they do, they are usually not public. When they define some rules, they are rarely convergent; different countries favour different calibration choices. Thus, the questionnaire seems to confirm that the CAs apply a case-by-case assessment to the majority of drivers influencing PD calibration. The elements listed by CAs are generally in line with the CEBS GL10: yearly recalibration, adequate conservatism, adequate segmentation, including all relevant representative information, forward-looking estimation taking into account the economic cycle and the specific evolution of risk, compensation for model risk, use of long-run data, etc. However, each CA seems to emphasise different elements of those guidelines, such as conservatism, non-cyclicality, long-run data, etc. This could potentially lead to a wide range of institution practices regarding PD estimation.

Some CAs mention that PD estimation should be based on a long-run default rate (three counties), one CA specified the period to be used in order adequately to take into account a given downturn period. One member mentions the need for retail to take into account significantly higher default rates during some parts of the exposures' life cycles.

Two respondents mention explicitly that the estimation should be independent of the cycle, either through a cycle adjustment or through the use of sufficiently long data series.

Mitigants

Under Article 144(2) of the CRR, the EBA shall develop draft RTS to specify the assessment methodology that CAs shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach. Under Article 180(3)(b) of the CRR, the EBA shall develop draft RTS to specify the methodologies according to which competent authorities shall assess the methodology of an institution for estimating PD. These regulations could improve on the application of guidelines already available in CEBS GL10, clarifying and partly mitigating some potential drivers of RWA differences. However, a direct effect of such provisions on RWA comparability would be difficult to quantify.

The EBA shall also develop a draft RTS under Article 180(3)(a) of the CRR on the possibility of a data waiver for PD estimation. This RTS will work towards a restricted and more uniform use of data waivers, increasing comparability on this specific aspect of PD calibration.

Priority and additional tools

Based on those investigations, additional work seems necessary for PD computation with regard to (i) data to be used to calibrate the models (calculation of long-run average from default rate)

and (ii) the margin of conservatism. This work should refine the diagnosis on the materiality of the drivers.

6. Loss given default calibration

This part of the report concerns rules dedicated to LGD calibration. The EBA analysed supervisory rules in relation to the following drivers:

- Choice of loss estimation approach

- Workout LGD

- Market LGD

- Attribution of LGD to counterparties

- Explanatory variables

- Available data

- Collateral and guarantees

- Cure rate

- Discounting factor

- Margin of conservatism

- Downturn LGD

- LGD in default.

Supervisory rules for each individual driver are described in Annex 1.

Summary

The issue analysed here is the uniformity of national rules concerning the validation of LGD estimations as implemented by institutions with IRB systems.

The survey of CAs shows that a majority of respondents have rules concerning LGD calibration, equally divided among public and non-public. There is observed a high variance of rules across the CAs. One third of CAs do not have national rules at all, while for those that reported having national rules, the key topics were widely dispersed in various issues related to LGD calibration.

In addition to the dispersion of rules among various aspects of LGD calibration, for various individual drivers there is also evidence of rules spread onto a wide spectrum of possibilities, or sometimes evidence of a lack of any guideline if we exclude very general, high-level indications. This is shown, for instance, by the treatment of explanatory variables, collateral and guarantees, discounting factor, margin of conservatism and LGD in default.

Calibration of LGD parameter is specifically affected by issues related to the choice of data sources and by absence of best practices for modelling, in addition to being significantly dependent on calibration choices, which can be selected by institutions from a rich variety of possibilities.

Mitigants

Under Article 144(2) of the CRR, the EBA shall develop draft RTS to specify the assessment methodology that CAs shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach. This regulation could improve on the application of guidelines already available in CEBS GL10, which could produce a marginal effect in the direction of improving RWA comparability.

The EBA shall develop a draft RTS under Article 181(3)(b) of the CRR, on the possibility of a data waiver for LGD estimation. These RTS will work towards a restricted and more uniform use of data waivers, increasing comparability on this specific aspect of LGD calibration.

The EBA shall also develop a draft RTS under Article 181(3)(a) of the CRR in order to specify the nature, severity and duration of an economic downturn for LGD estimation. These RTS, while not addressing directly the issue of how to compute a downturn LGD, could nonetheless provide a more harmonised framework on this specific topic, leading to more comparable RWA.

Priority and additional tools

Based on those investigations, additional work seems necessary for downturn LGD computation with regard to (i) methodology/ies of calibration, (ii) data to be used to calibrate the models to downturn conditions, and (iii) the level of conservatism to be included in the downturn LGD. This work should refine the diagnosis on the materiality of the drivers. These guidelines may complement the EBA mandates on draft RTS under Article 181(3)(a) of the CRR.

7. Credit conversion factor calibration

This part of the report is dedicated to rules concerning CCF calibration. The EBA analysed supervisory rules in relation to the following drivers:

▪ Choice of estimation approach

- Explanatory variables

- Available data

- Treatment of negative CCF

- Margin of conservatism

- Downturn CCF.

Supervisory rules for each individual driver are described in Annex 1.

Summary

The issue analysed here is the uniformity of national rules concerning the validation of CCF estimations as implemented by institutions with IRB systems.

There is, in general a low variance of rules across the CAs. One reason is that only a few CAs have defined rules in this regard. The main point of variation seems to be the treatment of negative CCF observations, where some CAs require a floor on each observation while some require a floor on the estimated parameter. The other aspect where divergences can be observed is the quantification of downturn CCF. On this point, the assessment of supervisory rules overlaps with the issue of downturn LGD calculation, with most of the remarks already made about LGD applying equally to CCF case (even if on a smaller scale in terms of materiality).

Mitigants

Under Article 144(2) of the CRR, the EBA shall develop draft RTS to specify the assessment methodology CAs shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach. This regulation could improve on the application of guidelines already available in CEBS GL10, which could produce a marginal effect in the direction of improving RWA comparability.

The EBA shall develop a draft RTS under Article 182(4)(b) of the CRR on the possibility of a data waiver for CCF estimation. These RTS will work towards a restricted and more uniform use of data waivers, increasing comparability on this specific aspect of CCF calibration.

The EBA shall also develop a draft RTS under Article 182(4)(a) in order to specify the nature, severity and duration of an economic downturn for CCF estimation. These RTS, while not addressing directly the issue of how to compute a downturn CCF, could nonetheless provide a more harmonised framework on this specific topic, leading to more comparable RWAs.

Priority and additional tools

None identified.

8. Maturity calibration

This part of the report is dedicated to rules concerning the calibration of the risk parameter M - Maturity. The EBA analysed supervisory rules in relation to the following drivers:

- Expiry versus repayment approach

- Explicit versus implicit maturity

- Exemptions from the 1 year floor

- Cash flow formula

- Extend or prepay facilities.

Supervisory rules for each individual driver are described in Annex 1.

Summary

The vast majority of CAs have no specific rules concerning M parameter calculation. Given the lack of reported rules, there is an observed low variance of rules across CAs.

Mitigants

Under Article 144(2) of the CRR, the EBA shall develop draft RTS to specify the assessment methodology CAs shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach. These regulations could improve on the application of guidelines already available in CEBS GL10, clarifying and partly mitigating some potential drivers of RWA differences. However, a direct effect of such provisions on RWA comparability would be difficult to quantify.

Priority and additional tools

None identified.

9. Roll-out plan

This part of the report is dedicated to rules concerning the authorisation for permanent partial use of the Standardised Approach (SA). The EBA analysed supervisory rules in relation to the following drivers:

- Initial coverage: Quantitative rules

- Initial coverage: Qualitative rules

- Final coverage

- Sequence of coverage

- Time horizon

- Binding milestones

- Point of non-compliance with the roll-out plan.

Supervisory rules for each individual driver are described in Annex 1.

Summary

The majority of CAs, state that they have rules concerning the roll-out plan. Fourteen of the national roll-out rules are public and binding and six are non-public. Two respondents state that they have public and binding as well as non-public rules. Another two CAs state that their rules are based on a direct transposition of Article 85(1) of the CRD (thus were qualified as public and binding). However, each CA has defined rules on different drivers. Therefore and for the roll-out section as a whole, there is a high variance of practices between CAs.

Roll-out plans were the first priority in the additional regulatory efforts of the supervisors. When public rules are applied by the banking supervisor on such issues, they focus on setting quantitative requirements relating to the initial coverage of the models and the time horizon of the roll-out. On both issues, public requirements diverge: the minimum initial coverage is required to exceed a value ranging from 30% to 85% of exposures, depending on the country; the maximum time horizon of the roll-out ranges from 3 to 7 years.

Mitigants

Article 148(6) of the CRR determines that the EBA shall develop draft regulatory technical standards to specify the conditions according to which CAs shall determine the appropriate nature and timing of the sequential roll-out of the IRB Approach (set out in Article 148(3) of the CRR). Therefore, most of the drivers analysed in the present section will be addressed by RTS that are expected to harmonise the conditions on the authorisation of roll-out plans.

Priority and additional tools

The total length of the roll-out most probably will not be addressed in the RTS on roll-out in Article 148(6) of the CRR. Given the possibility of a capital underestimation when the SA and the IRB Approach are combined, the need for more harmonisation regarding the drivers that supervisors should take into account when setting the length of roll-out plans should be considered.

Non-compliance with the roll-out plan can be addressed using Article 146 of the CRR. However, some harmonisation in this regard could be necessary. Additional work seems necessary to refine the diagnosis on the materiality of the drivers.

10. Permanent partial use

This part of the report is dedicated to rules concerning the authorisation for permanent partial use (PPU) of the SA. The EBA analysed supervisory rules in relation to the following drivers:

- Specifications for conditions in Article 150(1)(a) and (b) of the CRR

- Specifications for conditions in Article 150(1)(c) of the CRR.

Supervisory rules for each individual driver are described in Annex 1.

Summary

For the PPU section as a whole, there is a high variance of practices between CAs.

A majority of CAs have no explicit qualitative or quantitative definition of 'material' counterparty. The situations where the unduly burdensome condition is considered fulfilled diverge among CAs.

Half of the CAs apply a quantitative definition of 'non-significant business unit'. Most of them refer to the definition of a global limit of the total RWA for credit risk. Very few CAs apply a qualitative definition, and one-third of the CAs have no explicit quantitative or qualitative definition.

Half of the CAs apply a quantitative definition of 'immaterial exposures in terms of size'. Most of them refer to the definition of a global limit of the total RWA for credit risk.

Mitigants

Article 150(3) of the CRR determines that the EBA shall develop draft RTS to determine the conditions of application of points (a), (b) and (c) of Article 150(1) of the CRR. Therefore, the drivers analysed in the present section will be addressed by RTS that are expected to harmonise the conditions on the authorisation for PPU of the SA.

Priority and additional tools

None identified.

11. Floors

This part of the report is dedicated to rules concerning the application of floors. The EBA analysed supervisory rules in relation to the following drivers:

- Pillar I Floors

- Pillar II add-ons.

Supervisory rules for each individual driver are described in Annex 1.

Summary

Half of the CAs have rules concerning the application of floors, which are equally split between public and binding rules and non-public rules.

A high variance of rules has been observed across the CAs. Some respondents have floors related to a minimum PD for sovereign exposures and minimum LGD and/or CCF for some exposures; a higher number have them concerning LGD for retail mortgage exposures. Moreover, several CAs apply additional conservatism in Pillar II, if Pillar II or Pillar I quantitative or qualitative concerns are identified. Uniform implementation of add-ons could further contribute to comparability of Pillar I capital requirements.

Mitigants

According to Article 164(6) of the CRR, the EBA has to draft RTS to specify the conditions that CAs shall take into account when determining higher minimum LGD values for retail exposures secured by residential property and commercial immovable property.

Priority and additional tools

The need for further recommendations with regard to the floors (minimum level) for the parameters used in the calculation of RWA and the add-ons in Pillar II should be assessed based on the assessment of institution practices and quantitative review of the consistency of RWA.

12. IRB shortfall/excess

This part of the report is dedicated to rules concerning IRB shortfall/excess. The EBA analysed supervisory rules in relation to the following drivers:

- Expected Loss Best Estimate (ELBE) versus Provisions (level of computation) – defaulted assets

- ELBE versus Provisions (compensation) – defaulted assets

- Defaulted and non-defaulted exposures (compensation) – overall IRB Shortfall.

Supervisory rules for each individual driver are described in Annex 1.

Summary

One-third of the CAs have rules concerning the IRB shortfall. Two are public and binding and three are non-public.

A medium variance of practices could be observed across the CAs. The rules diverge with regard to level of calculation (exposure class, type of exposures (model), single exposure) of differences between the LGD for defaulted assets and ELBE.

Mitigants

Article 159 of the CRR clarifies that specific credit risk adjustments on exposures in default shall not be used to cover expected loss amounts on other exposures. Therefore, the compensation between defaulted and non-defaulted exposures is already addressed in the CRR.

Priority and additional tools

The need for further recommendations with regard to the IRB shortfall should be assessed based on institution practices.

13. Regulatory mapping

This part of the report is dedicated to rules concerning regulatory mapping. The EBA analysed supervisory rules in relation to the following drivers:

- Assigning SMEs to corporate/retail exposure classes

- Calculation of EUR 1 mln exposure amount

- Reclassification of SMEs

- Retail exposures secured by real estate collateral.

Supervisory rules for each individual driver are described in Annex 1.

Summary

More than half of the CAs have rules concerning regulatory mapping. Seven are public and binding, one is public and non-binding and two are non-public.

Apart from national regulatory mapping rules, the CRD and CEBS GL10 serve as important sources for regulatory mapping. Nevertheless, the relative share of national mapping rules regarding the investigated mapping issues vary significantly. This observation leads to the conclusion that existing regulatory frameworks (such as CRD or CEBS GL10) induce divergences and require national regulatory mapping rules.

There are a few comments on this topic describing the national approaches. Some CAs state that regulation has been aligned to CRD and guidelines (e.g. CEBS GL10) with additional national discretions. Some comments were made on the treatment of SME exposures, i. e. that rules are given or expected by institutions in order to separate retail SMEs from corporate SMEs. They are based on a large set of criteria: e.g. level of turnover, total assets, number of employees and exposure amount.

Mitigants

None identified.

Priority and additional tools

None identified.

14. Conclusions

Based on data collected, three types of situations can be distinguished schematically. On certain key aspects of the IRB Approach, most CAs have clarified the CRD with converging views: this led to a global convergence of institutions' practices. On other aspects, they tried to resolve issues with binding rules, but with diverging approaches or differing concerns: this led to either poor convergence or even frank divergences in banking industry practices. In most cases, however, the CAs did not complement the regulatory framework with national binding rules: indeed, only 25% of the listed topics are, on average, covered by public and binding rules.

Globally, the EBA noticed that supervisory normative approaches diverge, not only as regards the legal form given to the additional requirements of the CAs – with a range of national binding standards covering from 80% of the analysed drivers to less than 10% of the drivers – but also on the key aspects of the regulatory framework on which supervisors issued additional rules. Nevertheless, some trends appear: additionally to CRD minimum requirements, standards mainly touched the roll-out plans (87% of cases where public rules have been defined), the definition of default and past due (80% of public rules), regulatory mapping (58% of public rules), PD and LGD calibration (around 30% of public rules) and floors (around 25% of public rules, but 50% of both public and non-public).

The table below summarises the observed variability of supervisory rules. It should be noted that this variability is assessed to be low mainly when most of the CAs do not issue public rules or do not publish the criteria they apply when assessing internal models. Divergences in supervisory practices may exist, but they are difficult to demonstrate.

Figure 1: Observed variability of supervisory rules

High	Medium	Low
Roll-out plan	Default and past due definition	Rating philosophy and general approach
Permanent partial use	IRB shortfall/excess	CCF calibration
PD calibration	Regulatory mapping	M calibration
LGD calibration		Rating philosophy and general approach
Floors		

Source: EBA analysis

Below can be found a summary on the drivers where high and medium variance of supervisory rules is observed among the CAs.

Roll-out plans were the first priority in the additional regulatory efforts of the supervisors. They have an impact on the mix between assets being weighted in the SA and those in the IRB Approach within each institution. Differences in the rhythm or priorities of the sequential implementation of the IRB Approach have been listed by the EBA in the top-down report among the key drivers explaining capital requirement differences. When public rules are applied by the banking supervisor on such issues, they focus mainly on setting quantitative requirements relating to the initial coverage of the models and on the time horizon of the roll-out plan. On both issues, public requirements diverge, which may entail to high divergence of institution practices. Those discrepancies are expected to be significantly reduced by the RTS which will be issued by the EBA according to Article 148(6) of the CRR. However further harmonization may be necessary with regard to setting the length of roll-out plans and the treatment of the non-compliance of an institution with the roll-out plan.

Institutions may also be authorised to use the SA permanently for some portfolios under the PPU regime. Even if such use is by definition limited, the EBA identified different supervisory rules concerning the definition of a material counterparty, of non-significant business units and of immaterial exposures in terms of size. Those differences may also have an impact on RWA comparability. Those cases will be addressed by the RTS on Article 150(3) of the CRR.

Supervisory rules with regard to PD calibration are quite heterogeneous. The questionnaire on PD calibration confirms that supervisory practices are usually in line with the CEBS GL10, and that CAs added few general and binding rules to the CRD. When they did so, they often focused on different aspects of the process. The main drivers which may result in high variance of practices are linked with the set of data to be used to calibrate the models, with the margin of conservatism to be applied to compensate for data or model weaknesses and with the methodology for calibrating of the master scale/rating scale. Certain variability will be mitigated to some extent via by the RTS on Article 144(2) and 180(3)(b) of the CRR, which will specify the assessment methodology competent authorities shall follow in assessing the compliance of an institution with the requirements to use the IRB Approach and PD parameter. Nevertheless, the scope of the EBA mandates may not sufficiently harmonize PD calibration with respect to the calculation of long-run average from default rates, margin of conservatism and calibration of the master scale/rating scale. If the materiality of those drivers was to be confirmed by the additional EBA work on comparability, additional specifications could be given in dedicated guidelines.

The LGD calibration process also certainly introduces RWA variability through time and across institutions. Calibration of the LGD parameter is specifically affected by divergences on the choice of data sources, by questions raised by the downturn LGD calibration and by the absence of best practices for modeling, given the variety of calibration methods which can be used by institutions. Indeed, international assessments concluded that the different levels of LGD parameter as calibrated by institutions' models explained a large part of RWA differences. With regard to the specific issue of downturn LGD, the EBA is drafting a RTS to specify the nature, duration and severity of the economic downturn for LGD calibration under Article 181(3)(a) of the CRR. Additional specifications could be delivered in dedicated guidelines on the appropriate length of data series and on the level of conservatism to be included in the downturn LGD estimation.

Definition of default and past due is an area where regulators further specified certain aspects of the CRD, with a possible material impact on the final level of RWA, especially for SMEs and residential mortgages. This impact is nevertheless difficult to assess, since a more sensitive process of default identification may impact on both default rates and observed loss rates in case of a default, with the total impact being ambiguous. The regulatory efforts to clarify the existing legal framework focused on the calculation of days past due, on the materiality thresholds and on the treatment of default for risk parameter quantification. On the default definition, the variance of practices is originates from CRD and the CRR, which specify that CAs may replace the 90 days with 180 days for exposures secured by residential or SME commercial real estate in the retail exposure class, as well as exposures to public sector entities. On the past due definition, practices vary considerably. For instance, some countries have defined hard limits, either in absolute or in relative terms, whereas others have not at all. On the treatment of default for quantifying risk parameters, a high variance of practices is also observed, with supervisors' efforts to harmonise practices being focused on two aspects: the treatment of technical and multiple defaults, and the treatment of curing exposures. Implementation of the CRR will help reduce the variability of supervisory rules when necessary: Article 4(78) of the CRR provides the definition of one year default rate; the RTS referred to in article 178(6) of the CRR will promote convergence as regards materiality thresholds. Guidelines also have to be drafted by the EBA according to Article 178(7)

of the CRR and will have a positive impact in setting a uniform implementation of the definition of default.

As regards regulatory mapping, namely the process of assigning exposures to the different asset classes (e.g. retail versus non-retail, treatment of retail exposures secured by real estate collateral), the CRD and CEBS GL10 served as the main tools used by national regulators to assess institutions' practices. Nevertheless, additional rules were adopted on those issues in a significant number of cases across the EU. Those rules may diverge significantly from one country to another, especially as regards the list of criteria used to distinguish corporate from retail exposures. The set of criteria used is very large: for instance level of turnover, total amount of exposures, number of employees. Consequently, additional harmonisation may be considered on regulatory mapping, for example in the form of guidelines, to cover cases where divergences are not justified by the local context. Nevertheless, the impact of this driver is assessed as being less material; therefore, the issuance of such a text cannot be considered a priority.

The EBA noticed that half of the CAs have adopted rules concerning the application of floors, characterised by a high variance in the interpretation and implementation. Sometimes floors apply to a minimum PD for sovereigns and minimum LGD and/or CCF for some portfolios, with a focus on LGD for retail mortgage portfolios. It should be stressed that specifically for retail mortgage portfolios, setting the minimum regulatory value of the LGD parameter is very important and is part of the EBA mandates under Article 164(6) of the CRR.

One-third of the CAs have rules concerning the IRB shortfall. The rules diverge with regard to level of calculation (exposure class, type of exposures (model), single exposure) of differences between the LGD for defaulted assets and ELBE. The remaining rule with regard to the compensation between defaulted and non-defaulted exposures is addressed in the CRR.

The EBA also investigated the diversity of supervisory practices as regards the rating philosophy and general approach for risk parameter estimation, CCF calibration and M calibration. However very few CAs have complemented the existing framework with additional regulations. Divergences may, in certain cases, have an impact on comparability and pro-cyclicality of capital requirements; however, this impact is difficult to quantify.

Based on those investigations, additional work seems necessary on a limited list of drivers where tighter harmonization of supervisory practices would be necessary. This work should refine the diagnosis on the materiality of the drivers, help prioritize regulatory efforts and may lead to additional rules, possibly in the form of guidelines. This list is the following:

- the total length of the roll-out plan and supervisory practices regarding non-compliance of an institution with the roll-out plan.

- PD computation with regard to (i) data to be used to calibrate the models (calculation of long-run average of default rate) and (ii) the margin of conservatism.

- downturn LGD computation with regard to (i) methodology/ies of calibration, (ii) data to be used to calibrate the models to downturn conditions, and (iii) the level of conservatism to be included in the downturn LGD.

Annex 1: Supervisory rules for each individual driver

Driver	Supervisory rules	Variance of rules
Definition of default and past due		
Past due definition This driver investigates choices made about CRD definition of default.	One-fifth of the CAs do not apply the CRD definition of default as 90 days past due uniformly across all portfolios/facility types, irrespective of factors such as exposure type and sector of the counterparty. Indeed, the CRD and the CRR specify that CAs may replace the 90 days with 180 days for exposures secured by residential or SME commercial real estate in the retail exposure class, as well as exposures to public sector entities.	Medium
Materiality threshold This driver investigates if the CAs have rules concerning the materiality of past due exposures.	Nearly 80% of the CAs adopted rules concerning the materiality threshold and those national rule(s) are usually public and binding. These rules are in the form of hard limits, either in relative terms, or in absolute terms, or a combination of the two. A few CAs do not set explicit limits but make case-by-case evaluations. Some CAs set different rules for retail and non-retail portfolios.	High
Offsetting criteria This driver investigates if the CAs have a rule to compute the amount past due in case the past due amount on some credit lines can be offset with the available margin on other credit lines.	Only some CAs adopted rules concerning offsetting, among which very few explicitly allow offsetting.	Medium
Calculation of days past due This driver investigates if the CAs have a rule to compute the days past due.	The CAs with national specific rules are in the minority. However, negative implications associated with this variance are limited, considering only slight variations are possible when defining the date to start computation of days past due, even in the absence of national rules. Among the CAs, the most common rule is 'when non-payment materiality threshold is reached'.	Medium

Driver	Supervisory rules	Variance of rules
Forbearance This driver investigates if the CAs have a rule to determine the default status of exposures in forbearance.	Nearly 40% of the CAs have rules concerning exposures in forbearance, mainly public and binding. The principle according to which a default is triggered in case of incurred losses or write-offs differs not in substance but only in actual specification.	Low
Unlikeliness to pay This driver investigates if the CAs have a rule to determine unlikeliness to pay that triggers the default status.	One-third of the CAs have rules concerning unlikeliness to pay, which are all public and binding. A principle-based approach to 'unlikeliness to pay' is favoured, with differing levels of detail. In various cases, the authorities follow guiding principles that leave open the possibility of case-by-case evaluations.	Medium
Treatment of default for risk parameter quantification This driver investigates if the CAs have set specific rules concerning the treatment of defaults for risk parameter quantification.	More than half of the CAs have rules on the treatment of default for risk parameter quantification. The rules are in most cases not public. Efforts to standardise supervisory practices are focused on two aspects: (i) technical defaults and (ii) multiple defaults. Different rules apply to registering default for a given debtor only once in a given period of time and to treating multiple defaults as new defaults.	High
Default rate computation This driver investigates if the CAs have a rule to compute the default rate.	Around 40% of the CAs have rules concerning unlikeliness to pay but they are not public. The CAs with national rules are almost completely aligned for computing the default rate. The overwhelming majority of replies indicate 'only new defaults observed during the next 12 months among the obligors that were non-defaulted at the reference date' or similar for the numerator, 'only non-defaulted obligors at the reference date' or similar for the denominator and 'unweighted number' for computation.	Low

Rating philosophy and general approach for risk parameter estimations

Rating system philosophy (rating assignment part) This driver investigates if the CAs have	Only three CAs reported rules on this topic, of which two are non-public. Only one respondent publicly requires ratings to be TTC. Of the two members that specified rules but did not publish their requirements, one assesses the stability of the ratings and allows for hybrid systems,	Low

Driver	Supervisory rules	Variance of rules
rules concerning the rating system philosophy of the rating assignment, that is if there are rules specifying how stable rating assignments should be during the economic cycle or how much they should change with the economic context (Point-In-Time (PIT), Through-The-Cycle (TTC) or hybrid philosophies).	whereas the other specifically allows hybrid systems. However, since both focus on the PD estimation whereas the questionnaire focused on the rating assignment, it seems that the supervisors are more concerned by the dynamics of the capital requirement (final output) than by the dynamics of the ratings. This seems to apply consistently to all asset classes. Some of the other CAs note that they implicitly allow for all rating philosophies, leaving the choice to institutions. The CAs seem to focus on the inclusion of all relevant and recent information regarding the credit quality of obligors.	
PD parameter – risk quantification (the length and the period for calibration imply the stability or the change with cycle of the parameter) This driver investigates if the CAs have rules concerning the inclusion of at least one 'downturn' period/business cycle in the historical data for long-run PD quantification.	The majority of CAs reported rules on the topic. However, those take a public and binding form in only two cases. The majority of the CAs that define rules keep them generally 'principle based' and vague. Institutions should generally include either good and bad economic periods, or periods when higher credit losses are experienced. However, those requirements are heterogeneously specified. For example, there is a wide variety of requirements regarding the definition of cycle/downturn data to be included for PD calibration. Several respondents emphasise the importance of including at least one recession period in the dataset used for calibration. Others emphasise the need to cover a complete economic cycle (good and bad years). Few respondents specify the years of reference for a recession period or a complete cycle.	High
PD parameter – risk differentiation (migration) This driver investigates if the CAs have rules concerning the dynamics of the transitions of exposures or clients among rating classes.	Only three CAs reported rules on the topic, all non-public. Three CAs report that they monitor/challenge the migration matrices in order to assess their stability, at different stages of the economic cycle. Two CAs mention specific analyses conducted only during the approval process of the IRB Approach: either to check consistency or to set thresholds regarding the migration matrices or the population stability index	Low
Backtesting This driver investigates if the CAs have rules concerning the backtesting measures as related to the cyclicality of the rating system (PIT, TTC, hybrid).	Only six CAs reported rules on the topic, of which four are non-public. When rules are defined, they are usually principle based. For example, the backtesting should take into account the rating philosophy of the rating system, ideally validating it. One member requires publicly that institutions should specify actions to be taken when the backtesting results are not satisfactory (standards not met). One member applies the following non-public rule: the	Low

Driver	Supervisory rules	Variance of rules
	TTC system should be backtested with TTC default rates, and the PIT system should be backtested with the most recent default rates. Another one challenges the institutions whenever the default rate is higher than the PD estimation.	

PD calibration

Driver	Supervisory rules	Variance of rules
Choice of PD estimation approach This driver investigates if the CAs have rules concerning the validity of the institutions' choices of PD estimation techniques and preferences as regards the use of internal default rates, mapping with external ratings or use of PD statistical model.	One-third of the CAs have rules concerning the PD estimation approach, almost all non-public. There seems to be, however, some emerging consensus that, as long as data are relevant and representative, the use of internal default rates or statistical approaches is promoted or requested. For LDP, the use of external data, mapping with external rating or expert models is tolerated, but with the use of an additional level of conservatism; two CAs mentioned explicitly that data should be collected in order to develop statistical models in due time. One CA mentioned that benchmarking with other approaches should be performed for LDP. Some CAs allow for all approaches without restriction.	Medium
Choice of PD estimation approach – benchmarking This driver investigates if CAs have rules concerning the use of different techniques for benchmarking.	Five CAs have rules on the topic, four of which are non-public. The requirements are not public and very few require benchmarking, or require it only for LDP. One CA mentions that benchmarking with relevant sources is always requested. The others usually request benchmarking for LDP where internal data are missing and backtesting is not meaningful. One CA publicly requests comparisons with external credit assessment institution ratings for LDP; another requests benchmarking with other techniques than the use of internal default rates.	Low
Risk transfer/guarantee This driver investigates if CAs have rules concerning the application of different ratings to the same counterparty that either diverge from or provide more detailed specification than the CRDIII on the issue of risk transfer and guarantees.	Only one CA reported having rules on the topic. Only one CA mentions that the state guarantee for too-big-to-fail cannot be taken into account. One respondent mentions that the analysis is done on a case-by-case basis.	Low

Driver	Supervisory rules	Variance of rules
<u>Market information</u> This driver investigates if CAs have rules concerning the use of market information on more PIT credit risk for PD estimation.	Only one CA reported having rules on the topic, which are non-public. One member, although not having specific rules, mentions that, if the data are relevant and available, they must be used. Another one mentions that data should be used only if the institution proves they are relevant. They could be used for overrides.	Low
<u>Explanatory variables</u> This driver investigates if CAs have rules concerning the assessment of the choice of variables that influence the PD estimation.	One-third of CAs have rules on this topic, most being non-public. The general principle regarding the choice of variables seems consistent across countries: the most relevant variables should be chosen and missing variables are challenged. On the other hand, those rules are not public. One CA mentions the minimum variables that should be included. Another one mentions specific variables that must be taken into account. The relevance of the variable is assessed slightly differently across countries: p-value of the final regression, high correlation with the explained variable, adequate discriminatory power at individual and aggregate level, statistical significance and plausibility of model assumptions, variables with intuitive interpretations, expert judgment for LDP. Some respondents add specific guidelines: one mentions that the variables should cover all relevant business aspects of the corporate client and variables should not be highly correlated.	Medium
<u>Available data</u> This driver investigates if CAs have rules concerning the data used for calibration of the PD risk parameter.	One-third of CAs have rules on this topic, some being public and binding and some non-public. The requirements for CAs with public rules usually mention the requirement of 5 years of representative data. When a shorter period is used, a margin of conservatism must usually be added to address the data issue. Given the wide range of possible issues covered by this question, the different CAs seem to have emphasised different aspects of their requirements. The answers seem, therefore, incomplete for some CAs and conclusions could be less robust. Few CAs mention the compliance of the requirements with the CEBS GL10. One country encourages the use of internal data. Another one specifies that external data should be used for LDP if they are representative. Some CAs refuse the use of data that are not representative enough of the institutions' practices and ratings or require institutions to adjust the data if the data are not representative because of	High

Driver	Supervisory rules	Variance of rules
	internal or external factors. Others mention that different weights can be applied to data (higher weights to more recent data) if adequately supported; if not, a sufficient level of conservatism should be added. Some CAs require inclusion of a bad and a good economic period or go further and specify that given periods should be included in the datasets (e.g. 1991–2008).	
Margin of conservatism This driver investigates if CAs have rules concerning the conservatism in the PD parameter and rating systems for data or model weaknesses.	Fewer than 30% of CAs have rules on this topic, most being non-public. Although the majority of the CAs confirm the requirement of additional levels of conservatism for data and model issues (including sometimes the overrides, often based on expert adjustment), the requirements are rarely public and no supervisor provides guidelines on the level of conservatism that is expected. Consequently, the adequacy of the level of conservatism is mainly assessed on a case-by-case basis. Only two CAs publish their requirements: one CA requires a margin of conservatism for LDP or judgemental models, and another requires an explicit statistical approach to assess the margin of conservatism combined with a qualitative adjustment when the defaults are fewer than 20. One CA adds that conservatism should be included in order to address the 'seasonal peak' for mortgages; another one mentions that a non-compliant definition of default should be addressed by a margin of conservatism; a third mentions that institutions should have a methodology to assess the margin taking into account the results of the validation and the results of self-assessment; and a fourth mentions that a supervisory add-on will compensate for institutions' lack of conservatism. On the other hand, several members mention that the level of conservatism is assessed on a case-by-case basis, based partially on expert judgement.	Medium
Calibration – number of grades This driver investigates if CAs have rules concerning the minimum number of grades of the rating scale	More than 40% of respondents have rules concerning the number of grades. Of these, two-thirds are public and binding. The requirements are very soft when they are public and possible implementation of additional guidelines is assessed on a case-by-case basis. Whereas the majority stick to the minimum number of grades fixed by the CRD (seven plus default), one CA increases the number to 10 for wholesale portfolios. This seems to be the only public information. One CA mentions that the number should be high enough to allow adequate quantification and validation. Another one mentions that it should be assessed by the Herfindahl–Hirschman Index.	Low

Driver	Supervisory rules	Variance of rules
	The usual exception is the LDP case, where a case-by-case approach is typically applied. One CA applies the non-public requirement that the concentration in one grade should not be greater than 30% unless the grade cover a reasonably narrow PD band. Another one applies a 25% limit for the wholesale portfolios. Regarding the use of continuous ratings, there are few requirements. Most of the CAs allow (one requests it) the use of continuous PDs for regulatory purposes. One does not accept it.	
<u>Calibration of master scale/rating scale</u> This driver investigates if CAs have rules concerning the methodology of calibration of the master scale/rating scale.	Only three respondents have rules concerning the master scale/rating scale. The rules mentioned are all non-public and very general. One CA mentions that, if the master scale is updated, the calibration of the affected models should be revised, and another one specifies that the use of a master scale must not hinder a proper calibration of the rating systems. Few CAs allow the use of different calibrations for internal and regulatory purposes.	Low
<u>Calibration – performance/ discrimination/ concentration</u> This driver investigates if CAs have rules concerning the validity of the discriminatory power or performance of the PD rating system.	Around half of the CAs have rules on the topic, mostly non-public. Wide range of statistical indicators are used by institutions and supervisors (Gini coefficient, receiver operating characteristic curve, etc.) and the expected model performance varies for different portfolios. Additionally, the performance is lower for LDP. Therefore, benchmarking across institutions (for similar portfolios and models) is used in order to challenge the LDP models, whereas backtesting is used for non-LDP models. Consequently, a wide range of thresholds seems to be accepted by the CAs (e.g. Gini from 40% or lower to 80%). The assessment of the adequate discriminatory power/performance of PD rating systems is linked to the granularity of the rating grade and is one element that could explain some variance of RWA across institutions.	Medium
<u>Central model/subsidiaries</u> This driver investigates if CAs have rules concerning the use of central models in the subsidiaries (specific recalibration based on data from subsidiary and their representativeness).	Around half of the CAs have rules on the topic, mostly non-public. Since the central models (sovereign, corporate and institution) need to be implemented in different subsidiaries, the supervisory requirements regarding how the model should be recalibrated in order to take into account local specificities could entail variations of PD calibration. It is assumed that retail portfolios do not use, by definition, central models, since they include local exposures. However, some exceptions could exist. Whereas some CAs require that the model be (re)calibrated and validated with local data and local	Medium

Driver	Supervisory rules	Variance of rules
	backtesting (six CAs), others seem to focus more generally on the representativeness of the data used for calibration for the local exposures. However, since the requirements are usually not public and the supervisory assessment is done on a case-by-case basis, this could possibly lead to some variability of PD across institutions.	

LGD calibration

Driver	Supervisory rules	Variance of rules
Choice of loss estimation approach This driver investigates if CAs have rules concerning the validity of the approach used to calculate LGD (workout LGD, market LGD, etc.).	Only four CAs have rules concerning the choice of loss estimation approach, and only one has rules which are public and binding. Among CAs, there seems to be no tendency to impose restriction on the choice of loss estimation approach, with all possibilities left open. Nevertheless, one CA has defined a binding regulation that limits the choice of approach for mortgage portfolios. Various respondents (even among those that do not have rules) point out that in practice the workout LGD approach is the most common and serves as a de facto standard.	Medium
Workout LGD This driver investigates if CAs have rules concerning the validity of the workout LGD methodology, if that is employed	Almost 40% of CAs have rules concerning the workout LGD, equally divided between public and non-public. The authorities with national rules on workout LGD are a minority and the rules can be on specific aspects (e.g. treatment of workout costs) without much uniformity among respondents. With respect to incomplete workout, most CAs do allow it for estimating LGD. Only one CA answered that incomplete workout is not allowed.	Medium
Market LGD This driver investigates if CAs have rules concerning the validity of the market LGD methodology, if that is employed.	Only two CAs have rules on this topic, one reporting public and non-binding rules and one reporting non-public rules. Almost all respondents do not have rules concerning the calibration of market LGD models.	Low
Attribution of LGD to counterparties This driver investigates if CAs have rules concerning the validity of the choice of	Only three CAs have rules on this topic, with two of them reporting non-public rules. As before, almost all respondents do not have rules concerning this aspect of LGD calibration.	Low

Driver	Supervisory rules	Variance of rules
the institution in terms of LGD attribution, choice among single/few LGD values for each portfolio, LGD from a grid of possible values based on counterparty characteristics, LGD form an analytical model, etc.		
Explanatory variables This driver investigates if CAs have rules concerning the choice of variables that influence the LGD estimation.	Almost 40% of CAs have rules on this topic, almost equally divided between public and non-public. More than one-third of respondents have national rules, but the content of the answers shows a considerable amount of differentiation in supervisory rules. Most of the reported practices do not imply a strict obligation to include certain explanatory variables, but point out variables of interest for specific portfolios. An example is loan-to-value, referenced by one CA and also cited in the comments by two other CAs	Medium
Available data This driver investigates if CAs have rules concerning the data used for calibration of the LGD risk parameter.	Almost 40% of CAs have rules on this topic, equally divided between public and non-public. Some CAs with national rules cite criteria aligned to CRD regulation (5 years of data for retail, 7 years for corporate, institutions and sovereign). Thus, there is limited evidence of differing practices. Two respondents mentioned the inclusion of a downturn period as a requisite for LGD estimates. Such requisite can be a possible source of divergence across national supervisory practices, to be better understood in the context of downturn LGD estimation.	Low
Collateral and guarantees This driver investigates if CAs have rules concerning the treatment of collateral and guarantees.	More than 40% of CAs have rules on this topic, almost equally divided between public and non-public. Among CAs with national rules, a majority reported following a principle-based approach and the focus was evenly distributed on the various suggested topics: haircut levels, valuation methods and frequency of update. Two CAs deviate from a principle-based approach, imposing hard requirements on haircuts for mortgages and foreclosed assets.	Medium
Cure rate This driver investigates if CAs have rules	Fewer than one-third of CAs have rules on this topic, equally divided between public and non-public. A minority of the CAs explicitly deal with the issues related to cure rates. Among respondents with national	Low

Driver	Supervisory rules	Variance of rules
concerning the defaulted exposures that later return to performing status (cure rate).	rules, only one mentions the possibility of adjusting the estimates of IRB parameters as the result of observed cure rates.	
Discounting factor This driver investigates if CAs have rules concerning the discounting factor used for LGD estimation.	Fewer than one-third of CAs have rules on this topic, of which three have public and binding rules and one has public and non-binding rules. A minority of the CAs explicitly deal with the estimation of discounting factor. However, among those CAs with rules, behaviour seems quite different, ranging from setting or expecting high discounting factors (two CAs) to not specifying hard constraints, in line with the majority of authorities, which did not report national rules.	Medium
Margin of conservatism This driver investigates if CAs have rules concerning the conservatism in the LGD risk parameter and rating systems for data or model weaknesses	Almost 40% of CAs have rules on this topic, almost equally divided between public and non-public. More than one-third of the CAs have rules but there is no evidence of overlapping in the criteria mentioned for applying margins of conservatism or specific add-ons, except for the general principle that a margin of conservatism is needed in case the national authority judges the model to have shortcomings.	High
Downturn LGD This driver investigates if CAs have rules concerning the methodology of downturn LGD calculation.	One-third of CAs have rules on this topic, the majority being non-public. Among the CAs which reported having rules, there is a significant diversity of approaches. Moreover, most of the rules are not binding but reflect supervisory guidelines or practices. In particular, some CAs refer to the most conservative historical value as reference or floor (two CAs), whereas others point to the possibility of a dedicated margin of conservatism (another two CAs).	High
LGD in-default This driver investigates if CAs have rules concerning the methodology of the LGD and ELBE on defaulted assets.	Only three CAs have rules on this topic, with two of them reporting non-public rules. Only a minority of CAs reported having rules for LGD in default and the mentioned approaches follow different strategies. Among the national rules reported by authorities, the two main strategies for LGD in default are both considered: using downturn LGD, or using ELBE plus an eventual add-on, with some variability in the details.	Medium

Driver	Supervisory rules	Variance of rules

CCF calibration

Driver	Supervisory rules	Variance of rules
Choice of estimation approach This driver investigates if CAs have rules concerning the validity of the CCF estimation approach, cohort approach, fixed-horizon approach, variable-horizon approach, momentum approach, etc.	Only four CAs have rules concerning the choice of estimation approach, none of which are public and binding. Among the few respondents, there are references to general guidelines or just a confirmation that all methods are allowed. One CA reports not allowing one of the options, the momentum approach. One CA suggests using more than one approach.	Low
Explanatory variables This driver investigates if CAs have rules concerning the choice of variables that influence the CCF estimation.	Only four CAs have rules concerning this topic, three of which are non-public. One CA has a hard requirement, albeit at a broad level, for segmentation by customer type and product. Other CAs mostly report employing a case-by-case approach with the possibility of a review of the choice of explanatory variable.	Low
Available data This driver investigates if CAs have rules concerning the data used for calibration of the CCF parameter.	More than 30% of CAs have rules concerning available data, equally divided between public and non-public. On the issue of the length of data series, CAs are aligned on the regulatory standards (5 years for retail, 7 years for non-retail). Some CAs report other issues on a broad range of topics, including requirement to take into account a downturn period, use of different weights and exclusion of data, and not allowing negative CCFs.	Low
Treatment of negative CCF This driver investigates if CAs have rules concerning the methodology to treat negative realised CCF.	More than half of CAs have rules concerning negative CCF, but almost all of the rules are non-public. There is evidence of two diverging practices among CAs. On one side, some CAs put a zero floor on the single realised CCF, whereas other CAs put a zero floor only on the final CCF estimate for a bucket, allowing individual CCFs to be negative.	High
Margin of conservatism This driver investigates if CAs have rules	Only four CAs have rules concerning this topic, two of which are non-public and two are public. Of the few CAs with rules, the content of the rule is expressed in terms of general principles, stating that	Low

Driver	Supervisory rules	Variance of rules
concerning the conservatism in the CCF risk parameter and rating systems for data or model weaknesses.	lack of adequate data requires a margin of conservatism. Only one CA is moving in the direction of quantitative thresholds to identify insufficient internal data.	
Downturn CCF

This driver investigates if CAs have rules concerning the methodology of downturn CCF calculation. | More than 30% of CAs have rules concerning downturn CCF, mostly non-public.

Various rules are reported in the answers with respect to the assessment of the downturn LGD methodology, with some CAs mentioning historical scenarios, one CA addressing the issue of insufficient data with a margin of conservatism and one CA reporting that there is no obligation to include downturn adjustments to CCF estimates. | Medium |

M calibration

Driver	Supervisory rules	Variance of rules
Expiry versus repayment approach

This driver investigates if the CAs have defined rules concerning the use of the expiry versus repayment approach for M parameter calculation. | The vast majority of the CAs have no specific rules concerning this driver. | Low |
| Explicit versus implicit maturity

This driver investigates if the CAs have defined rules concerning the use of the explicit versus implicit maturity approach for M parameter calculation. | The vast majority of national authorities have no specific rules concerning this driver.

Two CAs require the use of the explicit approach (one of them only for central governments and central banks, institutions and corporate exposure classes). | Low |
| Exemptions from the 1-year floor

This driver investigates if the CAs have defined rules concerning exemptions from the 1-year floor. | The vast majority of the CAs have no specific rules concerning this driver. | Low |
| Cash flow formula | The vast majority of the CAs have no specific rules concerning this driver. | Low |

Driver	Supervisory rules	Variance of rules
This driver investigates if the CAs have defined rules concerning the use of the cash flow formula for calculating maturity more accurately.		
Extend or prepay facilities This driver investigates if the CAs have defined rules concerning the use options to extend or prepay facilities	The vast majority of the CAs have no specific rules concerning this driver.	Low

Roll-out plan

Driver	Supervisory rules	Variance of rules
Initial coverage: quantitative rules This driver investigates if the CAs have defined quantitative rules concerning the initial coverage of the IRB Approach.	The vast majority of CAs have defined quantitative rules regarding the initial coverage. Nine are public and binding, one is public and non-binding and six are non-public. Although with a different definition, several CAs are aligned on an initial coverage ratio of at least 50%. However, many CAs have different minimum requirements, ranging from 30% to 85% of exposures.	Medium
Initial coverage: qualitative rules This driver investigates if the CAs have defined qualitative rules concerning the initial coverage of the IRB Approach.	Only a third of CAs have defined qualitative rules regarding the initial coverage. Five are public and binding and two are non-public. There is a similarity among the rules, namely in terms of covering the most relevant portfolios first and not using roll-out to arbitrage capital requirements.	Medium
Final coverage This driver investigates whether the CAs have defined rules concerning the final coverage of IRB.	Around half of CAs have defined rules regarding the final coverage. Eight are public and binding and four are non-public. The rules determine the coverage by IRB of all exposures that were not exempted by PPU. Some CAs defined a length of time for the roll-out period.	Medium
Sequence of coverage This driver investigates whether the CAs have defined rules concerning the	Only a third of CAs have defined rules regarding the sequence of the roll-out. Three are public and binding and four are non-public. The answers to this driver are closely linked with the ones on the qualitative rules for initial coverage.	Medium

Driver	Supervisory rules	Variance of rules
sequence of coverage of the roll-out.	Three respondents use the wording given in the questionnaire, i.e. that the roll-out must cover 'the most important portfolios' in the beginning. One respondent uses the term 'more relevant exposures classes', another 'from high-risk to low-risk portfolios' and a third uses the term 'material portfolios'. One states that 'core business/main business units' shall be covered from the very beginning. One respondent even states that 100% (without PPU) shall be covered first	
Time horizon This driver investigates whether the CAs have defined rules concerning the time horizon for the roll-out.	The majority of CAs have defined quantitative rules regarding the initial coverage. Almost all are public and binding. The timing of the roll-out plan ranges from 3 to 7 years, with most respondents stating 3 or 5 years: six state 3 years, one states 4 years, five state 5 years and one states 7 years. Two respondents explicitly state that they do not accept any exemptions to this rule. The following reasons for a deviation from the timing rule were given: significant changes in business environment or ownership structure, (significant) mergers and acquisitions, structural changes, complex structures and exceptional corporate events. One respondent stated that quite long (10-year) roll-out plans were accepted to ensure full roll-out and robust IRB models.	High
Timing of the sequence This driver investigates whether the CAs have defined rules concerning the timing of the sequence of the roll-out.	Only one-fifth of CAs have defined rules regarding the timing of the sequence of the roll-out. Three are public and binding and one is non-public. The rules are quite similar: 67%, 75% or 80% of RWA/exposure value in IRB within 2 or 2.5 years after approval. Two respondents accept deviations from the interim milestones rule in cases of significant changes in the business environment or the ownership structure, (significant) mergers and acquisitions and exceptional corporate events.	Low
Non-compliance with the roll-out plan This driver investigates whether the CAs have defined rules concerning the non-compliance with the roll-out plan.	Only one-fifth of CAs have defined rules regarding the timing of the sequence of the roll-out. Three are public and binding and two are non-public. In most cases, the situation is dealt with individually, depending on the reason for non-compliance and the severity of deviation. Reactions range from new milestones, extension of timeline or withdrawal of permission to a possible capital add-on. One CA stated that only significant changes in the business environment or ownership structure are accepted for amending the roll-out plan. A few CAs state that a new plan has to be prepared and agreed with the CA, outlining how the institution will restore compliance in the short term.	Medium

Driver	Supervisory rules	Variance of rules
	Only one CA stated that breaches to the implementation requirements are tolerated only if they are immaterial. Three respondents stated that the acceptance of the revised roll-out plan is sometimes granted only with certain conditions, such as floors.	
	The maximum roll-out period (covering initial and extended periods) was given by seven respondents and ranges from 1 to 7 years (the answers were 1, 3, 5, 6 and 7 years).	

Permanent partial use

Specifications for conditions in Article 150(1)(a) and (b) of the CRR This driver investigates if the CAs defined rules concerning the definition of the number of material counterparties and the 'unduly burdensome' condition for avoiding the development of IRB models.	A majority of CAs have no explicit qualitative or quantitative definition of 'material' counterparty. Some members stated that the assessment of materiality is done on a case-by-case basis and according to expert judgement. If members use a quantitative rule, it refers to the exposure amount or the number of the exempted positions, which is compared with an overall limit.	High
	No member has applied a fixed number to limit the number of material counterparties being exempted. One member provides a limit of 40 as sufficient to meet the condition in the regulations. In addition, almost all of the CAs have not applied a relative number of how many material counterparties are accepted. Only one member has applied a relative number, which then refers to the total RWA related to credit risk.	
	The situations where the unduly burdensome condition is considered as fulfilled diverge among CAs. Half of the respondents accept a low number of clients and exposures or an insignificant portfolio as justifications. Some CAs consider the lack of default data, whereas others accept as justification if a portfolio is decreasing because of business strategy. Some CAs stated that another circumstance meeting the condition is that costs to develop a rating system are very high compared with the size of the portfolio and there is no possibility of using an alternative existing system. A few CAs accept a portfolio with a low concentration level or low risk profile to meet the unduly burdensome condition. One CA does not use this criterion and one does not allow exemptions at all if the institution has a trading book. One member states that it deliberately does not specify this condition, as it is seen as an individual circumstance which has to be proved by the institution.	
	Most of the respondents shared the view that portfolios in which the implementation of a rating system is accepted to be unduly burdensome are generally LDP. This corresponds mainly to exposures to governments, central banks and institutions. Four CAs clarified that being an LDP is not a sufficient	

Driver	Supervisory rules	Variance of rules
	condition for a PPU, but might be a factor.	
<u>Specifications for conditions in Article 150(1)(c) of the CRR</u> This driver investigates if the CAs defined rules concerning the definition of non-significant business units and immaterial exposures classes or types of exposures.	Half of the CAs apply a quantitative definition of 'non-significant business unit' which mostly refers to the definition of a global limit of the total RWA for credit risk. Very few of the CAs apply a qualitative definition, whereas one-third of the CAs have no explicit quantitative or qualitative definition. Regarding the definition of 'immaterial exposures in terms of size', half of the CAs apply a quantitative definition which mostly refers to the definition of a global limit of the total RWA for credit risk. Furthermore, about half of the CAs reported not using any other quantitative restriction. Some of the members that apply an alternative restriction refer to a restriction with respect to a fraction of the total RWA. A lot of respondents mentioned that they assess a 'perceived risk profile' by analysing the RWA or exposures. Some additional information such as default rates or external ratings has been stated. The manner of this assessment seems to be quite heterogeneous. All members shared the view that all exposure classes are qualified for exemption. However, two CAs referred that this exemption does not apply to equity exposures (covered under another rule) or other non-credit risk exposures.	Medium

Floors

<u>Pillar I floors</u>	One-third of the CAs have rules concerning the floor (minimum level) for the parameters used in the calculation of RWA. Four of the national rules are public and binding, one is public and non-binding and three are non-public. The majority of respondents do not have any rules concerning the floor for the parameters used in the calculation of RWA. Some respondents have floors related to a minimum PD for sovereign and minimum LGD and/or CCF; some have them related to exposure at default for some portfolios; a higher number of respondents have them concerning LGD for retail mortgage portfolios. Conservatism is the main reason for having the floor (minimum level) for the parameters used in the calculation of RWA, as has been mentioned by respondents. It should be stressed that, specifically for the retail mortgage portfolio, setting the minimum regulatory	High

Driver	Supervisory rules	Variance of rules
	value of the LGD parameter could be very important	
Pillar II add-ons	One-third of the CAs have rules concerning the application of Pillar II add-ons.	Medium
	Seven CAs have some rules concerning the add-ons applied in Pillar II. Some CAs have application levels for the add-ons in Pillar II not related to a specific parameter. Considering answers on the rationale for having the add-on in Pillar II, it could be stressed that the main reason is conservatism.	
	The CAs expect to have an opportunity to apply some additional tools to be conservative enough in Pillar II, if Pillar II or Pillar I quantitative or qualitative concerns have been identified by them.	

IRB shortfall/excess

Driver	Supervisory rules	Variance of rules
Best-estimate expected losses versus provisions (level of computation) – defaulted assets This driver investigates if the CAs have rules concerning the calculation of differences between the LGD for defaulted assets and the ELBE, on exposure class, type of exposures (model) or single exposure level	One-fourth of the CAs have rules concerning the level of computation of the IRB shortfall for defaulted assets. The majority of the rules are non-public. Two of the CAs require calculation at exposure class level, one at single exposure level, the other one at type of exposure (model) level. One CA requires calculation at single defaulted exposure level. However, for the retail portfolio, the calculation may be based on the average values for pools of defaulted assets. Two CAs clarified that the IRB shortfall is computed gross of tax effect.	High
Best-estimate expected losses versus provisions (compensation) – defaulted assets This driver investigates if the CAs have rules concerning the compensation of any differences between the best estimate of expected losses and provisions for different exposures in	The vast majority of the CAs have no specific rules concerning this driver. The national rules have the non-public form.	Low

Driver	Supervisory rules	Variance of rules
defaults status/category.		
Defaulted and non-defaulted exposures (compensation) – overall IRB shortfall This driver investigates if the CAs have rules concerning the IRB shortfall compensation for any differences between defaulted and non-defaulted exposures.	The vast majority of the CAs have no specific rules concerning this driver. The national rules have the non-public form.	Low
Regulatory mapping		
Assigning SME to corporate/retail exposure classes	Half of the CAs have rules concerning the validity of assigning the SME exposures (based on turnover/total assets) to corporate or retail classes. Nine are public and binding, two are non-public. The reported factors include combination of certain levels of turnover, total assets, number of employees, exposure amount and also some qualitative criteria. Exceptions for single exposures in case of a binding and public rule are accepted by only two CAs on a temporary basis. One CA does not allow exceptions.	High
Calculation of EUR 1 mln exposure amount	One-fourth of the CAs have a rule concerning the calculation of EUR 1 mln exposure amount for connected clients. The national rules are all public and binding. National regulations differ from other each when exposures are consolidated. Two CAs use different thresholds (EUR 600 000 or EUR 300 000).	Medium
Reclassification of SMEs	One-third of the CAs have formal rules concerning the validity of reclassification of SME retail exposures to SME corporate and vice versa. Three are public and binding, one is public and non-binding and two are non-public. Most CAs refer to rules and procedures laid down in CEBS GL10 and CRD. Only if the EUR 1 mln threshold is exceeded on a permanent basis shall a reclassification be considered. One CA defines a limit for	Low

Driver	Supervisory rules	Variance of rules
	exemptions in terms of RWA.	
<u>Retail exposures secured by real estate collateral</u>	One-fourth of the CAs have formal rules concerning the validity of assigning exposure to the class 'retail exposures secured by real estate collateral'. Three are public and binding, one is public and non-binding and one is non-public. Most CAs refer to CRD or CEBS GL10. One CA allows classifying the real estate exposures in the 'other retail' sub-exposure class. This is allowed only if these loans meet the requirements of 'other retail' exposure class.	Low